

SILICON N-P-N HIGH-VOLTAGE TRANSISTOR

N-P-N high-voltage small-signal transistor for general purposes and especially telephony applications and encapsulated in a SOT-23 package.

QUICK REFERENCE DATA

Collector-base voltage (open emitter)	V_{CBO}	max.	160 V
Collector-emitter voltage (open base)	V_{CEO}	max.	140 V
Collector current	I_C	max.	600 mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	250 mW
Collector-emitter saturation voltage $I_C = 50\text{ mA}; I_B = 5\text{ mA}$	V_{CEsat}	max.	0,25 V
D.C. current gain $I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	h_{FE}		60 to 250

MECHANICAL DATA

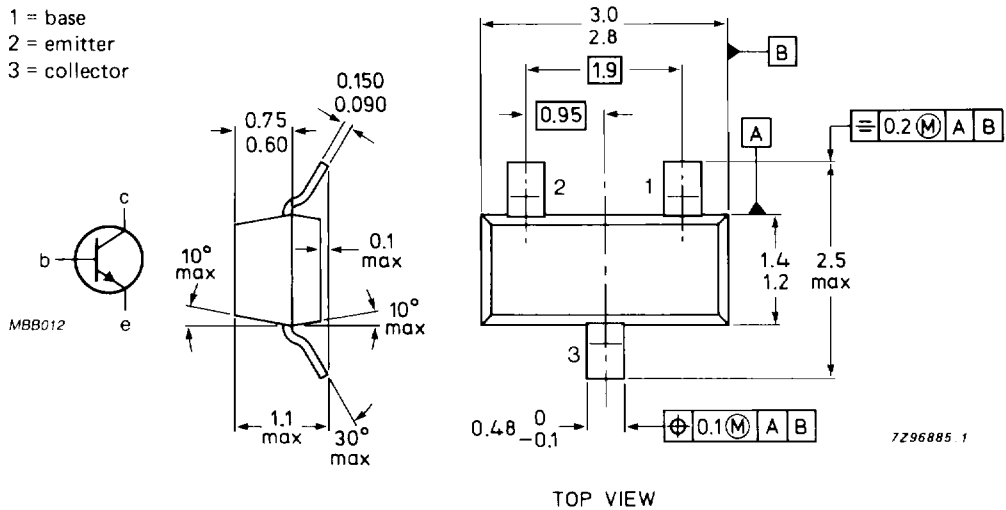
Dimensions in mm

Fig. 1 SOT-23.

Marking code: p1F

Pinning:

- 1 = base
- 2 = emitter
- 3 = collector



RATINGS

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

Collector-base voltage (open emitter)	V_{CBO}	max.	160
Collector-emitter voltage (open base)	V_{CEO}	max.	140
Emitter-base voltage (open collector)	V_{EBO}	max.	6 V
Collector current	I_C	max.	600 mA
Total power dissipation * up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	250 mW
Storage temperature	T_{stg}		-65 to +150 $^\circ\text{C}$
Junction temperature	T_j	max.	150 $^\circ\text{C}$

THERMAL RESISTANCE *

From junction to ambient	$R_{th\ t-a}$		500 K/W
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CHARACTERISTICS

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

Collector cut-off current

$I_E = 0; V_{CB} = 100\text{ V}$	I_{CBO}	max.	100 nA
$I_E = 0; V_{CB} = 100\text{ V}; T_{amb} = 100\text{ }^\circ\text{C}$	I_{CBO}	max.	100 μA

Emitter cut-off current

$I_C = 0; V_{EB} = 4,0\text{ V}$	I_{EBO}	max.	50 nA
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Breakdown voltages

$I_C = 1,0\text{ mA}; I_B = 0$	$V_{(BR)CEO}$	min.	140 V
$I_C = 10\text{ } \mu\text{A}; I_E = 0$	$V_{(BR)CBO}$	min.	160 V
$I_C = 0; I_E = 10\text{ } \mu\text{A}$	$V_{(BR)EBO}$	min.	6 V

Saturation voltages

$I_C = 10\text{ mA}; I_B = 1,0\text{ mA}$	V_{CEsat}	max.	0,15 V
	V_{BEsat}	max.	1,0 V
$I_C = 50\text{ mA}; I_B = 5,0\text{ mA}$	V_{CEsat}	max.	0,25 V
	V_{BEsat}	max.	1,2 V

D.C. current gain

$I_C = 1,0\text{ mA}; V_{CE} = 5\text{ V}$	h_{FE}	min.	60
$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	h_{FE}	min.	60
		max.	250
$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}$	h_{FE}	min.	20

Output capacitance at $f = 1\text{ MHz}$

$I_E = 0; V_{CB} = 10\text{ V}$	C_c	max.	6 pF
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Input capacitance at $f = 1\text{ MHz}$

$I_C = 0; V_{EB} = 0,5\text{ V}$	C_e	max.	30 pF
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Transition frequency at $f = 100\text{ MHz}$

$I_C = 10\text{ mA}; V_{CE} = 10\text{ V}; T_{amb} = 25\text{ }^\circ\text{C}$	f_T	min.	100 MHz
		max.	300 MHz

* Mounted on an FR4 printed-circuit board 8 mm x 10 mm x 0.7 mm.