SMALL-SIGNAL DARLINGTON TRANSISTOR

NPN small-signal darlington transistors, housed in a microminiature package (SOT89)
PNP complementary types are BCV28/48.

QUICK REFERENCE DATA

			BCV29	BCV49	
Collector-base voltage	V_{CBO}	max.	40	80	V
Collector-emitter voltage	V_{CEO}	max.	30	60	V
Emitter-base voltage	V_{EBO}	max.	10	10	V
Collector current (DC)	I_C	max.	500	500	mA
DC current gain					
I_C = 1 mA; V_{CE} = 5 V	h_{FE}	min.	4000	2000	
I_C = 10 mA; V_{CE} = 5 V	h_{FE}	min.	10000	4000	
I_C = 100 mA; V_{CE} = 5 V	h_{FE}	min.	20000	10000	
I_C = 500 mA; V_{CE} = 5 V	h_{FE}	min.	4000	2000	
Total power dissipation					
up to T_{amb} = 25 °C*	P_{tot}	max.	1.0		W
Transition frequency at f = 100 MHz					
I_C = 30 mA; V_{CE} = 5 V	f_T	typ.	220		MHz

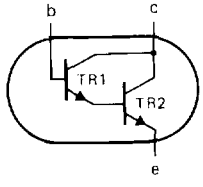
MECHANICAL DATA

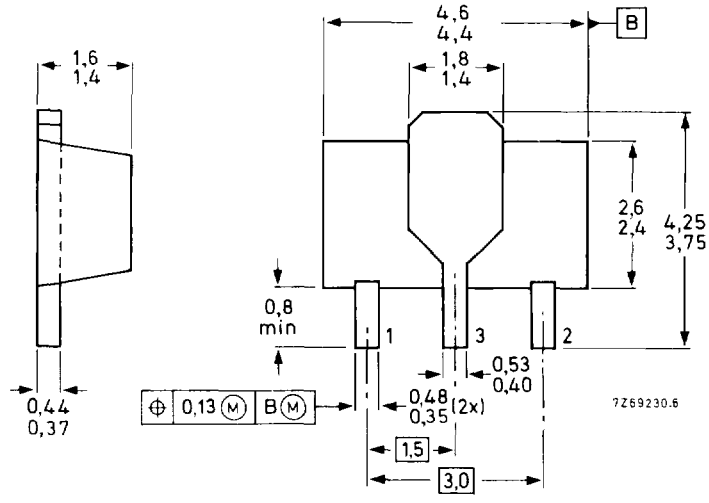
Dimensions in mm

Fig.1 SOT89.

Pinning

1 = emitter
2 = base
3 = collector





BOTTOM VIEW

* Mounted on a ceramic substrate; area = 2.5 cm^2 ; thickness = 0.7 mm.

RATINGS

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

			BCV29	BCV49	
Collector-base voltage	V_{CBO}	max.	40	80	V
Collector-emitter voltage	V_{CEO}	max.	30	60	V
Emitter-base voltage	V_{EBO}	max.	10	10	V
Collector current (DC)	I_C	max.	500	500	mA
Total power dissipation up to T_{amb} = 25 °C*	P_{tot}	max.	1.0		W
Storage temperature range	T_{stg}		−65 to + 150		°C
Junction temperature	T_j	max.	150		°C

THERMAL RESISTANCE

From junction to ambient*	$R_{th\,j\text{-}a}$	=	125	K/W

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified

			BCV29	BCV49	
Collector-emitter breakdown voltage I_C = 10 mA	$V_{(BR)CES}$	min.	30	60	V
Collector-base breakdown voltage I_C = 10 μA	$V_{(BR)CBO}$	min.	40	80	V
Emitter-base breakdown voltage I_E = 0.1 μA	$V_{(BR)EBO}$	min.	10	10	V
Emitter-base cut-off current V_{BE} = 4 V; I_C = 0	I_{EBO}	max.	0.1	0.1	μA
Collector-base cut-off current V_{CB} = 30/60 V; I_E = 0	I_{CBO}	max.	0.1	0.1	μA
DC current gain					
I_C = 1 mA; V_{CE} = 5 V	h_{FE}	min.	4000	2000	
I_C = 10 mA; V_{CE} = 5 V	h_{FE}	min.	10000	4000	
I_C = 100 mA; V_{CE} = 5 V	h_{FE}	min.	20000	10000	
I_C = 500 mA; V_{CE} = 5 V	h_{FE}	min.	4000	2000	
Collector-emitter saturation voltage I_C = 100 mA; I_B = 0.1 mA	V_{CEsat}	max.	1.0	1.0	V
Base-emitter saturation voltage I_C = 100 mA; I_B = 0.1 mA	V_{BEsat}	max.	1.5	1.5	V
Transition frequency at f = 100 MHz I_C = 30 mA; V_{CE} = 5 V	f_T	typ.	220		MHz
Output capacitance V_{CB} = 30 V; I_E = 0	C_c	typ.	3.5		pF

* Mounted on a ceramic substrate; area = 2.5 cm^2; thickness = 0.7 mm.