

HIGH VOLTAGE N-P-N TRANSISTORS

Silicon planar epitaxial transistor in a microminiature plastic envelope intended for application in thick and thin-film circuits. This transistor is intended for high-voltage general purpose and switching applications.

QUICK REFERENCE DATA

Collector-base voltage (open emitter)	V_{CBO}	max.	120 V
Collector-emitter voltage (open base)	V_{CEO}	max.	80 V
Collector current (peak value)	I_{CM}	max.	250 mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	P_{tot}	max.	250 mW
Junction temperature	T_j	max.	150°C
D.C. current gain	h_{FE}	>	20
$I_C = 10\text{ mA}; V_{CE} = 1\text{ V}; T_j = 25^\circ\text{C}$		typ.	80
Transition frequency at $f = 35\text{ MHz}$	f_T	>	60 MHz
$I_C = 4\text{ mA}; V_{CE} = 10\text{ V}$			
Turn-off time	t_{off}	<	1 μs
$I_C = 15\text{ mA}; I_{BoN} = -I_{BoF} = 1\text{ mA}$			

MECHANICAL DATA

Dimensions in mm

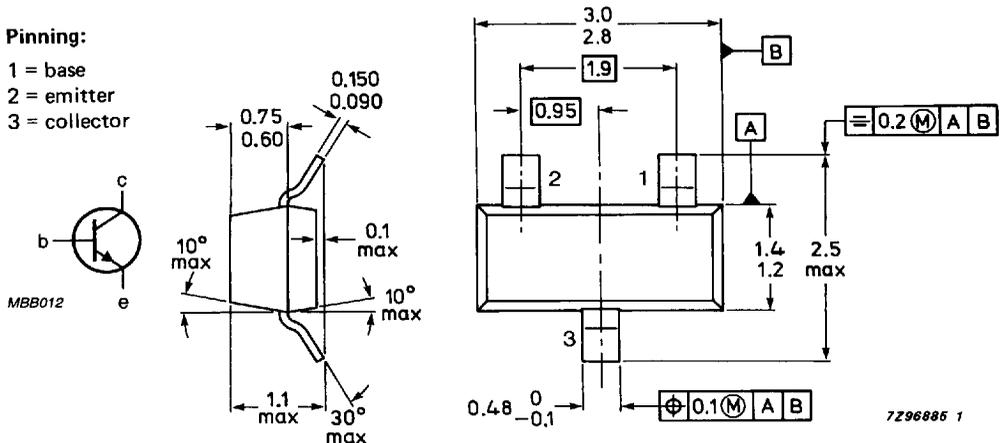
Marking code

Fig. 1 SOT-23.

BSS64 = AMp

Pinning:

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



Reverse pinning types are available on request.

TOP VIEW

See also *Soldering recommendations*.

RATINGS

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

Collector-base voltage (open emitter) $I_C = 100 \mu A$	V_{CBO}	max.	120 V
Collector-emitter voltage (open base) $I_C = 4 \text{ mA}$	V_{CEO}	max.	80 V
Emitter-base voltage (open collector) $I_E = 100 \mu A$	V_{EBO}	max.	5 V
Collector current (d.c. or averaged over any 20 ms period)	I_C	max.	100 mA
Collector current (peak value)	I_{CM}	max.	250 mA
Base current (peak value)	I_{BM}	max.	100 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*	$R_{th \text{ j-a}}$	=	500 K/W
---------------------------	----------------------	---	---------

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

Collector cut-off current $I_E = 0; V_{CB} = 90 \text{ V}$	I_{CBO}	<	100 nA
$I_E = 0; V_{CB} = 90 \text{ V}; T_j = 150 \text{ }^\circ\text{C}$	I_{CBO}	<	50 μA
Emitter cut-off current $I_C = 0; V_{EB} = 5 \text{ V}$	I_{EBO}	typ. <	0,5 nA 200 nA
Saturation voltages $I_C = 4 \text{ mA}; I_B = 400 \mu A$	V_{CEsat}	<	150 mV
	V_{BEsat}	<	1200 mV
$I_C = 50 \text{ mA}; I_B = 15 \text{ mA}$	V_{CEsat}	<	200 mV
D.C. current gain $I_C = 1 \text{ mA}; V_{CE} = 1 \text{ V}$	h_{FE}	typ.	60
$I_C = 10 \text{ mA}; V_{CE} = 1 \text{ V}$	h_{FE}	> typ.	20 80
$I_C = 20 \text{ mA}; V_{CE} = 1 \text{ V}$	h_{FE}	typ.	55

* Mounted on a ceramic substrate of 8 mm x 10 mm x 0,7 mm.



