

SILICON PLANAR EPITAXIAL TRANSISTORS

Medium power p-n-p transistors in a miniature plastic envelope 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.

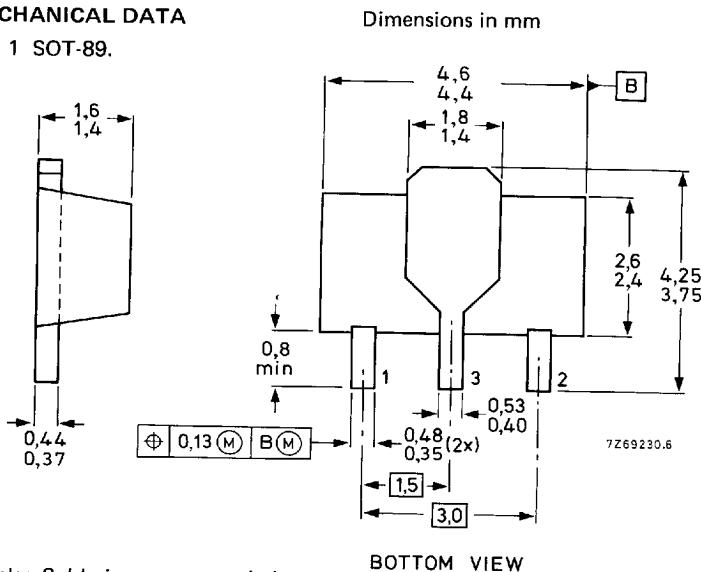
N-P-N complements are BCX54, BCX55 and BCX56 respectively.

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 $T_{amb} = 25^\circ\text{C}$	P_{tot} max.		1	W
Junction temperature	T_j max.		150	$^\circ\text{C}$
D.C. current gain	h_{FE}		40 to 250	
Transition frequency at $f = 35 \text{ MHz}$	f_T typ.		50	MHz
$-I_C = 150 \text{ mA}; -V_{CE} = 2 \text{ V}$				
$-I_C = 10 \text{ mA}; -V_{CE} = 5 \text{ V}$				

MECHANICAL DATA

Fig. 1 SOT-89.



Marking code

BCX51	=AA
BCX51-10	=AC
BCX51-16	=AD
BCX52	=AE
BCX52-10	=AG
BCX52-16	=AM
BCX53	=AH
BCX53-10	=AK
BCX53-16	=AL

See also *Soldering recommendations*.

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 $T_{amb} = 25^\circ\text{C}$ 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	$R_{th \text{ j-tab}}$	=		10	K/W
From junction to ambient in free air mounted on a ceramic substrate area = $2,5 \text{ cm}^2$; thickness = $0,7 \text{ mm}$	$R_{th \text{ j-a}}$	=		125	K/W

CHARACTERISTICS

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

Collector cut-off current $I_E = 0$; $-V_{CB} = 30 \text{ V}$	$-I_{CBO}$	<		100	nA
$I_E = 0$; $-V_{CB} = 30 \text{ V}$; $T_j = 125^\circ\text{C}$	$-I_{CBO}$	<		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 $f = 35 \text{ MHz}$ $-I_C = 10 \text{ mA}$; $-V_{CE} = 5 \text{ V}$	f_T	typ.		50	MHz

CHARACTERISTICS (continued)

D.C. current gain

$-I_C = 150 \text{ mA}$; $-V_{CE} = 2 \text{ V}$

$h_{FE} >$
 $h_{FE} <$

BCX51-10	BCX51-16
52-10	52-16
53-10	53-16
63	100
160	250

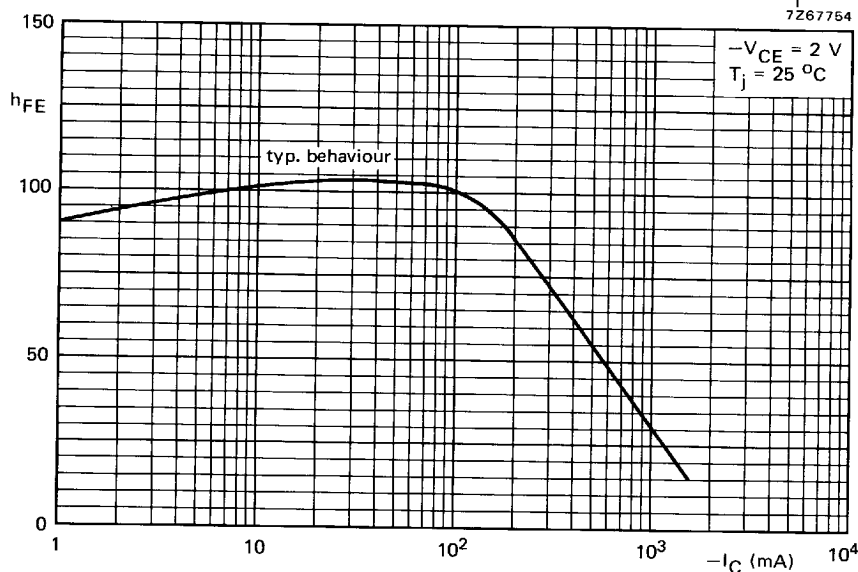


Fig. 2.

