

## SMALL-SIGNAL DARLINGTON TRANSISTOR

NPN small-signal darlington transistors, housed in a microminiature envelope (SO89).  
PNP complementary types are BCV28/48.

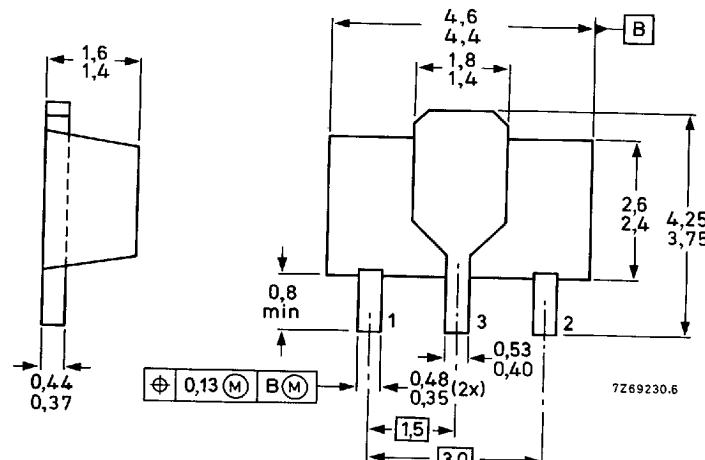
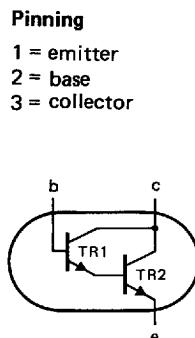
### QUICK REFERENCE DATA

		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	$h_{FE}$	min. 4000	2000
$I_C = 1 \text{ mA}; V_{CE} = 5 \text{ V}$	$h_{FE}$	min. 10000	4000
$I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$	$h_{FE}$	min. 20000	10000
$I_C = 100 \text{ mA}; V_{CE} = 5 \text{ V}$	$h_{FE}$	min. 4000	2000
$I_C = 500 \text{ mA}; V_{CE} = 5 \text{ V}$	$h_{FE}$	min. 4000	2000
Total power dissipation up to $T_{amb} = 25^\circ\text{C}^*$	$P_{tot}$	max. 1.0	W
Transition frequency at $f = 100 \text{ MHz}$ $I_C = 30 \text{ mA}; V_{CE} = 5 \text{ V}$	$f_T$	typ. 220	MHz

### MECHANICAL DATA

Fig.1 SOT89.

Dimensions in mm



BOTTOM VIEW

\* Mounted on a ceramic substrate; area =  $2.5 \text{ cm}^2$ ; thickness = 0.7 mm.

BCV29  
BCV49

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**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 $T_{amb} = 25^\circ\text{C}$ *	$P_{tot}$	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*	$R_{th\ j-a}$	=	125	K/W
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**CHARACTERISTICS** $T_{amb} = 25^\circ\text{C}$  unless otherwise specified

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

\* Mounted on a ceramic substrate; area = 2.5 cm<sup>2</sup>; thickness = 0.7 mm.