



NINGBO EAST ELECTRONICS LIMITED

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NINGBO EAST ELECTRONICS LIMITED

Our Mission

For an enterprise, its core competence comes from the resolute innovation, from the cohesive enterprise culture, from the systematical management execution, and from the perseverant pursuit of its profession!

Brief Introduction

Ningbo East Electronics Ltd. was established as one of the earliest sino-foreign joint venture enterprises in China in 1980, and has begun to produce piezo buzzers and transducers since 1987. With 24 years development, manufacturing and service experience, we are the largest professional manufacturer of piezo buzzer and siren in China. Ningbo East's plant occupies an area of 14,000 square meters (starting from 2012, the new plant will occupy an area of 36,000 square meters) and the annual sales approach 60~90 million sets. High quality and reliability are guaranteed under the strict execution of our certificated quality management systems through our continuous improvement. The spot failure of majority products is below 50 PPM.

Over 90% of the East's products are exported to the worldwide market and we have built up long-term relations with more than 280 clients, including many famous enterprises such as SIEMENS, GE, UTC, DELPHI, BOSCH, PANASO NIC, SHARP, MITSUBISHI, BAYER, APPLE, HONEYWELL, GENTEX, and COOPER etc. We also have OEM production experience for more than 10 years and are equipped with advanced SMT equipments and assembly lines.





Research & Development



Ningbo East engineering team has worked on product research and development, including applications of new material and technology. We develop new models based on customer requests as well as the market trend. It usually takes 40-60 days to develop a new design and we release 15-25 new models every year.

Quality Control



TS16949/ISO9001 process control and employee training system enable us to provide reliable and consistent quality. We regularly schedule training programs for key process workers and Q.C. / R&D staff to further enhance employee qualification.



We are fully equipped with specialized production and testing equipments required by quality control of buzzers and transducers, and have strictly implemented TS16949/ISO9001 quality management systems. There are over 20 Q.C.s and inspection staff conducting thorough process control programs, starting from incoming materials, production till finished products to ensure solid quality.

Production Line



4 assembly lines come with monthly capacity of 5 million units. We have developed our own semi-automatic equipments which further advance our production capability and quality control.



Promotion Products

Car alarm, backup alarm, & vehicle internal transducer



1. Meet TS16949 standard for R & D and production.
2. Sound pressure level (SPL) meets world automotive industry standard.
3. With excellent stability, resistance to harsh environments such as high and low temperature.
4. Light weight, small size.
5. Very low power consumption.
6. Excellent quality and delivery service (0 PPM in 2009)

Part Number	Sound Pressure Level	Frequency
W-61	Min.105dB @ 50V _{r,p} /200cm	3.0±0.3kHz
W-32-89	Min.108dB @ 12V _{DC} /100cm	2.8±0.4kHz
W-22LSeries	Min.100~115dB @ 12V _{DC} /100cm	2~4kHz
EMX-06	Min. 85dB @ 5V/10cm	730Hz
MT-520	Min. 98dB @ 18V _{r,p} /300cm	2~4kHz



Indoor Alarm(including smoke alarm, carbon monoxide alarm, fire alarm, etc.)



1. More than 30 million related products are sold worldwide per year. Being the world's largest specialized provider with number one market share.
2. Complete design and production team to help ensure high level of sound pressure and optimized design.
3. Excellent product quality and consistency. Theoretical failure rate has been controlled within 5PPM.

Part Number	Sound Pressure Level	Frequency
EFM-290EDFWL	85dB @ 9V _{DC} /300cm	3.2±0.5kHz
EFM-290ED	85dB @ 7.5V _{DC} /300cm	3.4±0.5kHz
TFM-28	85dB @ 9V _{DC} /300cm	3.4±0.5kHz
ELB-74 (assembled inductor)	Inductance:Lab=74±2mH Lbc=13±1mH	1000Hz
W-07	100dB @ 9V _{DC} /30cm	3.2±0.5kHz



Medical Device



1. Extra slim design to achieve the minimum size of the final product.
2. Mainly used for medical and other precision instruments, PDA, etc.
3. Innovative design of low-frequency to guarantee the soft nature of sound pressure.
4. Able to go through lead-free reflow process twice.

Part Number	Sound Pressure Level	Frequency
SFM-11917	60dB @ 3V _{r,p} /10cm	4.1±0.3kHz
SFM-1210-03	62dB @ 3V _{r,p} /10cm	1.0±0.5kHz
SFM-1240-03	76dB @ 3V _{r,p} /10cm	4.0±0.5kHz
SFM-8527-03	85dB @ 3V/10cm	2730Hz
SFM-5540-03A	78dB @ 3.6V/10cm	4000Hz



Home Appliance



1. Widely used in telephone, air conditioning, microwave ovens, washing machines, refrigerators, etc.
2. Consistent quality and timely delivery.
3. R & D team provides customized designs and excellent cost-effective plans.

Part Number	Sound Pressure Level	Frequency
TFM-25E	70dB @ 3V _{r,p} /10cm	2.0±0.5kHz
TFM-27DM	84dB @ 1067Hz/9V _{r,p} /10cm 79dB @ 1333Hz/9V _{r,p} /10cm	1.0±0.5kHz
TFM-57-2	70dB @ 3V _{r,p} /10cm	2.0±0.3kHz
TFM-59DA-5	70dB @ 3V _{r,p} /10cm	4.0±0.5kHz
TFM-69	90dB @ 10V _{r,p} /10cm	2.7±0.5kHz
TFM-59DA-7	70dB @ 3V _{r,p} /10cm	4.0±0.5kHz



System Alarm



1. High reliability, wide voltage range.
2. Low-power consumption, low current.
3. Waterproof & sealing characteristics
4. Used as terminal audible alarm for various types of alarm systems and electrical devices.

Part Number	Sound Pressure Level	Frequency
W-18	105dB @ 12V _{DC} /100cm	2~4kHz
W-12B2	105dB @ 12V _{DC} /100cm	2~4kHz
FM-12A-900 Series	80dB @ 12V _{DC} /60cm	2.9±0.5kHz
FM-12C-900 Series	90dB @ 12V _{DC} /30cm	3.7±0.5kHz
FM-12F-900A Series	90dB @ 12V _{DC} /60cm	3.0±0.5kHz



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Application Matrix

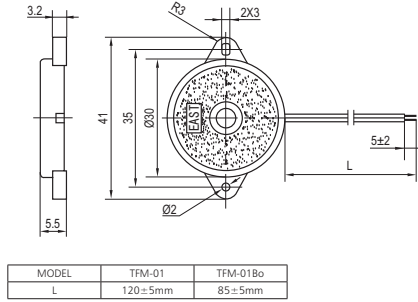
	Car Alarm	Co/Smoke Alarm	Medical Equipment	Home Appliances	Office Equipment	Automation Control Equipment	Communication Equipment	Tele Communication	Musical Toy	Page
EFM-2031						★	★			37
EFM-210 series				★	★	★	★			29
EFM-230		★				★	★			29
EFM-236L series	★	★				★	★			30
EFM-240					★	★	★			30
EFM-250 series			★	★	★	★	★			31
EFM-250D series				★	★	★	★		★	24
EFM-260 series				★	★	★	★			31
EFM-282						★	★			32
EFM-290E series		★				★	★			57
EFM-310 series						★	★			33
EFM-320BL	★	★				★	★			33
EFM-320D	★	★				★	★			33
EFM-320P		★				★	★			33
EFM-320S	★	★				★	★			33
EFM-320SS		★				★	★			33
EFM-321S series		★				★	★			34
EFM-390B series		★			★	★	★			25
EFM-471 series				★		★	★			34
EFM-472 series				★		★	★			34
EFM-473				★		★	★			35
EFM-475				★		★	★			36
EFM-620 series		★				★	★			36
EFM-810				★		★	★			37
EFM-940 series				★		★	★			37
EMX-06 series	★					★	★			71
EMX-11T series			★		★	★	★		★	71
EMX-12P	★					★	★			71
EMX-12T01P			★			★	★		★	71

	Car Alarm	Co/Smoke Alarm	Medical Equipment	Home Appliances	Office Equipment	Automation Control Equipment	Communication Equipment	Tele Communication	Musical Toy	Page
EMX-2T01 series				★	★	★	★		★	69
EMX-301 series						★	★			72
EMX-303 series						★	★			72
EMX-306 series						★	★			72
EMX-309 series						★	★			72
EMX-312 series						★	★			72
EMX-324 series						★	★			72
EMX-4B series						★	★			72
EMX-5B series						★	★			73
EMX-6B series						★	★			73
EMX-7T series				★	★	★	★		★	69
EMX-8T series				★	★	★	★		★	70
EMX-9T series			★		★	★	★		★	70
FM series						★	★			39
MFC-201P series		★				★	★			57
MFT-202P				★	★	★	★			24
MT-510				★		★	★			36
MXE-203P					★	★	★		★	64
MXE-204P					★	★	★		★	64
MXE-205P					★	★	★		★	64
MXE-206P					★	★	★		★	64
SFM series			★		★	★	★			46
SL11 series				★		★	★			44
SL11-12HP	★			★		★	★			45
SL11-12P	★			★		★	★			45
TFM-01 series						★	★	★		5
TFM-02D					★	★	★			25
TFM-03 series						★	★	★		5
TFM-05 series						★		★		6
TFM-07						★		★		6

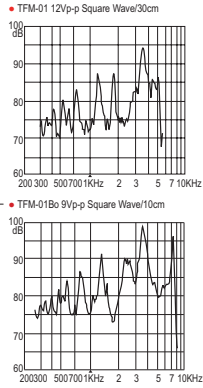
	Car Alarm	Co/Smoke Alarm	Medical Equipment	Home Appliances	Office Equipment	Automation Control Equipment	Communication Equipment	Tele Communication	Musical Toy	Page
TFM-11						★		★		7
TFM-12		★			★	★	★			25
TFM-14 series					★	★	★			26
TFM-15 series						★		★		7
TFM-16		★				★	★			26
TFM-17						★		★		7
TFM-19 series						★	★			8
TFM-21						★	★	★		8
TFM-23 series					★	★	★		★	9
TFM-24 series					★	★	★			26
TFM-25 series				★	★	★	★		★	10
TFM-26		★				★	★			27
TFM-27D series						★	★	★		11
TFM-28		★				★	★			27
TFM-29 series					★	★	★	★		12
TFM-30		★				★	★			27
TFM-31						★		★		12
TFM-32					★	★	★			28
TFM-33 series				★	★	★	★			12
TFM-35					★	★	★			13
TFM-36		★				★	★			28
TFM-37 series						★	★	★		13
TFM-38		★				★	★			28
TFM-39						★		★		13
TFM-43					★	★	★			14
TFM-45 series						★		★		14
TFM-47						★	★	★		15
TFM-51 series			★	★	★	★	★			15
TFM-53A			★	★	★	★	★			17
TFM-57 series				★		★				18
TFM-57F				★	★	★				18

	Car Alarm	Co/Smoke Alarm	Medical Equipment	Home Appliances	Office Equipment	Automation Control Equipment	Communication Equipment	Tele Communication	Musical Toy	Page
TFM-59D series			★	★	★	★	★		★	19
TFM-61				★		★				20
TFM-63						★		★		20
TFM-65						★		★		21
TFM-67 series				★		★	★			21
TFM-69 series				★		★	★			21
TFM-71				★		★	★			22
TFM-73			★		★	★	★		★	22
TFM-75		★				★	★			22
TFM-79				★	★	★	★		★	23
TFM-81					★	★	★			23
TFM-83L1550	★					★				23
W-03 series						★				51
W-05 series						★	★			51
W-06 series						★				52
W-07 series						★	★			53
W-08 series						★				52
W-09A					★	★	★			54
W-12 series						★	★			60
W-18 series						★	★			60
W-19	★					★	★			61
W-22L series	★					★	★			63
W-23(MT-520)	★	★				★	★			54
W-24B						★	★			62
W-25 series	★	★				★	★			54
W-32 series	★					★	★			62
W-36L series	★					★	★			63
W-41 series	★	★				★	★			55
W-53A	★	★				★	★			55
W-56	★	★				★	★			56
W-59						★	★			56

- TFM-01
- TFM-01Bo

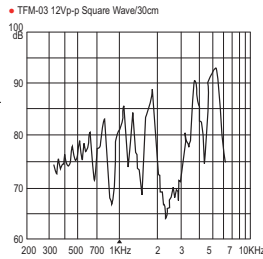
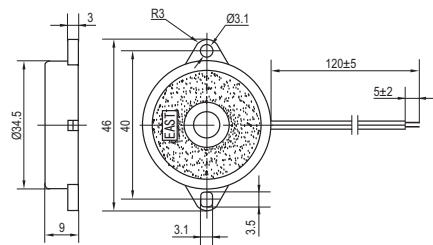


MODEL	TFM-01	TFM-01Bo
L	120±5mm	85±5mm



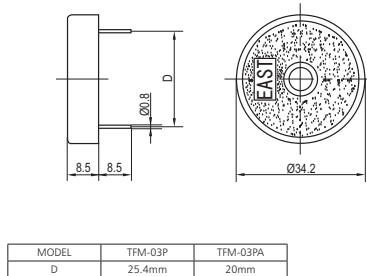
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-01	75/1.3kHz/12Vp-p Square Wave/30cm	3.5/1.3kHz/12Vp-p Square Wave	1.3±0.5	45±30%	40	-20~+70	3.5	ABS/Black
TFM-01Bo	90/3.5kHz/9Vp-p Square Wave/10cm	5/3.5kHz/9Vp-p Square Wave	3.5±0.5					

- TFM-03
- TFM-03K

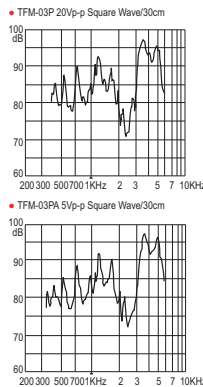


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-03	75/1.0kHz/12Vp-p Square Wave/30cm	3/1.0kHz/12Vp-p Square Wave	1.0±0.5	45±30%	40	-20~+70	4.8	ABS/Black
TFM-03K				80±30%				

- TFM-03P
- TFM-03PA

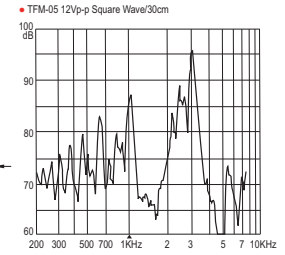
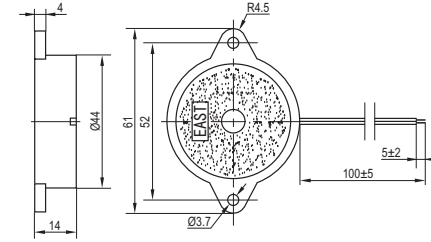


MODEL	TFM-03P	TFM-03PA
D	25.4mm	20mm



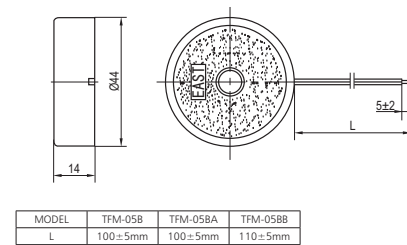
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-03P	75/1.1kHz/20Vp-p Square Wave/30cm	5/1.1kHz/20Vp-p Square Wave	1.1±0.5	45±30%	40	-20~+70	5	ABS/Black
TFM-03PA	80/1.0kHz/5Vp-p Square Wave/10cm	1.5/1.0kHz/5Vp-p Square Wave	1.0±0.5					

- TFM-05

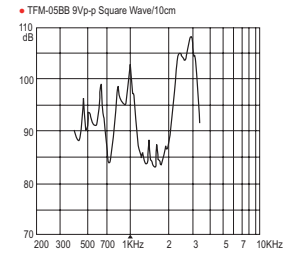


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-05	80/1.0kHz/12Vp-p Square Wave/30cm	6/1.0kHz/12Vp-p Square Wave	1.0±0.5	66±30%	40	-20~+70	10	ABS/Black

- TFM-05B
- TFM-05BA
- TFM-05BB

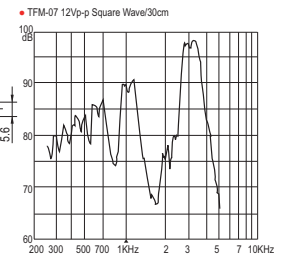
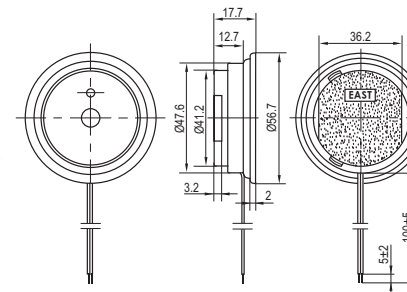


MODEL	TFM-05B	TFM-05BA	TFM-05BB
L	100±5mm	100±5mm	110±5mm



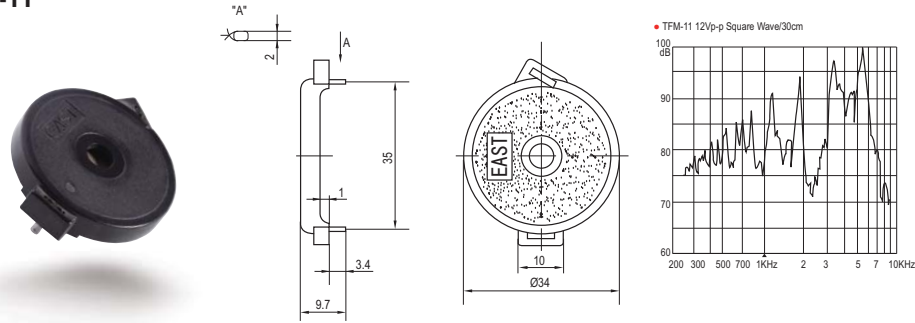
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-05B	80/1.0kHz/12Vp-p Square Wave/30cm	6/1.0kHz/12Vp-p Square Wave	1.0±0.5	66±30%	40	-20~+70	10	ABS/Black
TFM-05BA	85/1.0kHz/12Vp-p Square Wave/30cm							
TFM-05BB	80/0.8kHz/9Vp-p Square Wave/10cm	0.8±0.5	70±30%					

- TFM-07



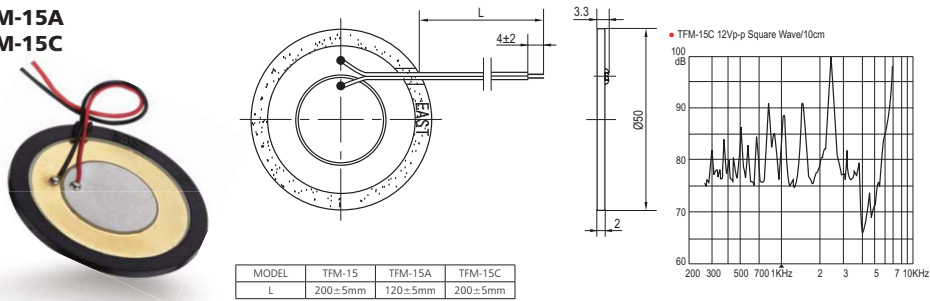
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-07	80/1.0kHz/12Vp-p Square Wave/30cm	6/1.0kHz/12Vp-p Square Wave	1.0±0.5	66±30%	40	-20~+70	12	ABS/Yellow

TFM-11



Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-11	75/1.0kHz/12Vp-p Square Wave/30cm	8/1.0kHz/12Vp-p Square Wave	1.0±0.5	45±30%	40	-20~+70	3.5	ABS/Black

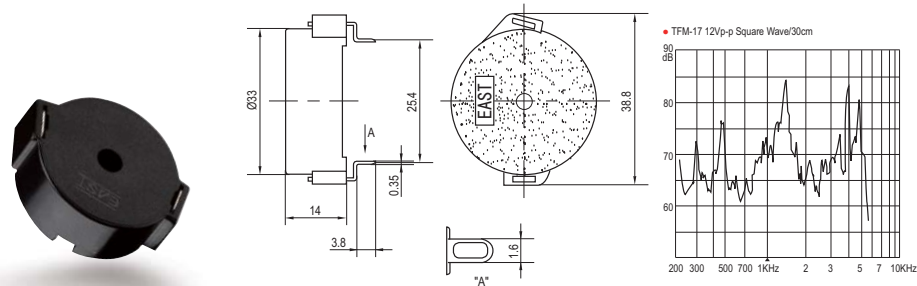
TFM-15 TFM-15A TFM-15C



MODEL	TFM-15	TFM-15A	TFM-15C
L	200±5mm	120±5mm	200±5mm

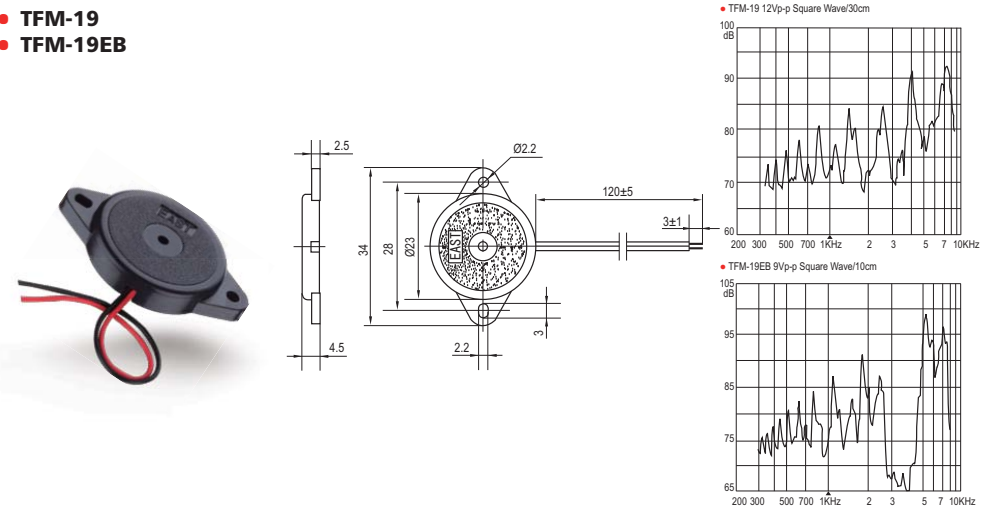
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-15	75/1.0kHz/12Vp-p Square Wave/10cm	6/1.0kHz/12Vp-p Square Wave	1.0±0.5	66±30%	40	-20~+70	4	ABS/Black
TFM-15A	75/750Hz/12Vp-p Square Wave/10cm	6/750Hz/12Vp-p Square Wave	0.75±0.25					ABS/White
TFM-15C	75/1.0kHz/12Vp-p Square Wave/10cm	6/1.0kHz/12Vp-p Square Wave	1.0±0.5					120±30%

TFM-17



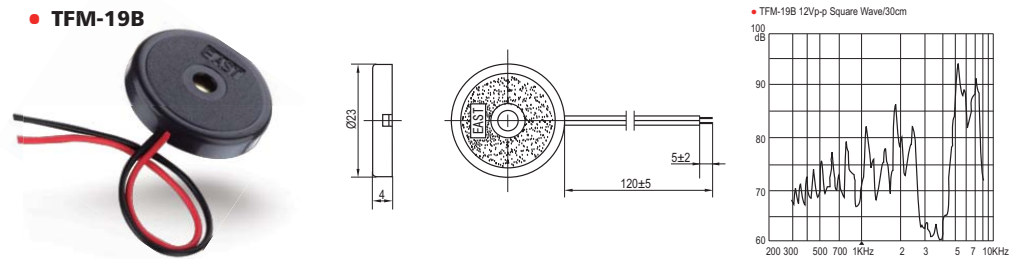
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-17	75/1.3kHz/12Vp-p Square Wave/30cm	3.5/1.3kHz/12Vp-p Square Wave	1.3±0.5	45±30%	40	-20~+70	5	PC/Black

TFM-19 TFM-19EB



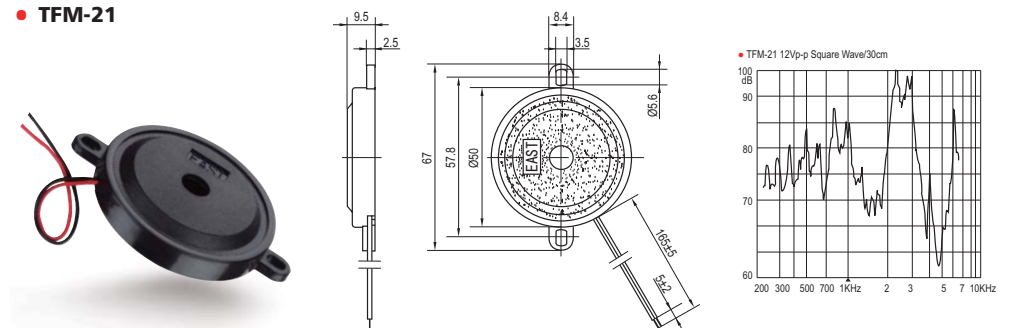
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-19	80/4.0kHz/12Vp-p Square Wave/30cm	5/4.0kHz/12Vp-p Square Wave	4.0±0.5	24±30%	40	-20~+70	2	ABS/Black
TFM-19EB	80/1.45kHz/9Vp-p Square Wave/10cm	4/1.45kHz/9Vp-p Square Wave	1.45±0.3					PC/Black

TFM-19B



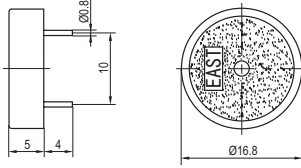
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-19B	75/5.0kHz/12Vp-p Square Wave/30cm	5/5.0kHz/12Vp-p Square Wave	5.0±0.5	15±30%	40	-20~+70	2.5	ABS/Black

TFM-21

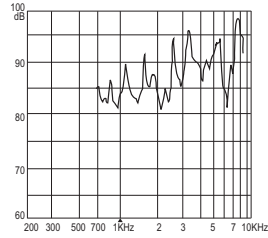


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-21	80/0.9kHz/12Vp-p Square Wave/30cm	4/0.9kHz/12Vp-p Square Wave	0.9±0.5	85±30%	40	-20~+70	11.5	ABS/Black

TFM-23P

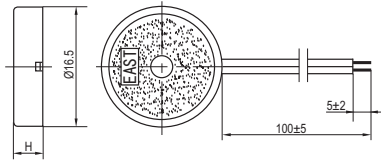


TFM-23P 9Vp-p Square Wave/10cm



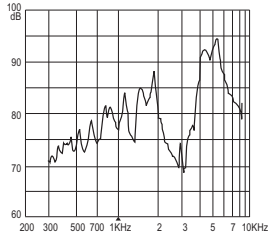
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-23P	80/4.0kHz/9Vp-p Square Wave/10cm	3.5/4.0kHz/9Vp-p Square Wave	4.0±0.5	14±30%	25	-20~+70	1.3	ABS/Black

TFM-23 TFM-23A TFM-23T

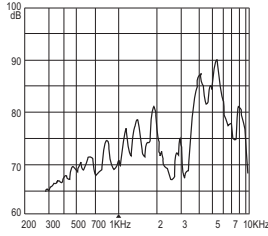


MODEL	TFM-23	TFM-23A	TFM-23T
H	4mm	5mm	3.3mm

TFM-23 9Vp-p Square Wave/10cm

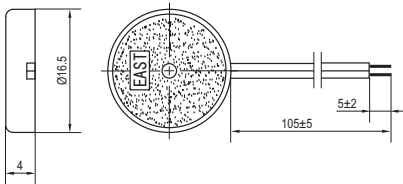


TFM-23T 9Vp-p Square Wave/10cm

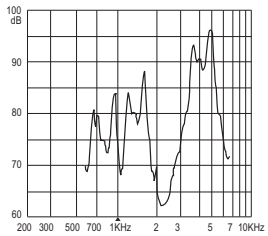


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-23	80/4.0kHz/9Vp-p Square Wave/10cm	3/4.0kHz/9Vp-p Square Wave	4.0±0.5	14±30%	25	-20~+70	0.9	PC/Black
TFM-23A	80/4.0kHz/9Vp-p Square Wave/10cm	2.5/4.0kHz/9Vp-p Square Wave		9.5±30%				ABS/Black
TFM-23T	72/4.0kHz/9Vp-p Square Wave/10cm	1.5/4.0kHz/9Vp-p Square Wave						

TFM-23D

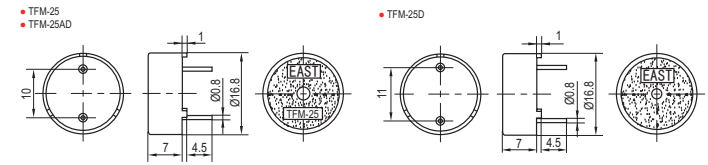


TFM-23D 5Vp-p Square Wave/10cm

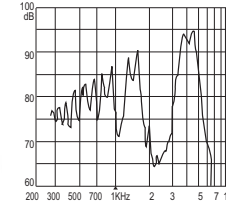


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-23D	85/5.0kHz/5Vp-p Square Wave/10cm	3/5.0kHz/5Vp-p Square Wave	5.0±0.5	14±30%	25	-20~+70	0.9	PC/Black

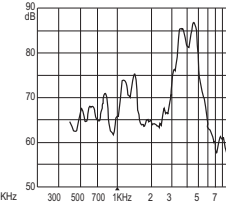
TFM-25 TFM-25AD TFM-25D



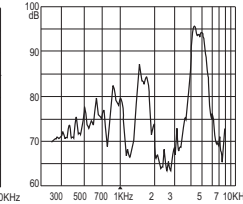
TFM-25 9Vp-p Square Wave/10cm



TFM-25AD 3Vp-p Square Wave/10cm

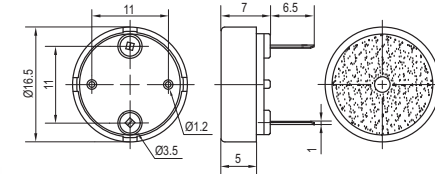


TFM-25D 10Vp-p Square Wave/10cm

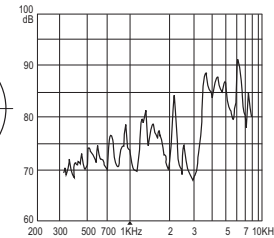


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-25	80/4.0kHz/9Vp-p Square Wave/10cm	2.5/4.0kHz/9Vp-p Square Wave	4.0±0.5	9.5±30%	25	-20~+70	1.4	PC/Black
TFM-25AD	75/4.0kHz/3Vp-p Square Wave/10cm	2.5/4.0kHz/3Vp-p Square Wave						
TFM-25D	82/5.0kHz/10Vp-p Square Wave/10cm	6/5.0kHz/10Vp-p Square Wave	5.0±0.5	10±30%				

