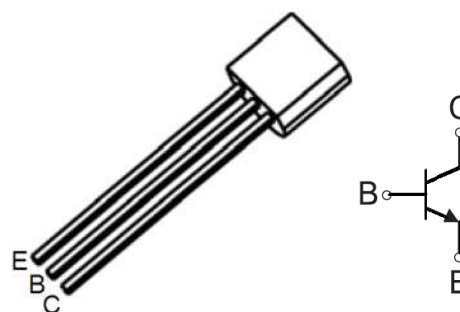


NPN TRANSISTOR
FEATURES

- General purpose switching and amplification
- Complementary to BC557

MECHANICAL DATA

- Case: TO-92
- Case material: Molded plastic. UL flammability 94V-0
- Terminals: Tin plated, solderable per MIL-STD-202, method 208
- Weight: 2.30grams(approximate)


TO-92
Equivalent circuit
MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CB0}	50	V
Collector-emitter voltage	V_{CE0}	45	
Emitter-base voltage	V_{EB0}	6	
Collector current -continuous	I_C	0.1	A
Collector power dissipation	P_C	500	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	200	$^{\circ}\text{C}/\text{W}$
Junction temperature	T_J	150	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-55~+150	

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Max	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	50		V	$I_C=100\mu\text{A}, I_E=0$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	45			$I_C=1\text{mA}, I_B=0$
Emitter-base breakdown voltage	$V_{(BR)EBO}$	6			$I_E=10\mu\text{A}, I_C=0$
Collector cut-off current	I_{CBO}		0.1	uA	$V_{CB}=50\text{V}, I_E=0$
Collector cut-off current	I_{CE0}		0.1		$V_{CE}=45\text{V}, I_B=0$
Emitter cut-off current	I_{EBO}		0.1		$V_{EB}=5\text{V}, I_C=0$
DC current gain	h_{FE}	110		800	$V_{CE}=5\text{V}, I_C=2\text{mA}$
Collector-emitter saturation voltage	$V_{CE(sat)(1)}$		0.6	V	$I_C=100\text{mA}, I_B=5\text{mA}$
Base-emitter saturation voltage	$V_{BE(sat)}$		0.72	V	$V_{CE}=5\text{V}, I_C=10\text{mA}$
Transition frequency	f_T	150		MHz	$V_{CE}=5\text{V}, I_C=10\text{mA}, f=100\text{MHz}$

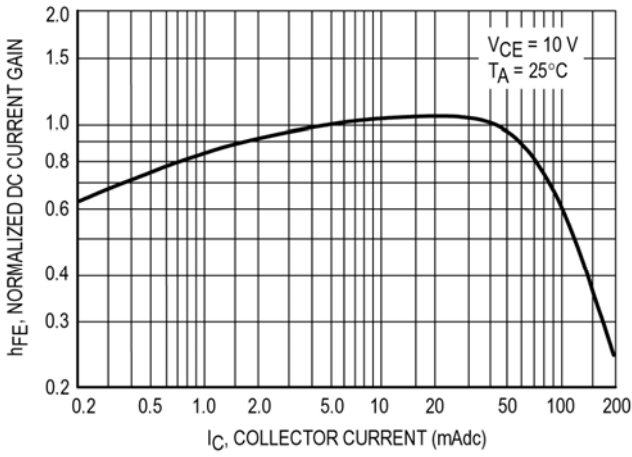
Note: 1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.

