

SILICON PLANAR EPITAXIAL TRANSISTORS

Medium power p-n-p transistors in a miniature plastic package intended for applications in thick and thin-film circuits. These transistors are intended for general purposes as well as for use in driver stages of audio amplifiers.

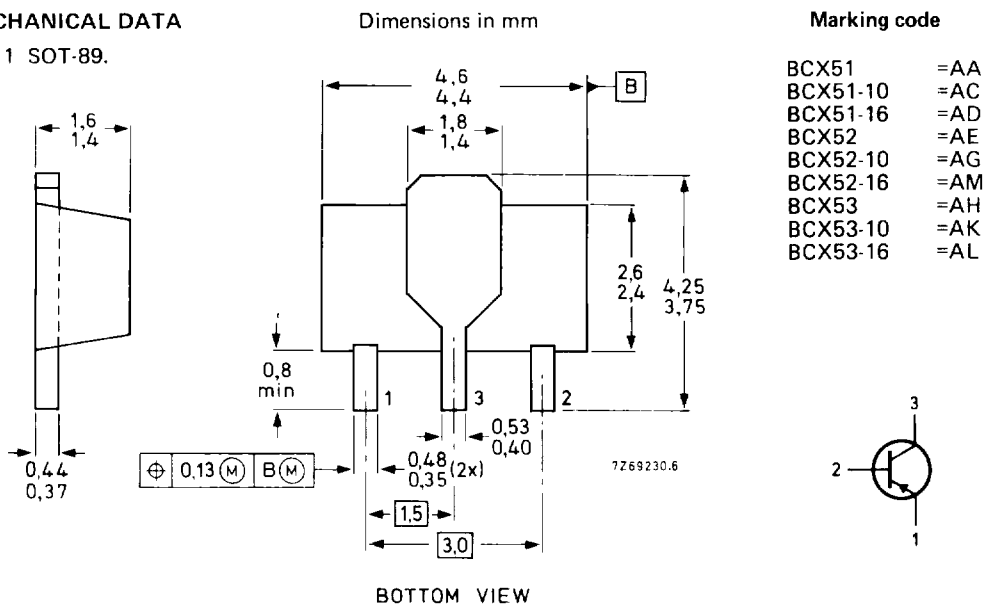
N-P-N complements are BCX54, BCX55 and BCX56 respectively.

QUICK REFERENCE DATA

		BCX51	BCX52	BCX53
Collector-base voltage (open emitter)	$-V_{CBO}$ max.	45	60	100 V
Collector-emitter voltage (open base)	$-V_{CEO}$ max.	45	60	80 V
Collector-emitter voltage ($R_{BE} = 1 \text{ k}\Omega$)	$-V_{CER}$ max.	45	60	100 V
Collector current (peak value)	$-I_{CM}$ max.		1,5	A
Total power dissipation up to $T_{amb} = 25 \text{ }^\circ\text{C}$	P_{tot} max.		1	W
Junction temperature	T_j max.		150	$^\circ\text{C}$
D.C. current gain $-I_C = 150 \text{ mA}; -V_{CE} = 2 \text{ V}$	h_{FE}		40 to 250	
Transition frequency at $f = 100 \text{ MHz}$ $-I_C = 10 \text{ mA}; -V_{CE} = 5 \text{ V}$	f_T typ.		50	MHz

MECHANICAL DATA

Fig. 1 SOT-89.



RATINGS

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

			BCX51	BCX52	BCX53
Collector-base voltage (open emitter)	$-V_{CBO}$	max.	45	60	100 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	45	60	80 V
Collector-emitter voltage ($R_{BE} = 1\text{ k}\Omega$)	$-V_{CER}$	max.	45	60	100 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5	5	5 V
Collector current (d.c.)	$-I_C$	max.		1,0	A
Collector current (peak value)	$-I_{CM}$	max.		1,5	A
Base current (d.c.)	$-I_B$	max.		0,1	A
Base current (peak value)	$-I_{BM}$	max.		0,2	A
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$ mounted on a ceramic substrate area = $2,5\text{ cm}^2$; thickness = $0,7\text{ mm}$	P_{tot}	max.		1,0	W
Storage temperature	T_{stg}			-65 to +150	$^\circ\text{C}$
Junction temperature	T_j	max.		150	$^\circ\text{C}$

THERMAL RESISTANCE

From junction to collector tab	$R_{th\ j-tab}$	=		10	K/W
From junction to ambient in free air mounted on a ceramic substrate area = $2,5\text{ cm}^2$; thickness = $0,7\text{ mm}$	$R_{th\ j-a}$	=		125	K/W

CHARACTERISTICS

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

Collector cut-off current $I_E = 0$; $-V_{CB} = 30\text{ V}$	$-I_{CBO}$	<		100	nA
$I_E = 0$; $-V_{CB} = 30\text{ V}$; $T_j = 125\text{ }^\circ\text{C}$	$-I_{CBO}$	<		10	μA
Emitter cut-off current $I_C = 0$; $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	<		10	μA
Base-emitter voltage $-I_C = 500\text{ mA}$; $-V_{CE} = 2\text{ V}$	$-V_{BE}$	<		1	V
Saturation voltage $-I_C = 500\text{ mA}$; $-I_B = 50\text{ mA}$	$-V_{CEsat}$	<		0,5	V
D.C. current gain $-I_C = 5\text{ mA}$; $-V_{CE} = 2\text{ V}$	h_{FE}	>		25	
$-I_C = 150\text{ mA}$; $-V_{CE} = 2\text{ V}$	h_{FE}			40 to 250	
$-I_C = 500\text{ mA}$; $-V_{CE} = 2\text{ V}$	h_{FE}	>		25	
Transition frequency at $f = 100\text{ MHz}$ $-I_C = 10\text{ mA}$; $-V_{CE} = 5\text{ V}$	f_T	typ.		50	MHz

CHARACTERISTICS (continued)

		BCX51-10	BCX51-16
		52-10	52-16
		53-10	53-16
D.C. current gain			
$-I_C = 150 \text{ mA}; -V_{CE} = 2 \text{ V}$	h_{FE}	63 160	100 250
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