TFM-25B

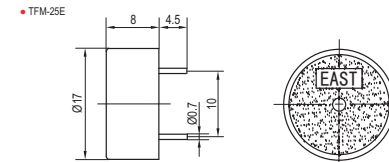


TFM-25B 3Vp-p Square Wave/10cm

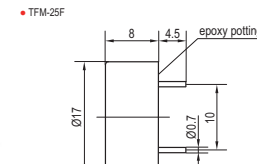


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-25B	75/4.0kHz/3Vp-p Square Wave/10cm	1.0/4.0kHz/3Vp-p Square Wave	4.0±0.5	14±30%	25	-20~+70	2	PA66/Black

TFM-25E TFM-25F

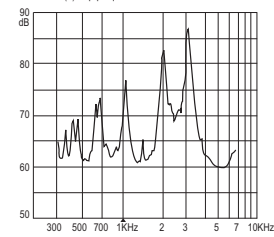


TFM-25E



TFM-25F

TFM-25E(F) 3Vp-p Square Wave/10cm

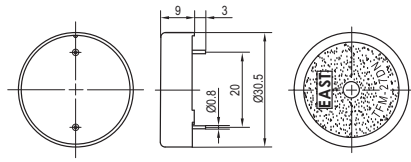


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-25E	70/2.0kHz/3Vp-p Square Wave/10cm	3/2.0kHz/3Vp-p Square Wave	2.0±0.5	28±30%	25	-20~+70	1.25	PC/Black
TFM-25F	70/2.0kHz/3Vp-p Square Wave/10cm						1.3	PA66/Black

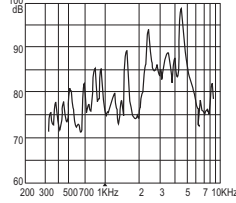
- TFM-27DN
- TFM-27DNS
- TFM-27DT



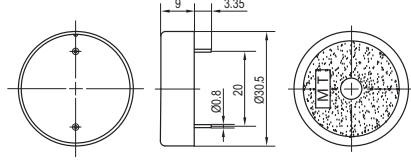
• TFM-27DN



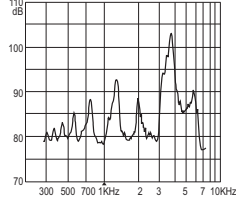
• TFM-27DN 9Vp-p Square Wave/10cm



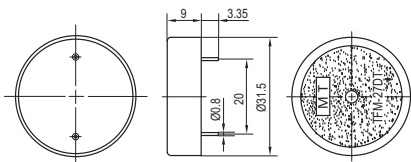
• TFM-27DNS



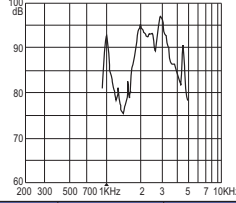
• TFM-27DNS 9Vp-p Square Wave/10cm



• TFM-27DT



• TFM-27DT 9Vp-p Square Wave/10cm

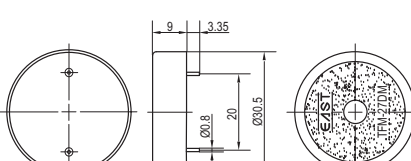


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-27DN	85/4.0kHz/9Vp-p Square Wave/10cm	2.5/4.0kHz/9Vp-p Square Wave	4.0±0.5	25±30%	40	-20~+70	5.5	PC/Black
TFM-27DNS	85/3.6kHz/9Vp-p Square Wave/10cm	2.5/3.6kHz/9Vp-p Square Wave	3.6±0.5			-20~+105		
TFM-27DT	85/2.0kHz/9Vp-p Square Wave/10cm	5.0/2.0kHz/9Vp-p Square Wave	2.0±0.5	45±30%	-20~+70			

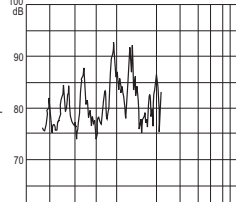
- TFM-27DM
- TFM-27DS



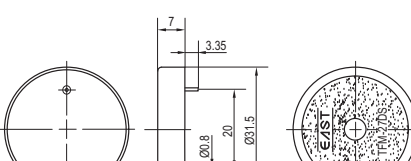
• TFM-27DM



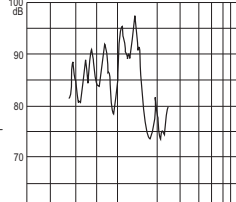
• TFM-27DM 9Vp-p Square Wave/10cm



• TFM-27DS

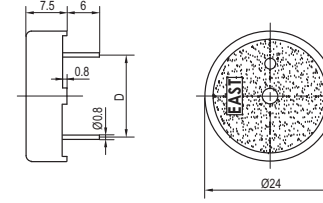


• TFM-27DS 9Vp-p Square Wave/10cm



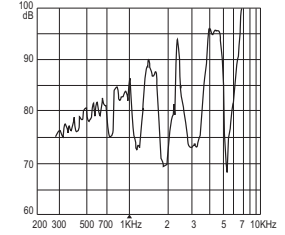
Model No.	Min Sound Pressure Level (dB)	Min Sound Pressure Level (dB)	Min Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-27DM		84/1067Hz/9Vp-p Square Wave/10cm	79/1333Hz/9Vp-p Square Wave/10cm	10/1333Hz/9Vp-p Square Wave	1.0±0.5	55±30%	40	-20~+70	5.5	PC/Black
TFM-27DS	79/800Hz/9Vp-p Square Wave/10cm	82/1067Hz/9Vp-p Square Wave/10cm	85/1333Hz/9Vp-p Square Wave/10cm	7/1333Hz/9Vp-p Square Wave		52±30%				

- TFM-29
- TFM-29C



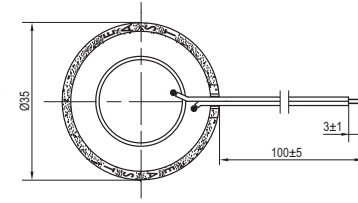
MODEL	TFM-29	TFM-29C
D	15.2mm	10mm

• TFM-29 10Vp-p Square Wave/10cm

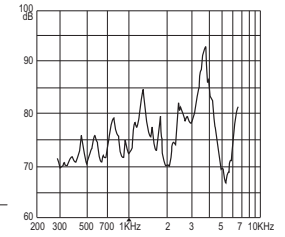


Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-29	90/4.0kHz/10Vp-p Square Wave/10cm	4/4.0kHz/10Vp-p Square Wave	4.0±0.5	17±30%	40	-20~+70	3.0	PC/Black
TFM-29C	90/4.0kHz/9Vp-p Square Wave/10cm	4/4.0kHz/9Vp-p Square Wave						

- TFM-31

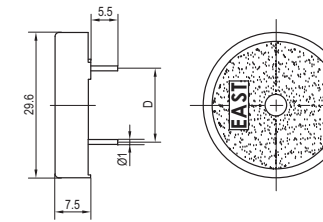


• TFM-31 12Vp-p Square Wave/10cm



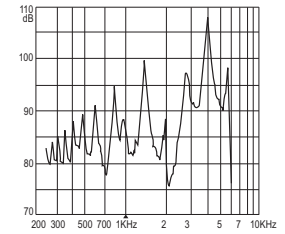
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-31	75/1.3kHz/12Vp-p Square Wave/10cm	9/1.3kHz/12Vp-p Square Wave	1.3±0.5	45 ±30%	40	-20~+70	2	ABS/Black

- TFM-33
- TFM-33N
- TFM-33A



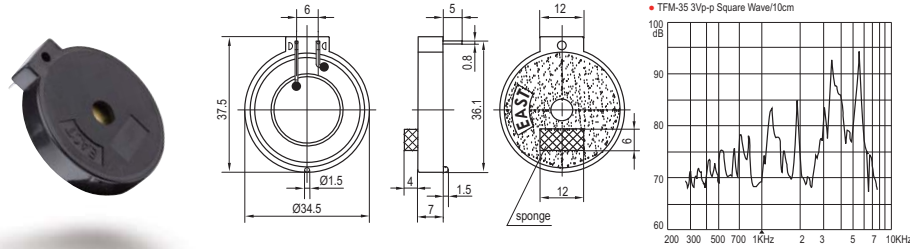
MODEL	TFM-33	TFM-33N	TFM-33A
D	15.2mm	15.2mm	15mm

• TFM-33 10Vp-p Square Wave/10cm



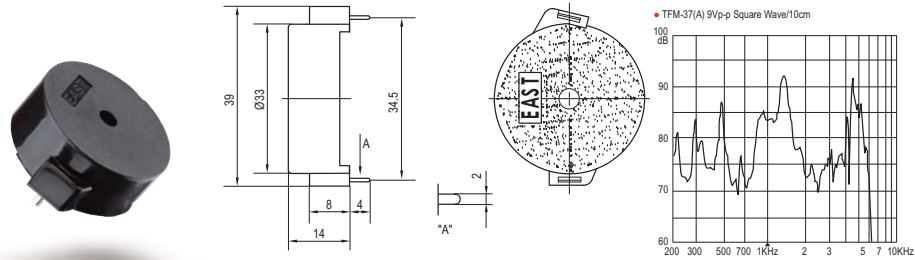
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-33(N)	90/3.0kHz/10Vp-p Square Wave/10cm	3/3.0kHz/10Vp-p Square Wave	3.0±0.5	20±30%	30	-20~+70	4.5	ABS(PA66)/Black
TFM-33A	90/2.5kHz/10Vp-p Square Wave/10cm	5/2.5kHz/10Vp-p Square Wave	2.5±0.5					PC/Black

● **TFM-35**



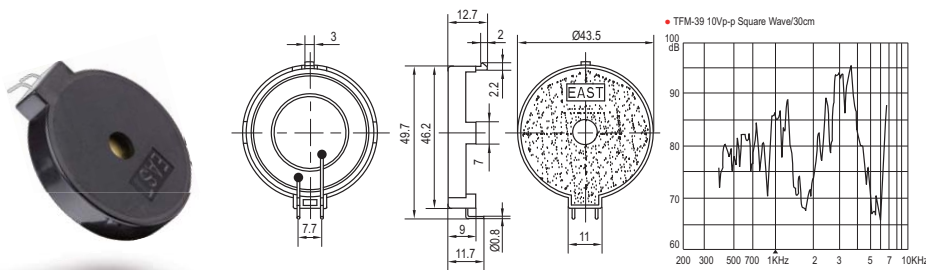
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-35	75/3.2kHz/3Vp-p Square Wave/10cm	3/3.2kHz/3Vp-p Square Wave	3.2±0.5	45±30%	30	-20~+70	3.5	ABS/Black

● **TFM-37**
● **TFM-37A**



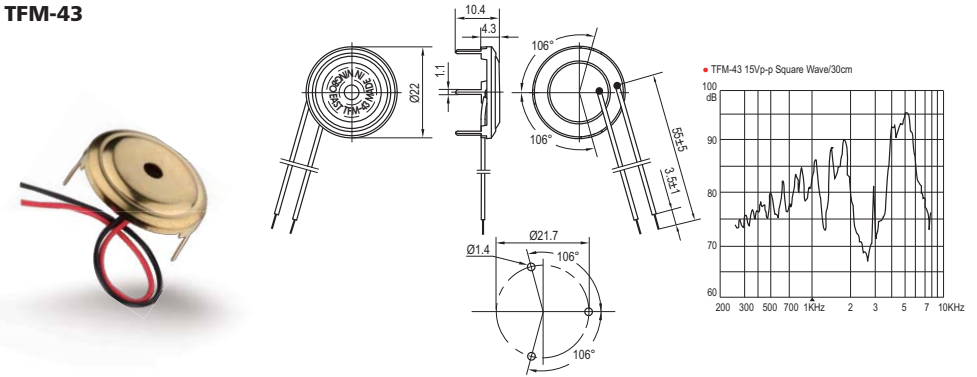
Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-37	80/1.3kHz/9Vp-p Square Wave/10cm	—	3/1.3kHz/9Vp-p Square Wave	1.3±0.5	45±30%	40	-20~+70	5.8	PC/Black
TFM-37A	85/1.4kHz/9Vp-p Square Wave/10cm	75/1.4kHz/1Vrms Sine Wave/10cm	6/1.4kHz/9Vp-p Square Wave	1.4±0.5					

● **TFM-39**



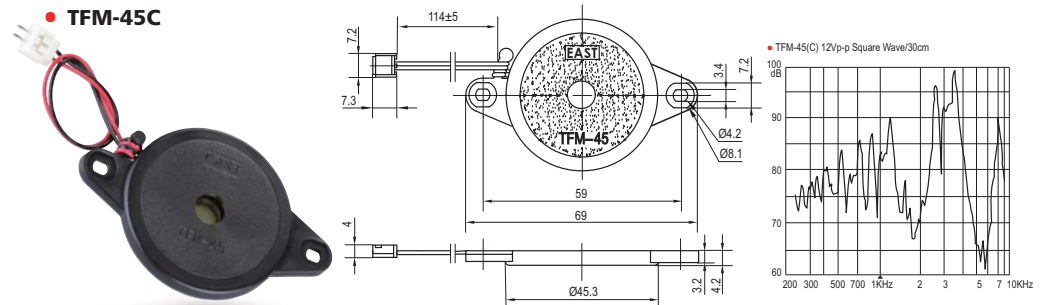
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-39	70/1.0kHz/10Vp-p Square Wave/30cm	8/1.0kHz/10Vp-p Square Wave	1.0±0.5	66±30%	40	-20~+70	5	ABS/Black

● **TFM-43**



Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-43	80/4.5kHz/15Vp-p Square Wave/30cm	6/4.5kHz/15Vp-p Square Wave	4.5±0.5	13±30%	40	-20~+70	2.5	Brass/Yellow

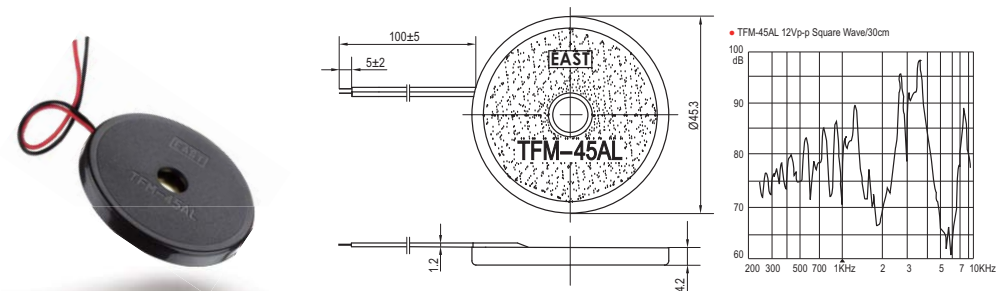
● **TFM-45**
● **TFM-45C**



Note: "TFM-45" hasn't connector, "TFM-45C" has connector.

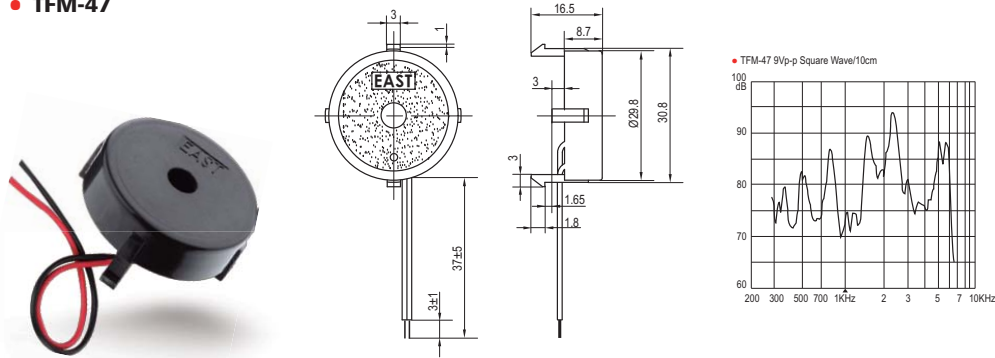
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-45(45C)	85/1.2kHz/12Vp-p Square Wave/30cm	3/1.2kHz/12Vp-p Square Wave	1.2±0.5	66±30%	40	-20~+70	5.5	ABS/Black

● **TFM-45AL**



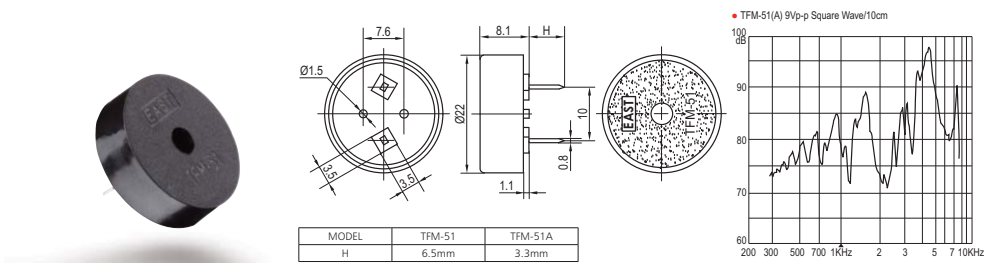
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-45AL	85/1.2kHz/12Vp-p Square Wave/30cm	3/1.2kHz/12Vp-p Square Wave	1.2±0.5	66±30%	40	-20~+70	6	ABS/Black

● **TFM-47**



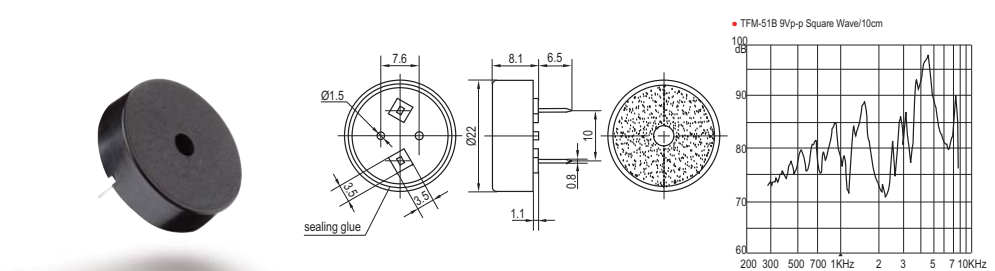
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage(Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-47	80/2.5kHz/9Vp-p Square Wave/10cm	3/2.5kHz/9Vp-p Square Wave	2.5±0.5	45±30%	30	-20~+70	4.5	ABS/Black

● **TFM-51**
● **TFM-51A**



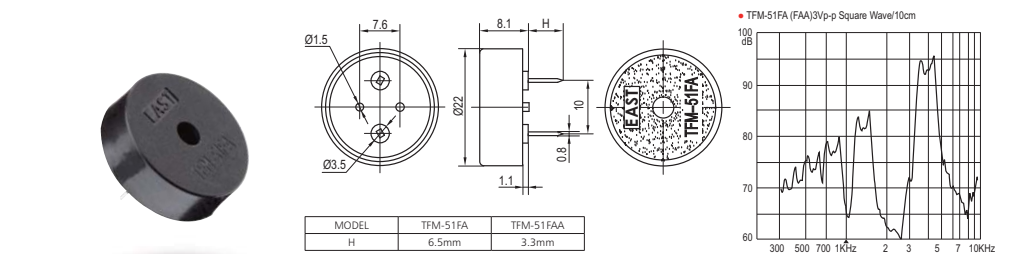
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-51(51A)	80/4.1kHz/9Vp-p Square Wave/10cm	3/4.1kHz/9Vp-p Square Wave	4.1±0.5	12±30%	30	-20~+70	2.4	PA66/Black

● **TFM-51B**



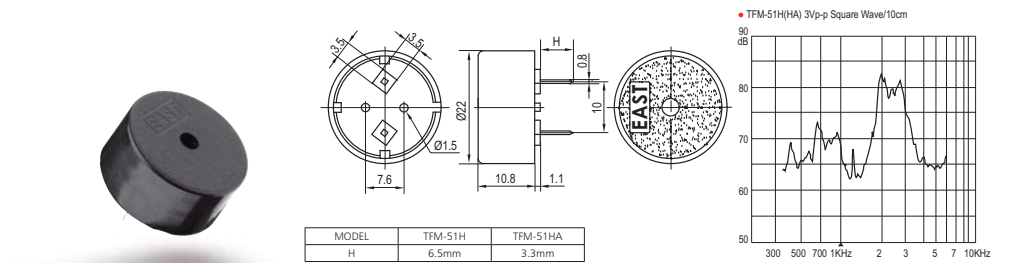
Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-51B	80/4.1kHz/9Vp-p Square Wave/10cm	75/4.1kHz/3Vp-p Square Wave/10cm	3/4.1kHz/9Vp-p Square Wave	1/4.1kHz/3Vp-p Square Wave	4.1±0.5	12±30%	30	-20~+75	2.4	PA66(UL94-V0)/Black

● **TFM-51FA**
● **TFM-51FAA**



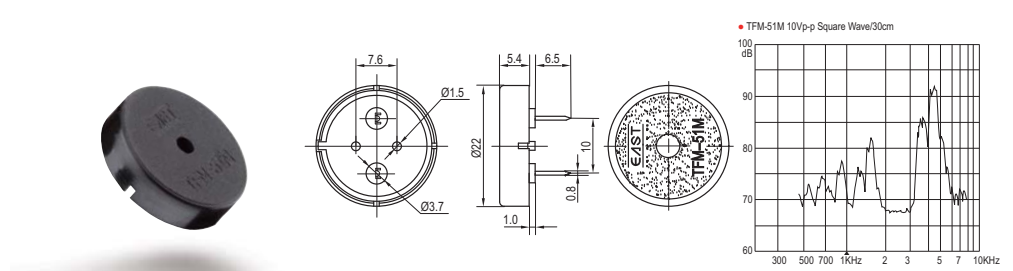
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-51FA(FAA)	75/4.0kHz/3Vp-p Square Wave/10cm	2/4.0kHz/3Vp-p Square Wave	4.0±0.5	24±30%	30	-40~+105	2.4	PA66/Black

● **TFM-51H**
● **TFM-51HA**



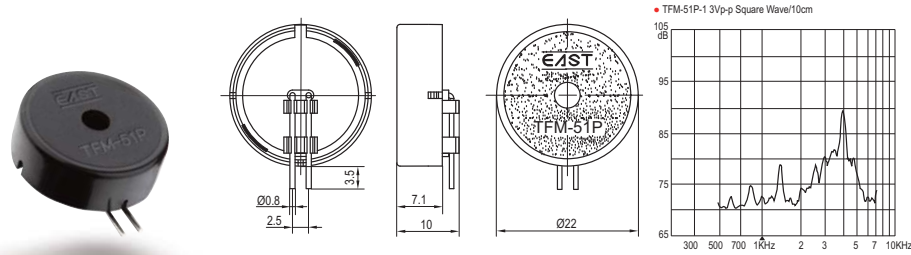
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-51H(51HA)	70/2.0kHz/3Vp-p Square Wave/10cm	3/2.0kHz/3Vp-p Square Wave	2.0±0.5	19±30%	25	-20~+70	2.5	PA66/Black

● **TFM-51M**



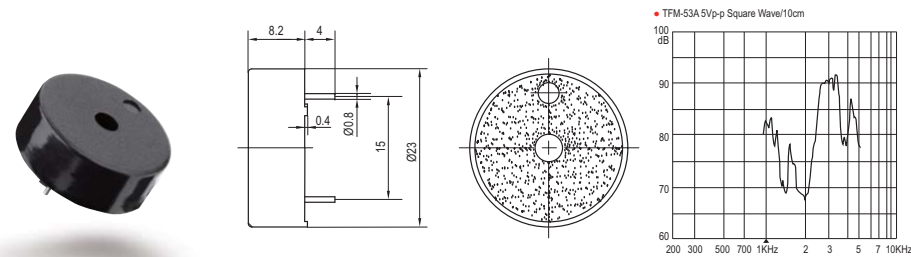
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-51M	77/4.1kHz/10Vp-p Square Wave/30cm	3/4.1kHz/10Vp-p Square Wave	4.1±0.5	12±30%	25	-20~+70	2.4	PA66+15%GF/Black

TFM-51P-1



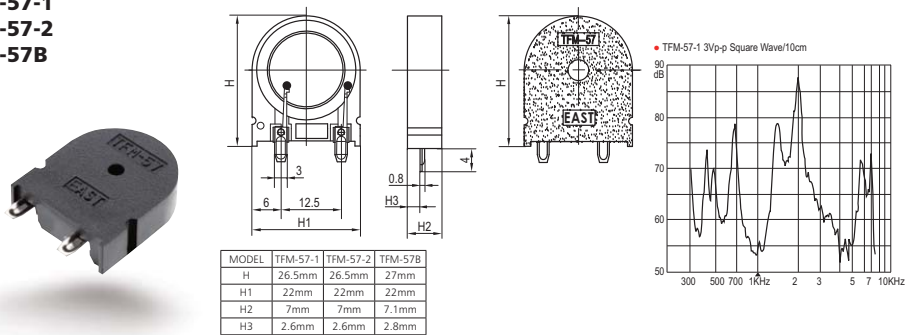
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-51P-1	75/4.0kHz/3Vp-p Square Wave/10cm	5/4.0kHz/3Vp-p Square Wave	4.0±0.5	24 ±30%	30	-20~+70	2.4	PA66/Black

TFM-53A



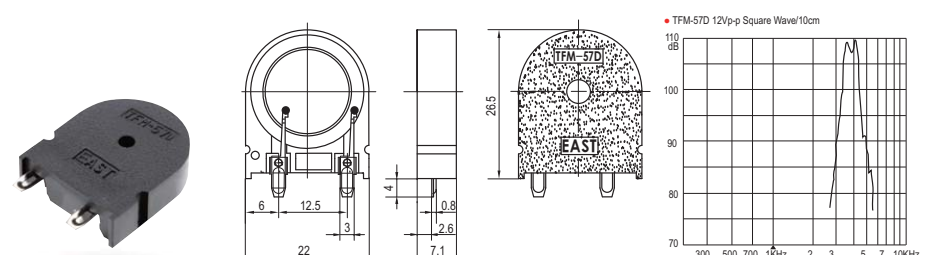
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-53A	80/3.0kHz/5Vp-p Square Wave/10cm	3.5/3.0kHz/5Vp-p Square Wave	3.0±0.5	24 ±30%	40	-20~+70	2.6	PC/Black

TFM-57-1 TFM-57-2 TFM-57B



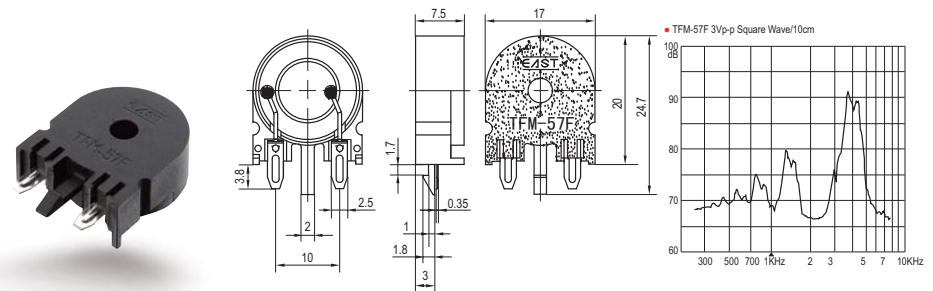
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (V _{max})	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-57-1	70/2.0kHz/3Vp-p Square Wave/10cm	1.2/2.0kHz/3Vp-p Square Wave	2.0±0.3	30±30%	25	-20~+80	3	PA66+20%GF/Black
TFM-57-2						-20~+125		
TFM-57B	82/2.7kHz/10Vp-p Square Wave/30cm	4/2.7kHz/10Vp-p Square Wave	2.7±0.3	24±30%		-20~+70		PA66/Black

TFM-57D



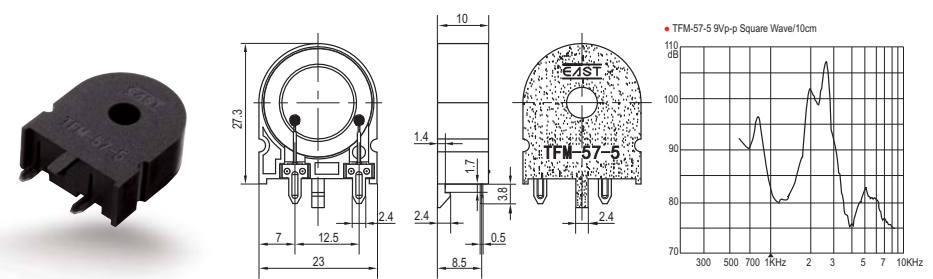
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (V _{max})	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-57D	90/4.0kHz/12Vp-p Square Wave/10cm	7/4.0kHz/12Vp-p Square Wave	4.0±0.3	13±30%	25	-20~+70	3.4	PA66/Black

TFM-57F



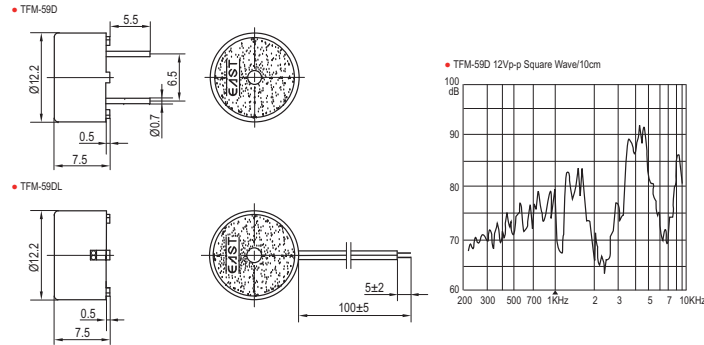
Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-57F	72/4.0kHz/3Vp-p Square Wave/10cm	72/4.0kHz/1Vrms Sine Wave/10cm	3/4.0kHz/3Vp-p Square Wave	4.0±0.5	14±30%	25	-20~+70	1.4	PA66/Black