CLASSIFICATION of h_{FE}

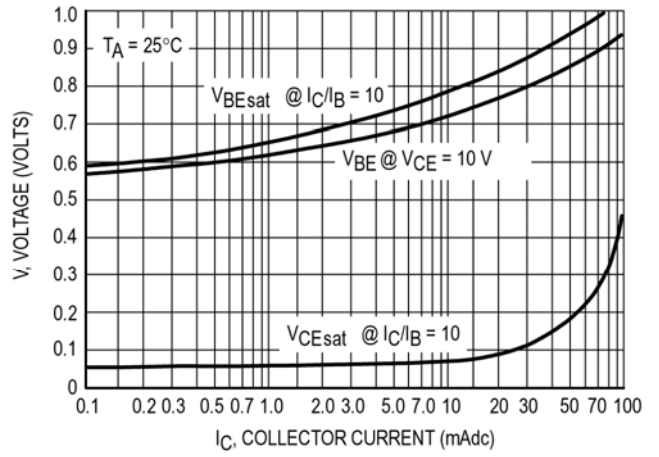
RANK	BC547A	BC547B	BC547C
RANGE	110-220	200-450	420-800
Marking	BC547A	BC547B	BC547C

NPN TRANSISTOR

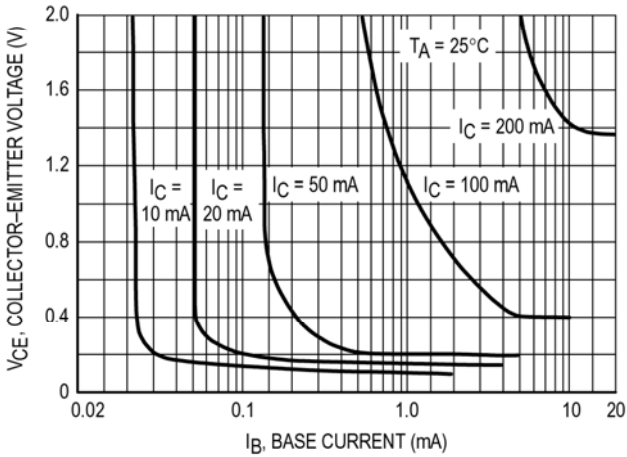
Typical Characteristics



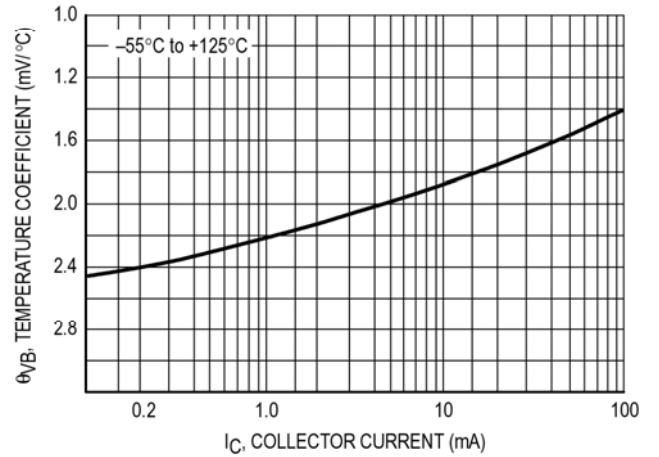
