

T-29-23

SILICON PLANAR EPITAXIAL TRANSISTORS

Medium power n-p-n 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.

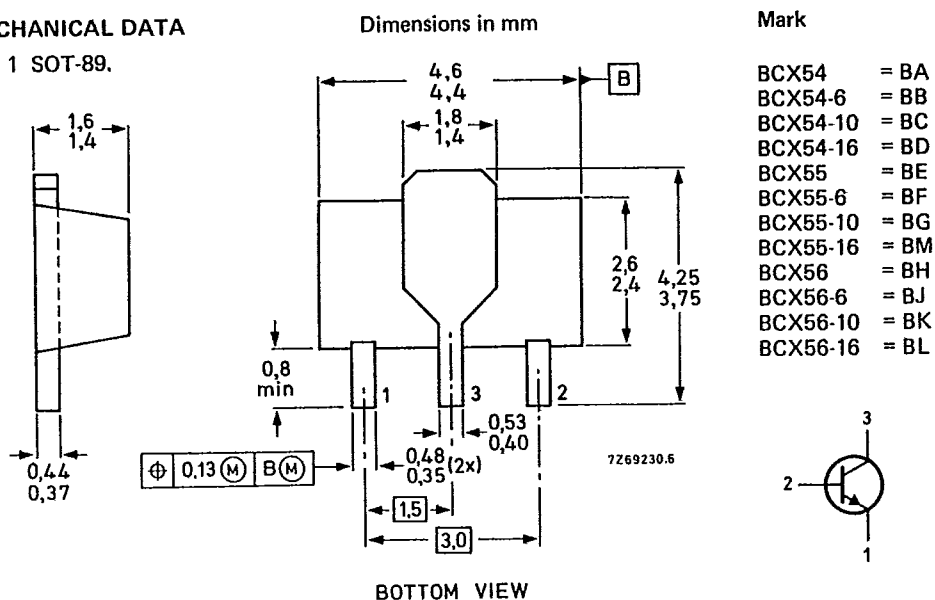
P-N-P complements are BCX51, BCX52 and BCX53 respectively.

QUICK REFERENCE DATA

		BCX54	BCX55	BCX56
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	h_{FE}		40 to 250	
$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$				
Transition frequency at $f = 35\text{ MHz}$	f_T typ.		130	MHz
$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$				

MECHANICAL DATA

Fig. 1 SOT-89.



See also *Soldering recommendations.*

RATINGS

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

			BCX54	BCX55	BCX56
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	$R_{th \text{ j-tab}}$	=		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

 $T_{amb} = 25 \text{ }^\circ\text{C}$ 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 $f = 35 \text{ MHz}$ $I_C = 10 \text{ mA}$; $V_{CE} = 5 \text{ V}$	f_T	typ.		130	MHz

CHARACTERISTICS (continued)

D.C. current gain
 $I_C \approx 150 \text{ mA}; V_{CE} = 2 \text{ V}$

	BCX54-6 55-6 56-6	BCX54-10 55-10 56-10	BCX54-16 55-16 56-16
h_{FE}	> 40 < 100	63 160	100 250

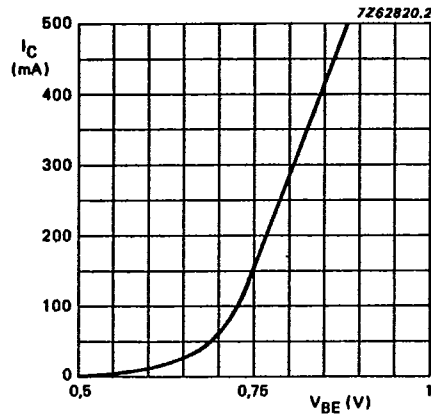
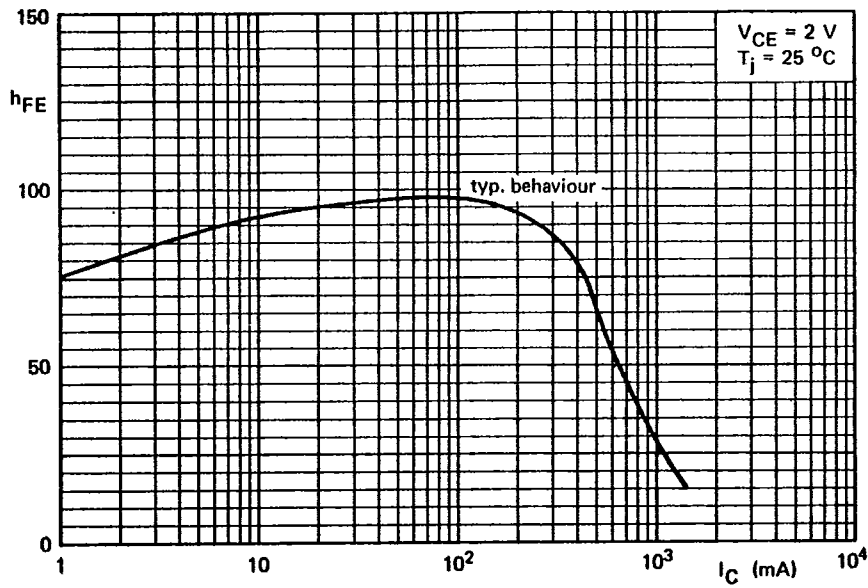


