SILICON PLANAR EPITAXIAL TRANSISTORS

General purpose n-p-n transistors in a plastic TO-92 package.

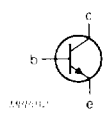
QUICK REFERENCE DATA

			BC546	BC547	BC548	
Collector-emitter voltage (V_{BE} = 0)	V_{CES}	max.	80	50	30	V
Collector-emitter voltage (open base)	V_{CEO}	max.	65	45	30	V
Collector current (peak value)	I_{CM}	max.	200	200	200	mA
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max.	500	500	500	mW
Junction temperature	T_j	max.	150	150	150	°C
D.C. current gain I_C = 2 mA; V_{CE} = 5 V	h_{FE}	>	110	110	110	
		<	450	800	800	
Transition frequency at f = 100 MHz I_C = 10 mA; V_{CE} = 5 V	f_T	>	100	100	100	MHz
Noise figure at R_S = 2 kΩ I_C = 200 μA; V_{CE} = 5 V f = 1 kHz; B = 200 Hz	F	typ.	2	2	2	dB

MECHANICAL DATA

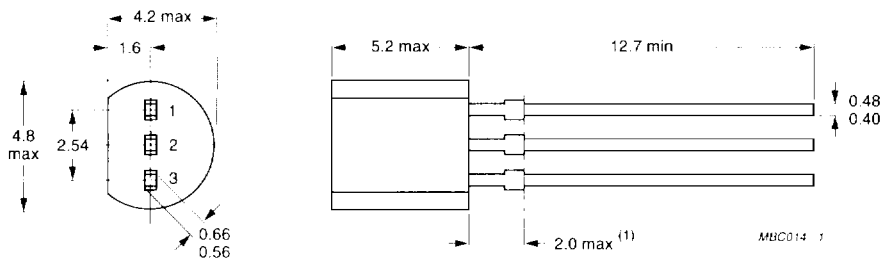
Dimensions in mm

Fig. 1 TO-92.



Pinning

1 = emitter
2 = base



Note (1) Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

			BC546	BC547	BC548	
Collector-base voltage (open emitter)	V_{CBO}	max.	80	50	30	V
Collector-emitter voltage (V_{BE} = 0)	V_{CES}	max.	80	50	30	V
Collector-emitter voltage (open base)	V_{CEO}	max.	65	45	30	V
Emitter-base voltage (open collector)	V_{EBO}	max.	6	6	5	V
Collector current (d.c.)	I_C	max.		100		mA
Collector current (peak value)	I_{CM}	max.		200		mA
Emitter current (peak value)	$-I_{EM}$	max.		200		mA
Base current (peak value)	I_{BM}	max.		200		mA
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max.		500		mW
Storage temperature	T_{stg}			−65 to + 150		°C
Junction temperature	T_j	max.		150		°C

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j\text{-}a}$	=	0,25	K/mW
From junction to case	$R_{th\ j\text{-}c}$	=	0,15	K/mW

CHARACTERISTICS

T_j = 25 °C unless otherwise specified

Collector cut-off current				
I_E = 0; V_{CB} = 30 V	I_{CBO}	<	15	nA
I_E = 0; V_{CB} = 30 V; T_j = 150 °C	I_{CBO}	<	5	μA
Base-emitter voltage*				
I_C = 2 mA; V_{CE} = 5 V	V_{BE}	typ.	660	mV
			580 to 700	mV
I_C = 10 mA; V_{CE} = 5 V	V_{BE}	<	770	mV

* V_{BE} decreases by about 2 mV/K with increasing temperature.

Saturation voltage*					
I_C = 10 mA; I_B = 0,5 mA	V_{CEsat}	typ.	90	mV	
		<	250	mV	
	V_{BEsat}	typ.	700	mV	
I_C = 100 mA; I_B = 5 mA	V_{CEsat}	typ.	200	mV	
		<	600	mV	
	V_{BEsat}	typ.	900	mV	
Collector capacitance at f = 1 MHz					
$I_E = I_e$ = 0; V_{CB} = 10 V	C_c	typ.	2,5	pF	
Emitter capacitance at f = 1 MHz					
$I_C = I_c$ = 0; V_{EB} = 0,5 V	C_e	typ.	9	pF	
Transition frequency at f = 100 MHz					
I_C = 10 mA; V_{CE} = 5 V	f_T	>	100	MHz	
Small signal current gain at f = 1 kHz					
I_C = 2 mA; V_{CE} = 5 V	h_{fe}		110 to 800		

			BC546	BC547	BC548	
Noise figure at R_S = 2 kΩ						
I_C = 200 μA; V_{CE} = 5 V						
f = 1 kHz; B = 200 Hz	F	typ.	2	2	2	dB
		<	10	10	10	dB

			BC546A BC547A BC548A	BC546B BC547B BC548B	BC547C BC548C	BC547 BC548	BC546
D.C. current gain							
I_C = 10 μA; V_{CE} = 5 V	h_{FE}	typ.	90	150	270		
		>	110	200	420	110	110
I_C = 2 mA; V_{CE} = 5 V	h_{FE}	typ.	180	290	520		
		<	220	450	800	800	450

* V_{BEsat} decreases by about 1,7 mV/K with increasing temperature.