

NPN medium power transistors

BCX54; BCX55; BCX56

FEATURES

- High current (max. 1 A)
- Low voltage (max. 80 V).

APPLICATIONS

- Driver stages of audio and video amplifiers.

DESCRIPTION

NPN medium power transistor in a SOT89 plastic package. PNP complements: BCX51, BCX52 and BCX53.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BCX54	BA	BCX55-16	BM
BCX54-10	BC	BCX56	BH
BCX54-16	BD	BCX56-10	BK
BCX55	BE	BCX56-16	BL
BCX55-10	BG		

PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base

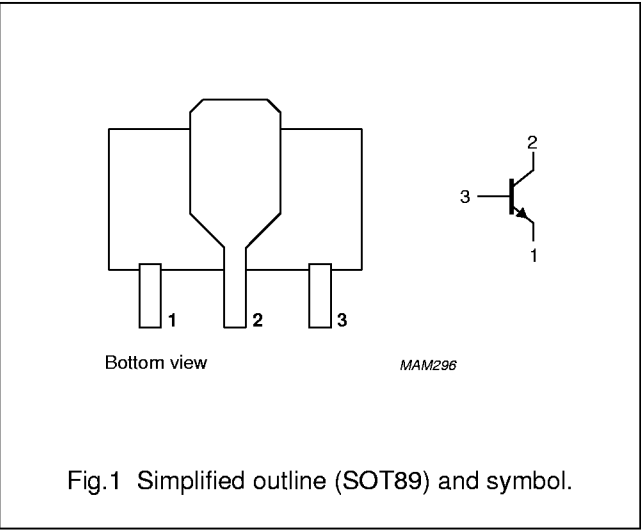


Fig.1 Simplified outline (SOT89) and symbol.

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LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter			
	BCX54		–	45	V
	BCX55		–	60	V
	BCX56		–	100	V
V _{CEO}	collector-emitter voltage	open base			
	BCX54		–	45	V
	BCX55		–	60	V
	BCX56		–	80	V
V _{EBO}	emitter-base voltage	open collector	–	5	V
I _C	collector current (DC)		–	1	A
I _{CM}	peak collector current		–	1.5	A
I _{BM}	peak base current		–	0.2	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	1.3	W
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

Note

- Device mounted on a printed-circuit board, single sided copper, tinplated, mounting pad for collector 6 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	94	K/W
R _{th j-s}	thermal resistance from junction to soldering point		14	K/W

Note

- Device mounted on a printed-circuit board, single sided copper, tinplated, mounting pad for collector 6 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

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CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	—	—	100	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 125\text{ }^{\circ}\text{C}$	—	—	10	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 5\text{ V}$	—	—	100	nA
h_{FE}	DC current gain	$V_{CE} = 2\text{ V};$ (see Fig.2)				
		$I_C = 5\text{ mA}$	40	—	—	
		$I_C = 150\text{ mA}$	63	—	250	
		$I_C = 500\text{ mA}$	25	—	—	
	DC current gain BCX54-10; 55-10; 56-10 BCX54-16; 55-16; 56-16	$I_C = 150\text{ mA}; V_{CE} = 2\text{ V};$ (see Fig.2)	63	—	160	
			100	—	250	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	—	—	0.5	V
V_{BE}	base-emitter voltage	$I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$	—	—	1	V
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	—	130	—	MHz
$\frac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	$ I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$	—	1.3	1.6	

