

SILICON PLANAR EPITAXIAL TRANSISTORS

Medium power npn transistors in a miniature plastic package intended for applications in thick and thin-film circuits. They are general purpose transistors, primarily designed for audio amplifier output stages.

PNP complements are BCP51, BCP52 and BCP53 respectively.

QUICK REFERENCE DATA

	BCP54	BCP55	BCP56
Collector-base voltage (open emitter)	V_{CBO} max. 45	60	100 V
Collector-emitter voltage (open base)	V_{CEO} max. 45	60	80 V
Collector-emitter voltage ($R_{BE} = 1 \text{ k}\Omega$)	V_{CER} max. 45	60	100 V
Collector current (peak value)	I_{CM} max.	1,5	A
Total power dissipation up to $T_{amb} = 25 \text{ }^\circ\text{C}$	P_{tot} max.	1,5	W
Junction temperature	T_j max.	150	$^\circ\text{C}$
DC current gain	h_{FE}	40 to 250	
$I_C = 150 \text{ mA}; V_{CE} = 2 \text{ V}$			
Transition frequency at $f = 100 \text{ MHz}$	f_T typ.	130	MHz
$I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$			

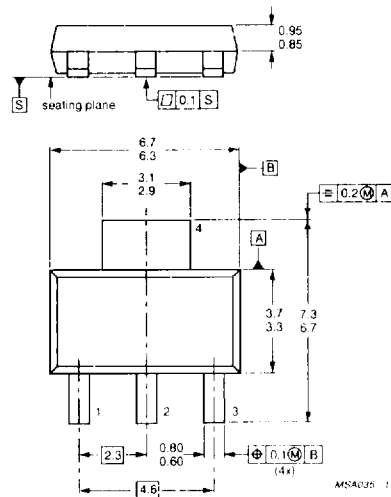
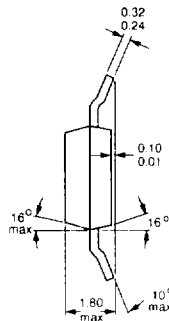
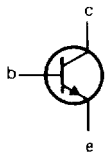
MECHANICAL DATA

Dimensions in mm

Fig. 1 SOT-223

Pinning

- 1 = Base
- 2 = Collector
- 3 = Emitter
- 4 = Collector



RATINGS

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

			BCP54	BCP55	BCP56
Collector-base voltage (open emitter)	V_{CBO}	max.	45	60	100 V
Collector-emitter voltage (open base)	V_{CEO}	max.	45	60	80 V
Collector-emitter voltage ($R_{BE} = 1 \text{ k}\Omega$)	V_{CER}	max.	45	60	100 V
Emitter-base voltage (open collector)	V_{EBO}	max.	5	5	5 V
Collector current (DC)	I_C	max.		1,0	A
Collector current (peak value)	I_{CM}	max.		1,5	A
Base current (DC)	I_B	max.		0,1	A
Base current (peak value)	I_{BM}	max.		0,2	A
Total power dissipation up to $T_{amb} = 25 \text{ }^\circ\text{C}^*$	P_{tot}	max.		1,5	W
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*	$R_{th \text{ j-a}}$	=		83,3	K/W
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CHARACTERISTICS

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

Collector cut-off current

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

$I_{CBO} < 100 \text{ nA}$

$I_E = 0; V_{CB} = 30 \text{ V}; T_j = 125 \text{ }^\circ\text{C}$

$I_{CBO} < 10 \text{ } \mu\text{A}$

Emitter cut-off current

$I_C = 0; V_{EB} = 5 \text{ V}$

$I_{EBO} < 10 \text{ } \mu\text{A}$

Base-emitter voltage

$I_C = 500 \text{ mA}; V_{CE} = 2 \text{ V}$

$V_{BE} < 1 \text{ V}$

Saturation voltage

$I_C = 500 \text{ mA}; I_B = 50 \text{ mA}$

$V_{CEsat} < 0,5 \text{ V}$

DC current gain

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

$h_{FE} > 25$

$I_C = 150 \text{ mA}; V_{CE} = 2 \text{ V}$

$h_{FE} > 40 \text{ to } 250$

$I_C = 500 \text{ mA}; V_{CE} = 2 \text{ V}$

$h_{FE} > 25$

Transition frequency at $f = 100 \text{ MHz}$

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

$f_T \text{ typ. } 130 \text{ MHz}$

* Device mounted on an epoxy printed circuit board 40 mm x 40 mm x 1,5 mm; mounting pad for the collector lead min. 6 cm².

CHARACTERISTICS (continued)

		BCP54-10	BCP54-16
		55-10	55-16
		56-10	56-16
DC current gain $I_C = 150 \text{ mA}; V_{CE} = 2 \text{ V}$	$h_{FE} >$	63	100
	$h_{FE} <$	160	250