

## SILICON PLANAR EPITAXIAL TRANSISTOR

PNP transistor in a plastic microminiature package, intended for low-voltage, high-current LF applications.

## QUICK REFERENCE DATA

Collector-emitter voltage ( $V_{BE} = 0$ )	$-V_{CES}$ max.	25 V
Collector-emitter voltage (open base)	$-V_{CEO}$ max.	20 V
Collector current (peak value)	$-I_{CM}$ max.	2 A
Total power dissipation up to $T_{amb} = 25^{\circ}\text{C}$	$P_{tot}$ max.	1,5 W
Junction temperature	$T_j$ max.	150 $^{\circ}\text{C}$
DC current gain	$h_{FE}$	85 to 375
$-I_C = 500$ mA; $-V_{CE} = 1$ V		
Transition frequency at $f = 100$ MHz	$f_T$	$> 40$ MHz
$-I_C = 10$ mA; $-V_{CE} = 5$ V		

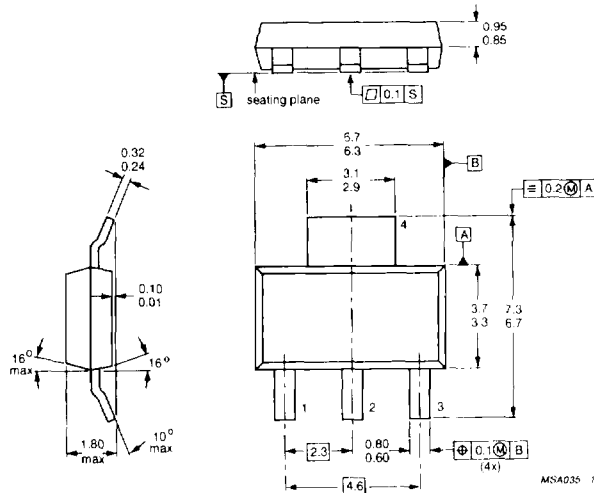
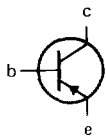
## MECHANICAL DATA

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)

Collector-emitter voltage ( $V_{BE} = 0$ )	$-V_{CES}$	max.	25 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	20 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5 V
Collector current (DC)	$-I_C$	max.	1 A
Collector current (peak value)	$-I_{CM}$	max.	2 A
Base current (DC)	$-I_B$	max.	100 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.	1,5 W
Storage temperature range	$T_{stg}$		$-65$ to $+150\text{ }^\circ\text{C}$
Junction temperature	$T_j$	max.	150 $^\circ\text{C}$

**THERMAL RESISTANCE**

From junction to ambient*	$R_{th\ j-a}$	=	83,3 K/W
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**CHARACTERISTICS** $T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified

Collector cut-off current			
$I_E = 0; -V_{CB} = 25\text{ V}$	$-I_{CBO}$	<	10 $\mu\text{A}$
$I_E = 0; -V_{CB} = 25\text{ V}; T_j = 150\text{ }^\circ\text{C}$	$-I_{CBO}$	<	1 mA
Emitter cut-off current			
$I_C = 0; -V_{EB} = 5\text{ V}$	$-I_{EBO}$	<	10 $\mu\text{A}$
Base-emitter voltage			
$-I_C = 5\text{ mA}; -V_{CE} = 10\text{ V}$	$-V_{BE}$	typ.	0,62 V
$-I_C = 1\text{ A}; -V_{CE} = 1\text{ V}$	$-V_{BE}$	<	1 V
Collector-emitter saturation voltage			
$-I_C = 1\text{ A}; -I_B = 100\text{ mA}$	$-V_{CEsat}$	<	0,5 V
DC current gain			
$-I_C = 5\text{ mA}; -V_{CE} = 10\text{ V}$	BCP69	$h_{FE}$	> 50
$-I_C = 500\text{ mA}; -V_{CE} = 1\text{ V}$	BCP69	$h_{FE}$	85 to 375
	BCP69-10	$h_{FE}$	$\leq$ 160
	BCP69-16	$h_{FE}$	100 to 250
	BCP69-25	$h_{FE}$	$\geq$ 250
$-I_C = 1\text{ A}; -V_{CE} = 1\text{ V}$	BCP69	$h_{FE}$	> 60
Collector capacitance at $f = 450\text{ kHz}$			
$I_E = I_e = 0; -V_{CB} = 5\text{ V}$		$C_C$	typ. 45 pF
Transition frequency at $f = 100\text{ MHz}$			
$-I_C = 10\text{ mA}; -V_{CE} = 5\text{ V}$		$f_T$	> 40 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 cm<sup>2</sup>.