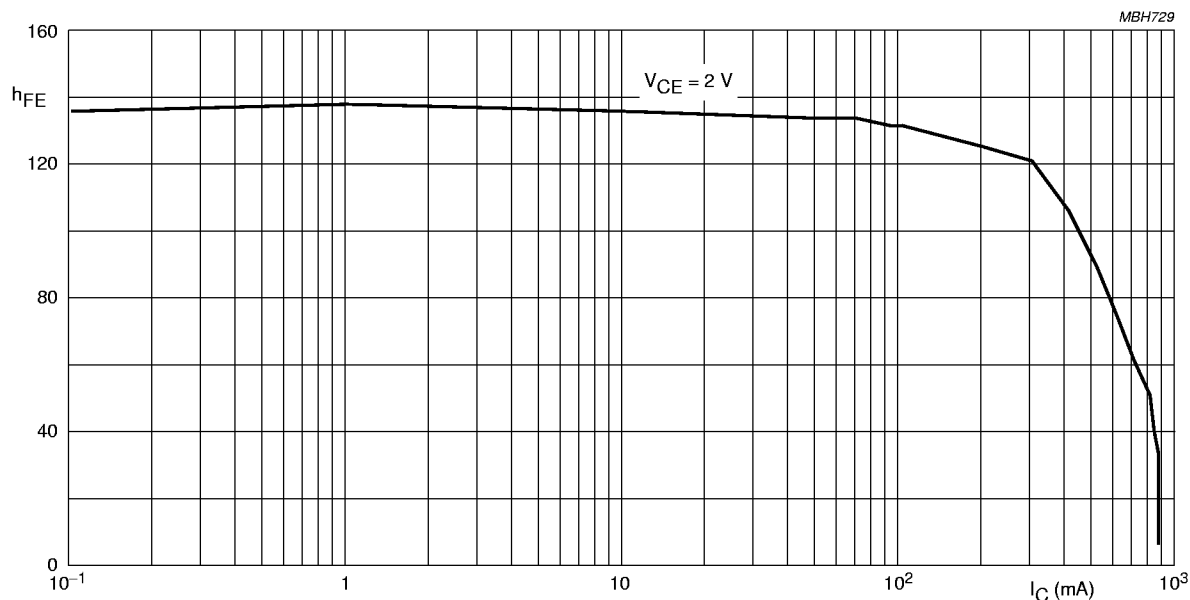


Fig.2 DC current gain; typical values.

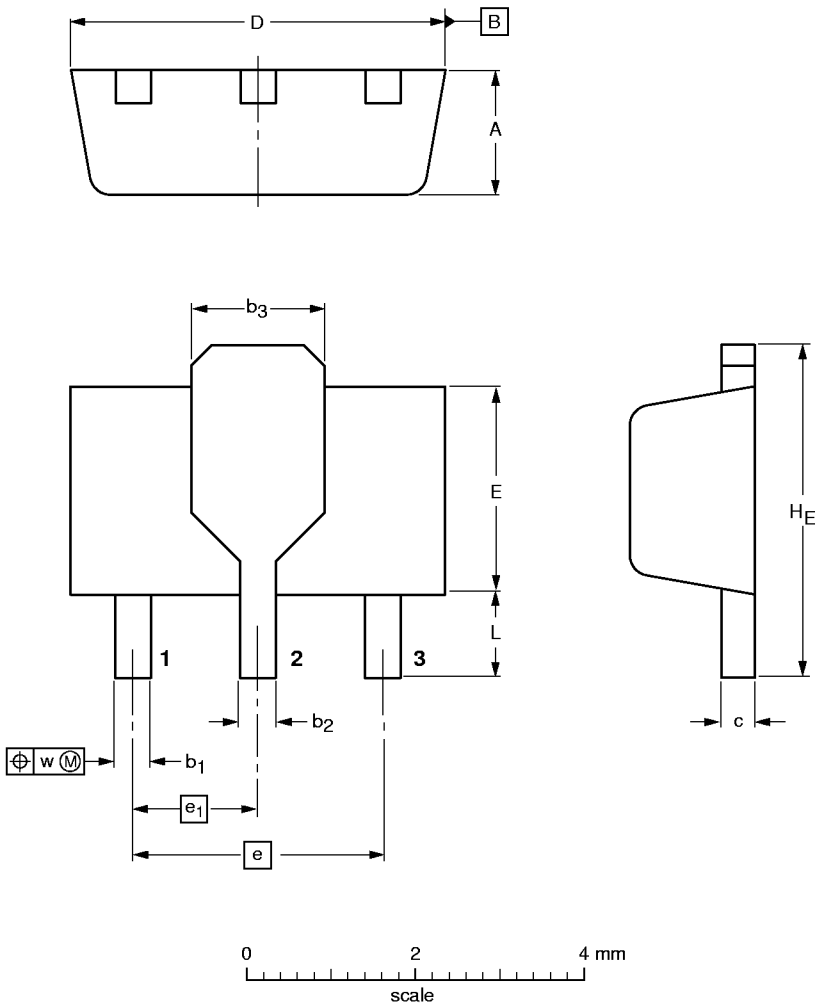
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PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 3 leads

SOT89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b ₁	b ₂	b ₃	c	D	E	e	e ₁	H _E	L min.	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.37	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	0.8	0.13

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT89						97-02-28