N-P-N SMALL-SIGNAL DARLINGTON TRANSISTORS

N-P-N small-signal darlington transistors in a microminiature SMD package (SOT-23).

Designed primarily for preamplifier input applications requiring high input impedance.

P-N-P complement is the PMBTA63/64.

QUICK REFERENCE DATA

Collector-emitter voltage V_{BE} = 0		V_{CES}	max.	30 V
Collector current (d.c.)		I_C	max.	300 mA
Total power dissipation up to T_{amb} = 25 °C		P_{tot}	max.	250 mW
Junction temperature		T_j	max.	150 °C
D.C. current gain I_C = 10 mA; V_{CE} = 5 V	PMBTA13	h_{FE}	min.	5000
	PMBTA14	h_{FE}	min.	10 000
Transition frequency at f = 100 MHz I_C = 10 mA; V_{CE} = 5 V		f_T	min.	125 MHz

MECHANICAL DATA

Dimensions in mm

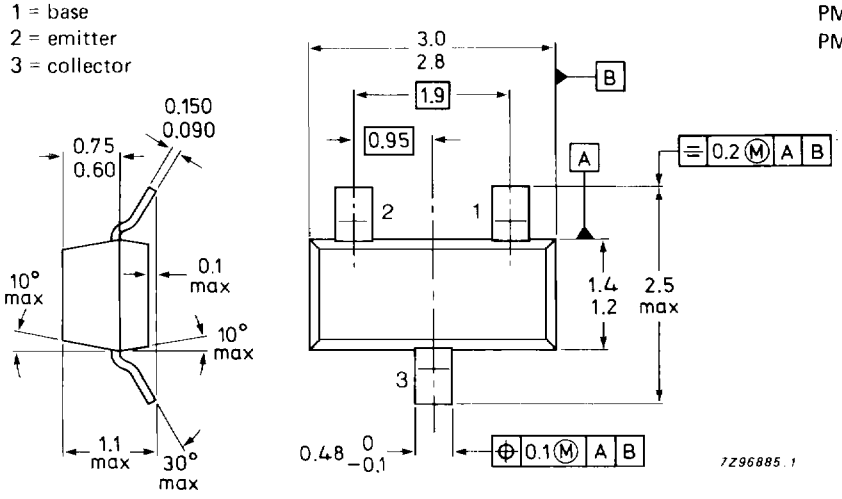
Fig. 1 SOT-23.

Pinning:

1 = base
2 = emitter
3 = collector

Marking code

PMBTA13: p1M
PMBTA14: p1N



RATINGS

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

Collector-base voltage (open emitter)		V_{CBO}	max.	30	V
Collector-emitter voltage $V_{BE} = 0$		V_{CES}	max.	30	V
Emitter-base voltage (open collector)		V_{EBO}	max.	10	V
Collector current (d.c.)		I_C	max.	300	mA
Total power dissipation up to $T_{amb} = 25\ ^oC$*		P_{tot}	max.	250	mW
Storage temperature		T_{stg}		−65 to +150	°C
Junction temperature		T_j	max.	150	°C

THERMAL RESISTANCE

From junction to ambient*		$R_{th\ j\text{-}a}$		500	K/W

CHARACTERISTICS

$T_j = 25\ ^oC$ unless otherwise specified

Collector-emitter breakdown voltage $I_C = 100\ \mu A$		$V_{(BR)CES}$	min.	30	V
Emitter-base cut-off current $V_{BE} = 10$ V		I_{EBO}	max.	0,1	μA
Collector-base cut-off current $V_{CB} = 30$ V		I_{CBO}	max.	0,1	μA
D.C. current gain $I_C = 10$ mA; $V_{CE} = 5$ V	PMBTA13	h_{FE}	min.	5000	
	PMBTA14	h_{FE}	min.	10 000	
$I_C = 100$ mA; $V_{CE} = 5$ V	PMBTA13	h_{FE}	min.	10 000	
	PMBTA14	h_{FE}	min.	20 000	
Collector-emitter saturation voltage $I_C = 100$ mA; $I_B = 0,1$ mA		V_{CEsat}	max.	1,5	V
Base-emitter ON-voltage $I_C = 100$ mA; $V_{CE} = 5$ V		$V_{BE(on)}$	max.	2,0	V
Transition frequency at f = 100 MHz $I_C = 10$ mA; $V_{CE} = 5$ V		f_T	min.	125	MHz

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