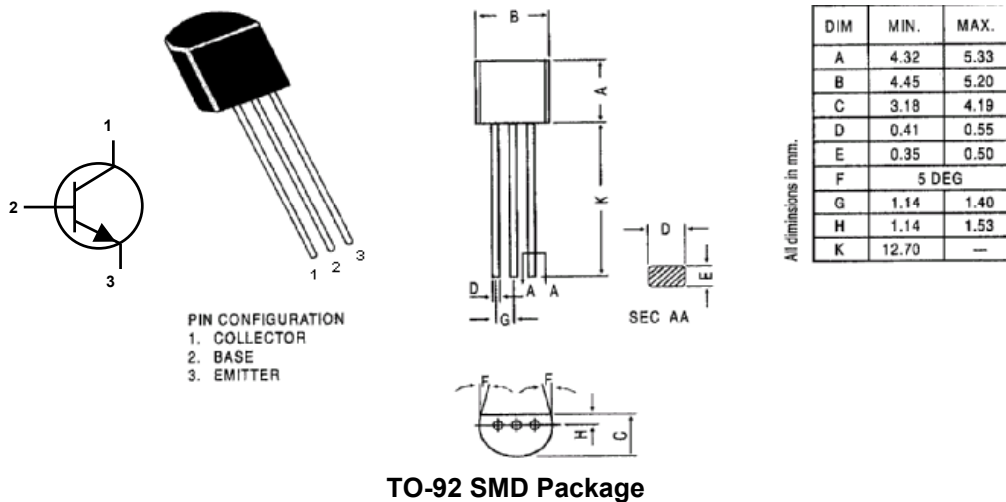


## NPN Silicon Planar Epitaxial Transistors



### Absolute Maximum Ratings (Ta = 25 °C unless specified otherwise)

DESCRIPTION	SYMBOL	BC546	BC547	BC548	UNITS
Collector Base Voltage	$V_{CBO}$	80	50	30	V
Collector Emmitter Voltage ( $V_{BE} = 0V$ )	$V_{CES}$	80	50	30	V
Collector Emitter Voltage	$V_{CEO}$	65	45	30	V
Emitter Base Voltage	$V_{EBO}$	6	6	5	V
Collector Current (DC)	$I_C$		100		mA
Collector Current - Peak	$I_{CM}$		200		mA
Emitter Current - Peak	$I_{EM}$		200		mA
Base Current - Peak	$I_{BM}$		200		mA
Total power dissipation up to $T_{amb} = 25\text{ }^{\circ}\text{C}$	$P_{tot}$		500		mW
Storage Temperature	$T_{stg}$		-55 to +150		$^{\circ}\text{C}$
Junction Temperature	$T_j$		150		$^{\circ}\text{C}$

### Thermal Resistance

From junction to ambient	$R_{th(j-a)}$	250	$^{\circ}\text{C/W}$
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**Electrical Characteristics** (Ta=25 °C unless otherwise specified)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS	
Collector Emitter Voltage BC546/BC546A/BC546B/BC546C BC547/BC547A/BC547B/BC547C BC548/BC548A/BC548B/BC548C	V <sub>CEO</sub>	I <sub>C</sub> = 1mA, I <sub>B</sub> = 0	65 45 30			V	
Collector Base Voltage BC546/BC546A/BC546B/BC546C BC547/BC547A/BC547B/BC547C BC548/BC548A/BC548B/BC548C	V <sub>CBO</sub>	I <sub>C</sub> = 100uA, I <sub>E</sub> = 0	80 50 30			V	
Emitter Base Voltage BC546/BC546A/BC546B/BC546C BC547/BC547A/BC547B/BC547C BC548/BC548A/BC548B/BC548C	V <sub>EBO</sub>	I <sub>E</sub> = 10uA, I <sub>C</sub> = 0	6 6 5			V	
Collector Cut off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 30V, I <sub>E</sub> = 0 V <sub>CB</sub> = 30V, I <sub>E</sub> = 0, T <sub>j</sub> = 150°C			15 5	nA uA	
Collector Cut off Current BC546/BC546A/BC546B/BC546C BC547/BC547A/BC547B/BC547C BC548/BC548A/BC548B/BC548C BC546/BC546A/BC546B/BC546C BC547/BC547A/BC547B/BC547C BC548/BC548A/BC548B/BC548C	I <sub>CES</sub>	V <sub>CE</sub> = 80V V <sub>CE</sub> = 50V V <sub>CE</sub> = 30V V <sub>CE</sub> = 80V, T <sub>j</sub> = 125°C V <sub>CE</sub> = 50V, T <sub>j</sub> = 125°C V <sub>CE</sub> = 30V, T <sub>j</sub> = 125°C		0.2 0.2 0.2	15 15 15	nA nA nA uA uA uA	
Base Emitter On Voltage	V <sub>BE(on)</sub>	I <sub>C</sub> = 2mA, V <sub>CE</sub> = 5V I <sub>C</sub> = 10mA, V <sub>CE</sub> = 5V	0.55	0.66	0.7 0.77	V	
Collector Emitter Saturation Voltage	V <sub>CE(Sat)</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0.5mA I <sub>C</sub> = 10mA, I <sub>B</sub> = 5mA I <sub>C</sub> = 100mA, I <sub>B</sub> = see note (1)		0.09 0.2 0.3	0.25 0.60 0.60	V	
Base Emitter Saturation Voltage	V <sub>BE(Sat)</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0.5mA I <sub>C</sub> = 100mA, I <sub>B</sub> = 5mA		0.7 0.9		V	
DC Current Gain	h <sub>FE</sub>	VCE = 5V, I <sub>C</sub> = 10uA BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C VCE = 5V, I <sub>C</sub> = 2mA BC546 BC547/BC548 BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C VCE = 5V, I <sub>C</sub> = 100mA BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C		90 150 270 110 110 110 200 420 120 200 400		450 800 220 450 800	

Note (1):  $I_B$  is value for which  $I_C = 11\text{mA}$  @  $V_{CE} = 10\text{V}$ .

**Electrical Characteristics** (Ta=25 °C unless otherwise specified)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
DYNAMIC CHARACTERISTICS						
Transition Frequency	f <sub>T</sub>	I <sub>C</sub> = 10mA, V <sub>CE</sub> = 5V, f = 100MHz	300			MH <sub>Z</sub>
Collector output Capacitance	C <sub>cbo</sub>	V <sub>CB</sub> = 10V, f = 1MHz	1.7	4.5		pF
Emitter input Capacitance	C <sub>ib</sub>	V <sub>EB</sub> = 0.5V, f = 1MHz	9			pF
Noise Figure	NF	V <sub>CE</sub> = 5V, I <sub>C</sub> = 0.2mA R <sub>S</sub> = 2k ohm, f = 1KH <sub>Z</sub> , B= 200H <sub>Z</sub>	2	10		dB
Small Signal Current Gain	h <sub>fe</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA, f= 1kHz BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C	220 330 600			
Input Impedance	h <sub>ie</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA, f= 1kHz BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C	1.6 3.2 6	2.7 4.5 8.7	4.5 8.5 15	k ohm
Voltage Feedback	h <sub>re</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA, f= 1kHz BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C	1.5 2 3			x10
DYNAMIC CHARACTERISTICS						
Output Admittance	h <sub>oe</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA, f= 1kHz BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C	18 30 60	30 60 110	u MHO	

Note (1):  $I_B$  is value for which  $I_C = 11\text{mA}$  @  $V_{CE} = 10\text{V}$ .