

SILICON PLANAR EPITAXIAL TRANSISTORS

General purpose NPN transistors with centre collector pinning, in a plastic TO-92 package, especially suited for use in driver stages of audio amplifiers.

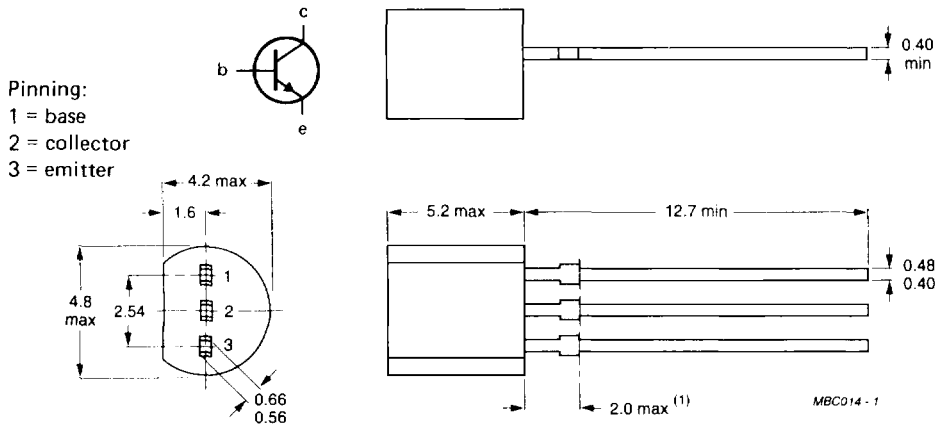
QUICK REFERENCE DATA

		JC546	JC547	JC548
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 $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot} max.	500	500	500 mW
Junction temperature	T_j max.	150	150	150 $^\circ\text{C}$
DC current gain $I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	$h_{FE} >$	110	110	110
	$h_{FE} <$	450	800	800
Transition frequency at $f = 100\text{ MHz}$ $I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	f_T typ.	100	100	100 MHz
Noise figure at $R_S = 2\text{ k}\Omega$ $I_C = 200\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$ $f = 1\text{ kHz}; B = 200\text{ Hz}$	F typ.	2	2	2 dB

MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-92.



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)

		JC546	JC547	JC548
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 (DC)	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 $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	500	mW
Storage temperature range	T_{stg}		-65 to +150	$^\circ\text{C}$
Junction temperature	T_j	max.	150	$^\circ\text{C}$

THERMAL RESISTANCE

From junction to ambient in free air	R_{thj-a}	=	0,25	K/mW
From junction to case	R_{thj-c}	=	0,15	K/mW

CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Collector cut-off current

$I_E = 0; V_{CB} = 30\text{ V}$

$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ }^\circ\text{C}$

I_{CBO}	<	15	nA
I_{CBO}	<	5	μA

Base-emitter voltage*

$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$

$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$

V_{BE}	typ.	660	mV
V_{BE}		580 to 700	mV
V_{BE}	<	770	mV

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

Saturation voltage*	$I_C = 10 \text{ mA}; I_B = 0,5 \text{ mA}$	V_{CEsat}	typ.	90	mV																				
			<	250	mV																				
	$I_C = 100 \text{ mA}; I_B = 5 \text{ mA}$	V_{BEsat}	typ.	700	mV																				
			<	200	mV																				
Collector capacitance at $f = 1 \text{ MHz}$	$I_E = I_e = 0; V_{CB} = 10 \text{ V}$	C_c	typ.	2,5	pF																				
Emitter capacitance at $f = 1 \text{ MHz}$	$I_C = I_c = 0; V_{EB} = 0,5 \text{ V}$	C_e	typ.	9	pF																				
Transition frequency at $f = 100 \text{ MHz}$	$I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$	f_T	>	100	MHz																				
Small signal current gain at $f = 1 \text{ kHz}$	$I_C = 2 \text{ mA}; V_{CE} = 5 \text{ V}$	h_{fe}	125 to 900																						
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* V_{BEsat} decreases by about 1,7 mV/K with increasing temperature.