TFM-57-5



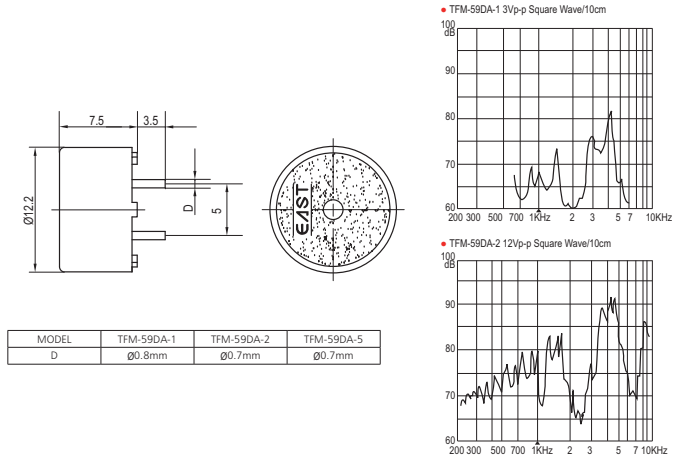
Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-57-5	90/2.0kHz/9Vp-p Square Wave/10cm	90/2.5kHz/9Vp-p Square Wave/10cm	10/2.0kHz&2.5kHz/9Vp-p Square Wave	2.5±0.5	30±30%	30	-20~+105	4.0	PA66/Black

- TFM-59D
- TFM-59DL



Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-59D(59DL)	80/4.0kHz/12Vp-p Square Wave/10cm	6/4.0kHz/12Vp-p Square Wave	4.0±0.5	11±30%	25	-20~+70	0.6	PC/Black

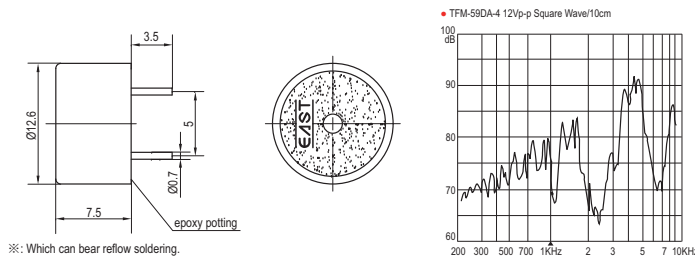
- TFM-59DA-1
- TFM-59DA-2
- TFM-59DA-5



MODEL	TFM-59DA-1	TFM-59DA-2	TFM-59DA-5
D	Ø0.8mm	Ø0.7mm	Ø0.7mm

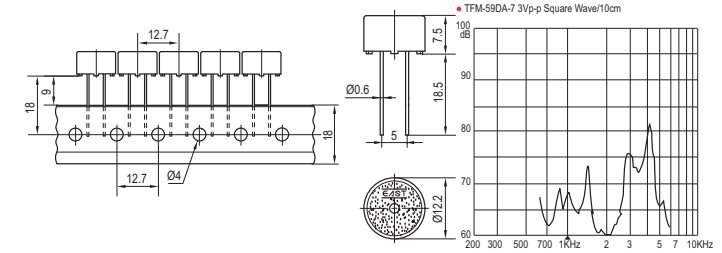
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-59DA-1	70/4.0kHz/3Vp-p Square Wave/10cm	3/4.0kHz/3Vp-p Square Wave	4.0±0.5	11±30%	25	-20~+70	0.6	PC/Black
TFM-59DA-2	80/4.0kHz/12Vp-p Square Wave/10cm	6/4.0kHz/12Vp-p Square Wave						
TFM-59DA-5	70/4.0kHz/3Vp-p Square Wave/10cm	3/4.0kHz/3Vp-p Square Wave		5.5±30%				

- TFM-59DA-4



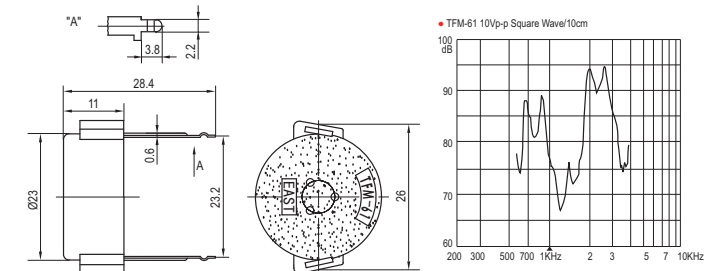
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-59DA-4	80/4.0kHz/12Vp-p Square Wave/10cm	6/4.0kHz/12Vp-p Square Wave	4.0±0.5	11±30%	25	-20~+85	1	PPS/Black

- TFM-59DA-7



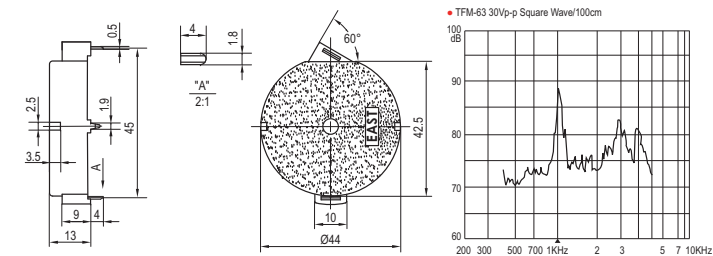
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-59DA-7	70/4.0kHz/3Vp-p Square Wave/10cm	3/4.0kHz/3Vp-p Square Wave	4.0±0.5	7±30%	25	-20~+70	0.7	PC/Black

- TFM-61



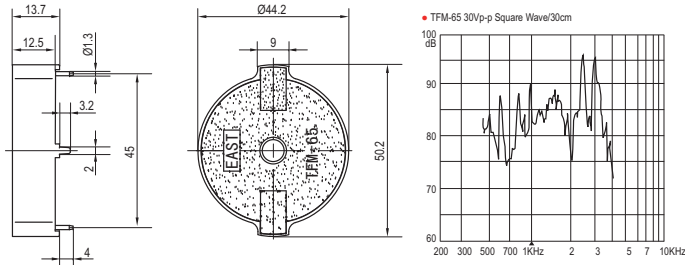
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-61	88/2.5kHz/10Vp-p Square Wave/10cm	6/2.5kHz/10Vp-p Square Wave	2.5±0.5	24±30%	30	-20~+70	2.6	PC/Black

- TFM-63



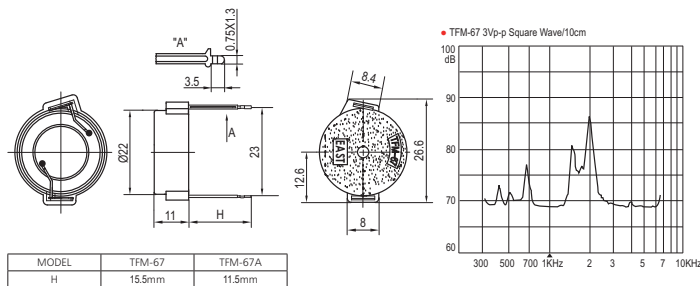
Model No.	Min.Sound Pressure Level (dB)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-63	70/1.0kHz/30Vp-p Square Wave/100cm	1.0±0.3	68±30%	40	-25~+70	8	ABS/Black

TFM-65



Model No.	Min.Sound Pressure Level (dB)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-65	85/1.0kHz/30Vp-p Square Wave/30cm	1.0±0.3	66±30%	40	-20~+70	10	PC/Black

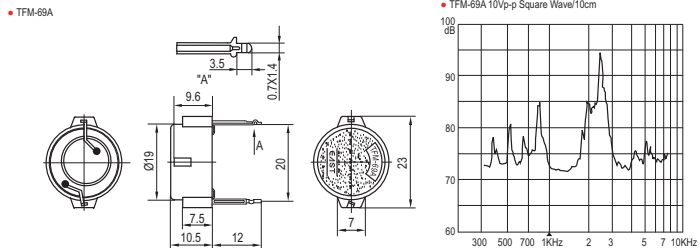
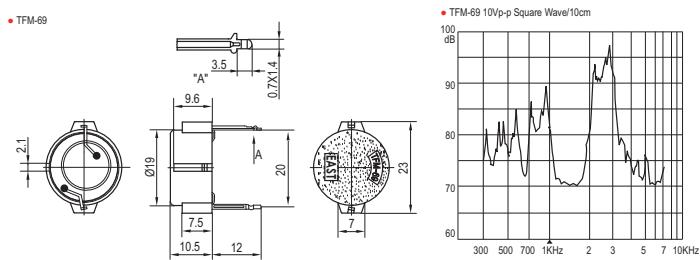
TFM-67 TFM-67A



MODEL	TFM-67	TFM-67A
H	15.5mm	11.5mm

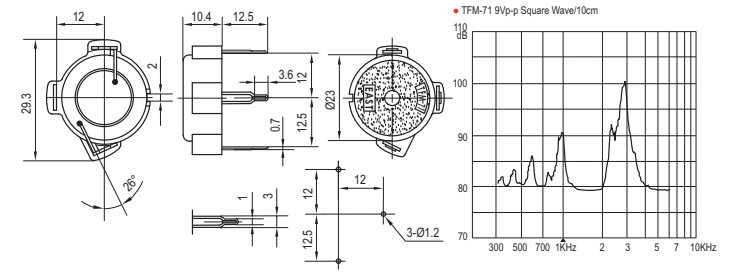
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-67(67A)	75/2.0kHz/3Vp-p Square Wave/10cm	3/2.0kHz/3Vp-p Square Wave	2.0±0.5	30±30%	25	-20~+70	2.5	PC/Black

TFM-69 TFM-69A



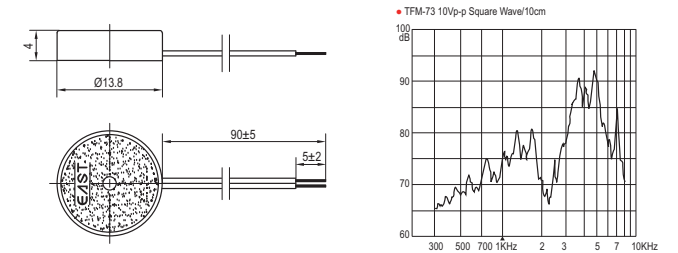
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-69	90/2.7kHz/10Vp-p Square Wave/10cm	9/2.7kHz/10Vp-p Square Wave	2.7±0.5	32±30%	25	-20~+70	1.75	ABS/Black
TFM-69A	80/2.0kHz/10Vp-p Square Wave/10cm	9/2.0kHz/10Vp-p Square Wave	2.0±0.5					

TFM-71



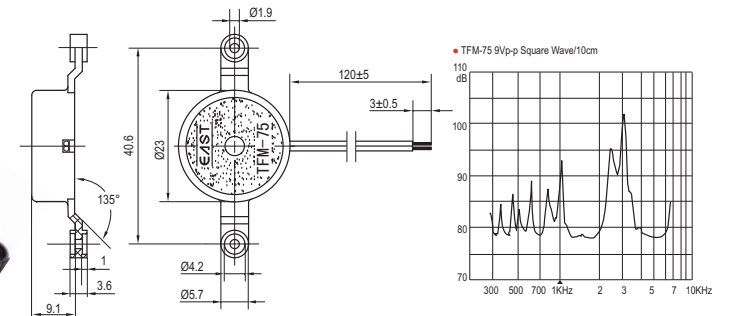
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-71	90/2.8kHz/9Vp-p Square Wave/10cm	7/2.8kHz/9Vp-p Square Wave	2.8±0.5	24±30%	25	-20~+70	3	PC/Black

TFM-73



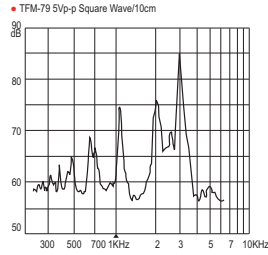
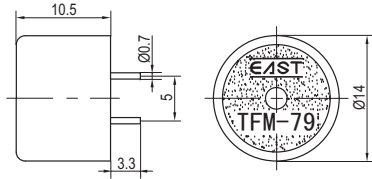
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-73	83/4.8kHz/10Vp-p Square Wave/10cm	5/4.8kHz/10Vp-p Square Wave	4.8±0.3	15±30%	20	-20~+70	0.6	ABS/Black

TFM-75



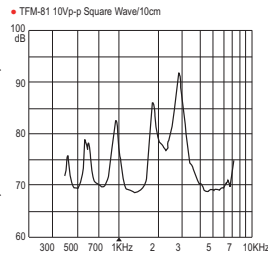
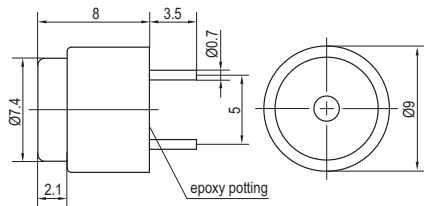
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-75	88/2.5kHz/9Vp-p Square Wave/10cm	12/2.5kHz/9Vp-p Square Wave	2.5±0.5	24±30%	40	-20~+70	2.5	ABS/Black

TFM-79



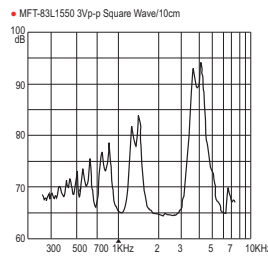
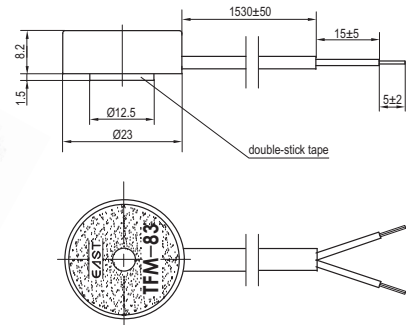
Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-79	70/2.0kHz/5Vp-p Square Wave/10cm	4/2.0kHz/5Vp-p Square Wave	2.0±0.5	13.5±30%	30	-30~+70	1.1	PC/Black

TFM-81



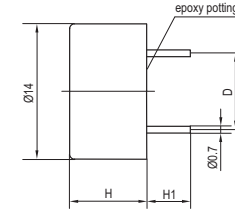
Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 100Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-81	75/2.8kHz/10Vp-p Square Wave/10cm	4/2.8kHz/10Vp-p Square Wave	2.8±0.5	5.6±30%	30	-30~+95	0.5	PC/Black

TFM-83L1550

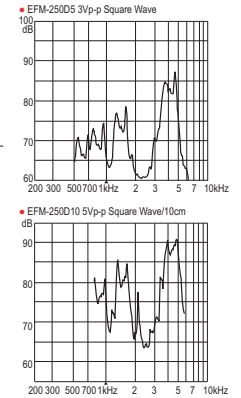
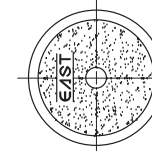


Model No.	Min. Sound Pressure Level (dB)	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-83L1550	80/4.0kHz/3Vp-p Square Wave/10cm	70/1.33kHz/3Vp-p Square Wave/10cm	3.5/4kHz/3Vp-p Square Wave	4.0±0.5	13±30%	40	-20~+70	70	PC/Black

EFM-250D EFM-250D5 EFM-250D10

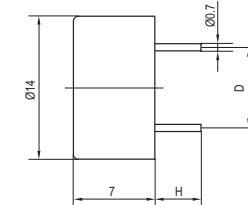


MODEL	EFM-250D	EFM-250D5	EFM-250D10
H	7.5mm	7.5mm	8mm
H1	3mm	4.5mm	4.5mm
D	7.6mm	5mm	10mm

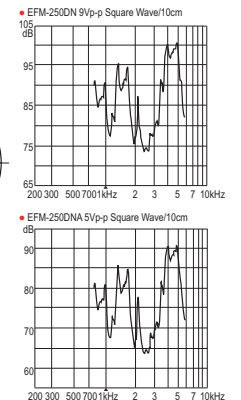
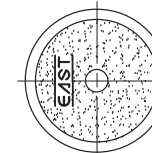


Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-250D	80/4.1kHz/5Vp-p Square Wave/10cm	2/4.1kHz/5Vp-p Square Wave	4.1±0.5	10±30%	20	-40~+85	1	PA6/Black
EFM-250D5	78/4.0kHz/3Vp-p Square Wave/10cm	2/4.0kHz/3Vp-p Square Wave	4.0±0.5					
EFM-250D10	80/4.1kHz/5Vp-p Square Wave/10cm	2/4.1kHz/5Vp-p Square Wave	4.1±0.5					

EFM-250DN EFM-250DNA EFM-250DN10

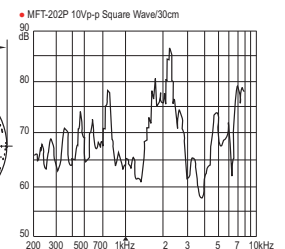
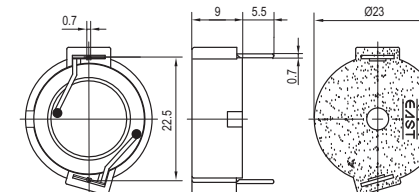


MODEL	EFM-250DN	EFM-250DNA	EFM-250DN10
D	7.6mm	7.6mm	10mm
H	3.5mm	3.5mm	5mm



Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-250DN(10)	80/4.1kHz/9Vp-p Square Wave/10cm	2/4.1kHz/9Vp-p Square Wave	4.1±0.5	10±30%	20	-20~+85	1	PC/Black
EFM-250DNA	80/4.1kHz/5Vp-p Square Wave/10cm	2/4.1kHz/5Vp-p Square Wave	4.1±0.5					

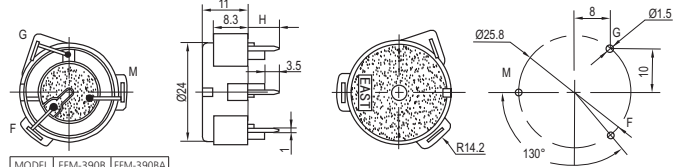
MFT-202P



Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
MFT-202P	75/2048Hz/10Vp-p Square Wave/30cm	3/2048Hz/10Vp-p Square Wave	1.8~2.5	24±30%	40	-20~+70	2	PC/Black

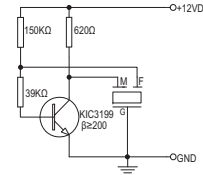
SELF-DRIVEN PIEZO TRANSDUCER

- EFM-390B
- EFM-390BA

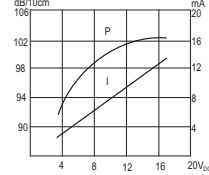


MODEL	EFM-390B	EFM-390BA
H	7.5mm	17.5

• Test Circuit

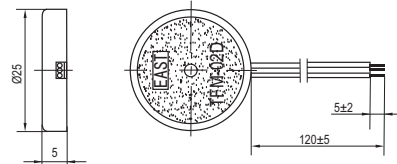


• TFM-390B

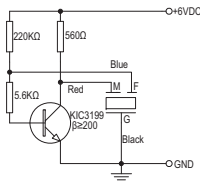


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-390B(BA)	90/12V _{DC} /10cm	12	3~20	12/12V _{DC}	3.8±0.5	-20~+70	4.5	PC/Black

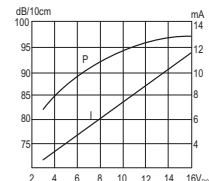
- TFM-02D



• Test Circuit

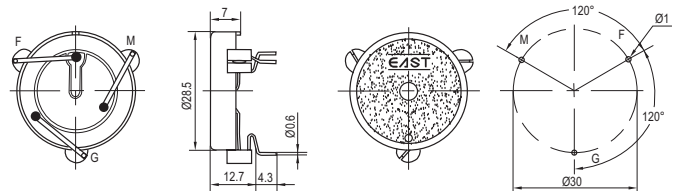


• TFM-02D

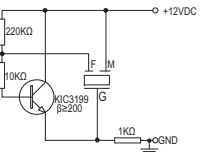


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-02D	85/6V _{DC} /10cm	6	3~16	5/6V _{DC}	5.0±1.0	-20~+70	2	ABS/Black

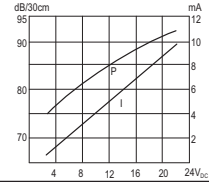
- TFM-12



• Test Circuit



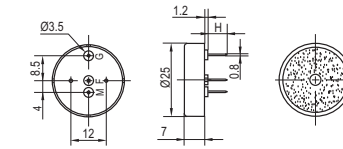
• TFM-12



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-12	83/12V _{DC} /30cm	12	3~28	8/12V _{DC}	3.0±0.5	-20~+70	3.8	ABS/Black

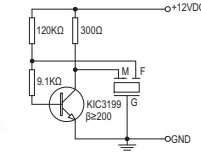
SELF-DRIVEN PIEZO TRANSDUCER

- TFM-14
- TFM-14A
- TFM-14B
- TFM-14D

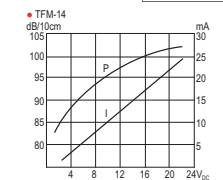
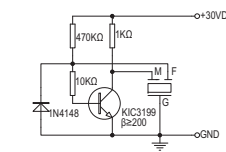


MODEL	TFM-14	TFM-14A	TFM-14B	TFM-14D
H	6.5mm	6.5mm	3.2mm	3.2mm

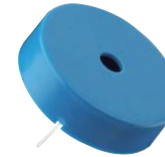
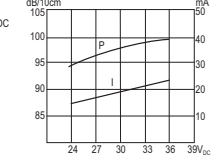
• TFM-14 TFM-14A TFM-14D Test Circuit



• TFM-14B Test Circuit

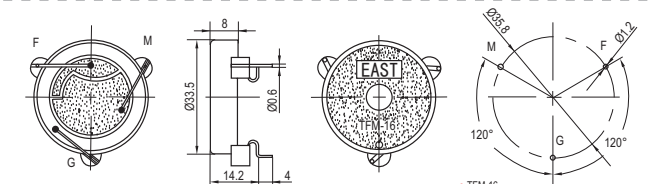


• TFM-14B

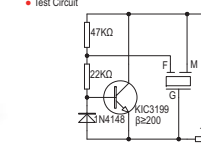


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-14	90/12V _{DC} /10cm	12	3~24	18/12V _{DC}	6.8 ^{+0.7} _{-0.9}	-20~+85	3	PA66/Blue
TFM-14A	88/12V _{DC} /10cm				3.5±0.5			PA66/Black
TFM-14D	86/12V _{DC} /10cm				PA66/White			
TFM-14B	88/30V _{DC} /10cm				25/30V _{DC}			PA66/Black

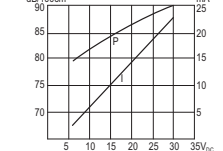
- TFM-16



• Test Circuit

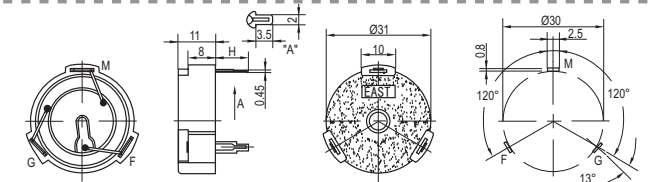


• TFM-16

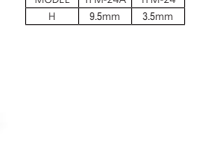


Model No.	Min.Sound Pressure Level (dB)	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-16	82/12V _{DC} /100cm	6~30	10/12V _{DC}	2.6±0.5	-20~+70	5	ABS/Black

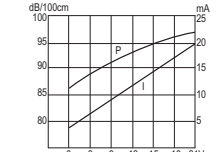
- TFM-24
- TFM-24A



• Test Circuit

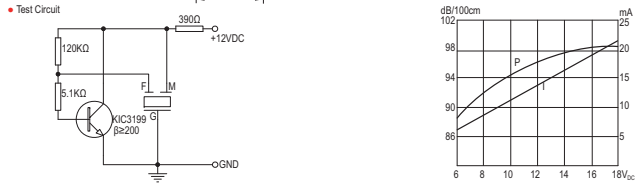
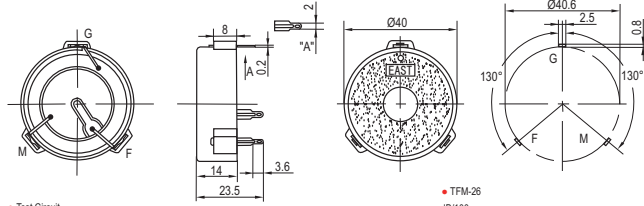


• TFM-24



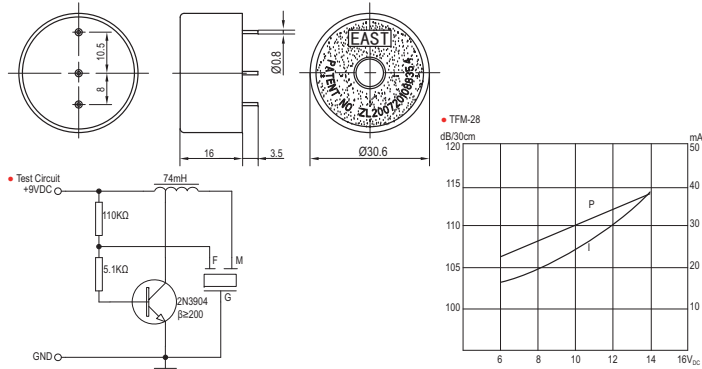
Model No.	Min.Sound Pressure Level (dB)	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
TFM-24(24A)	75/12V _{DC} /100cm	3~20	16/12V _{DC}	3.0±0.5	-20~+70	5	PC/Black

TFM-26



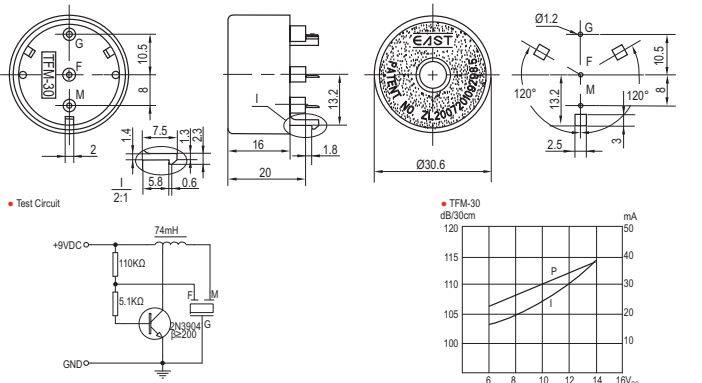
Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V_{DC})	Operating Voltage (V_{DC})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature ($^\circ\text{C}$)	Weight (g)	Case Material / Colour
TFM-26	85/12 V_{DC} /100cm	12	6~18	20/12 V_{DC}	3.2±0.3	-20~+70	9.5	PC/Black

TFM-28



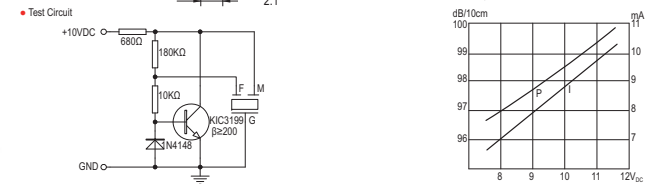
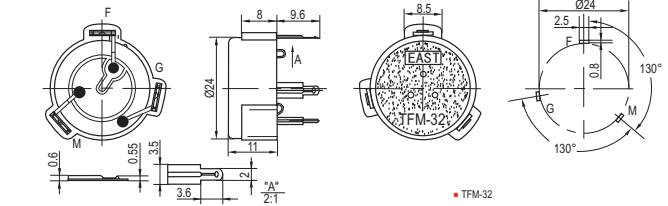
Model No.	Min. Sound Pressure Level (dB)	Min. Sound Pressure Level (dB)	Rated Voltage (V_{DC})	Operating Voltage (V_{DC})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature ($^\circ\text{C}$)	Weight (g)	Case Material / Colour
TFM-28	95/9 V_{DC} /30cm	85/9 V_{DC} /300cm	9	6~14	30/9 V_{DC}	3.4±0.5	-20~+70	6	PC/Black

TFM-30



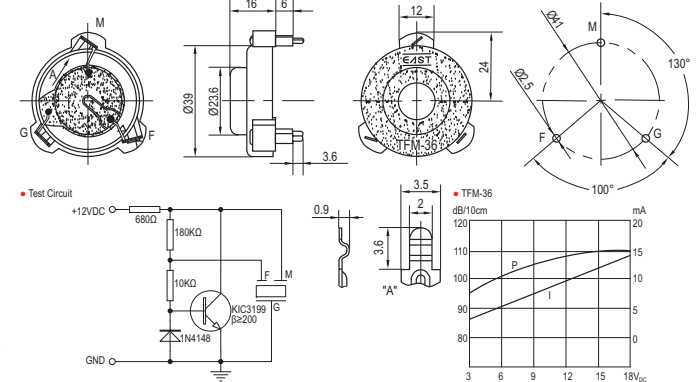
Model No.	Min. Sound Pressure Level (dB)	Min. Sound Pressure Level (dB)	Rated Voltage (V_{DC})	Operating Voltage (V_{DC})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature ($^\circ\text{C}$)	Weight (g)	Case Material / Colour
TFM-30	95/9 V_{DC} /30cm	85/9 V_{DC} /300cm	9	6~14	30/9 V_{DC}	3.4±0.5	-20~+70	6	ABS/Black

TFM-32



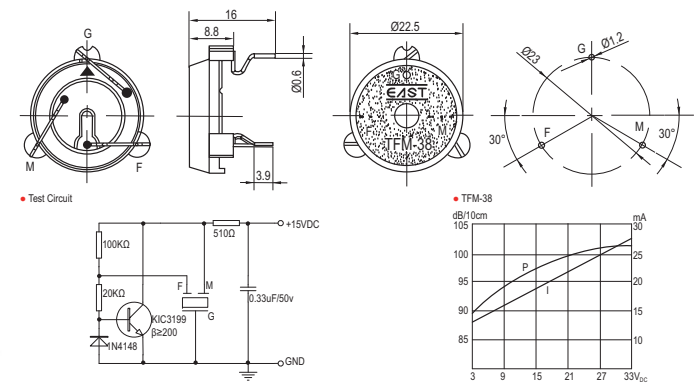
Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V_{DC})	Operating Voltage (V_{DC})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature ($^\circ\text{C}$)	Weight (g)	Case Material / Colour
TFM-32	90/10 V_{DC} /10cm	10	8~12	15/10 V_{DC}	3.5±0.6	-20~+70	3.5	PC/Black

