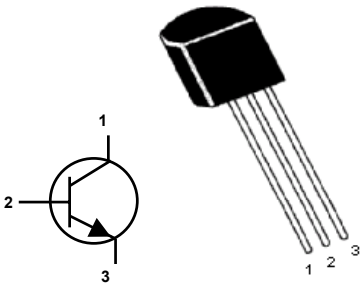
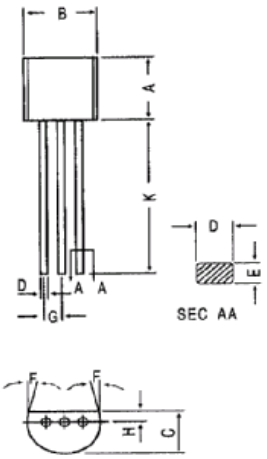
RECTRON
RECTIFIER SPECIALISTS

BC546
BC547
BC548

NPN Silicon Planar Epitaxial Transistors



PIN CONFIGURATION
1. COLLECTOR
2. BASE
3. EMITTER



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	—

All dimensions in mm.

TO-92 SMD Package

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) Collector Current - Peak	I_C I_{CM}	100 200			mA
Emitter Current - Peak	I_{EM}	200			mA
Base Current - Peak	I_{BM}	200			mA
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	500			mW
Storge Temperature	Tstg	-55 to +150			°C
Junction Temperature	Tj	150			°C

Thermal Resistance

From junction to ambient	$R_{th(j-a)}$	250			°C/W

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

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Voltage	V_{CEO}	I_C = 1mA, I_B = 0				
BC546/BC546A/BC546B/BC546C			65			V
BC547/BC547A/BC547B/BC547C			45			
BC548/BC548A/BC548B/BC548C			30			
Collector Base Voltage	V_{CBO}	I_C = 100uA, I_E = 0				
BC546/BC546A/BC546B/BC546C			80			V
BC547/BC547A/BC547B/BC547C			50			
BC548/BC548A/BC548B/BC548C			30			
Emitter Base Voltage	V_{EBO}	I_E = 10uA, I_C = 0				
BC546/BC546A/BC546B/BC546C			6			V
BC547/BC547A/BC547B/BC547C			6			
BC548/BC548A/BC548B/BC548C			5			
Collector Cut off Current	I_{CBO}	V_{CB} = 30V, I_E = 0			15	nA
		V_{CB} = 30V, I_E = 0, Tj = 150°C			5	uA
Collector Cut off Current	I_{CES}					
BC546/BC546A/BC546B/BC546C		V_{CE} = 80V		0.2	15	nA
BC547/BC547A/BC547B/BC547C		V_{CE} = 50V		0.2	15	nA
BC548/BC548A/BC548B/BC548C		V_{CE} = 30V		0.2	15	nA
BC546/BC546A/BC546B/BC546C		V_{CE} = 80V, Tj = 125°C			4	uA
BC547/BC547A/BC547B/BC547C		V_{CE} = 50V, Tj = 125°C			4	uA
BC548/BC548A/BC548B/BC548C		V_{CE} = 30V, Tj = 125°C			4	uA
Base Emitter On Voltage	$V_{BE(on)}$	I_C = 2mA, V_{CE} = 5V	0.55	0.66	0.7	V
		I_C = 10mA, V_{CE} = 5V			0.77	
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$	I_C = 10mA, I_B = 0.5mA		0.09	0.25	
		I_C = 10mA, I_B = 5mA		0.2	0.60	V
		I_C = 100mA, I_B = see note (1)		0.3	0.60	
Base Emitter Saturation Voltage	$V_{BE(Sat)}$	I_C = 10mA, I_B = 0.5mA		0.7		V
		I_C = 100mA, I_B = 5mA		0.9		
DC Current Gain	h_{FE}	VCE = 5V, I_C = 10uA				
		BC546A/BC547A/BC548A		90		
		BC546B/BC547B/BC548B		150		
		BC546C/BC547C/BC548C		270		
		VCE = 5V, I_C = 2mA				
		BC546	110		450	
		BC547/BC548	110		800	
		BC546A/BC547A/BC548A	110	180	220	
		BC546B/BC547B/BC548B	200	290	450	
		BC546C/BC547C/BC548C	420	520	800	
		VCE = 5V, I_C = 100mA				
		BC546A/BC547A/BC548A		120		
		BC546B/BC547B/BC548B		200		
		BC546C/BC547C/BC548C		400		

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
DYNAMIC CHARACTERISTICS						
Transition Frequency	f_T	I_C = 10mA, V_{CE} = 5V, f = 100MH_Z		300		MH_Z
Collector output Capacitance	C_{cbo}	V_{CB} = 10V, f = 1MH_Z		1.7	4.5	pF
Emitter input Capacitance	C_{ib}	V_{EB} = 0.5V, f = 1MH_Z		9		pF
Noise Figure	NF	VCE = 5V, I_C = 0.2mA R_S= 2k ohm, f = 1KH_Z, B= 200H_Z		2	10	dB
Small Signal Current Gain	h_{fe}	V_{CE} = 5V, I_C = 2mA, f= 1kH_Z				
		BC546A/BC547A/BC548A		220		
		BC546B/BC547B/BC548B		330		
		BC546C/BC547C/BC548C		600		
Input Impedance	h_{ie}	V_{CE} = 5V, I_C = 2mA, f= 1kH_Z				k ohm
		BC546A/BC547A/BC548A	1.6	2.7	4.5	
		BC546B/BC547B/BC548B	3.2	4.5	8.5	
		BC546C/BC547C/BC548C	6	8.7	15	
Voltage Feedback	h_{re}	V_{CE} = 5V, I_C = 2mA, f= 1kH_Z				x10
		BC546A/BC547A/BC548A		1.5		
		BC546B/BC547B/BC548B		2		
		BC546C/BC547C/BC548C		3		
DYNAMIC CHARACTERISTICS						
Output Admittance	h_{oe}	V_{CE} = 5V, I_C = 2mA, f= 1kH_Z				u MHO
		BC546A/BC547A/BC548A		18	30	
		BC546B/BC547B/BC548B		30	60	
		BC546C/BC547C/BC548C		60	110	

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