Fig. 3 $V_{CE} = 2 \text{ V}; T_J = 25 \text{ }^\circ\text{C}$; typical values.

BCX54
BCX55
BCX56

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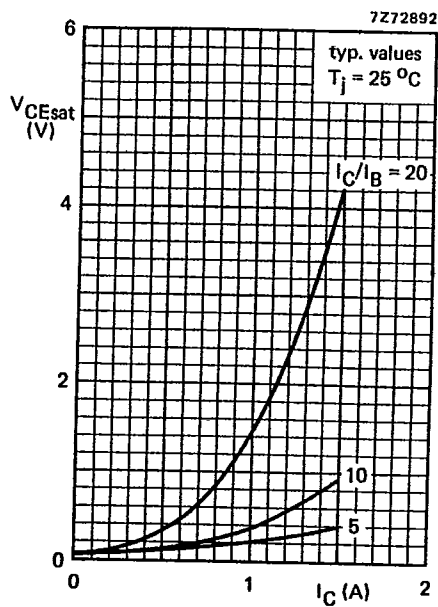


Fig. 4.

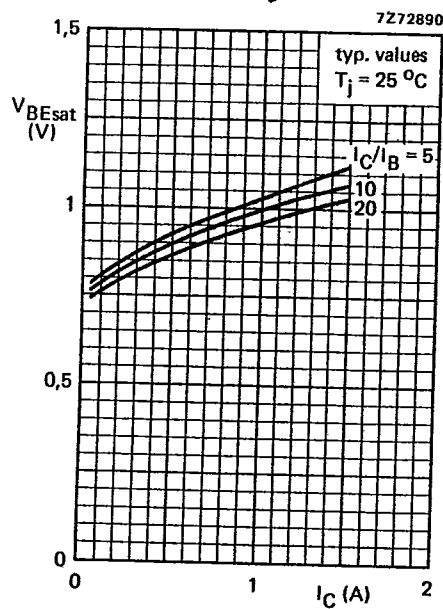


Fig. 5.

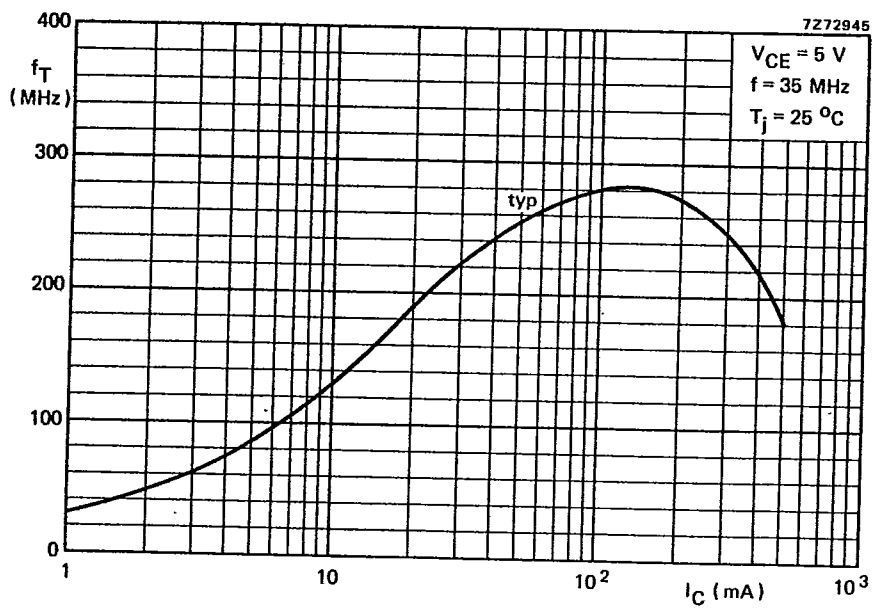


Fig. 6.