TFM-36



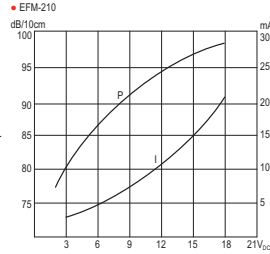
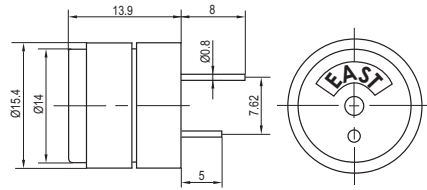
Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V_{DC})	Operating Voltage (V_{DC})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature ($^\circ\text{C}$)	Weight (g)	Case Material / Colour
TFM-36	106/12 V_{DC} /10cm	12	3~18	15/12 V_{DC}	3.2±0.3	-20~+60	11.5	ABS/Black

TFM-38



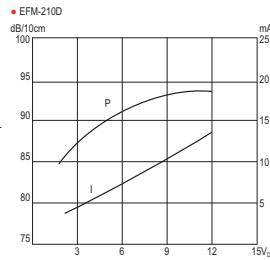
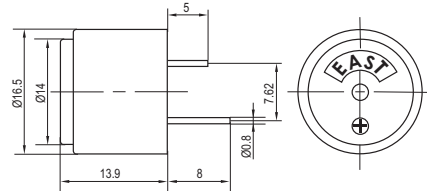
Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V_{DC})	Operating Voltage (V_{DC})	Max. Consumption (mA)	Startup Time (mS)	Oscillating Frequency (kHz)	Operating Temperature ($^\circ\text{C}$)	Weight (g)	Case Material / Colour
TFM-38	95/15 V_{DC} /10cm	15	5~25	25/15 V_{DC}	5	3.6±0.5	-20~+70	1.8	ABS/White

- EFM-210
- EFM-210A



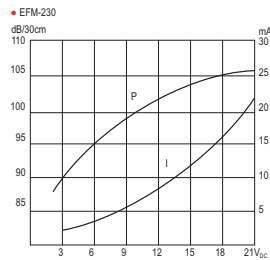
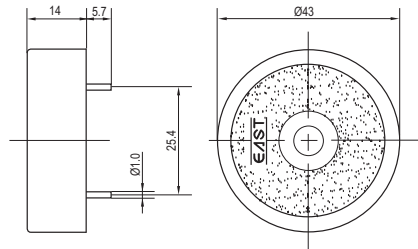
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-210	85/12V _{DC} /10cm	12	1~18	20/12V _{DC}	4.0±0.5	Continuous	-25~+85	2.4	PC/Black
EFM-210A	83/5V _{DC} /10cm	5	1~12	15/5V _{DC}					

- EFM-210D



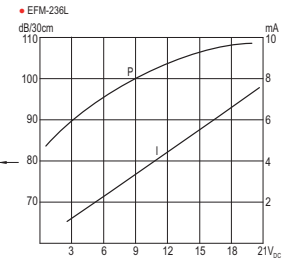
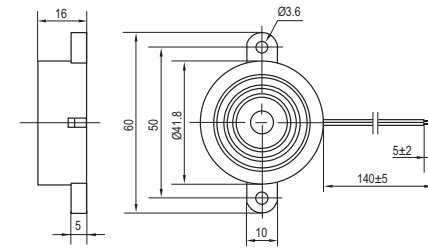
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-210D	83/5V _{DC} /10cm	5	1~12	15/5V _{DC}	4.0±0.5	Continuous	-20~+80	2.5	PC/Black

- EFM-230



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-230	100/12V _{DC} /30cm	12	3~20	15/12V _{DC}	2.9±0.5	Continuous	-20~+70	11	ABS/Black

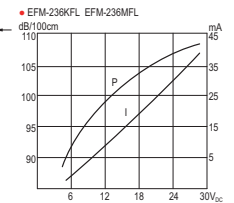
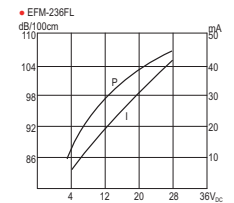
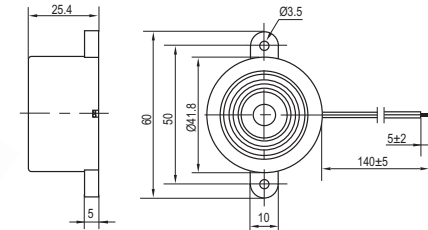
- EFM-236L
- EFM-236KL
- EFM-236ML



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-236L	100/12V _{DC} /30cm	12	3~20	15/12V _{DC}	2.9±0.5	Continuous	-20~+70	14	ABS/Black
EFM-236KL						Fast Pulse			
EFM-236ML						Slow Pulse			

Note: Slow Pulse fs=1.2±20%, Fast Pulse fr=2.5Hz±20%

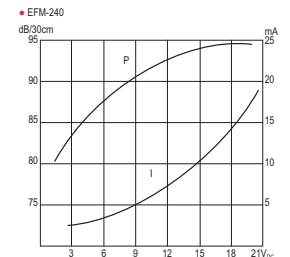
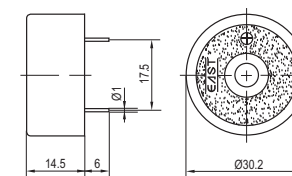
- EFM-236FL
- EFM-236KFL
- EFM-236MFL



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-236FL	90/9V _{DC} /100cm	9	4~28	30/9V _{DC}	3.0±0.5	Continuous	-20~+70	22	ABS/Black
EFM-236KFL	96/12V _{DC} /100cm	12		30/12V _{DC}	2.9±0.5	Fast Pulse			
EFM-236MFL						Slow Pulse			

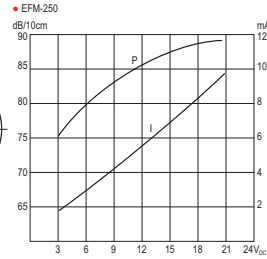
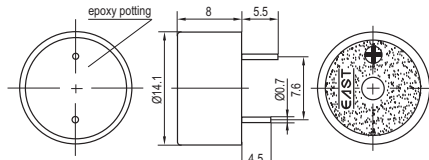
Note: Slow Pulse fs=1.2Hz±20%, Fast Pulse fr=2.5Hz±20%

- EFM-240



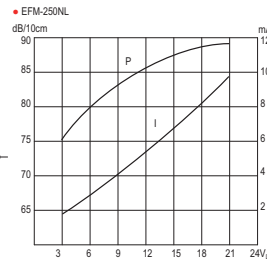
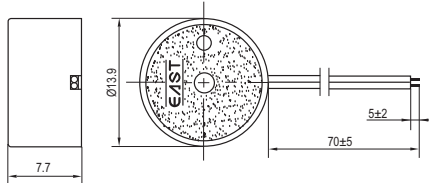
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-240	90/12V _{DC} /30cm	12	3~20	15/12V _{DC}	2.8±0.5	Continuous	-20~+70	7.5	ABS/Black

- EFM-250
- EFM-250A



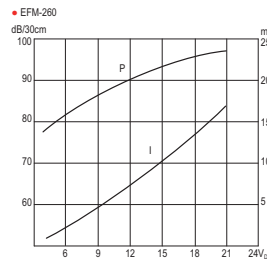
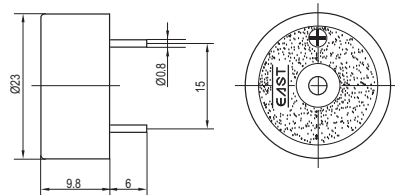
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-250	85/12V _{oc} /10cm	12	6~16	8/12V _{oc}	4.0±0.5	Continuous	-40~+85	1	PC/Black
EFM-250A	80/5V _{oc} /10cm	5	3~9	8/5V _{oc}					

- EFM-250NL



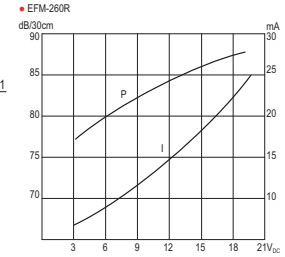
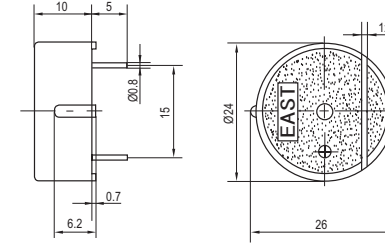
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-250NL	85/12V _{oc} /10cm	12	6~16	8/12V _{oc}	4.0±0.5	Continuous	-40~+85	1	PC/Black

- EFM-260
- EFM-260A



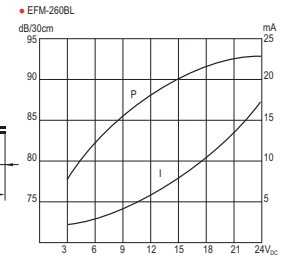
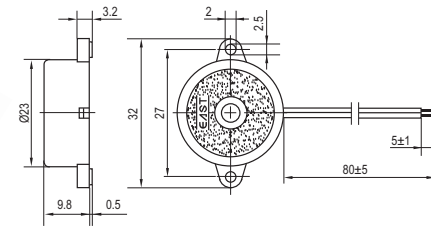
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-260	85/12V _{oc} /30cm	12	3~24	12/12V _{oc}	3.5±0.5	Continuous	-20~+70	4	PC/Black
EFM-260A	85/24V _{oc} /30cm	24	12~36	12/24V _{oc}					

- EFM-260R



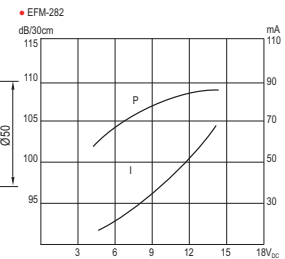
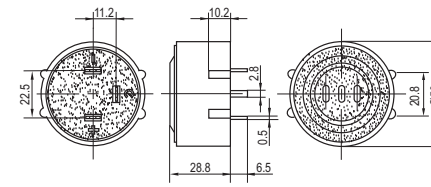
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-260R	80/12V _{oc} /30cm	12	3~24	15/12V _{oc}	3.0±0.5	Continuous	-20~+70	4.4	PC/Black

- EFM-260BL



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-260BL	85/12V _{oc} /30cm	12	3~24	10/12V _{oc}	3.5±0.5	Continuous	-20~+70	4.5	PC/Black

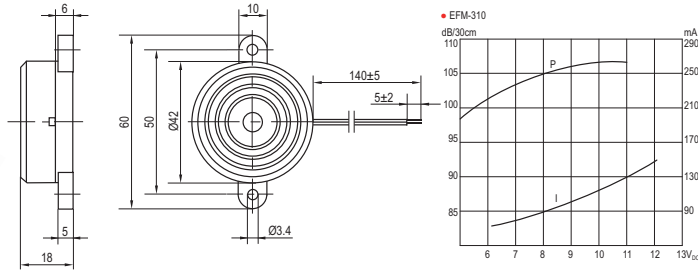
- EFM-282



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-282	108/12V _{oc} /30cm	12	5~13	75/12V _{oc}	2.5±0.5	Continuous	-20~+70	28	ABS/Black

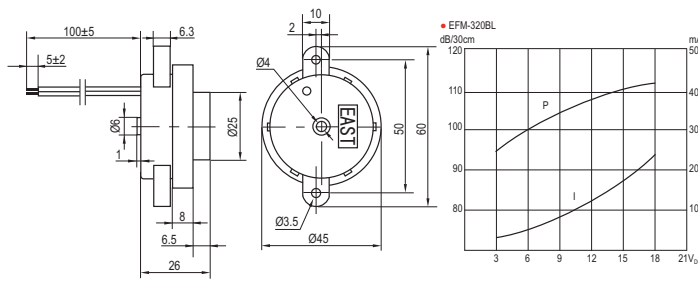
Note: Only when apply 12V_{oc} on pin "c", the product can produce sound.

- EFM-310
- EFM-310A
- EFM-310B



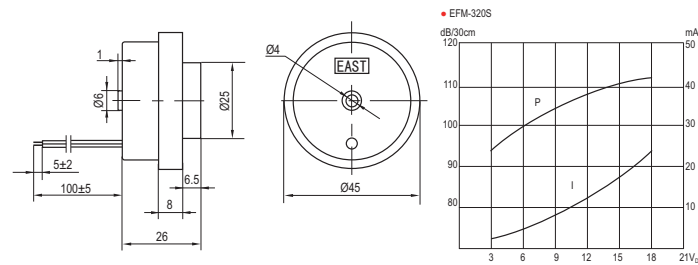
Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-310	100/9V _{dc} /30cm	9	6~12	120/9V _{dc}	Siren	-20~+70	20	ABS/Black
EFM-310A	100/12V _{dc} /30cm	12	6~15	150/12V _{dc}				
EFM-310B	96/6V _{dc} /30cm	6	3~9	80/6V _{dc}				

- EFM-320BL



Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-320BL	105/12V _{dc} /30cm	12	3~16	35/12V _{dc}	2.9±0.5	Continuous	-20~+80	19	Fire-resistance ABS/White

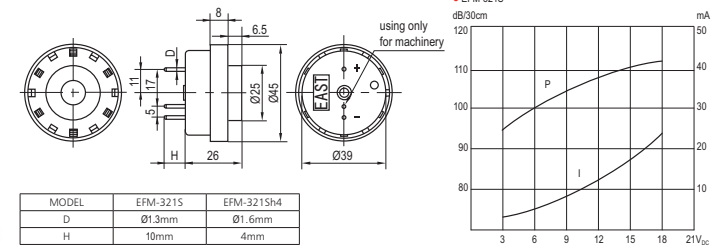
- EFM-320D
- EFM-320S
- EFM-320SS
- EFM-320P



Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-320D	105(92)/12V _{dc} /30cm	12	3~16	35(20)/12V _{dc}	2.9±0.5	Continuous(Pulse)	-20~+70	19	Fire-resistance ABS/White
EFM-320S	105/12V _{dc} /30cm			35/12V _{dc}		Continuous			
EFM-320SS	100/24V _{dc} /30cm	24	3~28	35/24V _{dc}		Pulse			
EFM-320P	92/12V _{dc} /30cm	12	3~16	20/12V _{dc}					

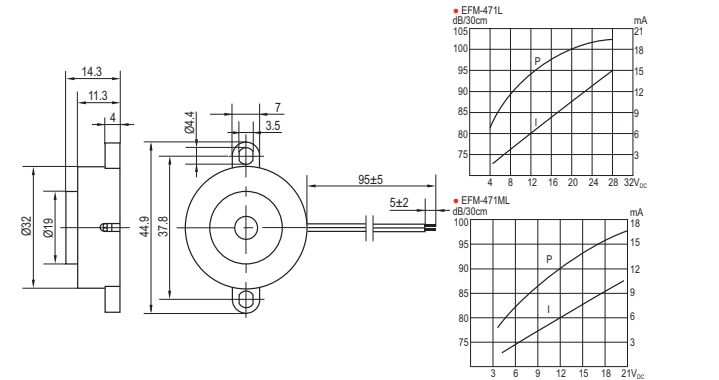
Note: Pulse f = 2~7Hz EFM-320D Continuous: Red wire (+) Black wire (-)
Pulse: Yellow wire (+) Black wire (-)

- EFM-321S
- EFM-321Sh4



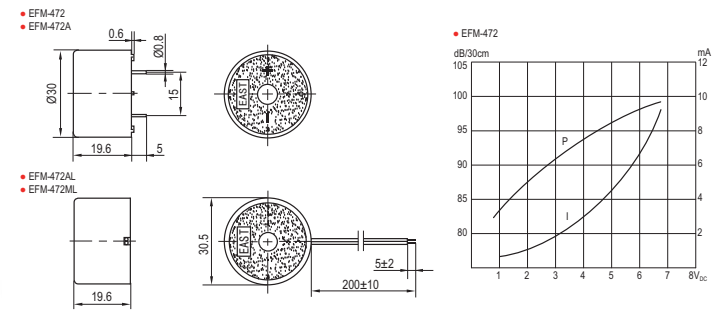
Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-321S(321Sh4)	105/12V _{dc} /30cm	12	3~16	35/12V _{dc}	2.9±0.5	Continuous	-20~+70	19	Fire-resistance ABS/White

- EFM-471L
- EFM-471AL
- EFM-471BL
- EFM-471ML



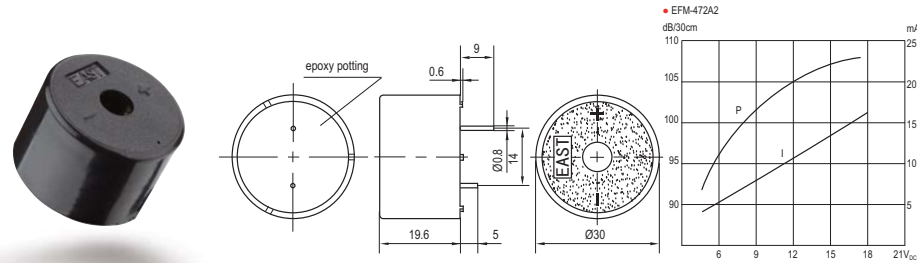
Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-471L	90/12V _{dc} /30cm	12	3~24	15/12V _{dc}	3.9±0.5	Continuous	-20~+70	8	ABS/White
EFM-471AL	90/24V _{dc} /30cm	24	18~30	20/24V _{dc}	3.7±0.5				PC/Black
EFM-471BL	85/6V _{dc} /30cm	6	1.5~16	5/6V _{dc}	3.5±0.5	Pulse 1.2Hz±20%	-20~+70	8	ABS/White
EFM-471ML	87/12V _{dc} /30cm	12	3~20	15/12V _{dc}	3.9±0.5				

- EFM-472
- EFM-472A
- EFM-472ML
- EFM-472AL



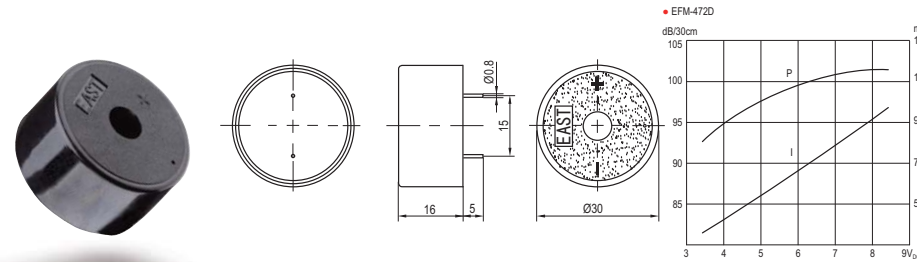
Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-472	90/3V _{dc} /30cm	3	2~5	5/3V _{dc}	3.5±0.5	Continuous	-20~+70	11.5	PC/Black
EFM-472A	90/12V _{dc} /100cm	12	3~20	10/12V _{dc}			-40~+70		
EFM-472ML	85/12V _{dc} /30cm		3~16	15/12V _{dc}		Pulse 2-6Hz	-20~+70	10.1	
EFM-472AL	90/12V _{dc} /100cm	12	3~20	10/12V _{dc}		Continuous	-20~+70	9.7	

• EFM-472A2



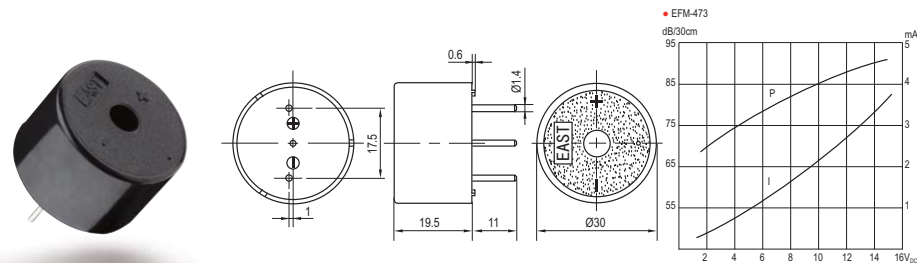
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-472A2	100/12V _{DC} /30cm	12	3~20	30/12V _{DC}	3.5±0.5	Continuous	-20~+70	11.5	PC/Black

• EFM-472D



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-472D	95/6V _{DC} /30cm	6	3~8	15/6V _{DC}	3.5±0.5	Continuous	-20~+70	7.5	PC/Black

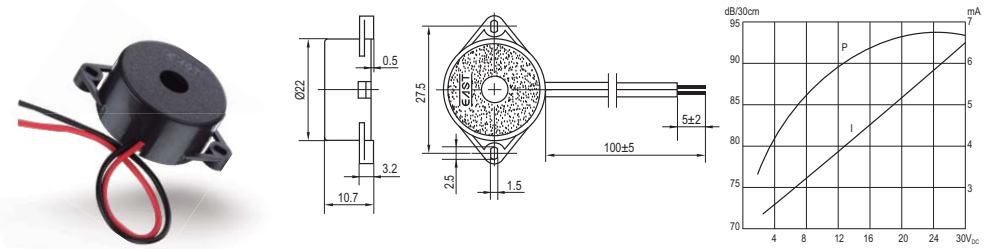
• EFM-473



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-473	80/12V _{DC} /30cm	12	3~16	3/12V _{DC}	3.5±0.5	Continuous+Pulse	-20~+70	8.6	PC/Black

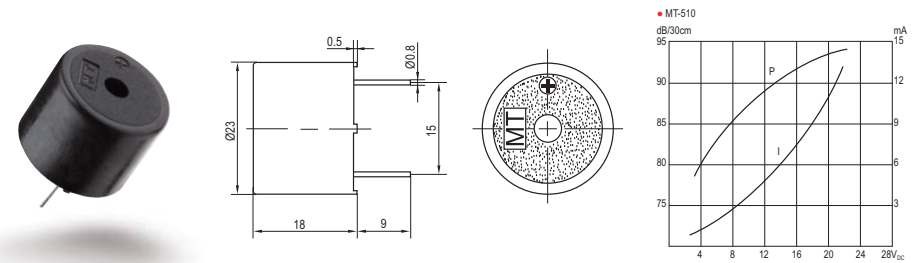
Note:Pulse f=2.5Hz±20%

• EFM-475



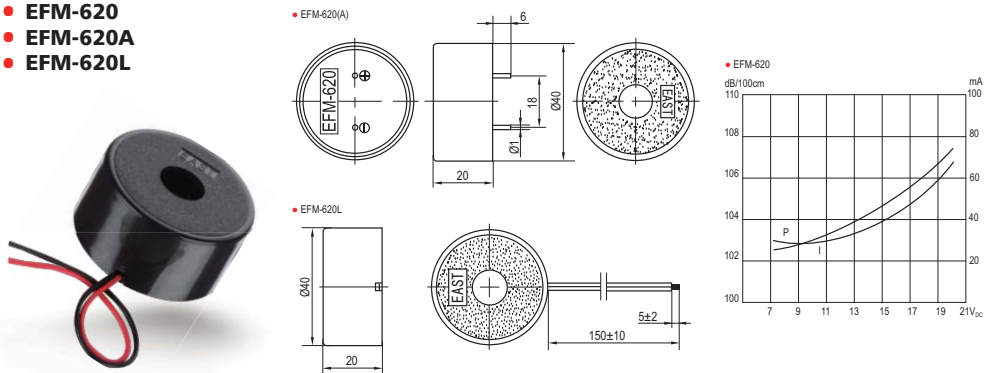
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-475	85/12V _{DC} /30cm	12	3~30	3/12V _{DC}	4.5±0.5	Continuous	-20~+70	2.8	ABS/Black

• MT-510



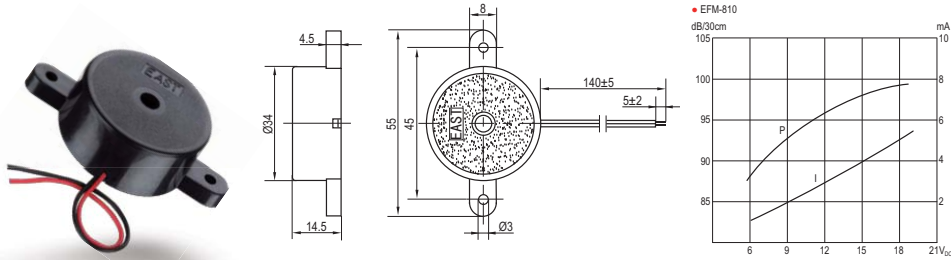
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
MT-510	85/12V _{DC} /30cm	12	3~20	12/12V _{DC}	3.15±0.5	Continuous	-20~+70	7	PA66/Black

• EFM-620 • EFM-620A • EFM-620L



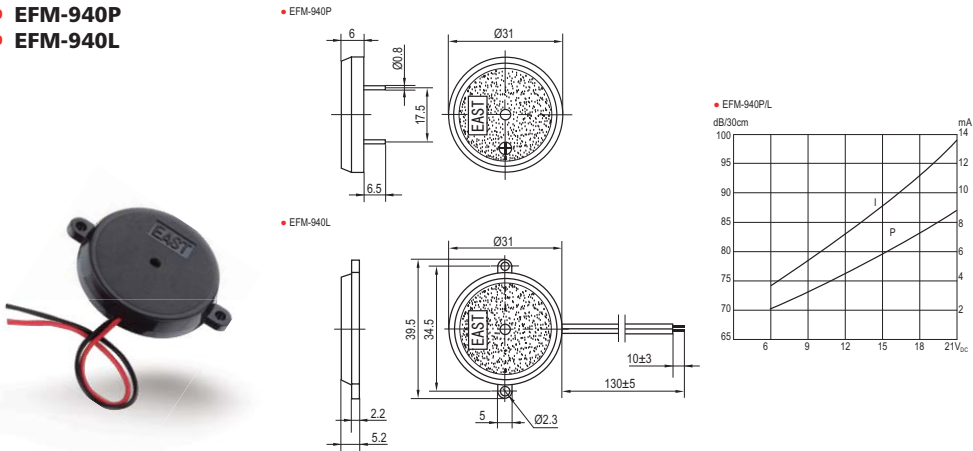
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-620	100/9V _{DC} /100cm 85/7.5V _{DC} /300cm	9(7.5)	7~20	50/9V _{DC}	3.2±0.5	Continuous	-20~+60	12.5	PC/Black
EFM-620A	95/3V _{DC} /30cm	3	2~7	30/3V _{DC}					ABS/Black
EFM-620L	100/9V _{DC} /100cm 85/7.5V _{DC} /300cm	9(7.5)	7~20	50/9V _{DC}					

• EFM-810



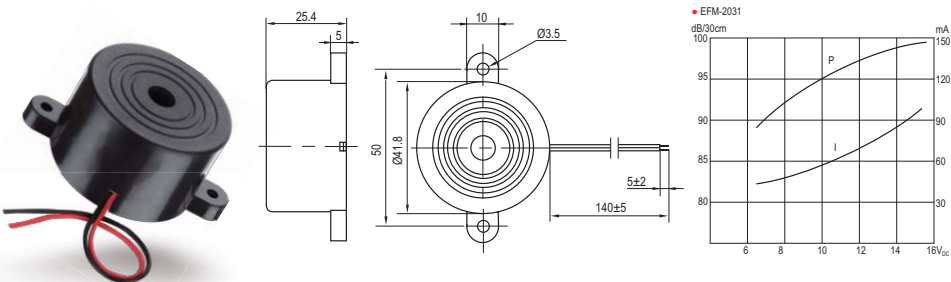
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-810	88/12V _{DC} /30cm	12	3~28	5/12V _{DC}	3.5±0.5	Continuous	-20~+70	9.3	ABS/Black

• EFM-940P • EFM-940L



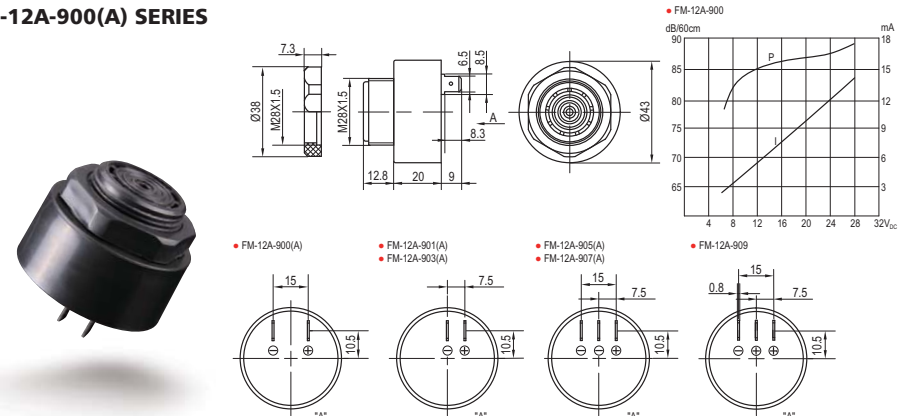
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-940(L)	70/12V _{DC} /30cm	12	3~20	8/12V _{DC}	3.1±0.5	Continuous	-20~+70	3.8	PC/Black

• EFM-2031



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-2031	90/12V _{DC} /30cm	12	6~15	70/12V _{DC}	0.3±0.15	Siren	-20~+70	22	ABS/Black

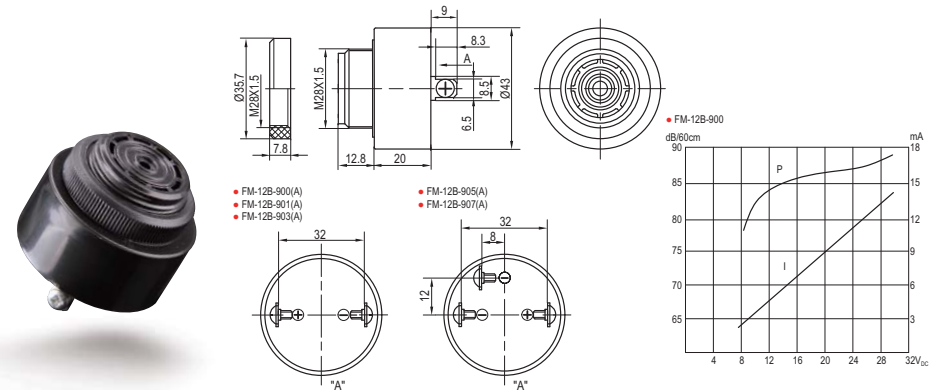
• FM-12A-900(A) SERIES



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12A-900 FM-12A-900A	80/12V _{DC} /60cm For FM-12A-900 SERIES	12	6~28	20/12V _{DC} For FM-12A-900 SERIES	2.9±0.5	Continuous	-20~+70	35	ABS/Black
FM-12A-901 FM-12A-901A						Fast Pulse			
FM-12A-903 FM-12A-903A						Slow Pulse			
FM-12A-905 FM-12A-905A						Continuous+Fast Pulse			
FM-12A-907 FM-12A-907A						Continuous+Slow Pulse			
FM-12A-909						Fast Pulse+Slow Pulse			

Note:1.Slow Pulse fs=1.2Hz±20%(1.0Hz±20% for FM-12A-909),Fast Pulse fi=3.0Hz±20%.
2.These two series are epoxy-potting type.

