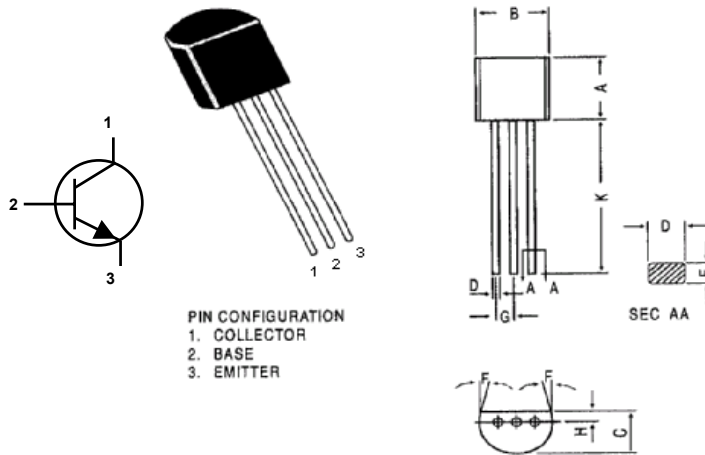


NPN Silicon Planar Epitaxial Transistors



All dimensions in mm.

DIM	MIN.	MAX.
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 DEG	
G	1.14	1.40
H	1.14	1.53
K	12.70	—

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

DESCRIPTION	SYMBOL	BC546	BC547	BC548	UNITS
Collector Base Voltage	V_{CB0}	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 $T_{amb} = 25\text{ °C}$	P_{tot}		500		mW
Storage Temperature	T_{stg}		-55 to +150		°C
Junction Temperature	T_j		150		°C

Thermal Resistance

From junction to ambient	$R_{th(j-a)}$		250		°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 _{CEO}	I _C = 1mA, I _B = 0	65 45 30			V	
Collector Base Voltage BC546/BC546A/BC546B/BC546C BC547/BC547A/BC547B/BC547C BC548/BC548A/BC548B/BC548C	V _{CBO}	I _C = 100uA, I _E = 0	80 50 30			V	
Emitter Base Voltage BC546/BC546A/BC546B/BC546C BC547/BC547A/BC547B/BC547C BC548/BC548A/BC548B/BC548C	V _{EBO}	I _E = 10uA, I _C = 0	6 6 5			V	
Collector Cut off Current	I _{CBO}	V _{CB} = 30V, I _E = 0 V _{CB} = 30V, I _E = 0, T _j = 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 _{CES}	V _{CE} = 80V V _{CE} = 50V V _{CE} = 30V V _{CE} = 80V, T _j = 125°C V _{CE} = 50V, T _j = 125°C V _{CE} = 30V, T _j = 125°C		0.2 0.2 0.2	15 15 15	nA nA nA uA uA uA	
Base Emitter On Voltage	V _{BE(on)}	I _C = 2mA, V _{CE} = 5V I _C = 10mA, V _{CE} = 5V	0.55	0.66	0.7 0.77	V	
Collector Emitter Saturation Voltage	V _{CE(Sat)}	I _C = 10mA, I _B = 0.5mA I _C = 10mA, I _B = 5mA I _C = 100mA, I _B = see note (1)		0.09 0.2 0.3	0.25 0.60 0.60	V	
Base Emitter Saturation Voltage	V _{BE(Sat)}	I _C = 10mA, I _B = 0.5mA I _C = 100mA, I _B = 5mA		0.7 0.9		V	
DC Current Gain	h _{FE}	V _{CE} = 5V, I _C = 10uA BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C V _{CE} = 5V, I _C = 2mA BC546 BC547/BC548 BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C V _{CE} = 5V, I _C = 100mA BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C		90 150 270		450 800 220 450 800	

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

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

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
<i>DYNAMIC CHARACTERISTICS</i>						
Transition Frequency	f_T	$I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 100\text{MHz}$	300			MHz
Collector output Capacitance	C_{cbo}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	1.7	4.5		pF
Emitter input Capacitance	C_{ib}	$V_{EB} = 0.5\text{V}, f = 1\text{MHz}$	9			pF
Noise Figure	NF	$V_{CE} = 5\text{V}, I_C = 0.2\text{mA}$ $R_S = 2\text{k ohm}, f = 1\text{kHz}, B = 200\text{Hz}$	2	10		dB
Small Signal Current Gain	h_{fe}	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, f = 1\text{kHz}$ BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C	220 330 600			
Input Impedance	h_{ie}	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, f = 1\text{kHz}$ 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_{re}	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, f = 1\text{kHz}$ BC546A/BC547A/BC548A BC546B/BC547B/BC548B BC546C/BC547C/BC548C	1.5 2 3			x10
<i>DYNAMIC CHARACTERISTICS</i>						
Output Admittance	h_{oe}	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, f = 1\text{kHz}$ 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 $I_C = 11\text{mA}$ @ $V_{CE} = 10\text{V}$.