

# RDD08U SERIES

DC - DC CONVERTER  
6.6 ~ 8.1W SINGLE & DUAL OUTPUT



## FEATURES

- EFFICIENCY UP TO 85%
- 2:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- UL/cUL/TUV/CE
- 3 YEARS WARRANTY



EN 60950-1

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	INPUT CURRENT		OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	CAPACITOR LOAD (max.)
		(typ.)	(max.)						
<b>Single Output Models</b>									
RDD08 - 03S1U	9~18 VDC	0.69A	0.97A	6.6 WATTS	+3.3 VDC	2000 mA	78%	80%	3300 $\mu$ F
RDD08 - 05S1U	9~18 VDC	0.77A	1.07A	7.5 WATTS	+ 5 VDC	1500 mA	80%	82%	2200 $\mu$ F
RDD08 - 12S1U	9~18 VDC	0.79A	1.11A	8 WATTS	+ 12 VDC	670 mA	83%	85%	470 $\mu$ F
RDD08 - 15S1U	9~18 VDC	0.80A	1.11A	8.1 WATTS	+ 15 VDC	540 mA	83%	85%	330 $\mu$ F
RDD08 - 03S2U	18~36 VDC	0.35A	0.48A	6.6 WATTS	+3.3 VDC	2000 mA	78%	80%	3300 $\mu$ F
RDD08 - 05S2U	18~36 VDC	0.38A	0.53A	7.5 WATTS	+ 5 VDC	1500 mA	81%	83%	2200 $\mu$ F
RDD08 - 12S2U	18~36 VDC	0.40A	0.55A	8 WATTS	+ 12 VDC	670 mA	83%	85%	470 $\mu$ F
RDD08 - 15S2U	18~36 VDC	0.40A	0.55A	8.1 WATTS	+ 15 VDC	540 mA	83%	85%	330 $\mu$ F
RDD08 - 03S3U	35~75 VDC	0.17A	0.25A	6.6 WATTS	+3.3 VDC	2000 mA	78%	80%	3300 $\mu$ F
RDD08 - 05S3U	35~75 VDC	0.19A	0.27A	7.5 WATTS	+ 5 VDC	1500 mA	81%	83%	2200 $\mu$ F
RDD08 - 12S3U	35~75 VDC	0.20A	0.28A	8 WATTS	+ 12 VDC	670 mA	83%	85%	470 $\mu$ F
RDD08 - 15S3U	35~75 VDC	0.20A	0.28A	8.1 WATTS	+ 15 VDC	540 mA	83%	85%	330 $\mu$ F

## Dual Output Models

RDD08 - 05D1U	9~18 VDC	0.82A	1.14A	8 WATTS	$\pm$ 5 VDC	$\pm$ 800 mA	80%	82%	$\pm$ 1000 $\mu$ F
RDD08 - 12D1U	9~18 VDC	0.81A	1.12A	8.1 WATTS	$\pm$ 12 VDC	$\pm$ 340 mA	83%	85%	$\pm$ 180 $\mu$ F
RDD08 - 15D1U	9~18 VDC	0.81A	1.12A	8.1 WATTS	$\pm$ 15 VDC	$\pm$ 270 mA	83%	85%	$\pm$ 100 $\mu$ F
RDD08 - 05D2U	18~36 VDC	0.41A	0.56A	8 WATTS	$\pm$ 5 VDC	$\pm$ 800 mA	81%	83%	$\pm$ 1000 $\mu$ F
RDD08 - 12D2U	18~36 VDC	0.40A	0.56A	8.1 WATTS	$\pm$ 12 VDC	$\pm$ 340 mA	83%	85%	$\pm$ 180 $\mu$ F
RDD08 - 15D2U	18~36 VDC	0.40A	0.56A	8.1 WATTS	$\pm$ 15 VDC	$\pm$ 270 mA	83%	85%	$\pm$ 100 $\mu$ F
RDD08 - 05D3U	35~75 VDC	0.20A	0.29A	8 WATTS	$\pm$ 5 VDC	$\pm$ 800 mA	81%	83%	$\pm$ 1000 $\mu$ F
RDD08 - 12D3U	35~75 VDC	0.20A	0.29A	8.1 WATTS	$\pm$ 12 VDC	$\pm$ 340 mA	83%	85%	$\pm$ 180 $\mu$ F
RDD08 - 15D3U	35~75 VDC	0.20A	0.29A	8.1 WATTS	$\pm$ 15 VDC	$\pm$ 270 mA	83%	85%	$\pm$ 100 $\mu$ F

