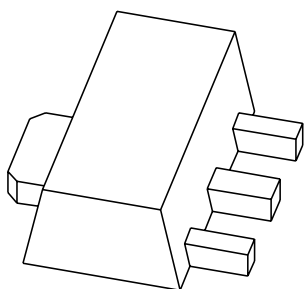


DATA SHEET



BCX51; BCX52; BCX53 PNP medium power transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Jul 04

PNP medium power transistors

BCX51; BCX52; BCX53

FEATURES

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

APPLICATIONS

- Medium power general purposes
- Driver stages of audio amplifiers.

DESCRIPTION

PNP medium power transistor in a SOT89 plastic package. NPN complements: BCX54, BCX55 and BCX56.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BCX51	AA	BCX52-16	AM
BCX51-10	AC	BCX53	AH
BCX51-16	AD	BCX53-10	AK
BCX52	AE	BCX53-16	AL
BCX52-10	AG		

PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base

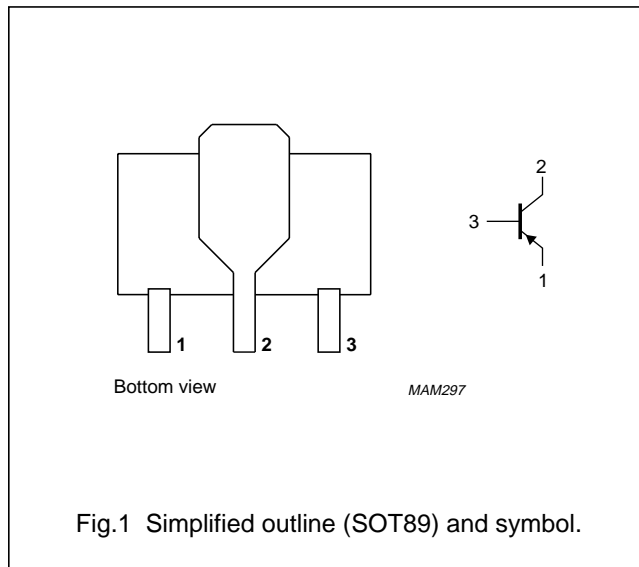


Fig.1 Simplified outline (SOT89) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter				
	BCX51		–	–	–45	V
	BCX52		–	–	–60	V
	BCX53		–	–	–100	V
V_{CEO}	collector-emitter voltage	open base				
	BCX51		–	–	–45	V
	BCX52		–	–	–60	V
	BCX53		–	–	–80	V
I_{CM}	peak collector current		–	–	–1.5	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	–	–	1.3	W
h_{FE}	DC current gain	$I_C = -150\text{ mA}; V_{CE} = -2\text{ V}$	40	–	250	
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	–	50	–	MHz

PNP medium power transistors

BCX51; BCX52; BCX53

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			
	BCX51		–	–45	V
	BCX52		–	–60	V
	BCX53		–	–100	V
V _{CEO}	collector-emitter voltage	open base			
	BCX51		–	–45	V
	BCX52		–	–60	V
	BCX53		–	–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		–	–200	mA
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 1 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General part of handbook SC04*”.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	90	K/W
R _{th j-s}	thermal resistance from junction to soldering point	note 1	9	K/W

Note

- Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm².
For other mounting conditions, see “*Thermal considerations for SOT89 in the General part of handbook SC04*”.

PNP medium power transistors

BCX51; BCX52; BCX53

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I _{CBO}	collector cut-off current	I _E = 0; V _{CB} = -30 V	-	-	-100	nA
		I _E = 0; V _{CB} = -30 V; T _j = 125 °C	-	-	-10	μA
I _{EBO}	emitter cut-off current	I _C = 0; V _{EB} = -5 V	-	-	-100	nA
h _{FE}	DC current gain	V _{CE} = -2 V; see Fig.2				
		I _C = -5 mA	40	-	-	
		I _C = -150 mA	40	-	250	
h _{FE}	DC current gain BCX51-10; BCX52-10; BCX53-10 BCX51-16; BCX52-16; BCX53-16	I _C = -500 mA; V _{CE} = -2 V; see Fig.2	25	-	-	
			63	-	160	
V _{CEsat}	collector-emitter saturation voltage	I _C = -500 mA; I _B = -50 mA	-	-	-500	mV
V _{BE}	base-emitter voltage	I _C = -500 mA; V _{CE} = -2 V	-	-	-1	V
f _T	transition frequency	I _C = -10 mA; V _{CE} = -5 V; f = 100 MHz	-	50	-	MHz