Normalized DC Current Gain



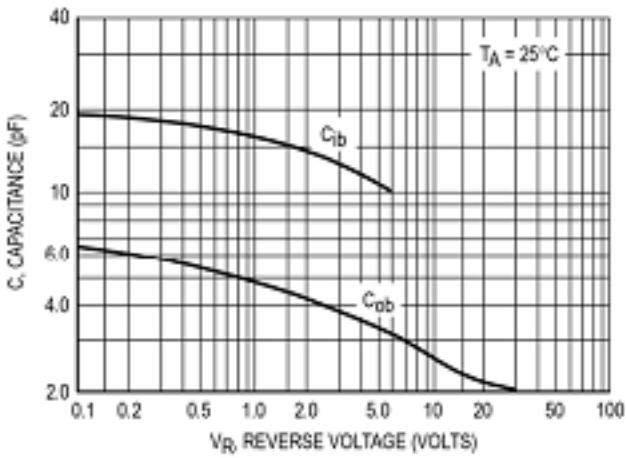
“Saturation” and “On” Voltages



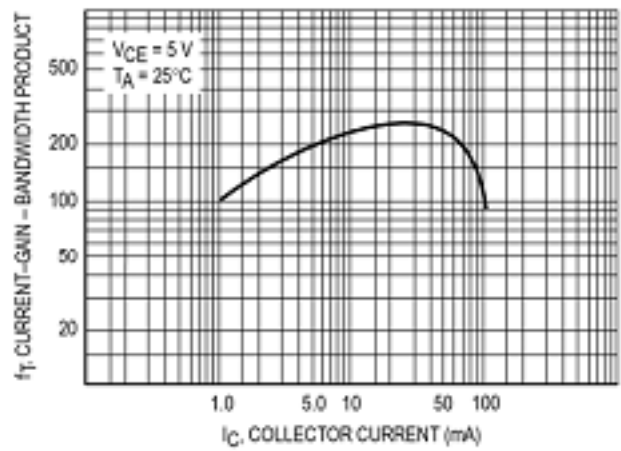
Collector Saturation Region



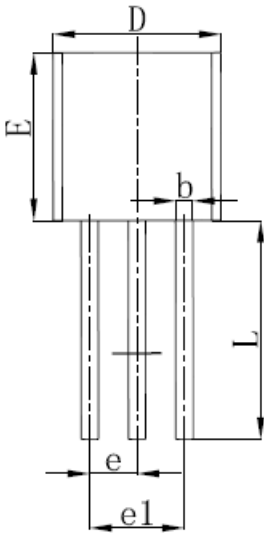
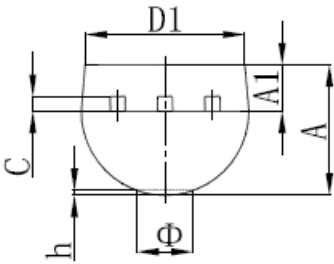
Base-Emitter Temperature Coefficient



