SILICON PLANAR EPITAXIAL TRANSISTORS

N-P-N transistors in plastic TO-92 package.

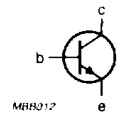
QUICK REFERENCE DATA

			BC549	BC550	
Collector-emitter voltage (V_{BE} = 0)	V_{CES}	max	30	50	V
Collector-emitter voltage (open base)	V_{CEO}	max	30	45	V
Collector current (peak value)	I_{CM}	max	200	200	mA
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max	500	500	mW
Junction temperature	T_j	max	150	150	°C
D.C. current gain I_C = 2 mA; V_{CE} = 5 V	h_{FE}	> <	200 800	200 800	
Transition frequency at f = 100 MHz I_C = 10 mA; V_{CE} = 5 V	f_T		100	100	MHz
Noise figure at R_S = 2 kΩ I_C = 200 μA; V_{CE} = 5 V					
f = 30 Hz to 15 kHz	F	typ <	1,4 4	1,4 3	dB dB
f = 1 kHz; B = 200 Hz	F	typ	1,2	1	dB
f = 10 Hz to 50 Hz (equivalent noise voltage)	V_n	<	–	0,135	μV

MECHANICAL DATA

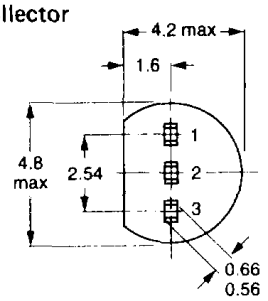
Dimensions in mm

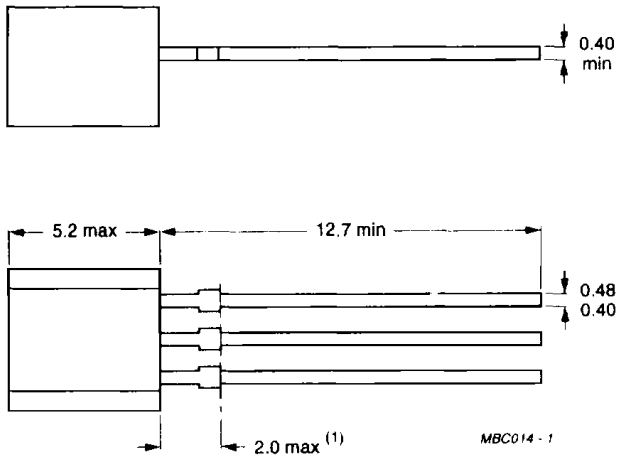
Fig. 1 TO-92.



Pinning

1 = emitter
2 = base
3 = collector





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)

			BC549	BC550	
Collector-base voltage (open emitter)	V_{CBO}	max.	30	50	V
Collector-emitter voltage (V_{BE} = 0)	V_{CES}	max.	30	50	V
Collector-emitter voltage (open base)	V_{CEO}	max.	30	45	V
Emitter-base voltage (open collector)	V_{EBO}	max.	5	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
Saturation voltages**				
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

* V_{BE} decreases by about 2 mV/K with increasing temperature.
** V_{BEsat} decreases by about 1,7 mV/K with increasing temperature.

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}		700 – 800

Noise figure at $R_S = 2$ kΩ
$I_C = 200$ μA; $V_{CE} = 5$ V

			BC549	BC550
f = 30 Hz to 15 kHz	F	typ.	1,4	1,4 dB
		<	4	3 dB
f = 1 kHz; B = 200 Hz	F	typ.	1,2	1 dB
		<	4	4 dB

Equivalent noise voltage at $R_S = 2$ kΩ $I_C = 200$ μA; $V_{CE} = 5$ V f = 10 Hz to 50 Hz; $T_{amb} = 25$ °C	V_n	max.	–	0,135 μV

			BC549B BC550B	BC549C BC550C	BC549 BC550
D.C. current gain $I_C = 10$ μA; $V_{CE} = 5$ V	h_{FE}	typ.	150	270	
		>	200	420	200
$I_C = 2$ mA; $V_{CE} = 5$ V	h_{FE}	typ.	290	520	
		<	450	800	800