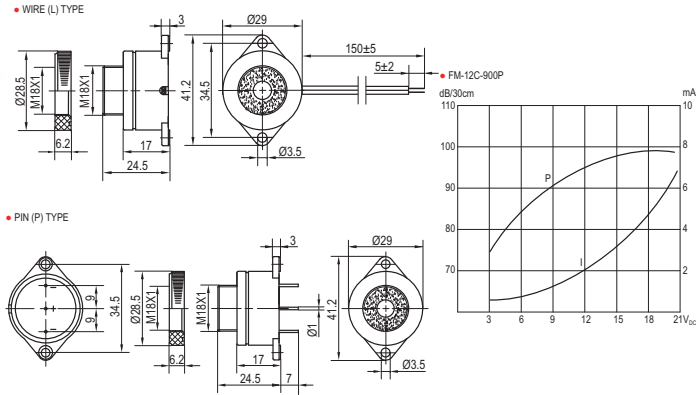
• FM-12B-900(A) SERIES



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12B-900 FM-12B-900A	80/12V _{DC} /60cm For FM-12B-900 SERIES	12	6~28	20/12V _{DC} For FM-12B-900 SERIES	2.9±0.5	Continuous	-20~+70	35	ABS/Black
FM-12B-901 FM-12B-901A						Fast Pulse			
FM-12B-903 FM-12B-903A						Slow Pulse			
FM-12B-905 FM-12B-905A						Continuous+Fast Pulse			
FM-12B-907 FM-12B-907A						Continuous+Slow Pulse			

Note:1.Slow Pulse fs=1.2Hz±20%,Fast Pulse fi=3.0Hz±20%.
2.These two series are epoxy-potting type.

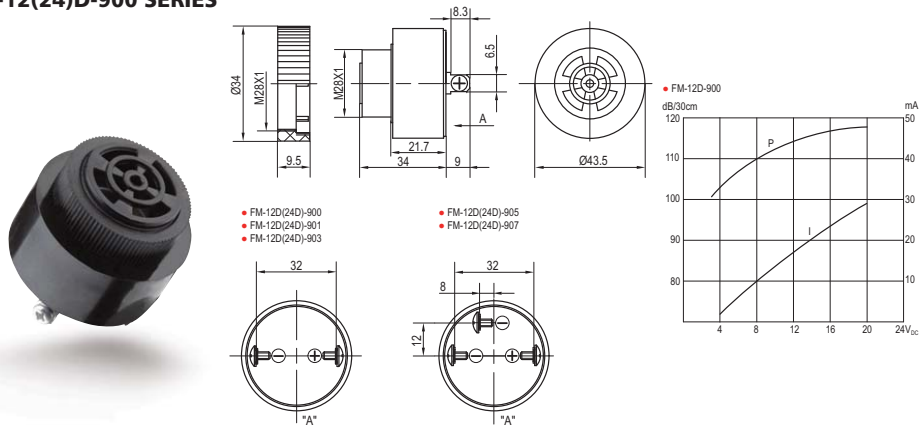
FM-12(24)C-900 SERIES



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12(24)C-900LP	90(92)/12(24)V _{oc} /30(100)cm	12(24)	3~20(12~28)	10(20)/12(24)V _{oc}	3.7±0.5	Continuous	-20~+70	13	ABS/Black
FM-12(24)C-901LP						Fast Pulse			
FM-12(24)C-903LP						Slow Pulse			
FM-12(24)C-905LP						Continuous+Fast Pulse			
FM-12(24)C-907LP						Continuous+Slow Pulse			

Note: Slow Pulse fs=1.6Hz±20%, Fast Pulse fi=3.3Hz±20%.

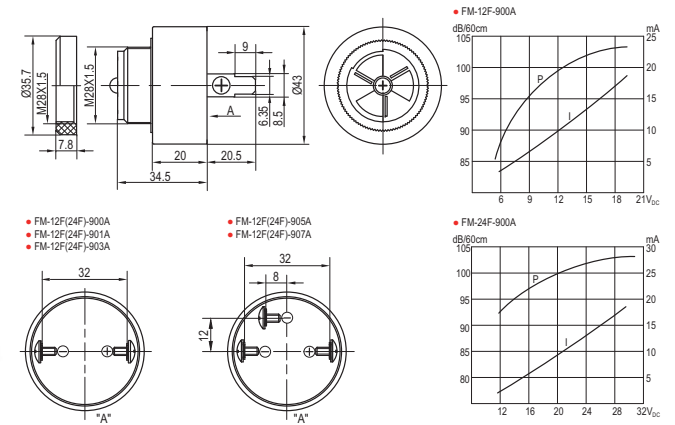
FM-12(24)D-900 SERIES



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12(24)D-900	100(85)/12(24)V _{oc} /30cm	12(24)	3~20(4~28)	20(22)/12(24)V _{oc}	2.9±0.5 FOR ALL OTHER SERIAL MODELS	Continuous	-20~+70	35	ABS/Black
FM-12(24)D-901						Fast Pulse			
FM-12(24)D-903						Slow Pulse			
FM-12(24)D-905						Continuous+Fast Pulse			
FM-12(24)D-907						Continuous+Slow Pulse			

Note: 1.Slow Pulse fs=1.0Hz±20%, Fast Pulse fi=5.0Hz±20%.
2.These two series are epoxy-potting type.

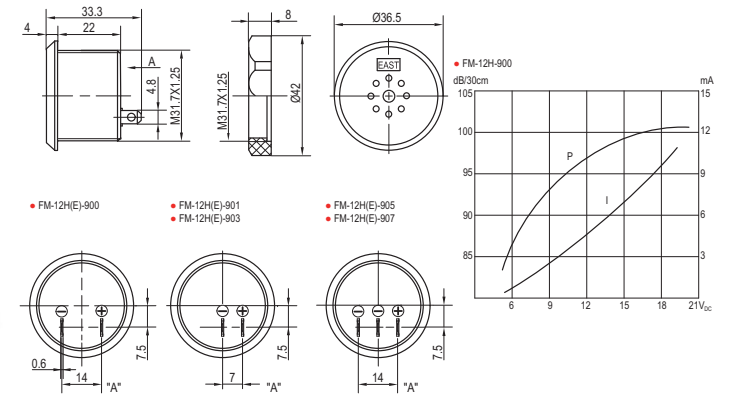
FM-12(24)F-900A-907A SERIES



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12(24)F-900A	90/12(24)V _{oc} /60cm	12(24)	6~16(12~28)	20(22)/12(24)V _{oc}	3.0±0.5	Continuous	-20~+70	35	Fire-resistance ABS/Black
FM-12(24)F-901A						Fast Pulse			
FM-12(24)F-903A						Slow Pulse			
FM-12(24)F-905A						Continuous+Fast Pulse			
FM-12(24)F-907A						Continuous+Slow Pulse			

Note: 1.Slow Pulse fs=1.0Hz±20%, Fast Pulse fi=5.0Hz±20%
2.These two series are epoxy-potting type.
3.Adjust the volume through the top sound adjusting board.

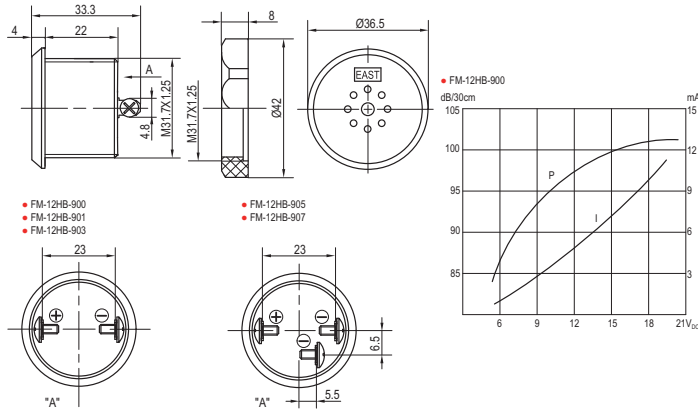
FM-12H(E)-900 SERIES



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{oc})	Operating Voltage (V _{oc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12H-900	90/12V _{oc} /30cm For FM-12H-900 SERIES	12	5~28	10/12V _{oc}	3.0±0.5	Continuous	-20~+70	21	PC/Black
FM-12H-901						Fast Pulse			
FM-12H-903						Slow Pulse			
FM-12H-905						Continuous+Fast Pulse			
FM-12H-907						Continuous+Slow Pulse			

Note: 1.Slow Pulse fs=1.6Hz±20%, Fast Pulse fi=3.3Hz±20%
2.These two series are epoxy-potting type.

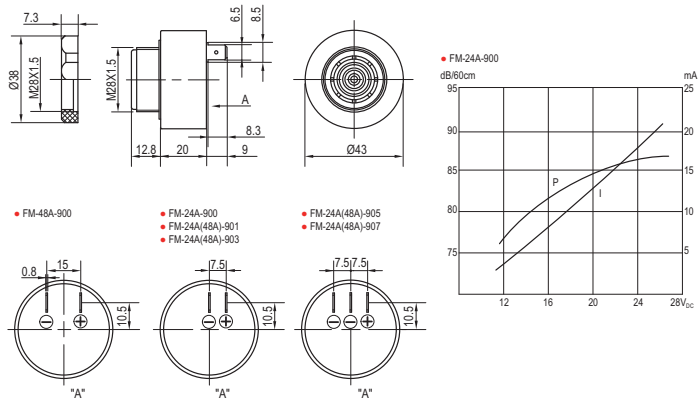
• **FM-12HB-900 SERIES**



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12HB-900	90/12V _{dc} /30cm	12	5~28	10/12V _{dc}	3.0±0.5	Continuous	-20~+70	21	PC/Black
FM-12HB-901						Fast Pulse			
FM-12HB-903						Slow Pulse			
FM-12HB-905						Continuous+Fast Pulse			
FM-12HB-907						Continuous+Slow Pulse			

Note: 1. Slow Pulse $f_s = 1.6\text{Hz} \pm 20\%$, Fast Pulse $f_f = 3.3\text{Hz} \pm 20\%$
 2. This series are epoxy-potting type.

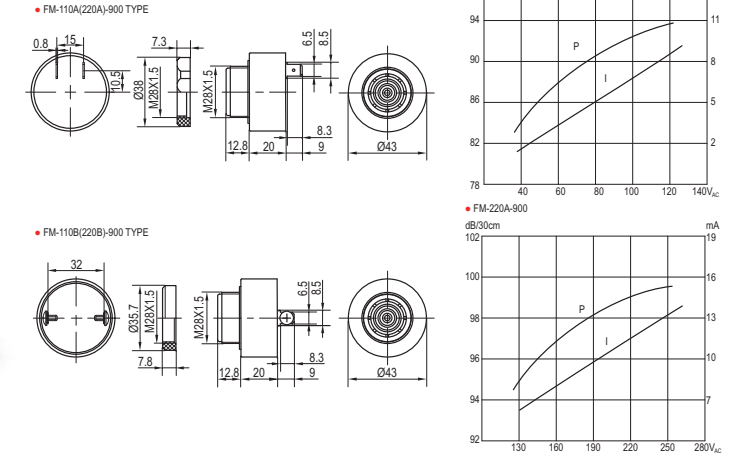
• **FM-24A(48A)-900 SERIES**



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight(g)	Case Material / Colour
FM-24A-900	80/24V _{dc} /60cm For FM-24A-900 SERIES	24V _{dc} For FM-24A-900 SERIES	12~28 For FM-24A-900 SERIES	25/24V _{dc} For FM-24A-900 SERIES	2.9±0.5	Continuous	-20~+70	35	ABS(24A)/Black Fire-resistance ABS(48A)/Black
FM-48A-900						Fast Pulse			
FM-24A-901						Slow Pulse			
FM-24A-903						Continuous+Fast Pulse			
FM-24A-905						Continuous+Slow Pulse			

Note: 1. Slow Pulse $f_s = 1.2\text{Hz} \pm 20\%$, Fast Pulse $f_f = 3.0\text{Hz} \pm 20\%$
 2. These two series are epoxy-potting type.

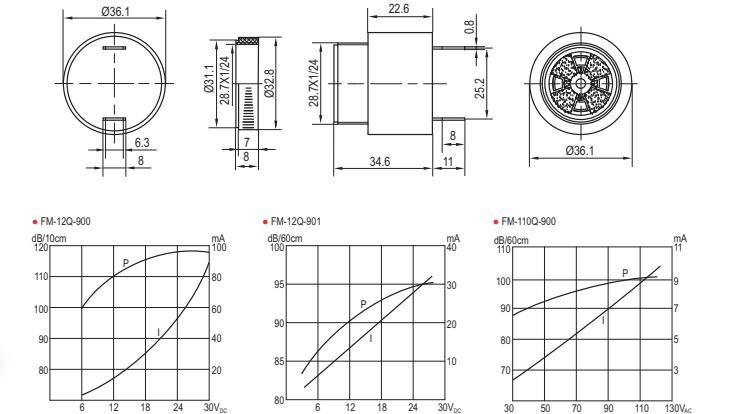
• **FM-110(220)A(B)-900 SERIES**



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-110A-900	85/110V _{dc} /30cm	110	80~120	20/110V _{dc}	2.9±0.5	Continuous	-20~+70	35	Fire-resistance ABS/Black
FM-220A(B)-900						Continuous			
FM-220A(B)-901						Fast Pulse			
FM-220A(B)-903						Slow Pulse			

Note: 1. Slow Pulse $f_s = 1.2\text{Hz} \pm 20\%$, Fast Pulse $f_f = 3.0\text{Hz} \pm 20\%$
 2. These two series are epoxy-potting type.

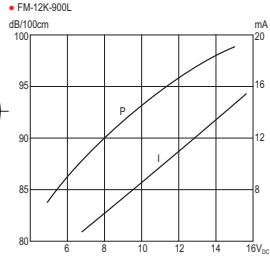
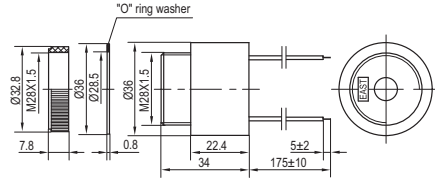
• **FM-12Q-900**
 • **FM-12Q-901**
 • **FM-12Q-901B**
 • **FM-110Q-900**



Model No.	Min.Sound Pressure Level (dB)	Sound Pressure Level (dB)	Rated Voltage (V _{dc} /V _{ac})	Operating Voltage (V _{dc} /V _{ac})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12Q-900	90/12V _{dc} /10cm	——	12V _{dc}	6~30V _{dc}	20/12V _{dc}	2.9±0.5	Continuous	-20~+70	32	Fire-resistance ABS/Black
FM-12Q-901	90/30V _{dc} /60cm	——	30V _{dc}	5~30V _{dc}	40/30V _{dc}		Pulse			
FM-12Q-901B	70/6V _{dc} /60cm	≤100/25V _{dc} /60cm	6(25)V _{dc}	6~25V _{dc}	40/25V _{dc}		Chime Tone			
FM-110Q-900	90/110V _{ac} /60cm	——	110V _{ac}	30~120V _{ac}	20/110V _{ac}		Continuous			

Note: 1. Pulse $f = 2.5\text{Hz} \pm 20\%$, Chime Tone $f = 0.8\text{Hz} \pm 20\%$
 2. These series are epoxy-potting type.

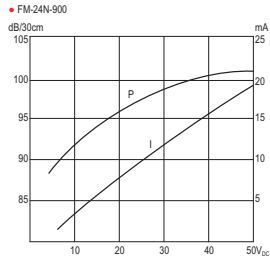
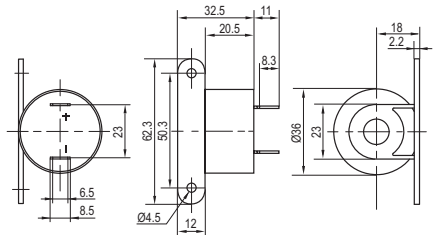
FM-12K-900L



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-12K-900L	90/12V _{dc} /100cm	12	2~16	50/12V _{dc}	3.0±0.5	Continuous	-20~+70	26	PC/Black

Note: This product is epoxy-potting type.

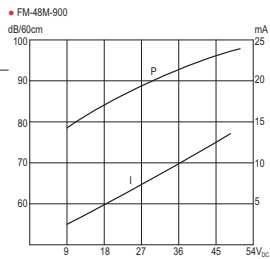
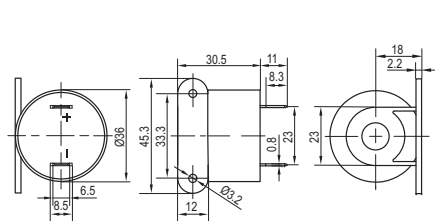
FM-24N-900



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-24N-900	85/24V _{dc} /30cm	24	9~48	10/24V _{dc}	2.7±0.5	Continuous	-30~+85	19	Fire-resistance ABS/Black

Note: This product is epoxy-potting type.

FM-48M-900



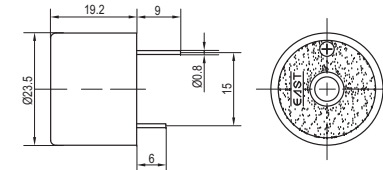
Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max. Consumption (mA)	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
FM-48M-900	75/9V _{dc} /60cm	90/48V _{dc} /60cm	9(48)	9~48	3/9V _{dc}	15/48V _{dc}	2.8±0.5	Continuous	-20~+70	19	Fire-resistance ABS/Black

Note: This product is epoxy-potting type.

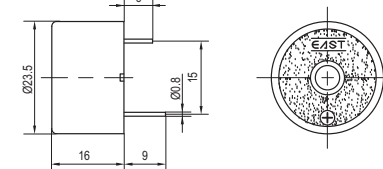
SL11-12CP(L) SERIES SL11-12P(L) SERIES



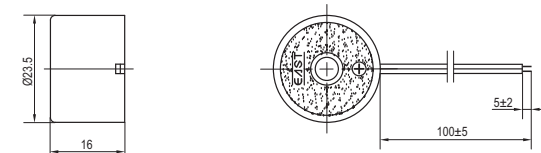
• SL11-12P (03.06.09.24.48.110.220P) SERIES



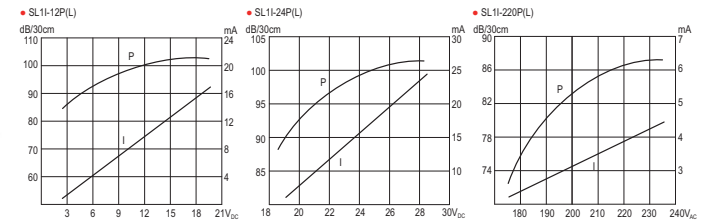
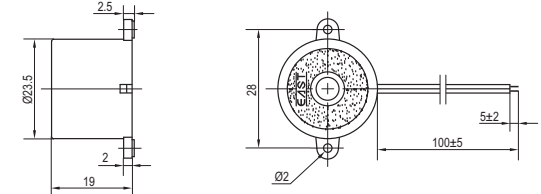
• SL11-12CP (03.06.09CP) SERIES



• SL11-12CL (03.06.09CL) SERIES



• SL11-12L (03.06.09.24.48.110.220L) SERIES

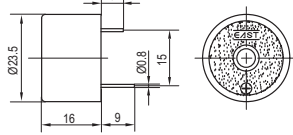


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc} /V _{ac})	Operating Voltage (V _{dc} /V _{ac})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SL11-03(03CP) SL11-03(03CL)	80(78)/3V _{dc} /30cm	3	1~5	25/3V _{dc}	3.3±0.5(3.4±0.5)	Continuous	-20~+70	8(6)	ABS(or PC)/Black
SL11-06(06CP) SL11-06(06CL)	83/6V _{dc} /30cm	6	4.5~9	15/6V _{dc}					
SL11-09(09CP) SL11-09(09CL)	85/9V _{dc} /30cm	9	6~12	15/9V _{dc}					
SL11-12(12CP) SL11-12(12CL)	88(87)/12V _{dc} /30cm	12	9~15	15(18)/12V _{dc}					
SL11-24P SL11-24L	90/24V _{dc} /30cm	24	18~28	20/24V _{dc}	3.4±0.5	Continuous	-20~+70	8	ABS/Black
SL11-48P SL11-48L	88/48V _{dc} /30cm	48	38~58	18/48V _{dc}	3.3±0.5				
SL11-110P SL11-110L	80/110V _{ac} /30cm	110V _{ac}	96~144V _{ac}	5/110V _{ac}	3.5±0.5				
SL11-220P SL11-220L	80/220V _{ac} /30cm	220V _{ac}	176~232V _{ac}	5/220V _{ac}					

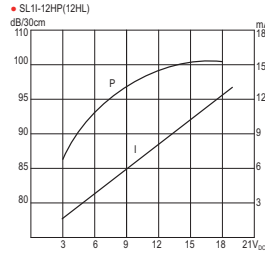
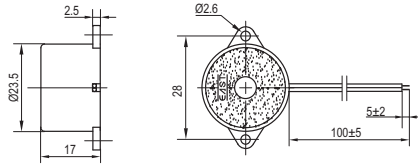
- SL11-12HP
- SL11-12HL



• SL11-12HP



• SL11-12HL

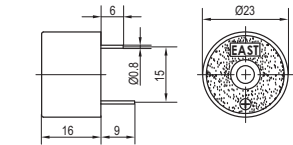


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SL11-12HP(L)	91/12V _{dc} /30cm	12	3~20	10/12V _{dc}	3.7±0.5	Continuous	-20~+70	6(8)	PC/Black

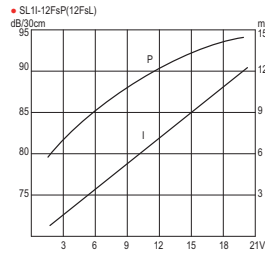
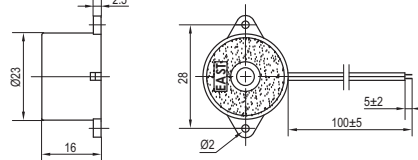
- SL11-12F₃P
- SL11-12F₃L



• SL11-12F₃P

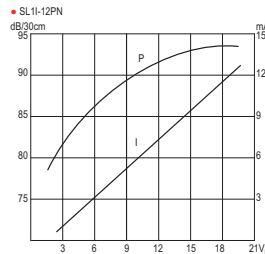
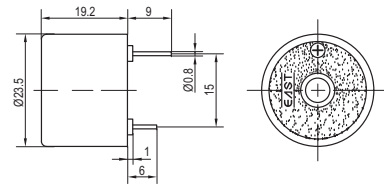


• SL11-12F₃L



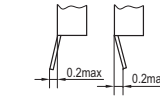
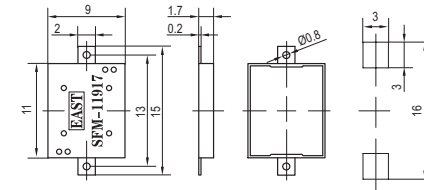
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SL11-12F ₃ P(L)	85/12V _{dc} /30cm	12	3~20	10/12V _{dc}	2.9±0.5	Continuous	-20~+70	7(8)	ABS/Black

- SL11-12PN SERIES

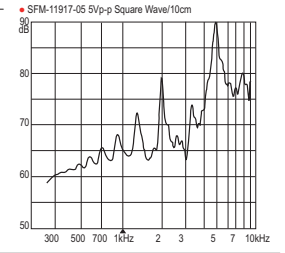
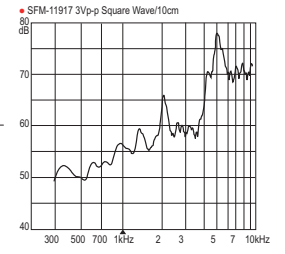


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SL11-03PN	80/3V _{dc} /30cm	3	1~5	25/3V _{dc}	3.3±0.5	Continuous	-20~+70	8	PC/Black
SL11-06PN	83/6V _{dc} /30cm	6	4.5~9	15/6V _{dc}					
SL11-09PN	85/9V _{dc} /30cm	9	6~12	15/9V _{dc}					
SL11-12PN	88/12V _{dc} /30cm	12	9~15	15/12V _{dc}					

- SFM-11917
- SFM-11917-05

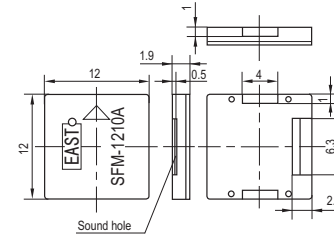


RECOMMENDED SMD FOOT PATTERN



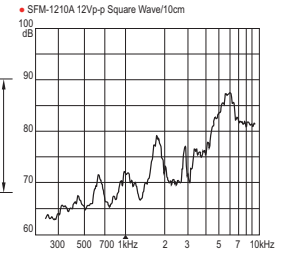
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-11917	60/4.1kHz/3Vp-p Square Wave/10cm	3.5/4.1kHz/3Vp-p Square Wave	4.1±0.3	13±30%	25	-20~+85	0.3	LCP/Black
SFM-11917-05	65/4.1kHz/5Vp-p Square Wave/10cm	3.5/4.1kHz/5Vp-p Square Wave						

- SFM-1210A



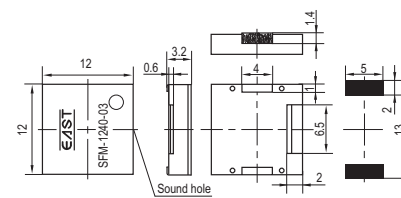
SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN



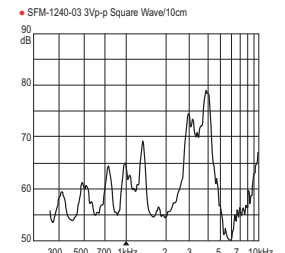
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1210A	67/1.0kHz/12Vp-p Square Wave/10cm	5/1.0kHz/12Vp-p Square Wave	1.0±0.5	15±30%	25	-40~+85	0.5	LCP/Black

- SFM-1240-03



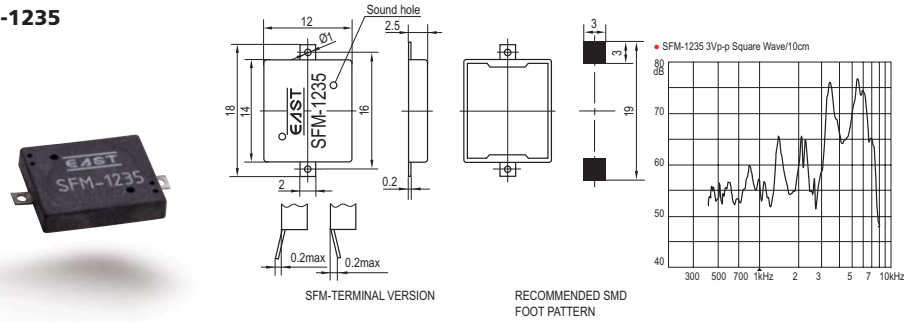
SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN



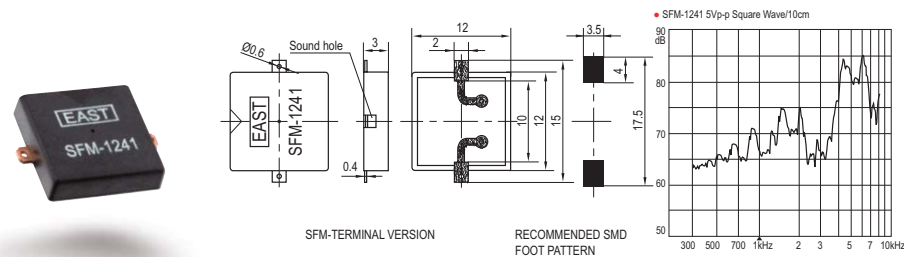
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1240-03	76/4.0kHz/3Vp-p Square Wave/10cm	3/4.0kHz/3Vp-p Square Wave	4.0±0.5	15±30%	30	-40~+120	0.5	LCP/Black

• SFM-1235



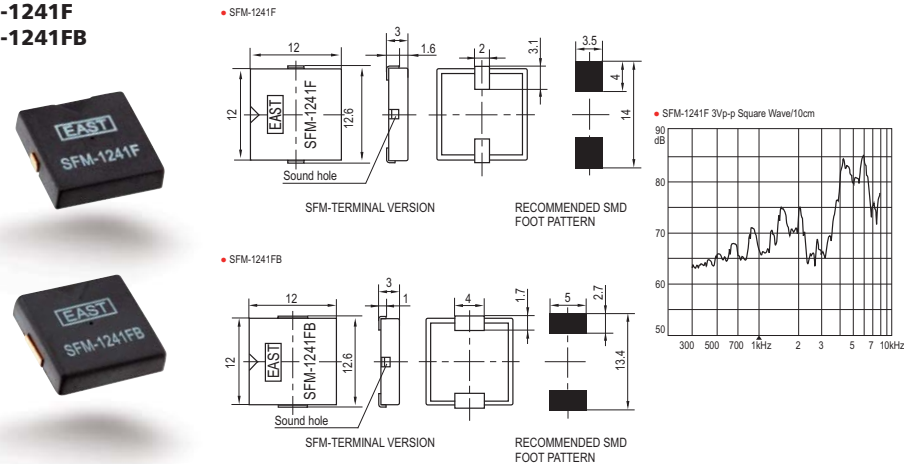
Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1235	68/3.5kHz/3Vp-p Square Wave/10cm	3/3.5kHz/3Vp-p Square Wave	3.5±0.5	16±30%	25	-20~+85	0.5	LCP/Black

