

# BC547B

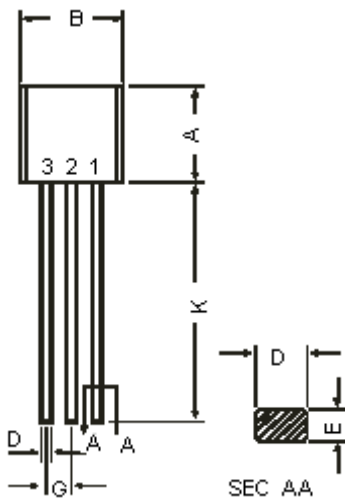
## General Purpose Transistor



### Feature:

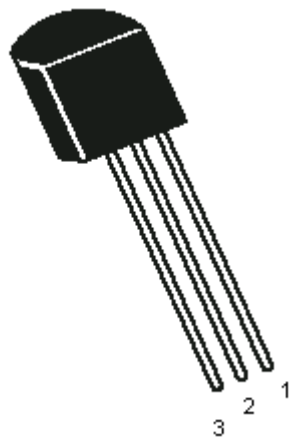
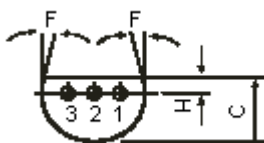
- NPN general purpose transistors, especially suited for use in driver stages of audio amplifiers, low noise input stages of tape recorders, HI-FI amplifiers, signal processing circuits of television receivers.

### TO-92 Plastic Package



Dimensions	Minimum	Maximum
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5°	
G	1.14	1.40
H		1.53
K	12.70	-

Dimensions : Millimetres



### Pin Configuration

1. Collector
2. Base
3. Emitter



### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameters	Symbol	Value	Unit
Collector Emitter Voltage	$V_{CEO}$	45	V
Collector Emitter Voltage	$V_{CES}$	50	
Collector Base Voltage	$V_{CBO}$		
Emitter Base Voltage	$V_{EBO}$	6.0	
Collector Current Continuous Peak	$I_C$ $I_{CM}$	100 200	mA
Base Current Peak	$I_{BM}$	200	
Emitter Current Peak	$I_{EM}$		
Power Dissipation at $T_a = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_{TA}$	500 4.0	mW mW/ $^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +150	$^\circ\text{C}$
Junction Temperature	$T_j$	150	
<b>Thermal Resistance</b>			
Junction to Ambient	$R_{th(j-a)}$	250	$^\circ\text{C}/\text{W}$

### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameters	Symbol	Test Condition	Value	Unit
Collector Emitter Voltage	$V_{CEO}$	$I_C = 1\text{mA}, I_B = 0$	>45	V
Collector Base Voltage	$V_{CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	>50	
Emitter Base Voltage	$V_{EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	>6.0	
Collector Cut off Current	$I_{CBO}$	$V_{CB} = 30\text{V}, I_E = 0$ $T_J = 150^\circ\text{C}$	<50	nA
		$V_{CB} = 30\text{V}, I_E = 0$	<5.0	$\mu\text{A}$
	$I_{CES}$	$V_{CE} = 50\text{V}, V_{BE} = 0$ $T_J = 125^\circ\text{C}$	<15	nA
Collector Cut off Current	$I_{CES}$	$V_{CE} = 50\text{V}, V_{BE} = 0$	<4.0	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$I_C = 2\text{mA}, V_{CE} = 5\text{V}$	200	-
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5\text{mA}$	<0.25 <0.60	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5\text{mA}$	Typical 0.70 Typical 0.90	
Base Emitter On Voltage	$V_{BE(on)}$	$I_C = 2\text{mA}, V_{CE} = 5\text{V}$ $I_C = 10\text{mA}, V_{CE} = 5\text{V}$	0.55 - 0.70 <0.72	

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### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameters	Symbol	Test Condition	Value	Unit
<b>Dynamic Characteristics</b>				
Transition Frequency	$f_T$	$I_C = 10\text{mA}$ , $V_{CE} = 5\text{V}$ $f = 100\text{MHz}$	Typical 300	MHz
Collector Output Capacitance	$C_{cbo}$	$V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$	<4.50	pF
Emitter Input Capacitance	$C_{ib}$	$V_{EB} = 0.5\text{V}$ , $f = 1\text{MHz}$	Typical 9.0	
Noise Figure	NF	$I_C = 0.2\text{mA}$ , $V_{CE} = 5\text{V}$ $R_s = 1\text{k}\Omega$ , $f = 200\text{Hz}$	<10	dB
Small Signal Current Gain	$h_{fe}$	$I_C = 2\text{mA}$ , $V_{CE} = 5\text{V}$	Typical 330	-
Input Impedance	$h_{ie}$		3.2 - 8.5	k $\Omega$
Voltage Feedback Ratio	$h_{re}$		Typical 2.0	x'10 <sup>-4</sup>
Output Impedance	$h_{oe}$		<60	$\mu\Omega$

### Specifications

$V_{CEO}$ (V)	$V_{CBO}$ maximum (V)	$I_C$ (A)	$h_{FE}$ minimum at $I_C = 2\text{mA}$	$f_T$ (Typical) MHz	$P_{tot}$ (mW)	Package	Part Number
45	50	0.1	200	300	625	TO-92	BC547B

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