# RDD08U SERIES

SINGLE & DUAL OUTPUT

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

### GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		280		KHz
Isolation voltage	Input / Output	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	100			MΩ
Isolation capacitance	100KHz / 1V		1,000		PF
Ambient temperature	Operating at Vi nom, Io nom	-40		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 100	°C
Derating	Vi nom	See derating curve			
Storage temperature	Non operational	-40		+ 100	°C
Relative humidity	Vi nom, Io nom	20		95	% RH
Temperature coefficient	Vi nom, Io min			± 0.02	% / °C
Dimension		L31.8 x W20.3 x H10.2			mm
MTBF	Bellcore issue 6@40°C, GB		1,309,000		Hours
Cooling	Free air convection				

### INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	9	12	18	VDC
		18	24	36	VDC
		36	48	75	VDC
No load input current	Vi nom, Io = 0	12V		30	mA
		24V		25	mA
		48V		20	mA
Input voltage w/o damage	Io nom	12V		20	VDC
		24V		40	VDC
		48V		80	VDC
Startup voltage	Io nom	12V	8.7		VDC
		24V	17.4		VDC
		48V	31.5		VDC
Input filter	Pi type				

### OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 2	%
Minimum load	Vi nom single output models	0			%
	Vi nom dual output models (each output)	10			%
Line regulation	Io nom, Vi min ... Vi max			± 0.5	%
Load regulation	Vi nom, Io 0 ... Io nom, single output models			± 0.5	%
	Vi nom, Io min ... Io nom, dual output models			± 1	%
Cross regulation (Dual modle)	Aymmetrical load 10% - 100% FL			± 5	%
Startup time	Vi nom, Io nom			700	ms
Transient recovery time	Vi nom, I ~ 0.5 Io nom			1	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz			50	mV
Efficiency	Vi nom, Io nom, Po / Pi	Up to 85%, See model list and efficiency curve			



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## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

### CONTROL AND PROTECTION

Input reversed	Shunt diode built in, external fuse recommended 1A
Output short circuit	Current limited (Auto-recovery)
Rated over load protection	110%min....140%max
Remote on/off control	ON : 3....10Vdc or open circuit    OFF: 0....1.5Vdc or short circuit pin 1 and pin2,3

### APPROVALS AND STANDARD

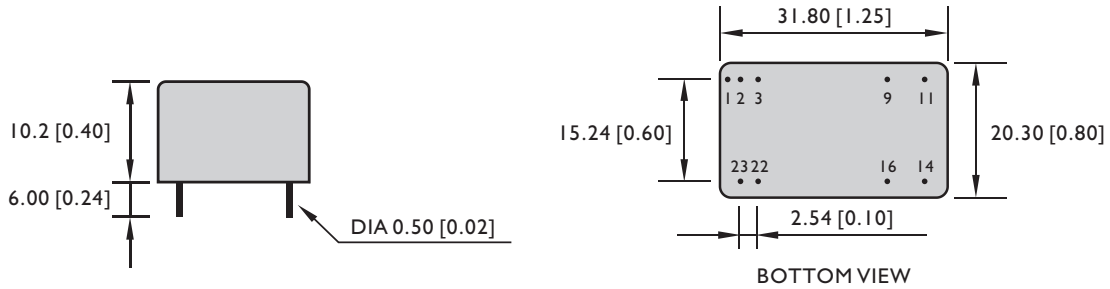
UL/cUL	UL 60950-1 Recognized
TUV	EN 60950-1
CE	EN 61204-3, EN 55022 Class A, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-6
Vibration	meet IEC 60068-2-6 (10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)

## PHYSICAL CHARACTERISTICS

Case size	31.8 x 20.3 x 10.2 mm (1.25 x 0.8 x 0.4 inches)
Case material	Plastic base / Metal case
Weight	18 g
Potting material	Silicone

## MECHANISM & PIN CONFIGURATION

mm [inch]