• SFM-1241



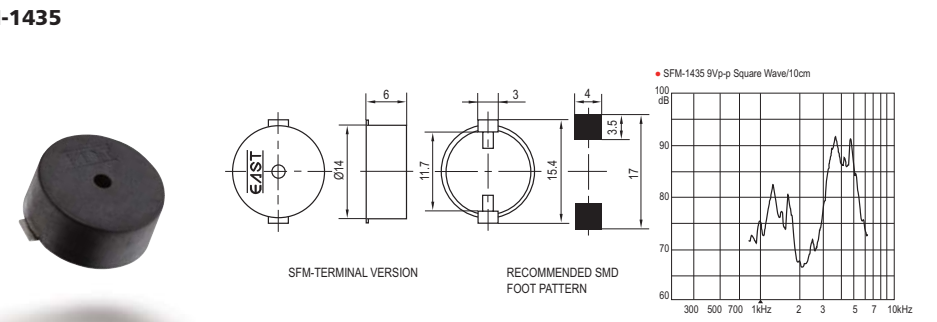
Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1241	75/4.1kHz/5Vp-p Square Wave/10cm	3/4.1kHz/5Vp-p Square Wave	4.1±0.5	16±30%	20	-20~+105	0.7	PPS/Black

• SFM-1241F • SFM-1241FB



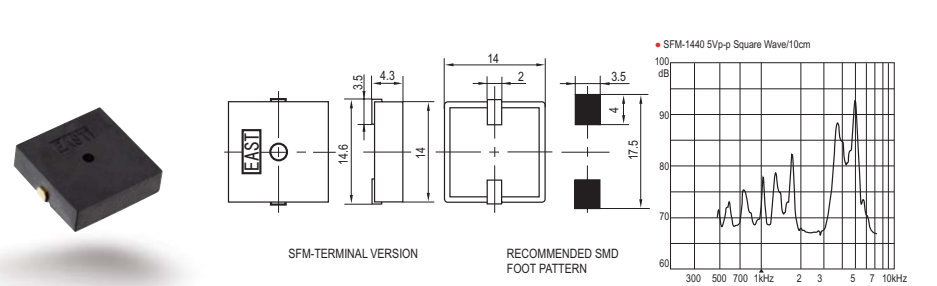
Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1241F	75/4.1kHz/3Vp-p Square Wave/10cm	3/4.1kHz/3Vp-p Square Wave	4.1±0.5	16±30%	20	-20~+105	0.7	PPS/Black
SFM-1241FB	75/4.1kHz/10Vp-p Square Wave/10cm	3/4.1kHz/10Vp-p Square Wave	4.1±0.5	16±30%	20	-20~+105	0.7	PPS/Black

• SFM-1435



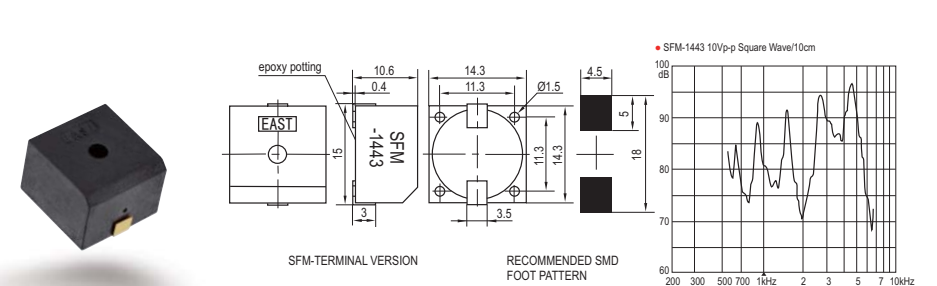
Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1435	80/3.5kHz/9Vp-p Square Wave/10cm	8/3.5kHz/9Vp-p Square Wave	3.5±0.5	14±30%	15	-20~+85	1	PPS/Black

• SFM-1440



Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1440	75/4.0kHz/5Vp-p Square Wave/10cm	2/4.0kHz/5Vp-p Square Wave	4.0±0.3	10±30%	20	-20~+85	1.1	PPS/Black

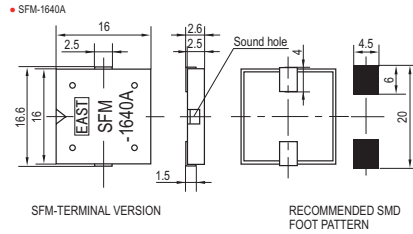
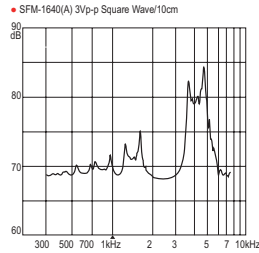
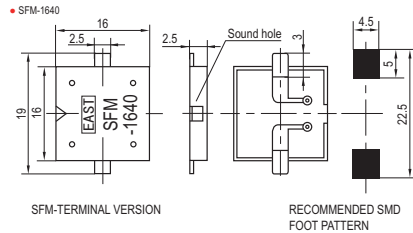
• SFM-1443



Model No.	Min. Sound Pressure Level (dB)	Max. Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1443	88/4.3kHz/10Vp-p Square Wave/10cm	4/4.3kHz/10Vp-p Square Wave	4.3±0.3	15±30%	20	-20~+85	2.3	PPS/Black

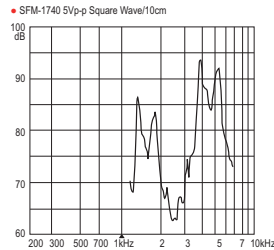
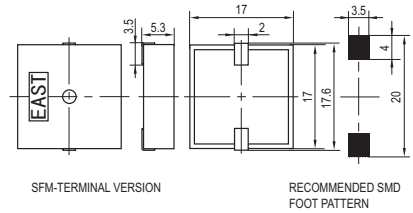
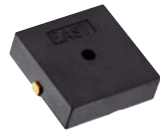
SMD EXTERNAL-DRIVEN PIEZO TRANSDUCER

- SFM-1640
- SFM-1640A



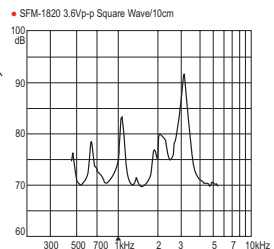
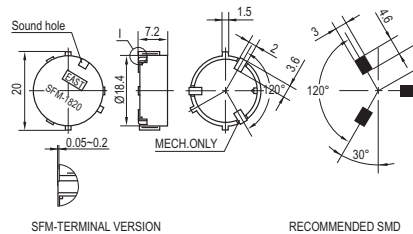
Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1640	70/4.0kHz/3Vp-p Square Wave/10cm	3/4.0kHz/3Vp-p Square Wave	4.0±0.5	14±30%	25	-20~+85	1.2	PPS/Black
SFM-1640A	70/4.0kHz/3Vp-p Square Wave/10cm	3/4.0kHz/3Vp-p Square Wave	4.0±0.5	14±30%	25	-20~+85	1.2	PPS/Black

- SFM-1740



Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1740	80/4.0kHz/5Vp-p Square Wave/10cm	2.5/4.0kHz/5Vp-p Square Wave	4.0±0.3	14±30%	25	-20~+85	2.2	PPS/Black

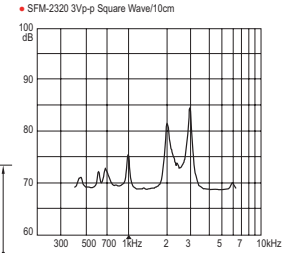
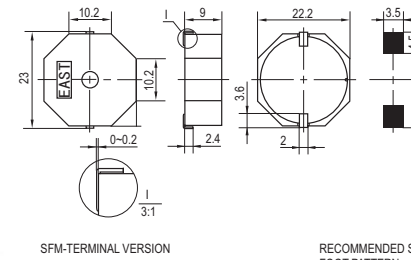
- SFM-1820



Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1820	72/2.0kHz/3.6Vp-p Square Wave/10cm	8/2.0kHz/3.6Vp-p Square Wave	2.0±0.5	20±30%	25	-20~+85	1.7	PPS/Black

SMD EXTERNAL-DRIVEN PIEZO TRANSDUCER

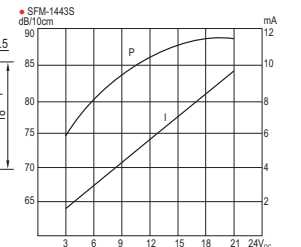
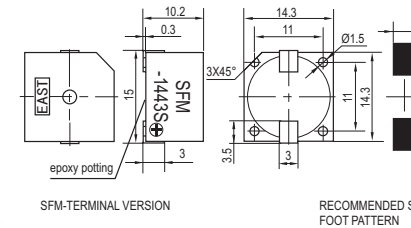
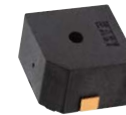
- SFM-2320
- SFM-2325



Model No.	Min.Sound Pressure Level (dB)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-2320	70/2.0kHz/3Vp-p Square Wave/10cm	3/2.0kHz/3Vp-p Square Wave	2.0±0.5	35±30%	25	-20~+85	3.5	PPS/Black
SFM-2325	88/2.5kHz/9Vp-p Square Wave/10cm	12/2.5kHz/9Vp-p Square Wave	2.5±0.5	35±30%	40	-20~+85	3.5	PPS/Black

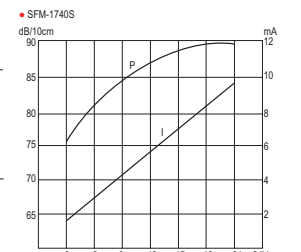
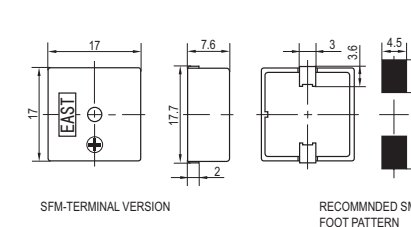
SMD PIEZO BUZZER

- SFM-1443S



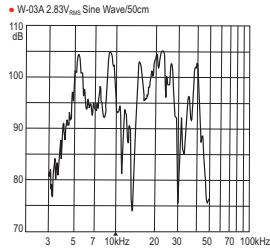
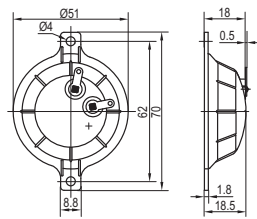
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1443S	82/12V _{DC} /10cm	12	6~16	8/12V _{DC}	4.0±0.5	Continuous	-40~+85	2	PPS/Black

- SFM-1740S



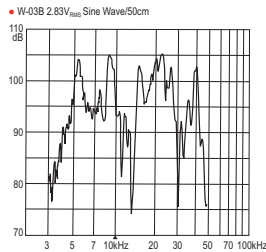
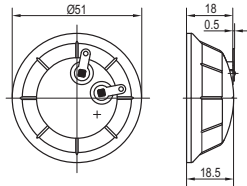
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1740S	85/12V _{DC} /10cm	12	6~16	8/12V _{DC}	4.0±0.5	Continuous	-20~+85	2	PPS/Black

● **W-03A**



Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Rated Voltage (V _{RMS})	Max.Operating Voltage (V _{RMS})	Frequency Range (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-03A	95/22±2kHz/2.83V _{RMS} Sine Wave /50cm	92/40±3kHz/2.83V _{RMS} Sine Wave /50cm	2.83	10	5~50	-20~+70	7	ABS/Black

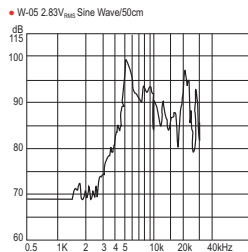
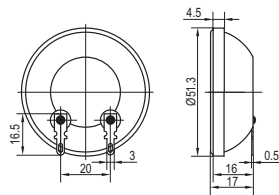
● **W-03B**



Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Rated Voltage (V _{RMS})	Max.Operating Voltage (V _{RMS})	Frequency Range (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-03B	95/22±2kHz/2.83V _{RMS} Sine Wave/50cm	92/40±3kHz/2.83V _{RMS} Sine Wave/50cm	2.83	10	5~50	-20~+70	7	ABS/Black

● **W-05**

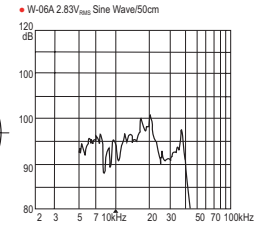
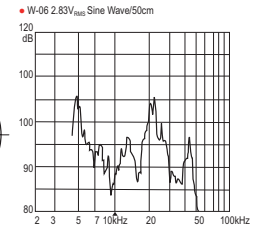
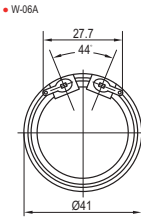
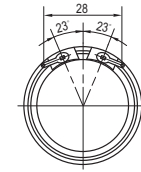
● **W-05A**



Model No.	Min.Sound Pressure Level (dB)	Allowable Input Voltage (Vp-p)	Capacitance at 120Hz (nF)	Resonant Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-05	95/22±1kHz/2.83V _{RMS} Sine Wave/50cm	30	110±30%	22±1.0	-20~+70	9	ABS/Black
W-05A	100/4.5±1.5kHz/2.83V _{RMS} Sine Wave /50cm			4.5±1.5			

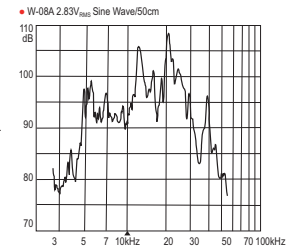
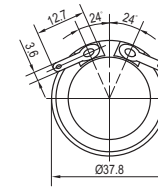
● **W-06**

● **W-06A**



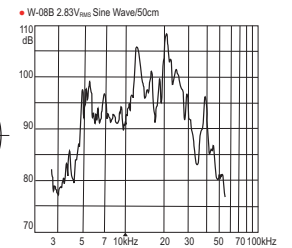
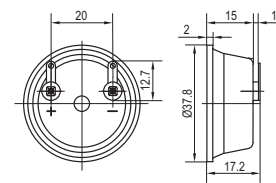
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{RMS})	Max.Operating Voltage (V _{RMS})	Resonant Frequency (kHz)	Frequency Range (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-06	90/22±1kHz/2.83V _{RMS} Sine Wave/50cm	2.83	10	22±1.0	4~50	-10~+50	6.5	Fire-resistance ABS/Black
W-06A	90/22±1kHz/2.83V _{RMS} Sine Wave/50cm 90/40±3kHz/2.83V _{RMS} Sine Wave/50cm					-20~+70		

● **W-08A**



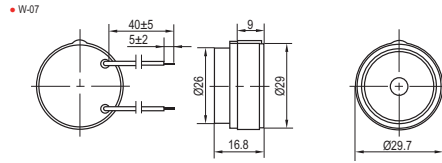
Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Rated Voltage (V _{RMS})	Max.Operating Voltage (V _{RMS})	Frequency Range (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-08A	95/20±2kHz/2.83V _{RMS} Sine Wave/50cm	90/40±3kHz/2.83V _{RMS} Sine Wave/50cm	2.83	10	4~50	-20~+70	4.1	ABS/Black

● **W-08B**

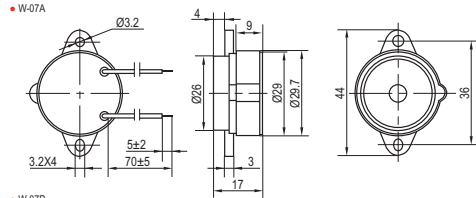


Model No.	Min.Sound Pressure Level (dB)	Min.Sound Pressure Level (dB)	Rated Voltage (V _{RMS})	Max.Operating Voltage (V _{RMS})	Frequency Range (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-08B	95/20±2kHz/2.83V _{RMS} Sine Wave/50cm	90/40±3kHz/2.83V _{RMS} Sine Wave/50cm	2.83	10	4~50	-20~+70	4.1	ABS/Black

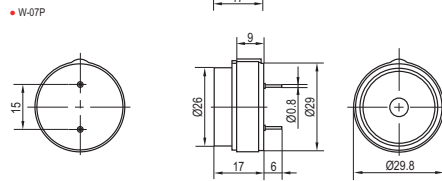
• **W-07**



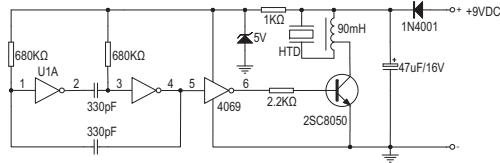
• **W-07A**



• **W-07P**



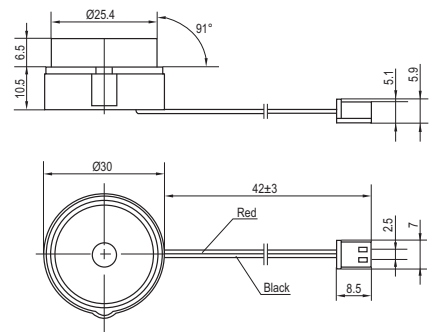
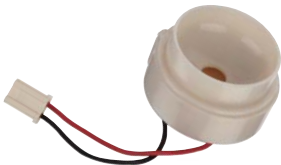
• W-07 07A 07P Test Circuit



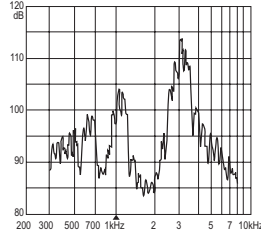
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Capacitance at 1000Hz (nF)	Max.Consumption (mA)	Resonant Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-07(07A)	100/9V _{DC} /30cm	9	25 ± 30%	180/9V _{DC}	3.2 ± 0.5	Continuous	-20 ~ +70	6.6	See note
W-07P			20 ± 30%						

Note:W-07 ABS/White,W-07A ABS/Black,W-07P PC/Black.

• **W-07CE**



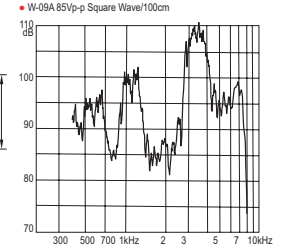
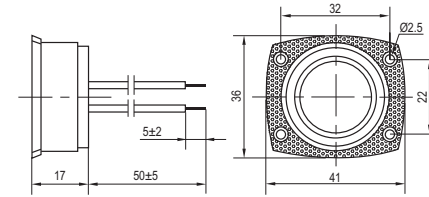
• W-07CE 125Vp-p Square Wave/30cm



Connector:JWT A2503H001-2P Contact:JWT A2503TOP-2

Model No.	Sound Pressure Level (dB)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-07CE	110 ± 5/3.3kHz/125V _{p-p} Square Wave/30cm	3.3 ± 0.5	22 ± 30%	-20 ~ +70	6.8	ABS/Ivory

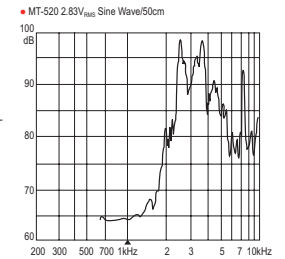
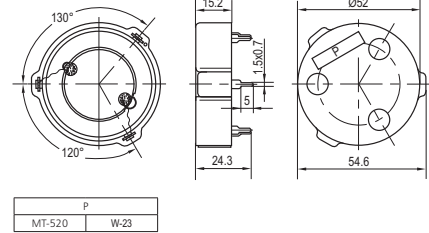
• **W-09A**



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (Vp-p)	Max.Allowable Voltage (Vp-p)	Max.Consumption (mA)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-09A	80/2.5kHz/85V _{p-p} Square Wave/100cm	85	150	150/85V _{p-p}	2.5 ± 0.5	20 ± 30%	-20 ~ +60	10	ABS/Black

• **MT-520**

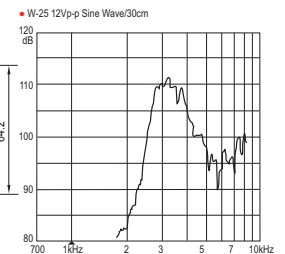
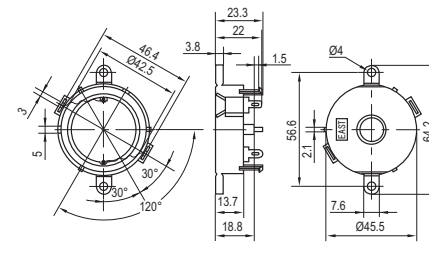
• **W-23**



Model No.	Min.Sound Pressure Level (dB)	Allowable Input Voltage (Vp-p)	Capacitance at 120Hz (nF)	Resonant Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
MT-520(W-23)	98/2~4kHz/18V _{p-p} Square Wave/300cm	60	140 ± 30%	2~4	-40 ~ +85	14	PA6/Black

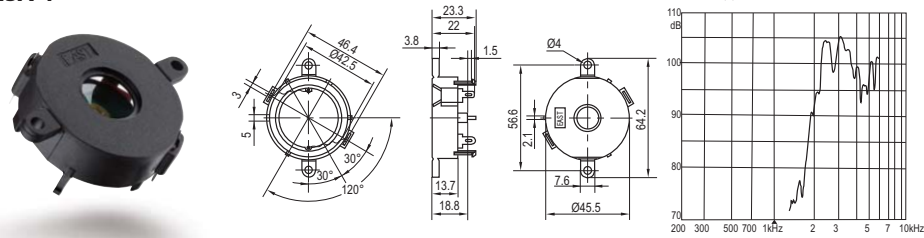
• **W-25**

• **W-25A**



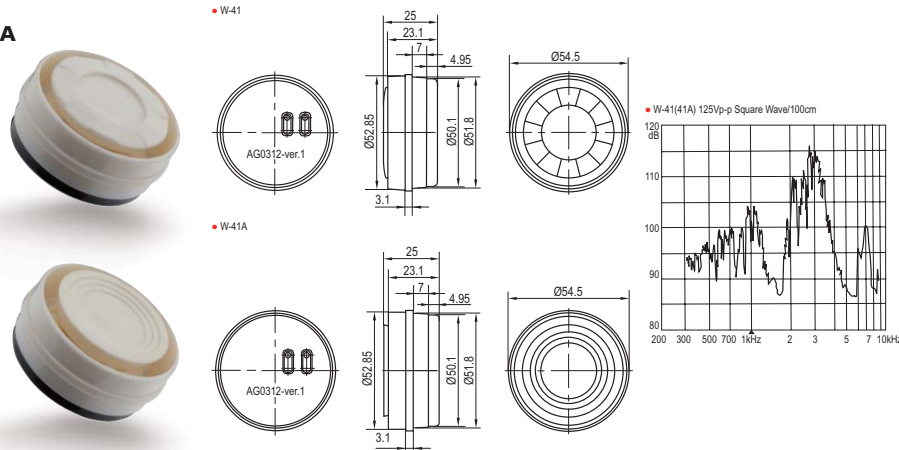
Model No.	Min.Sound Pressure Level (dB)	Capacitance at 120Hz (nF)	Resonant Frequency Range (Hz)	Max.Continuous Drive Voltage at Square Wave (50% duty cycle) (Vp-p)	Max.Intermittent Drive Voltage at Square Wave (50% duty cycle) (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-25(W-25A)	105/2.2~4.0kHz/12V _{p-p} Square Wave/30cm	140 ± 30%	2200~4000	50	60	-40 ~ +80(W-25) -40 ~ +85(W-25A)	14	PA6/Black

- W-25A-2
- W-25A-4



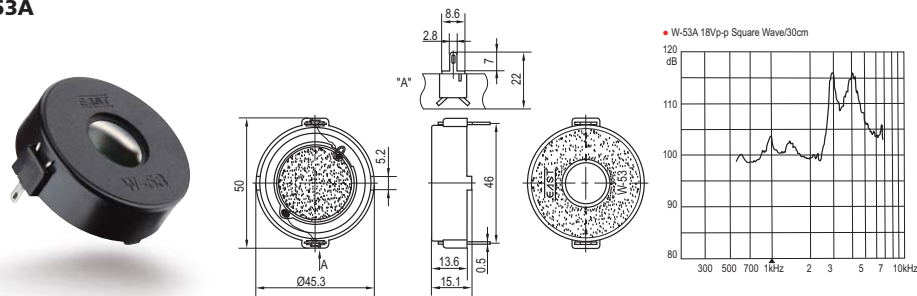
Model No.	Min. Sound Pressure Level (dB)	Max. Continuous Drive Voltage at Square Wave (50% duty cycle) (Vp-p)	Max. Intermittent Drive Voltage at Square Wave (50% duty cycle) (Vp-p)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Operating Temperature (°C)	Weight (g)	Piezo Element Basic Disc	Case Material / Colour
W-25A-2	100/2.2~3kHz/12V _{p-p} Sine Wave/1Foot	50	60	2.2~4	240±30%	-40~+85	14	Brass	PA6/Black
W-25A-4	105/2.2~4kHz/12V _{p-p} Sine Wave/30cm			2~5				250±30%	Ni42(Alloy)

- W-41
- W-41A



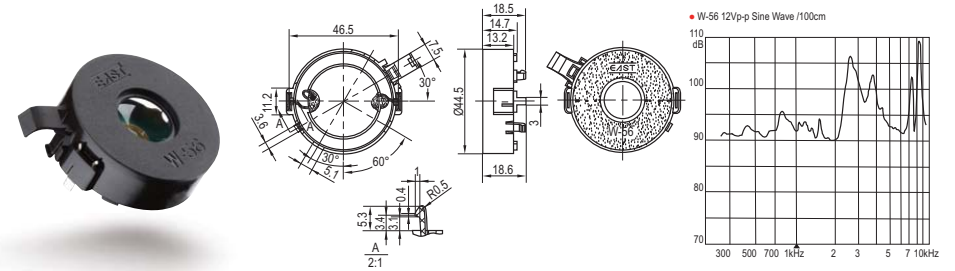
Model No.	Min. Sound Pressure Level (dB)	Resonant Frequency (kHz)	Capacitance at 1000Hz (nF)	Allowable Input Voltage (Vp-p)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-41(41A)	105/3.5kHz/125V _{p-p} Square Wave/100cm	3.5±0.5	28±25%	150	-20~+50	30	ABS/White(Black)

- W-53A



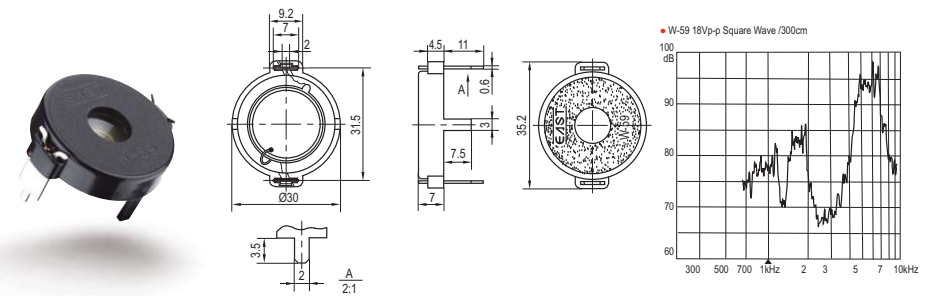
Model No.	Min. Sound Pressure Level (dB)	Allowable Input Voltage (Vp-p)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-53A	105/3±0.5kHz/18V _{p-p} Square Wave/30cm	50	1.0~5.0	140±30%	-20~+70	10	PA66/Black

- W-56



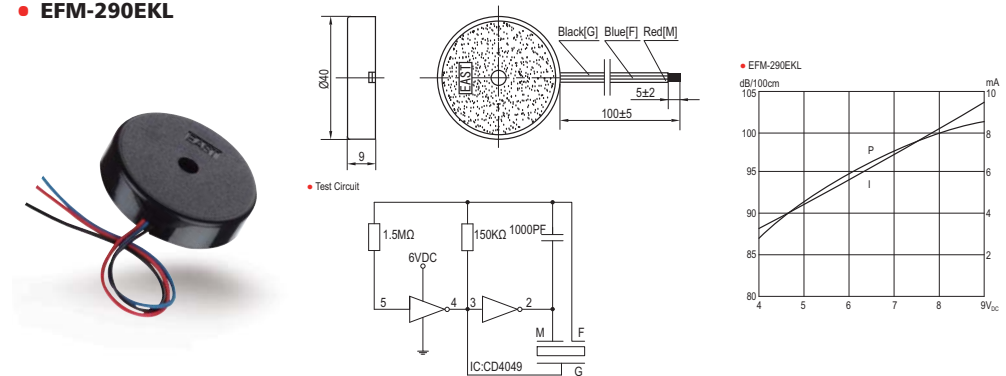
Model No.	Min. Sound Pressure Level (dB)	Max. Continuous Drive Voltage at Square Wave (50%Duty Cycle) (Vp-p)	Max. Intermittent Drive Voltage at Square Wave (50%Duty Cycle) (Vp-p)	Resonant Frequency (kHz)	Capacitance at 120Hz (nF)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-56	90/1~5kHz/12V _{p-p} Sine Wave/100cm	50	60	1.0~5.0	140±30%	-40~+85	9.2	PA66/Black

- W-59



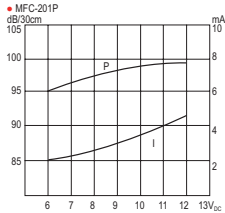
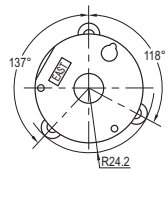
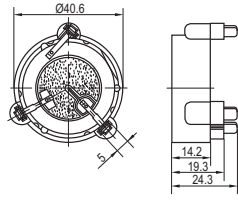
Model No.	Min. Sound Pressure Level (dB)	Operating Voltage Range (Vp-p)	Operating Voltage Range (Vp-p)	Resonant Frequency (kHz)	Frequency Range (kHz)	Capacitance at 120Hz (nF)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-59	85/5.5kHz/18V _{p-p} Square Wave/300cm	82/5.5kHz/2.83V _{DC} Sine Wave/100cm	85V _{p-p} /Square Wave 50V _{p-p} /Continuous	5.5	2.0~6.0	110±30%	-40~+105	11.5	PA6(UL94-V0)/Black

- EFM-290EKL

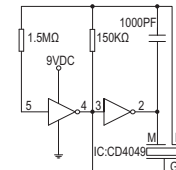


Model No.	Min. Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max. Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-290EKL	85/6V _{DC} /100cm	6	4-9	10/6V _{DC}	3.5±0.5	-20~+70	10.6	PC(141R)/Black

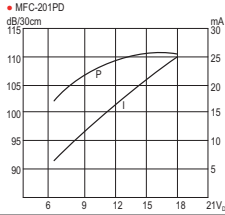
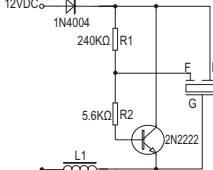
- MFC-201P
- MFC-201PD