N AMER PHILIPS/DISCRETE

67E D

Transition frequency at $f = 35$ MHz
 $I_C = 4$ mA; $V_{CE} = 10$ V

f_T > 60 MHz
typ. 100 MHz

Collector capacitance at $f = 1$ MHz
 $I_E = I_e = 0$; $V_{CB} = 10$ V

C_c typ. 3 pF

Turn-off switching time
 $I_{Con} = 15$ mA; $I_{Bon} = -I_{Boff} = 1$ mA

t_{off} < 1 μ s

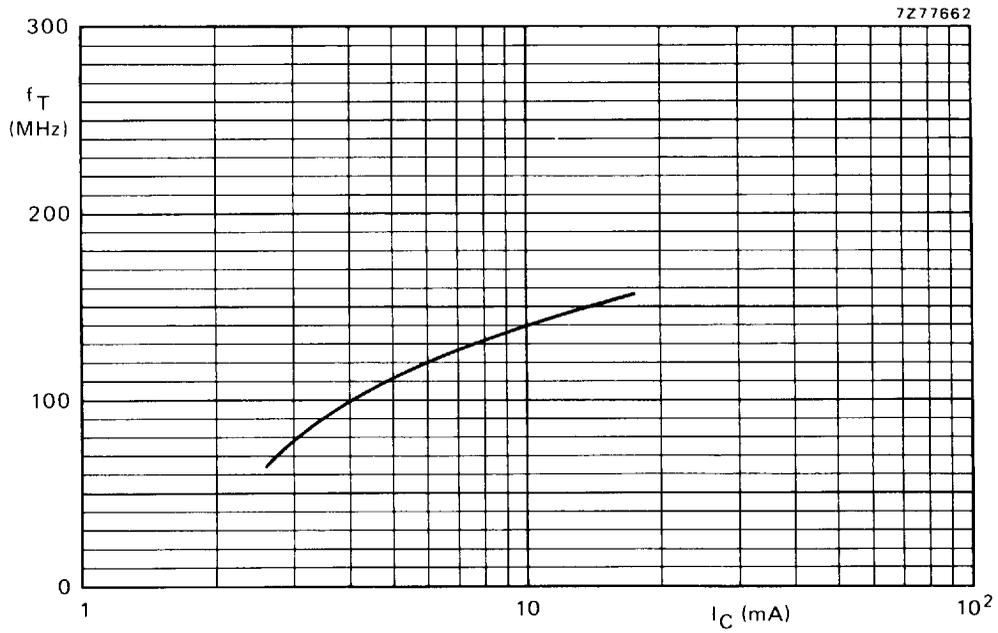


Fig. 2 Typical values transition frequency. $V_{CE} = 10$ V; $f = 35$ MHz; $T_j = 25$ °C.

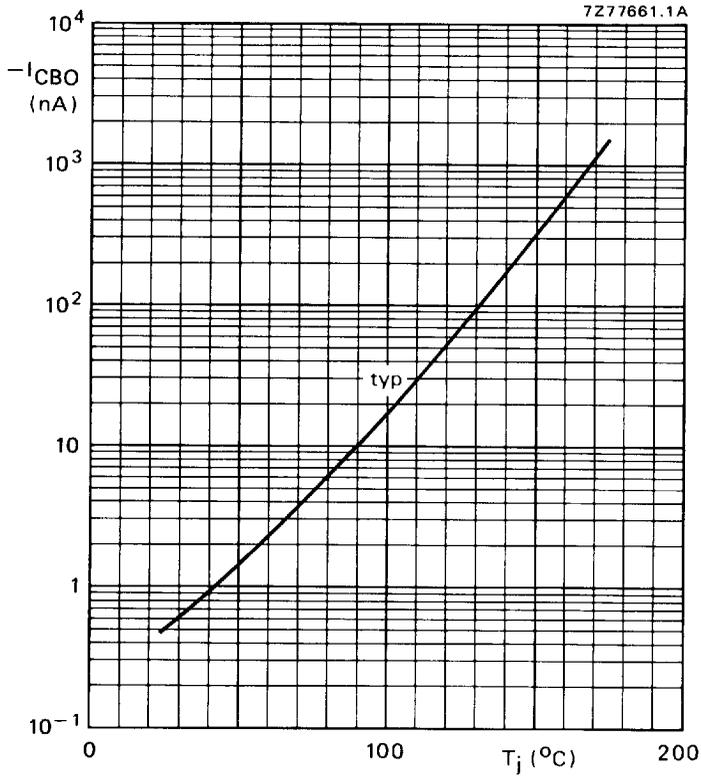


Fig. 3 Typical values collector-base current as a function of the junction temperature at a collector-base voltage of -90 V.