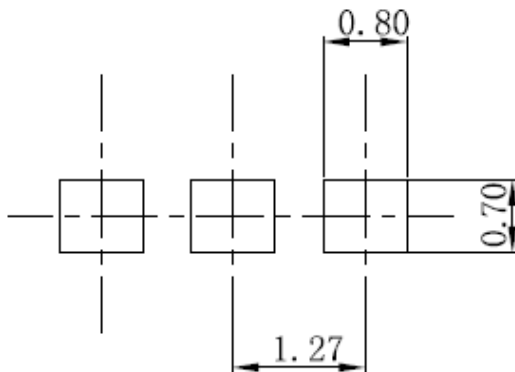
Capacitance



Current-Gain - Bandwidth Product

NPN TRANSISTOR
TO-92 PACKAGE OUTLINE DIMENSIONS


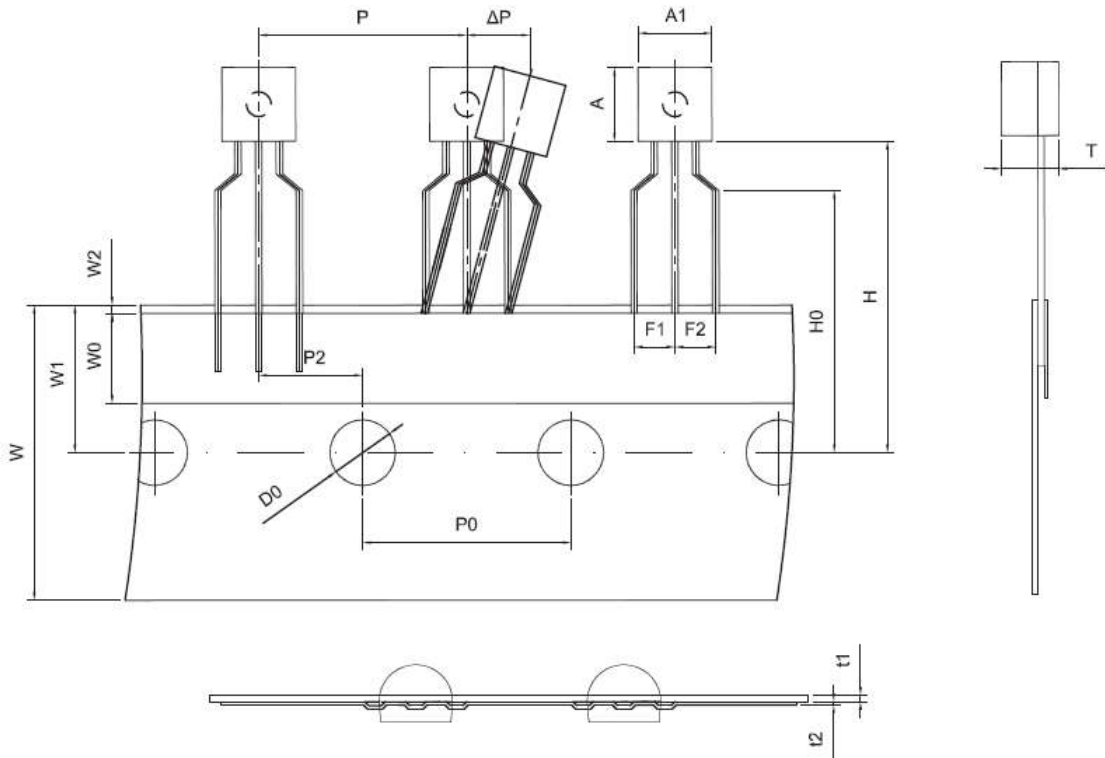
Symbol	Dimensions in millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 SUGGESTED PAD LAYOUT

Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

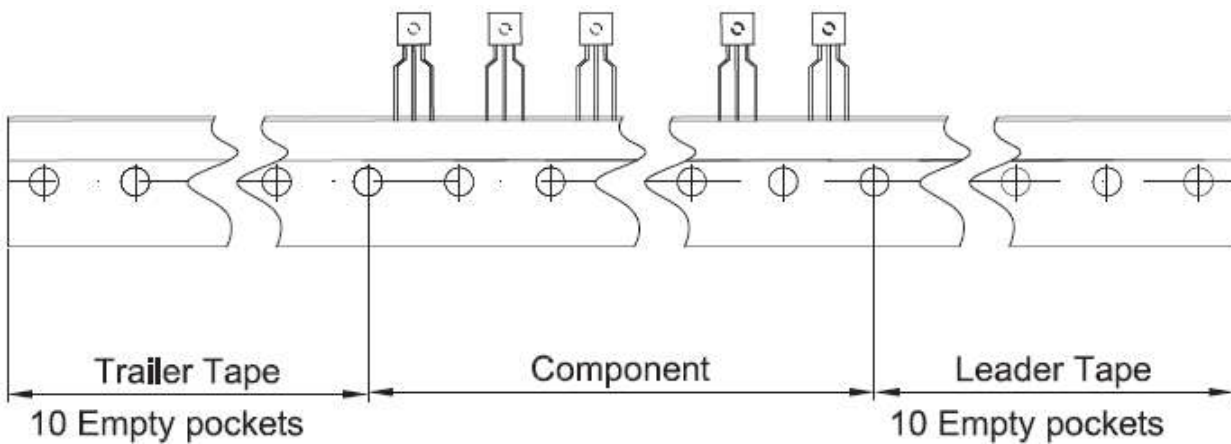
NPN TRANSISTOR

TO-92 TAPE AND REEL



Dimensions are in millimeter								
A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0 MAX	19.0	16.0	4.0	0.4	0.2	0

TO-92 PACKAGE TAPING DIMENSION



Package	Box	Box size(mm)	Carton	Carton size(mm)
TO-92	2000pcs	333x162x43	20000pcs	350x340x250