• Testing Circuit (MFC-201P)

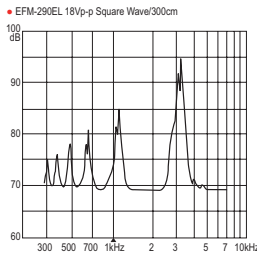
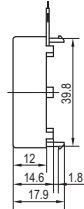
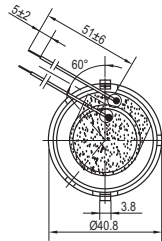


• Testing Circuit (MFC-201PD)



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
MFC-201P	90/9V _{dc} /30cm	9	6~12	10/9V _{dc}	3.4±0.5	-20~+70	11	ABS/Black
MFC-201PD	105/12V _{dc} /30cm	12	6~15	30/12V _{dc}	3.2±0.5			ABS/White

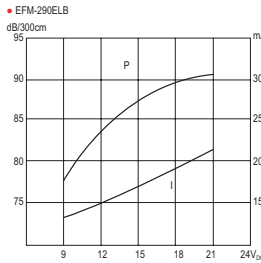
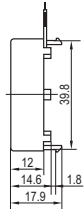
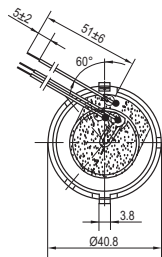
- EFM-290EL



• EFM-290EL 18Vp-p Square Wave/300cm

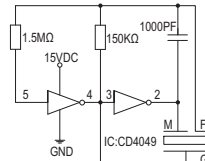
Model No.	Min.Sound Pressure Level (dB)	Allowable Input Voltage (Vp-p)	Capacitance at 1000Hz (nF)	Resonant Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-290EL	85/3.2kHz/18V _{p-p} Square Wave/300cm	40	30±30%	3.2±0.4	-40~+85	9.5	Fire-resistance ABS/Black

- EFM-290ELB



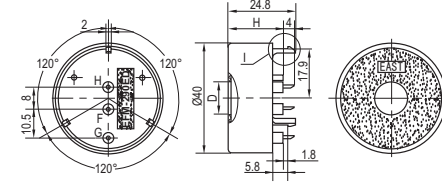
• EFM-290ELB

• Test Circuit

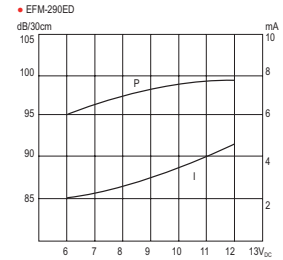
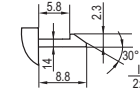
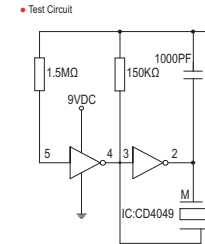


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-290ELB	85/15V _{dc} /300cm	15	20/15V _{dc}	3.4±0.5	-40~+85	9.5	Fire-resistance ABS/Black

- EFM-290ED
- EFM-290ES



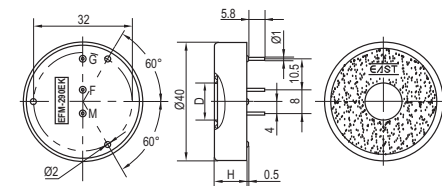
MODEL	EFM-290ED	EFM-290ES
H	20mm	15mm
D	Ø12mm	Ø9.5mm



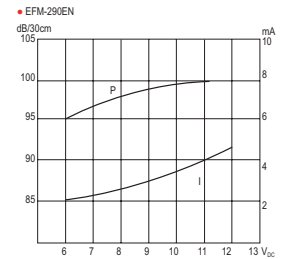
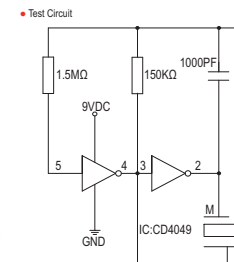
• EFM-290ED

Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-290ED	90/9V _{dc} /30cm	9	7~12	10/9(7.5)V _{dc}	3.4±0.5	-20~+70	11.8	ABS/Black OR PC/Black
EFM-290ES	85/7.5V _{dc} /300cm							3.6±0.5

- EFM-290EK
- EFM-290EN



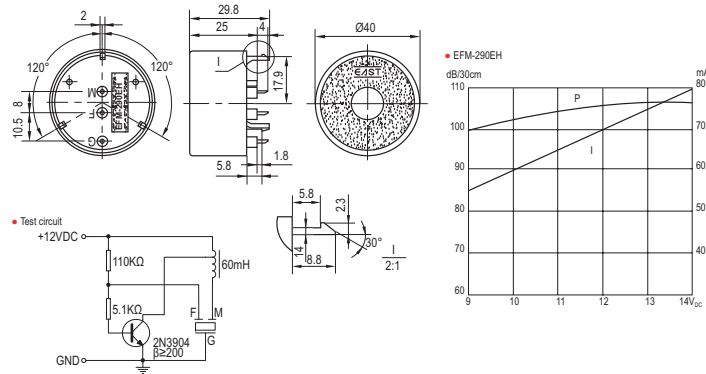
MODEL	EFM-290EK	EFM-290EN
H	9mm	11mm
D	Ø5.4mm	Ø9.5mm



• EFM-290EN

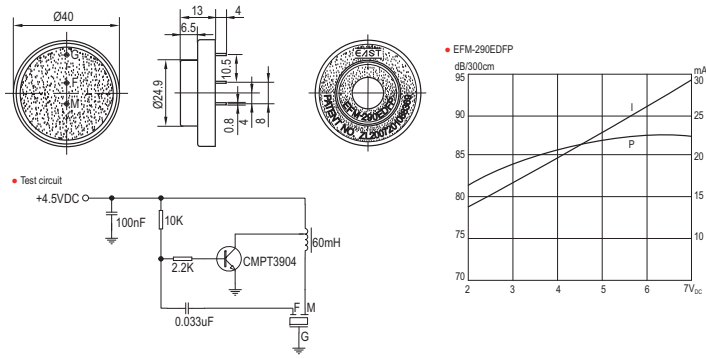
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-290EK	90/9V _{dc} /30cm	9	7~12	10/9(7.5)V _{dc}	3.6±0.5	-20~+70	10.8	PC/Black
EFM-290EN	85/7.5V _{dc} /300cm							11.8

• EFM-290EH



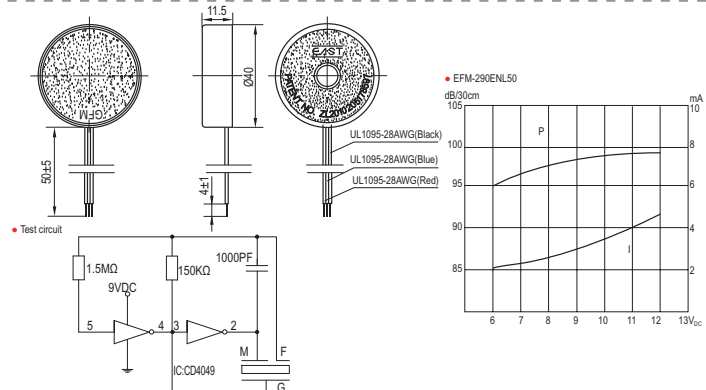
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour	
EFM-290EH	100/12V _{DC} /30cm	85/12V _{DC} /300cm	12	9~14	85/12V _{DC}	3.4±0.5	-20~+85	13	PC/Black

• EFM-290EDFP



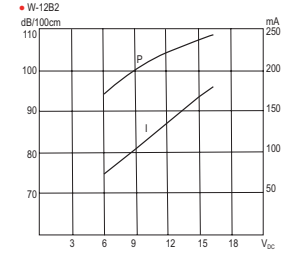
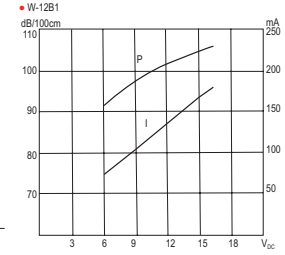
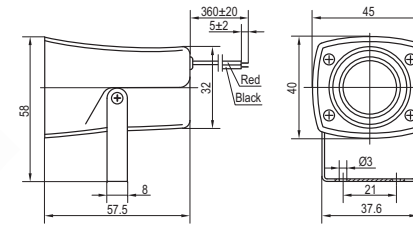
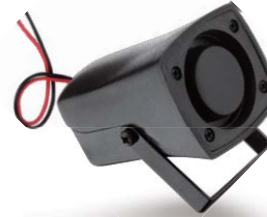
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
EFM-290EDFP	85/4.5V _{DC} /300cm	4.5	2~7	50/4.5V _{DC}	3.2±0.5	-20~+70	9	PC(141R)/Black

• EFM-290ENL50



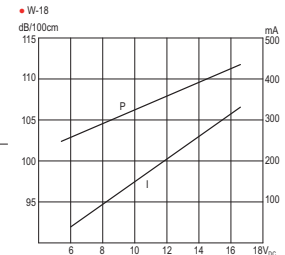
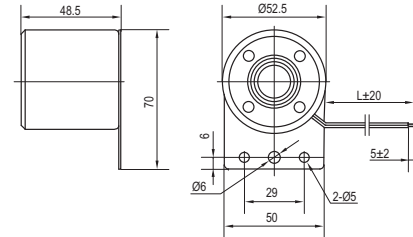
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour	
EFM-290ENL50	90/9V _{DC} /30cm	85/7.5V _{DC} /300cm	9	7~12	10/9V _{DC}	3.6±0.5	-20~+70	10	PC(141R)/Black

• W-12B1 • W-12B2 • W-12B3



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-12B1	100/12V _{DC} /100cm	12	6~16	250/12V _{DC}	Siren	-20~+70	63	ABS/Black
W-12B2	105/12V _{DC} /100cm							
W-12B3	105/12V _{DC} /35cm							

• W-18 • W-18A • W-18C • W-18M12 • W-18M24



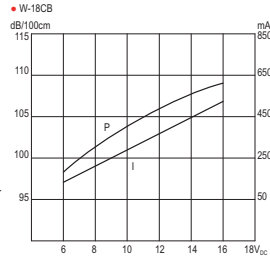
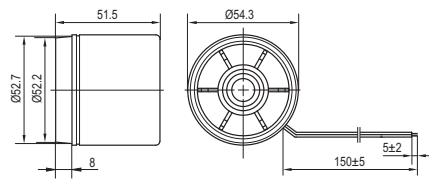
MODEL	W-18	W-18A	W-18C	W-18M12	W-18M24
L	300mm	300mm	RED1500mm BLACK500mm	300mm	300mm

• W-18C: The components on the PC board is coated with resin lacquer for waterproof

Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-18	105/12V _{DC} /100cm	12	6~15	350	Siren	-30~+70	85	ABS/Black
W-18A	105/24V _{DC} /100cm	24	18~26	200				
W-18C	105/12V _{DC} /100cm	12	6~15	350				
W-18M12	105/12V _{DC} /100cm	12	6~15	350	Inter mitten			
W-18M24	105/24V _{DC} /100cm							

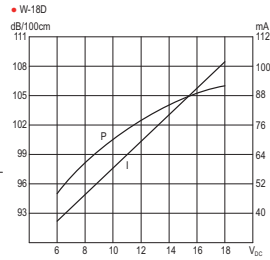
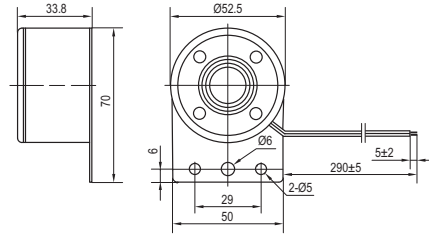
Note: Inter mitten f=1~3Hz.

W-18CB



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-18CB	105/12V _{dc} /100cm	12	6~15	800/12V _{dc}	500±100	Siren	-30~+70	85	ABS/Black

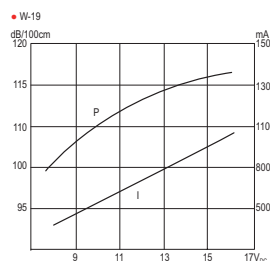
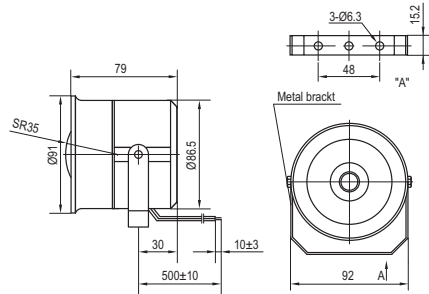
W-18D W-18DM



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-18D	95/12V _{dc} /100cm	12	6~15	150/12V _{dc}	Siren	-30~+70	70	ABS/Black
W-18DM	60/12V _{dc} /100cm			25/12V _{dc}	Pulse(1~3Hz)			

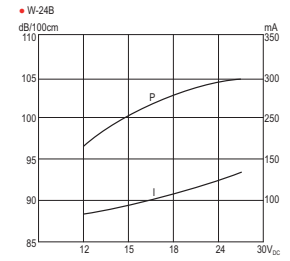
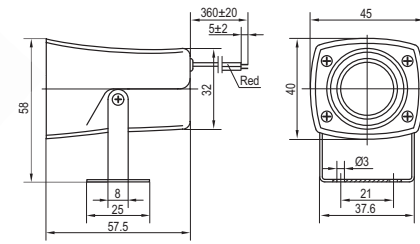
Note:Pulse f=1~3Hz

W-19



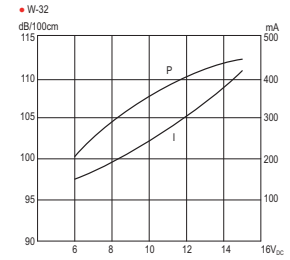
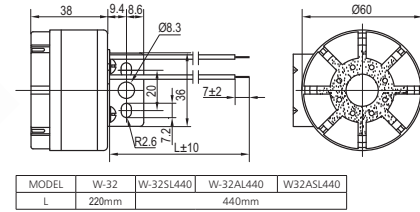
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-19	110/12V _{dc} /100cm	12	8~15	1000/12V _{dc}	Siren	-20~+85	200	PC/Black

W-24B



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-24B	100/24V _{dc} /100cm	24	12~28	150/24V _{dc}	Siren	-20~+70	60	ABS/Black

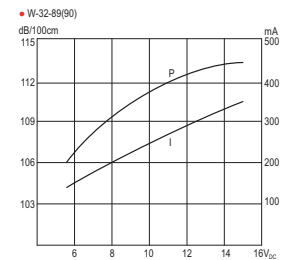
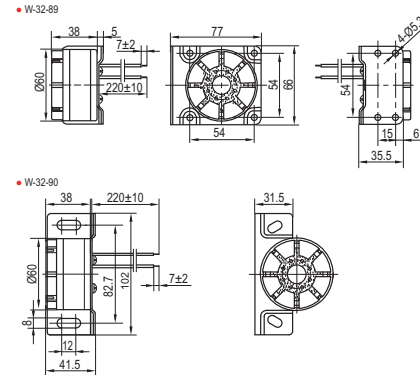
W-32



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-32	108/12V _{dc} /100cm	12	6~15	300/12V _{dc}	2.8±0.5	Normal Pulse	-20~+85	110	ABS/Black
W-32SL440	100/12V _{dc} /100cm					Continuous			
W-32AL440	108/24V _{dc} /100cm	24	12~28	300/24V _{dc}		Normal Pulse			
W-32ASL440	100/24V _{dc} /100cm					Continuous			

Note:Normal pulse f=1.2~1.6Hz

W-32-89 W-32-90



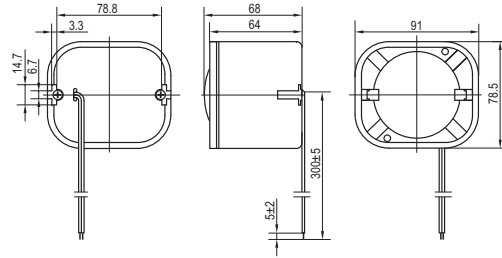
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{dc})	Operating Voltage (V _{dc})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-32-89	108/12V _{dc} /100cm	12	6~15	300/12V _{dc}	2.8±0.4	Normal Pulse	-20~+85	185	ABS/Black
W-32-90								180	

Note:Normal pulse f=1.2~1.6Hz

W-22L SERIES



Wire No.	Colour
1	Black
2	Red
3	Yellow



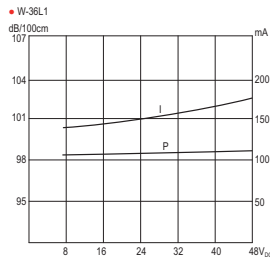
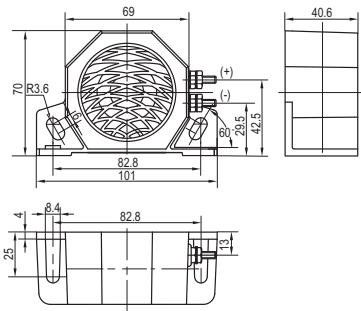
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Tone Nature	Wire Connection		Operating Temperature (°C)	Weight (g)	Case Material / Colour
						Continuous Cycle	Group Cntrl			
W-22L1	100~115/12V _{DC} /100cm	12	6~15	1000/12V _{DC}	Single	V _{DD} 2	V _{SS} 1	-40~+85	250	PA6/Black
W-22L2					Dual	V _{DD} 3 2				
W-22L4					Quadruple	2 1				
W-22L6					Sextuple	2 1				

Note: Wire Polarity is red and yellow for positive while black for negative.

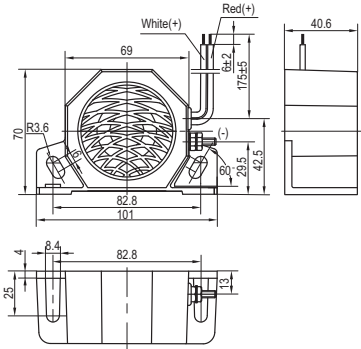
W-36L1 W-36L2 W-36LE



W-36L1 W-36LE



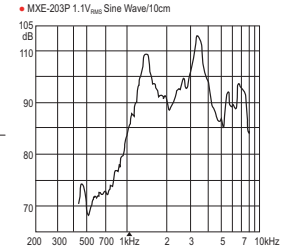
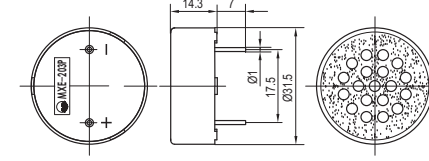
W-36L2



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Tone Nature	Wire Connection	Operating Temperature (°C)	Weight (g)	Case Material / Colour
W-36L1	93/14V _{DC} /100cm	14	12~48	400/14V _{DC}	1.2±0.2	Slow Pulse	Reference to drawing	-40~+85	265	PA66/Black
W-36L2			12~24			Slow Pulse	Red(+)			
W-36LE			10~32			Dual tone	White(+)			

Note: Slow Pulse fs = 1.2Hz±20% W-36LE Self-adjusting Volume

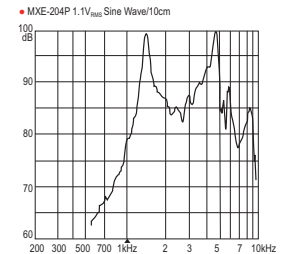
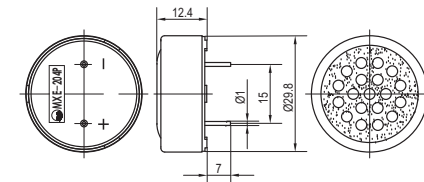
MXE-203P



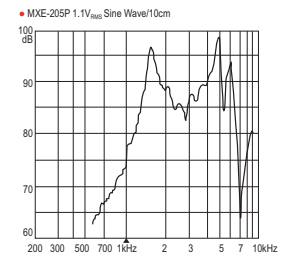
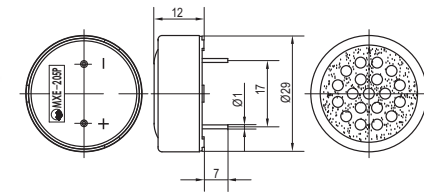
Model No.	Min.Sound Pressure Level (dB)	Rated Power (W)	Max.Power (W)	Operating Frequency (Hz)	Resonant Frequency (Hz)	Rated Impedance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
MXE-203P	85/1200±150Hz/1.1V _{RMS} Sine Wave/10cm	0.15	0.30	700~4000	1200±150	8	-20~+70	9.8	PC/Black

MXE-204P MXE-205P

MXE-204P

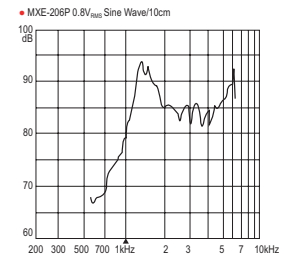
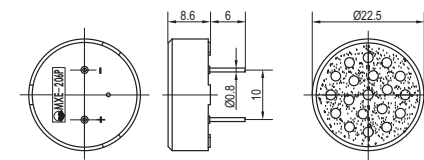


MXE-205P



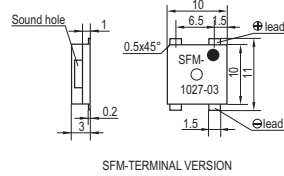
MXE-206P

MXE-206P



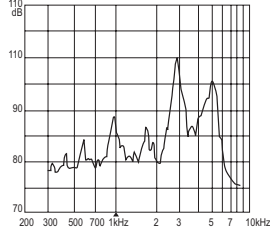
Model No.	Min.Sound Pressure Level (dB)	Rated Power (W)	Max.Power (W)	Operating Frequency (Hz)	Resonant Frequency (Hz)	Rated Impedance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
MXE-204P(205P)	84/1400(1500)±200Hz/1.1V _{RMS} Sine Wave/10cm	0.15	0.30	700~5000	1400(1500)±200	8	-20~+70	9.2	PC/Black
MXE-206P								73/1500±200Hz/0.8V _{RMS} Sine Wave/10cm	

- SFM-1027-03
- SFM-1027-05



SFM-TERMINAL VERSION

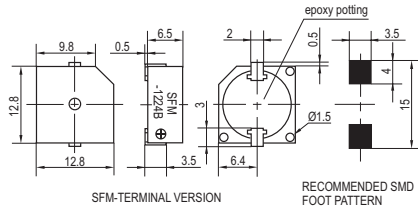
● SFM-1027-03 3.6V/10cm



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	DC Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1027-03	90/3.6V/10cm	3.6	3.2~4.5	100/3.6V _{DC}	2700	15~20	-30~+85	0.5	PPS/Black
SFM-1027-05	85/5V/10cm	5	3~8	100/5V _{DC}	2730	25±7			

Note:Value applying rated voltage (resonant frequency,1/2 duty,square wave)

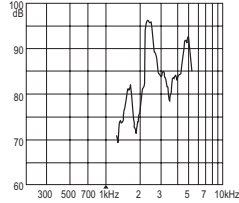
- SFM-1224B
- SFM-1224B12



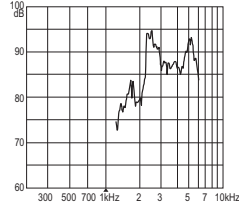
SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN

● SFM-1224B 5V/10cm



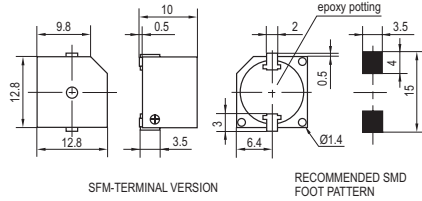
● SFM-1224B12 12V/10cm



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	DC Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1224B	87/5V/10cm	5	4~7	40/5V _{DC}	2400	50±7	-40~+85	2	PPS/Grey
SFM-1224B12	87/12V/10cm	12	8~16	40/12V _{DC}		140±14			

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

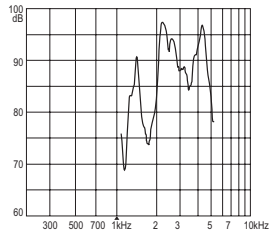
- SFM-1324-05
- SFM-1324-12



SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN

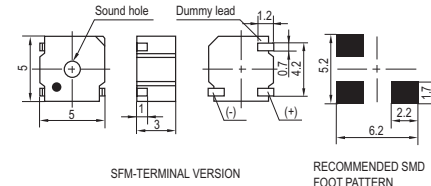
● SFM-1324-12 12V/10cm



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coll Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1324-05	85/5V/10cm	5	4~7	40/5V _{DC}	2400	45±5	-40~+85	2.5	PPS/Grey
SFM-1324-12	85/12V/10cm	12	8~16	40/12V _{DC}		140±14			

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

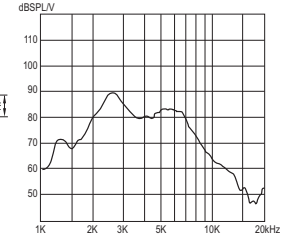
- SFM-5540-03A



SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN

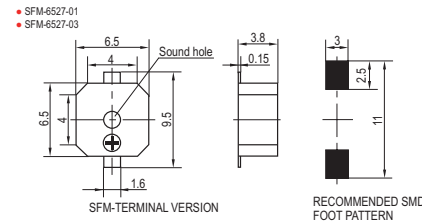
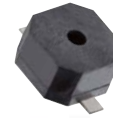
● SFM-5540-03A 3.6V/10cm



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coll Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-5540-03A	78/3.6V/10cm	3.6	2.5~4.5	100/3.6V _{DC}	4000	12±2	-20~+85	0.6	LCP/Black

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

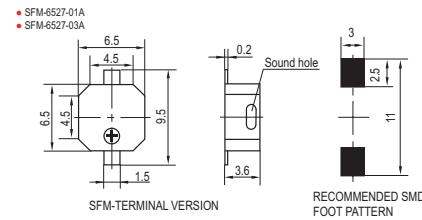
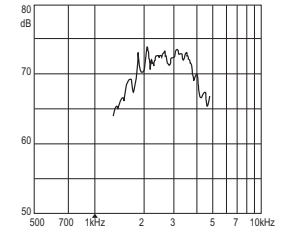
- SFM-6527 SERIES



SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN

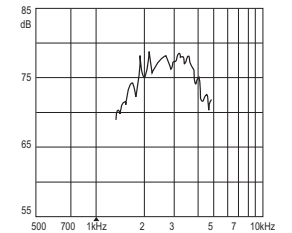
● SFM-6527-01 1.5V/10cm



SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN

● SFM-6527-03A 3V/10cm

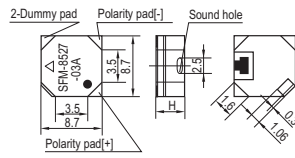


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	DC Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-6527-01	70/1.5V/10cm	1.5	1~2	70/1.5V _{DC}	2731	6.5±1	-20~+85	1	PPS/Black
SFM-6527-01A								1.2	
SFM-6527-03A	70/3V/10cm	3	2~4	95/3V _{DC}	2730	22±5			

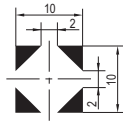
Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

EAST SMD MAGNETIC TRANSDUCER

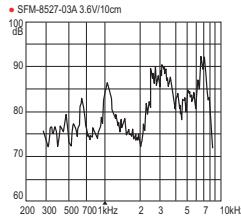
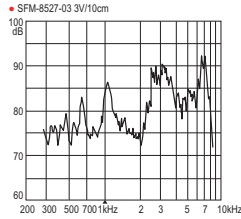
- SFM-8527-03
- SFM-8527-03A



SFM-TERMINAL VERSION		
MODEL	SFM-8527-03	SFM-8527-03A
H	3.2mm	4mm



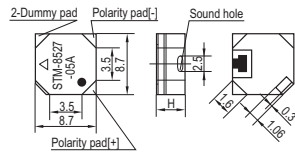
RECOMMENDED SMD FOOT PATTERN



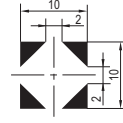
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coll Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-8527-03	85/3V/10cm	3	2~5	70/3V _{DC}	2730	24±2	-30~+85	1	PPS/Black
SFM-8527-03A	85/3.6V/10cm	3.6	2.5~4.5	90/3.6V _{DC}		16±3			

Note: Value applying rated voltage(resonant frequency, 1/2 duty, square wave)

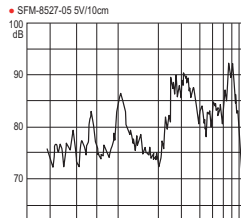
- SFM-8527-05
- SFM-8527-05A



SFM-TERMINAL VERSION		
MODEL	SFM-8527-05	SFM-8527-05A
H	4mm	3.2mm



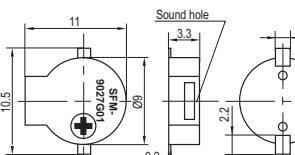
RECOMMENDED SMD FOOT PATTERN



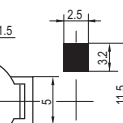
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coll Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-8527-05	85/5V/10cm	5	4~6	100/5V _{DC}	2730	20±5	-30~+85	1	PPS/Black
SFM-8527-05A									

Note: Value applying rated voltage(resonant frequency, 1/2 duty, square wave)

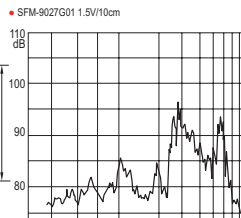
- SFM-9027G SERIES



SFM-TERMINAL VERSION



RECOMMENDED SMD FOOT PATTERN

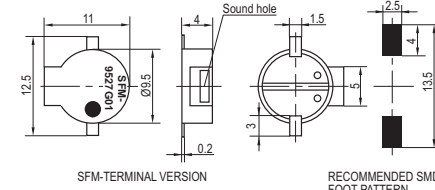


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coll Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-9027G01	85/1.5V/10cm	1.5	1~2	80/1.5V _{DC}	2730	6±2	-40~+85	0.7	LCP/Black
SFM-9027G03	85/3V/10cm	3	2~4	80/3V _{DC}		16±3			
SFM-9027G05	85/5V/10cm	5	4~6	80/5V _{DC}		30±3			

Note: Value applying rated voltage(resonant frequency, 1/2 duty, square wave)