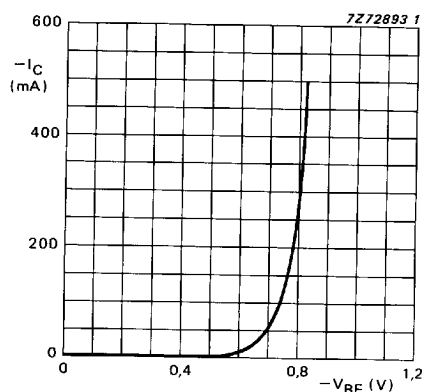


Fig. 3 $-V_{CE} = 2 \text{ V}$; $T_j = 25 \text{ }^\circ\text{C}$; typical values.

BCX51
BCX52
BCX53

6653931 0024608 267 APX
N AMER PHILIPS/DISCRETE 67E D

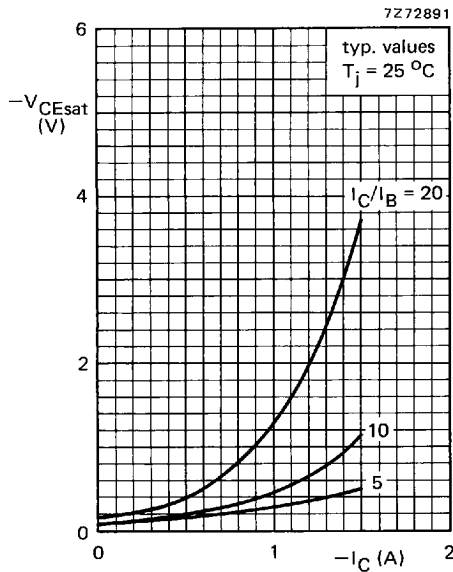


Fig. 4.

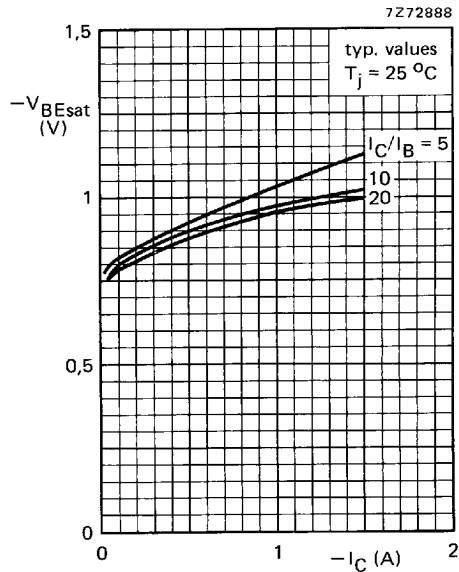


Fig. 5.

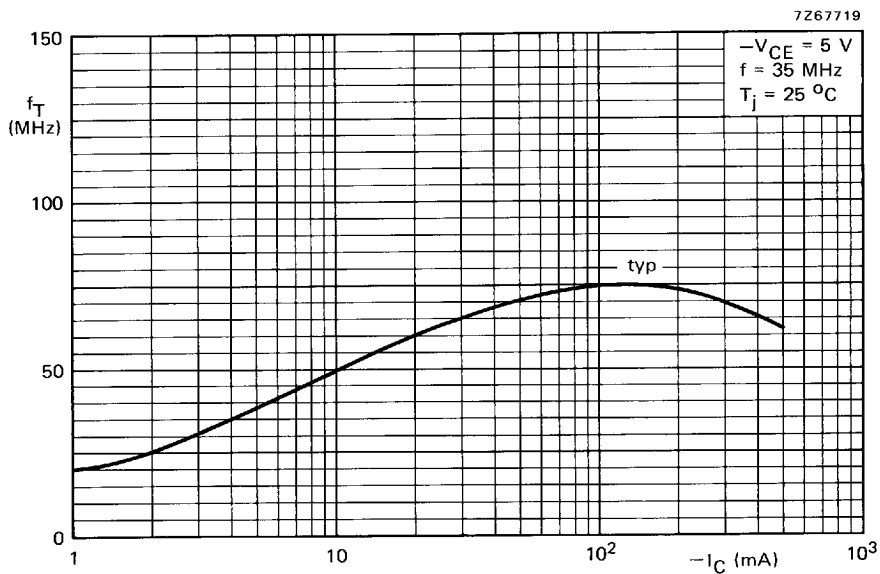


Fig. 6.