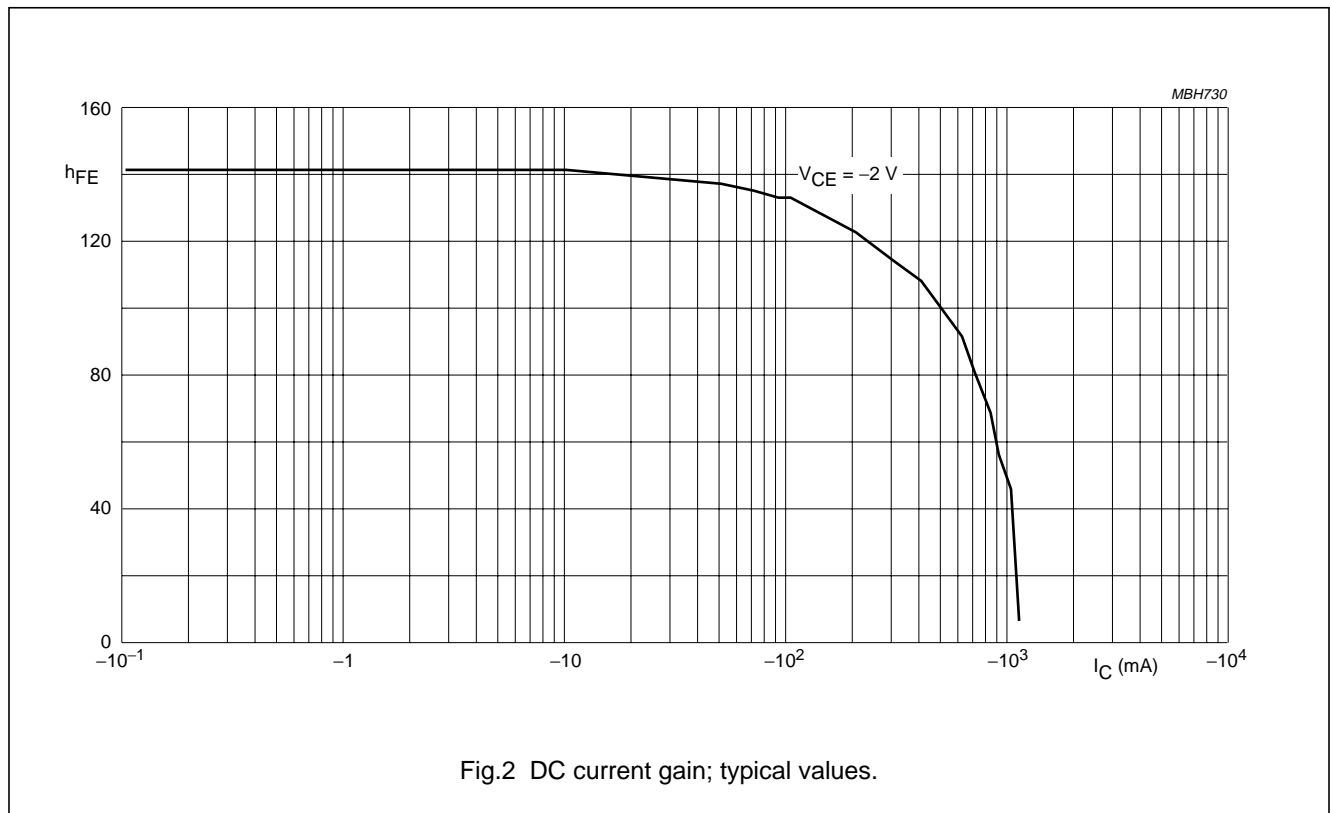


Fig.2 DC current gain; typical values.

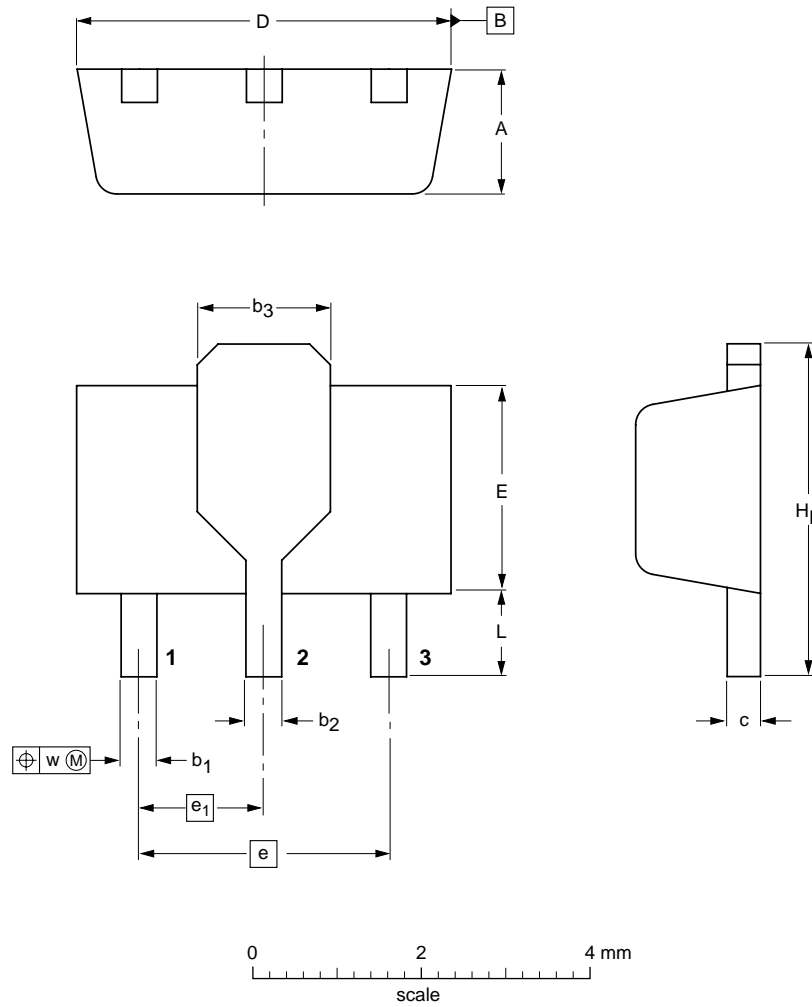
PNP medium power transistors

BCX51; BCX52; BCX53

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

PNP medium power transistors

BCX51; BCX52; BCX53

DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

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PNP medium power transistors

BCX51; BCX52; BCX53

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Printed in The Netherlands

117047/00/02/pp8

Date of release: 1997 Jul 04

Document order number: 9397 750 02586

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