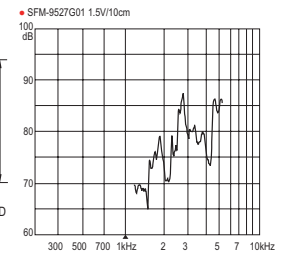
EAST SMD MAGNETIC TRANSDUCER

- SFM-9527G SERIES



SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN

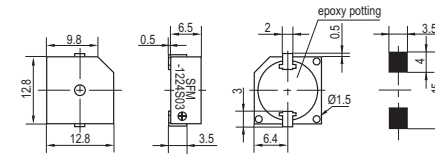


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	DC Resistance (Ω)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-9527G01	80/1.5V/10cm	1.5	1~2	80/1.5V _{DC}	2731	5.5±2	-20~+85	0.8	PPS/Black
SFM-9527G03	85/3.6V/10cm	3.6	1.5~4.5	85/3.6V _{DC}		6.5±2			
SFM-9527G05	85/5V/10cm	5	4~6	90/5V _{DC}		40±5			

Note: Value applying rated voltage(resonant frequency, 1/2 duty, square wave)

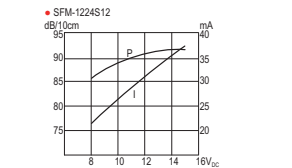
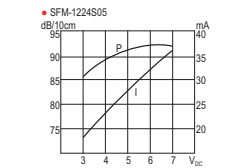
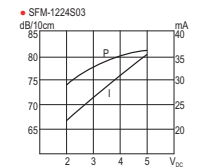
SMD MAGNETIC BUZZER

- SFM-1224S SERIES



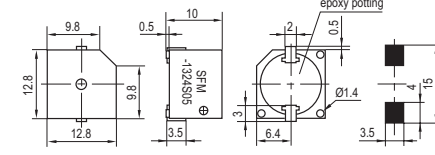
SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN



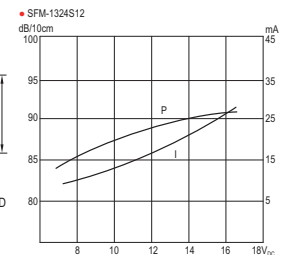
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1224S03	75/3V _{DC} /10cm	3	2~5	30/3V _{DC}	2.4±0.4	-20~+85	2	PPS/Grey
SFM-1224S05	88/5V _{DC} /10cm	5	4~7	30/5V _{DC}				
SFM-1224S12	88/12V _{DC} /10cm	12	8~15	30/12V _{DC}				

- SFM-1324S05
- SFM-1324S12



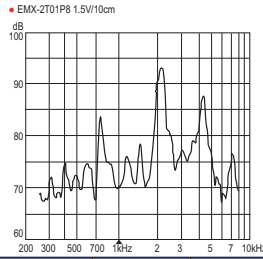
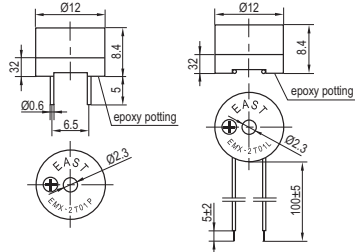
SFM-TERMINAL VERSION

RECOMMENDED SMD FOOT PATTERN



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (kHz)	Operating Temperature (°C)	Weight (g)	Case Material / Colour
SFM-1324S05	85/5V _{DC} /10cm	5	4~7	30/5V _{DC}	2.3±0.3	-20~+105	2.5	PPS/Grey
SFM-1324S12	90/12V _{DC} /10cm	12	8~15	30/12V _{DC}		-20~+85		

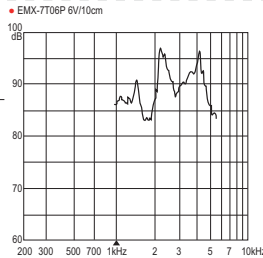
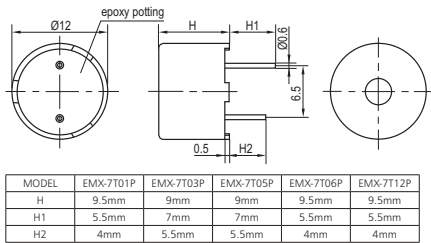
● **EMX-2T01 SERIES**



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Coil Impedance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-2T01P50 EMX-2T01L50	80/1.5V/10cm	1.5	1~2	10/1.5V _{DC}	2048	50±7.5	140	-20~+70	2
EMX-2T01P42 EMX-2T01L42				12/1.5V _{DC}		42±5	110		
EMX-2T01P16 EMX-2T01L16	85/1.5V/10cm	1.5	1~2	30/1.5V _{DC}	2048	16±4	40	-20~+70	2
EMX-2T01P8 EMX-2T01L8				60/1.5V _{DC}		8±2	20		

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

● **EMX-7T00P SERIES**

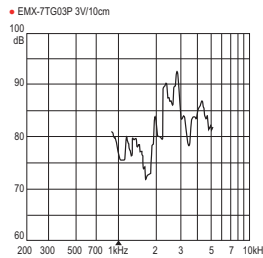
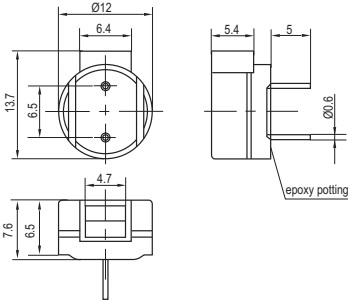


MODEL	EMX-7T01P	EMX-7T03P	EMX-7T05P	EMX-7T06P	EMX-7T12P
H	9.5mm	9mm	9mm	9.5mm	9.5mm
H1	5.5mm	7mm	7mm	5.5mm	5.5mm
H2	4mm	5.5mm	5.5mm	4mm	4mm

Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Coil Impedance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-7T01P	80/1.5V/10cm	1.5	1~2	30/1.5V _{DC}	2400	6.5±1	16±4	-40~+85	2
EMX-7T03P	85/3V/10cm	3	2~5	60/3V _{DC}		16±4	40		
EMX-7T05P	85/5V/10cm	5	3~8	40/5V _{DC}		49±5	80		
EMX-7T06P	86/6V/10cm	6	4~8	50/6V _{DC}		60±10	80		
EMX-7T12P	86/12V/10cm	12	7~16	50/12V _{DC}		140±14	240		

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

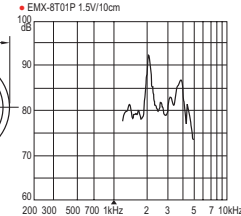
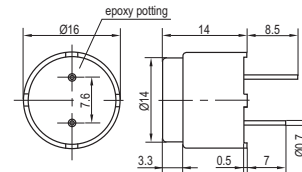
● **EMX-7TG01P**
● **EMX-7TG03P**



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Coil Impedance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-7TG01P	80/1.5V/10cm	1.5	1~2	70/1.5V _{DC}	2731	6.5±1	22	-20~+70	1.7
EMX-7TG03P	88/3V/10cm	3	2~4	130/3V _{DC}		16±4			

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

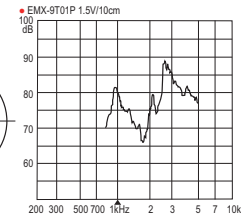
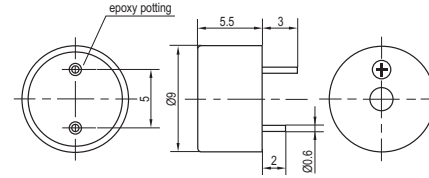
● **EMX-8T01P**
● **EMX-8T06P**
● **EMX-8T12P**



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Coil Impedance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-8T01P	80/1.5V/10cm	1.5	1~3	12/1.5V _{DC}	2048	27±3	80	-25~+70	5
EMX-8T06P	85/6V/10cm	6	4~8	40/6V _{DC}		50±5	110		
EMX-8T12P	85/12V/10cm	12	9~15	40/12V _{DC}		115±5	220		

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

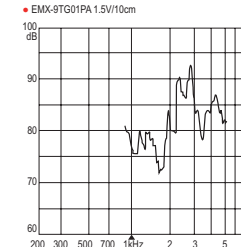
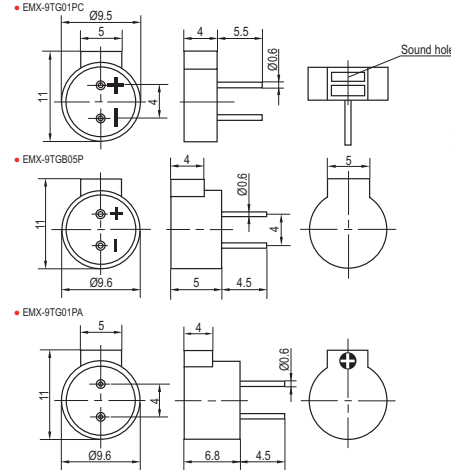
● **EMX-9T01P**
● **EMX-9T03P**
● **EMX-9T05P**



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Coil Impedance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-9T01P	85/1.5V/10cm	1.5	1~2	80/1.5V _{DC}	2700	5.5±2	18±4	-20~+70	1
EMX-9T03P	85/3V/10cm	3	3~4.5	80/3V _{DC}		18±4			
EMX-9T05P	87/5V/10cm	5	3~7	80/5V _{DC}		25±4			

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

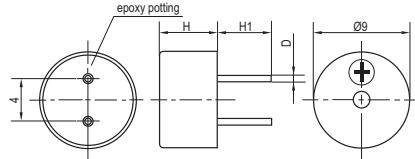
● **EMX-9TG01PA**
● **EMX-9TG01PC**
● **EMX-9TGB05P**



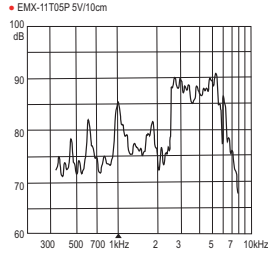
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Coil Impedance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-9TG01PA	85/1.5V/10cm	1.5	1~2	80/1.5V _{DC}	2731	5.5±2	40±4	-20~+80	0.8
EMX-9TG01PC	80/1.5V/10cm								
EMX-9TGB05P	85/5V/10cm	5	4~6	60/5V _{DC}					

Note:Value applying rated voltage(resonant frequency,1/2 duty,square wave)

- EMX-11T01PB
- EMX-11T03P
- EMX-11T05P



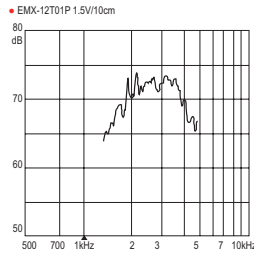
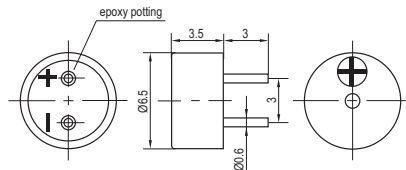
MODEL	EMX-11T01PB	EMX-11T03P	EMX-11T05P
H	5.5mm	4mm	5.4mm
H1	5mm	4.5mm	3mm
D	Ø0.7mm	Ø0.6mm	Ø0.7mm



Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-11T01PB	80/1.5V/10cm	1.5	1~2	85/3V _{DC}	2731	5.5±1	-20~+70	1
EMX-11T03P	85/3V/10cm	3	2~4	90/1.5V _{DC}		16±3		1.3
EMX-11T05P	85/5V/10cm	5	4.5~5.5	75/5V _{DC}		25±4		1

Note: Value applying rated voltage (resonant frequency, 1/2 duty, square wave)

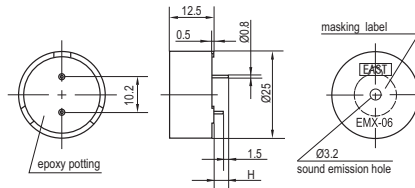
- EMX-12T01P



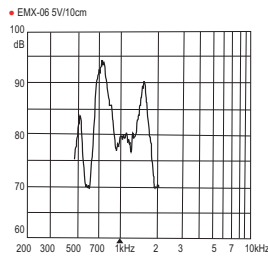
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-12T01P	70/1.5V/10cm	1.5	1~2	80/1.5V _{DC}	2731	6.5±1	-25~+70	1

Note: Value applying rated voltage (resonant frequency, 1/2 duty, square wave)

- EMX-06
- EMX-06A
- EMX-12P

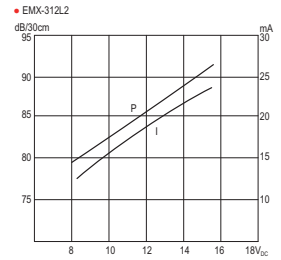
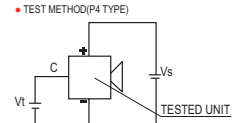
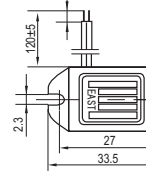
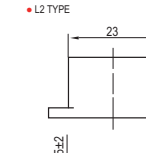
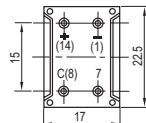
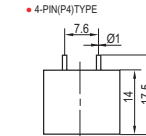
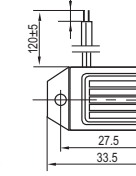
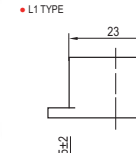
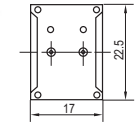
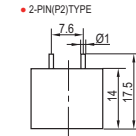


MODEL	EMX-06	EMX-06A	EMX-12P
H	4.2mm	4.2mm	4.7mm



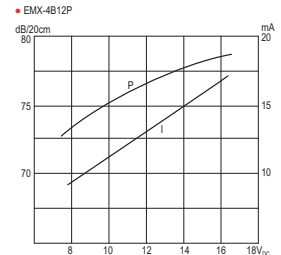
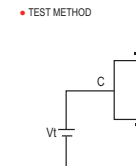
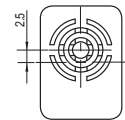
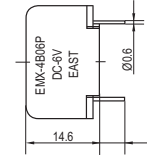
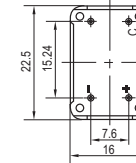
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V)	Operating Voltage (V)	Max.Consumption (mA)	Resonant Frequency (Hz)	Coil Resistance (Ω)	Operating Temperature (°C)	Weight (g)
EMX-06	85/5V/10cm	5	3~5	80/5V _{DC}	730	27±4	-40~+85	10
EMX-06A	85/6V/10cm	6	3~7	75/6V _{DC}	1000	36±5		
EMX-12P	85/12V/10cm	12	8~14	55/12V _{DC}	100~1500	120±15		

- EMX-300 SERIES



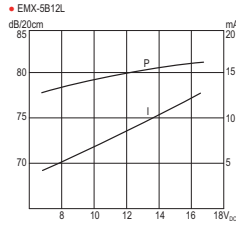
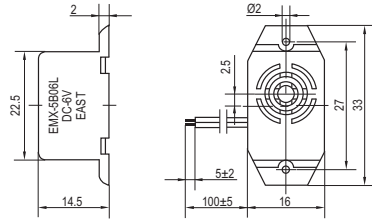
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (Hz)	Operating Temperature (°C)	Weight (g)
EMX-301L1/L2 EMX-301P2/P4	70/Rated Voltage/30cm	1.5	1~3	20/1.5V _{DC}	400±50	-20~+70	8
EMX-303L1/L2 EMX-303P2/P4		3	2~4	25/3V _{DC}			
EMX-306L1/L2 EMX-306P2/P4	6	4~8	25/6V _{DC}				
EMX-309L1/L2 EMX-309P2/P4	9	9~12	25/9V _{DC}				
EMX-312L1/L2 EMX-312P2/P4	12	9~15	28/12V _{DC}				
EMX-324L1/L2 EMX-324P2/P4	24	12~27	30/24V _{DC}				

- EMX-4B00P SERIES



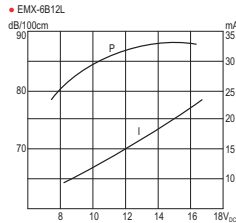
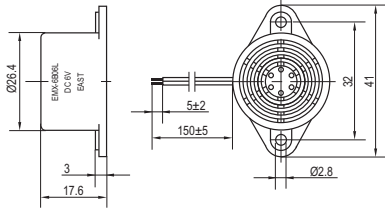
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Trigger Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (Hz)	Operating Temperature (°C)	Weight (g)
EMX-4B06P	70/6V _{DC} /20cm	6	3~8	≥3	23/6V _{DC}	400±100	-40~+85	10
EMX-4B12P	70/12V _{DC} /20cm	12	8~16	≥5	20/12V _{DC}			
EMX-4B24P	70/24V _{DC} /20cm	24	18~30	≥18	20/24V _{DC}			

EMX-5B00L SERIES



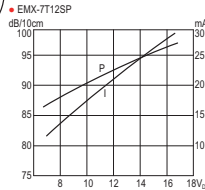
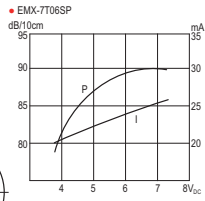
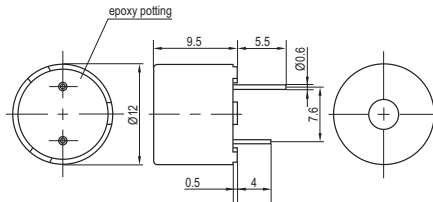
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (Hz)	Operating Temperature (°C)	Weight(g)	Wier Connection	
								+	-
EMX-5B01L	70/1.5V _{DC} /20cm	1.5	1.1~2	15/1.5V _{DC}	400±100	-40~+80	10	Red	Black
EMX-5B06L	70/6V _{DC} /20cm	6	3~7	20/6V _{DC}				Orange	White
EMX-5B12L	70/12V _{DC} /20cm	12	7~17	20/12V _{DC}				Red	White
EMX-5B24L	70/24V _{DC} /20cm	24	16~30	20/24V _{DC}				Orange	Black

EMX-6B00L SERIES



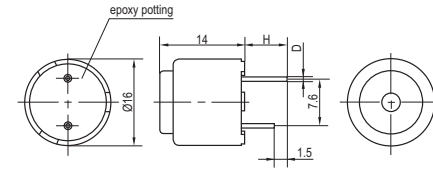
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (Hz)	Operating Temperature (°C)	Weight (g)	Wier Connection	
								+	-
EMX-6B06L	75/6V _{DC} /100cm	6	4~8	33/6V _{DC}	400±100	-20~+70	17	Red	Black
EMX-6B12L	75/12V _{DC} /100cm	12	7~16	23/12V _{DC}					
EMX-6B24L	75/24V _{DC} /100cm	24	20~28	21/24V _{DC}					

EMX-7T00SP SERIES

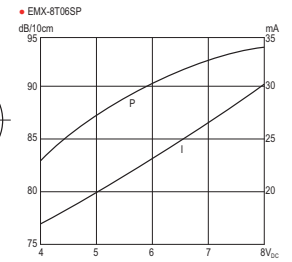


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (Hz)	Operating Temperature (°C)	Weight (g)
EMX-7T01SP	80/1.5V _{DC} /10cm	1.5	1~2	20/1.5V _{DC}	2300±300	-40~+85	1.7
EMX-7T03SP	85/3V _{DC} /10cm	3	2~5	24/3V _{DC}			
EMX-7T06SP	85/6V _{DC} /10cm	6	4~7	30/6V _{DC}			
EMX-7T12SP	85/12V _{DC} /30cm	12	9~15	30/12V _{DC}			

EMX-8T03SP EMX-8T06SP EMX-8T12SP

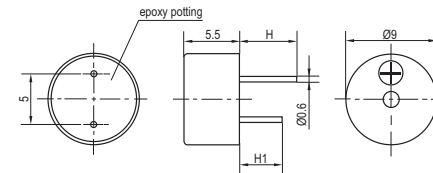


MODEL	EMX-8T03SP	EMX-8T06SP	EMX-8T12SP
H	6.5mm	6.5mm	7mm
D	Ø0.7mm	Ø0.7mm	Ø0.6mm

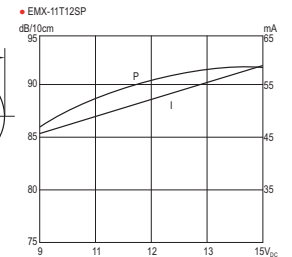


Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (Hz)	Max.Response time (mS)	Operating Temperature (°C)	Weight (g)
EMX-8T03SP	85/3V _{DC} /10cm	3	2~4	35/3V _{DC}	2000±500	50	-20~+85	5
EMX-8T06SP	85/6V _{DC} /10cm	6	4~8	30/6V _{DC}	2200±300			
EMX-8T12SP	85/12V _{DC} /10cm	12	8~15	30/12V _{DC}	2300±300			

EMX-11T03SP EMX-11T05SP EMX-11T12SP



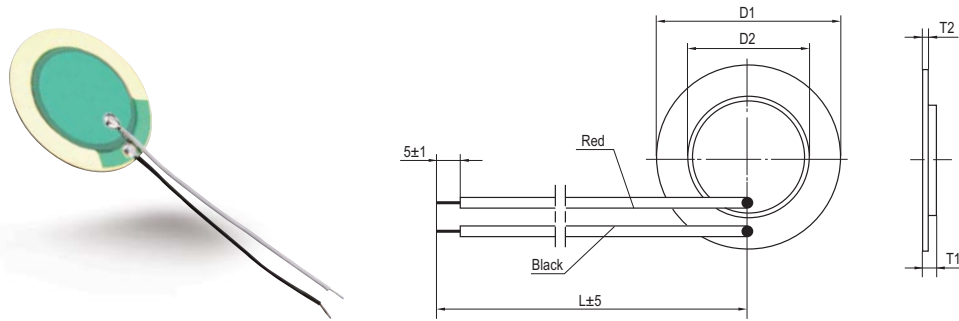
MODEL	EMX-11T03SP	EMX-11T05SP	EMX-11T12SP
H	5.5mm	6mm	5.5mm
H1	4mm	4mm	4mm



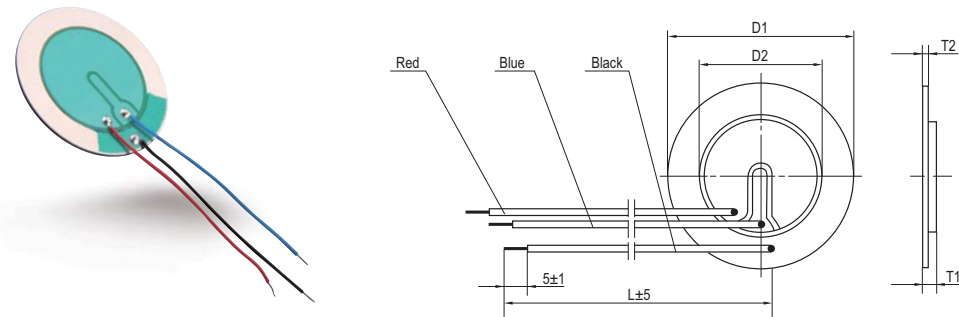
Model No.	Min.Sound Pressure Level (dB)	Rated Voltage (V _{DC})	Operating Voltage (V _{DC})	Max.Consumption (mA)	Oscillating Frequency (Hz)	Operating Temperature (°C)	Weight (g)
EMX-11T03SP	80/3V _{DC} /10cm	2	2.5~4	40/3V _{DC}	2700±300	-20~+70	1
EMX-11T05SP	80/5V _{DC} /10cm	3	4~7	50/5V _{DC}			
EMX-11T12SP	85/12V _{DC} /10cm	12	9~15	50/12V _{DC}			

- EXTERNAL-DRIVEN PIEZO ELEMENT WITH LEAD WIRE
- SELF-DRIVEN PIEZO ELEMENT WITH LEAD WIRE

• EXTERNAL-DRIVEN PIEZO ELEMENT WITH LEAD WIRE



• SELF-DRIVEN PIEZO ELEMENT WITH LEAD WIRE



Model No.	Outer Diameter (mm) D1	Ceramic Diameter (mm) D2	Total Thickness (mm) T1	Plate Thickness (mm) T2	Resonant Frequency (kHz)	Resonant Impedance (Ω)	Static Capacitance (nF±30%)	Wire Standard	Material of Metal Plate
FML-12T-9.2A1-L	Ø12.0 ^{+0.10}	Ø8.5±0.10	0.20±0.04	0.07±0.02	9.2±0.6	≤500	10	UL1571-30AWG	Brass
FML-13.5T-7.7A1-L	Ø13.5 ^{+0.10}	Ø10±0.10	0.24±0.04	0.10±0.02	7.7±0.5	≤800	10		
FML-15T-7.9A1-L	Ø15.0 ^{+0.10}	Ø11±0.20	0.30±0.04	0.19±0.02	7.9±0.7	≤400	14	UL1095-28AWG	
FML-20T-4.5A1-L	Ø20.0 ^{+0.10}	Ø14.7±0.20	0.30±0.04	0.19±0.02	4.5±0.4	≤500	24		
FML-20T-6.0A1-L	Ø20.0 ^{+0.10}	Ø14.7±0.20	0.40±0.05	0.23±0.03	6.0±0.5	≤300	15		

Model No.	Outer Diameter (mm) D1	Ceramic Diameter (mm) D2	Total Thickness (mm) T1	Plate Thickness (mm) T2	Resonant Frequency (kHz)	Resonant Impedance (Ω)	Static Capacitance (nF±30%)	Wire Standard	Material of Metal Plate
FML-27T-3.9A-L	Ø27.0 ^{+0.10}	Ø20±0.20	0.48±0.05	0.23±0.03	3.9±0.3	≤200	23	UL1095-28AWG	Brass
FML-31T-4.0A1-L	Ø31.0 ^{+0.10}	Ø20±0.20	0.24±0.04	0.10±0.02	4.0±0.5	≤300	45	UL1571-30AWG	
FML-34.7T-2.9B1-L	Ø34.7 ^{+0.10}	Ø25±0.25	0.55±0.05	0.25±0.03	2.9±0.3	≤250	24	UL1095-28AWG	
FML-35T-3.0A1-L	Ø35.0 ^{+0.10}	Ø25±0.25	0.60±0.05	0.38±0.03	3.0±0.4	≤200	32		
FML-41T-1.0A1-L	Ø41.0 ^{+0.10}	Ø25±0.25	0.25±0.04	0.12±0.02	1.0±0.5	≤1000	66		

Note: The length of lead wire "L" can be defined as per customer's request.



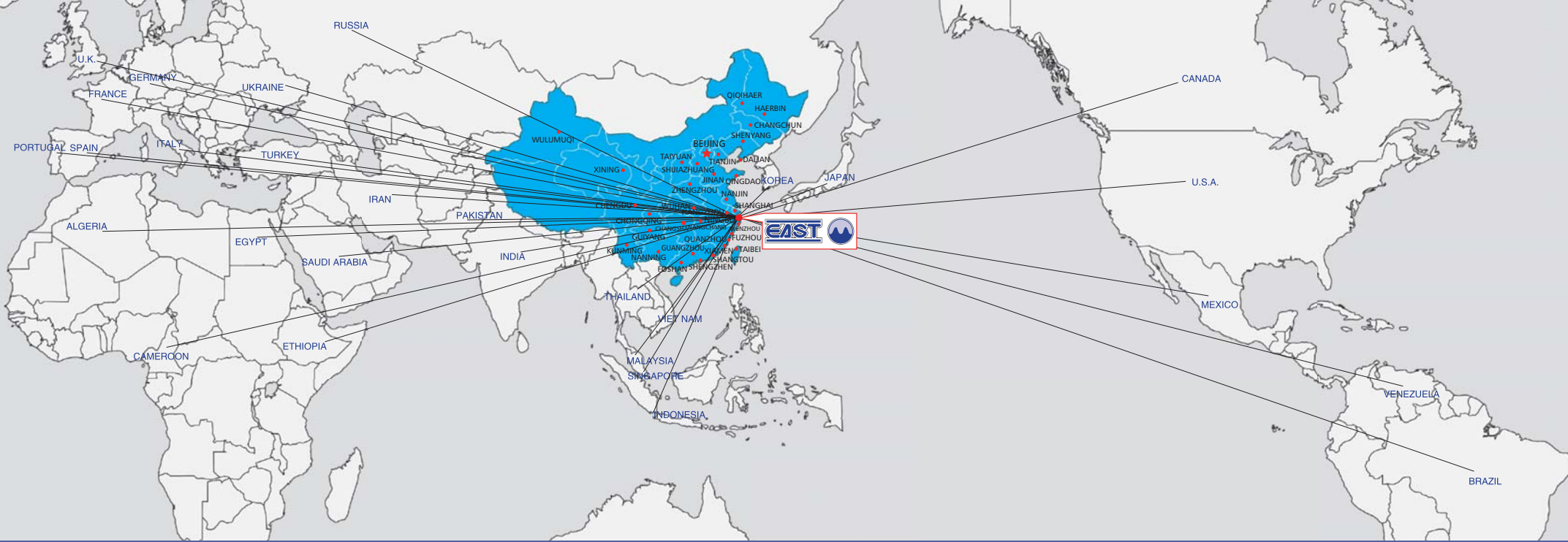
OEM



Here at Ningbo East, we hope to become a closer partner with our customers by helping develop and manufacture both full turnkey and sub-assembly products. During the past 18 years we have developed and assembled OEM products, ranging from remote controls to security alarm systems, for both the North American and Global market places.

Ningbo East is centrally located in the heart of China's electronics industry zone. With an intensive experience of 24 years, we have been able to build long standing relationships with some of the world's most recognized electronic manufactures. With these strong bonds in place, Ningbo East is able to help their customers from conception of product to final manufacturing and test. With easy access from the Global Community, we invite and encourage our customers to visit and take part in watching their product come to life.





Sales Network

We have both international and domestic sales divisions ready to correspond with any inquires that our customers might have, providing high quality products with competitive price. Because of our hard work and excellent credibility, more and more customers have chosen to establish a long-term relationship with us.

---Please use the following communicative means to contact us:

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Addr: No.12.Lane 722.Sangtian Road, Jiangdong, Ningbo 315040, P.R. China

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0574-87805605(For domestic sales)

Fax: 0086 574 87803761

E-mail: sales@east-mingtao.com

Contact: Ms. Lisa Zhou

URL: www.east-mingtao.com

Our customers distribute all over the world and continue increasing. Until now, we have more than 360 customers around the world. We now have regional agents set up in the United States, Italy and other areas of Europe. Our factory is located in Ningbo - one of the first 14 open coastal cities in China, and we have comprehensive fundamental installations, complete accessorial industries and convenient transport facilities, which help us to ensure on-time delivery of quality products to every customer.

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URL: www.vector.it



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