GENERAL TOLERANCE	
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

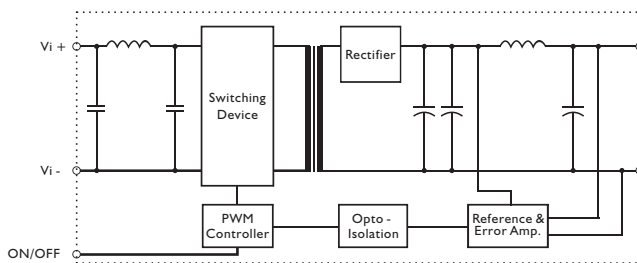
## PIN ASSIGNMENT

### GENERAL

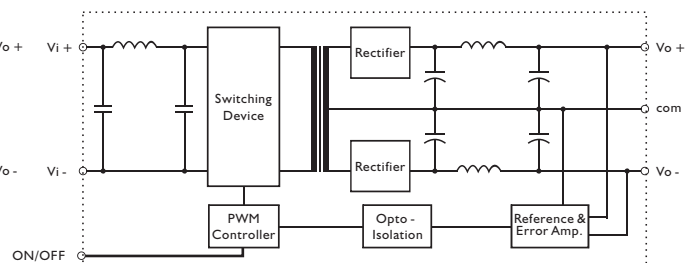
PIN NO.	1	2 & 3	9	11	14	16	22 & 23
SINGLE	Remote On/Off	Vi -	N. C.	N. C.	Vo +	Vo -	Vi +
DUAL	Remote On/Off	Vi -	com	Vo -	Vo +	com	Vi +

## CIRCUIT SCHEMATIC

• Block diagram for RDD08U series with single output

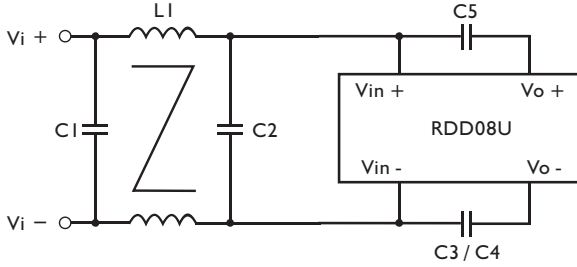


• Block diagram for RDD08U series with dual output



### RECOMMENDED CIRCUIT

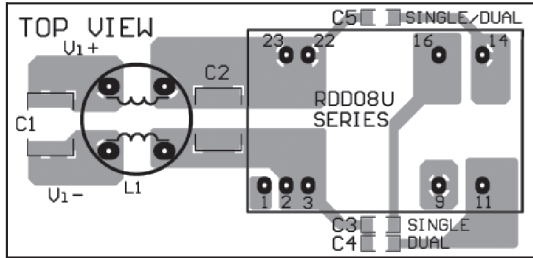
- Recommended filter for EN55022 Class B compliance.



- The components used in the above figure, together with the manufacturer part numbers for these components, are as follows.

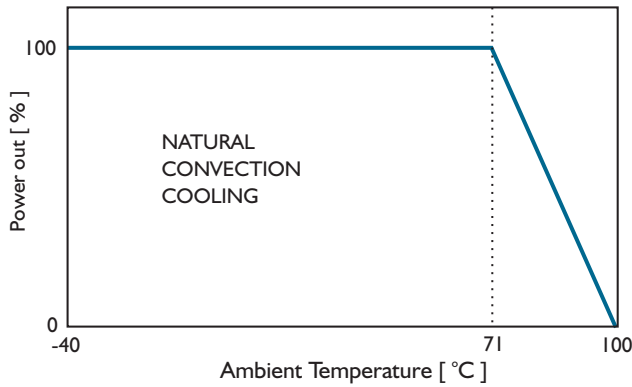
	C1	C2	C3 / C4	C5	L1
RDD08-XXX1U	2.2 $\mu$ F / 50V MLCC	4.7 $\mu$ F / 50V MLCC	1nF/2KV MLCC	1nF/2KV MLCC	1.5mH Common Choke
RDD08-XXX2U	2.2 $\mu$ F / 50V MLCC	4.7 $\mu$ F / 50V MLCC	1nF/2KV MLCC	1nF/2KV MLCC	1.5mH Common Choke
RDD08-XXX3U	2.2 $\mu$ F / 100V MLCC	2.2 $\mu$ F / 100V MLCC	1nF/2KV MLCC	1nF/2KV MLCC	1.5mH Common Choke

- Recommended EN 55022 Class B filter circuit layout.

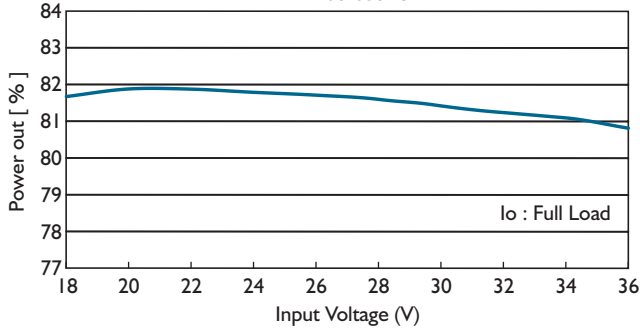


### DERATING AND EFFICIENCY CURVE

Temperature derating curve



Efficiency Vs Input Voltage  
RDD08-05S2U



Efficiency Vs Output Load  
RDD08-05S2U

