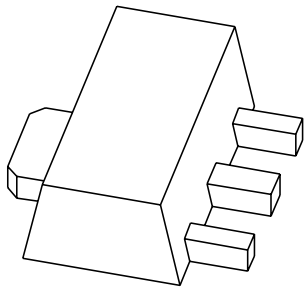


# DATA SHEET



## **BCX51; BCX52; BCX53** PNP medium power transistors

Product specification  
Supersedes data of 1997 Jul 04

1999 Apr 19

# 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

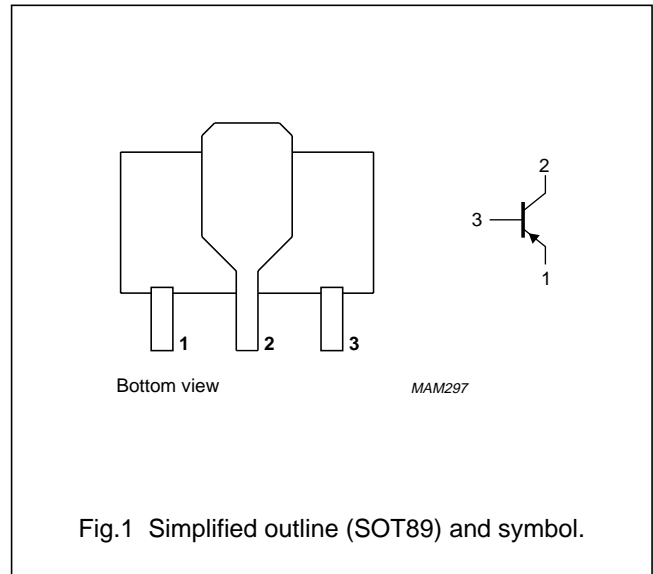
PNP medium power transistor in a SOT89 plastic package. NPN complements: BCX54, BCX55 and BCX56.

### 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



## 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 <sub>CBO</sub>	collector-base voltage	open emitter			
	BCX51		–	–45	V
	BCX52		–	–60	V
	BCX53		–	–100	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BCX51		–	–45	V
	BCX52		–	–60	V
	BCX53		–	–80	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	–5	V
I <sub>C</sub>	collector current (DC)		–	–1	A
I <sub>CM</sub>	peak collector current		–	–1.5	A
I <sub>BM</sub>	peak base current		–	–200	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	1.3	W
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

**Note**

- Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 6 cm<sup>2</sup>.  
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

**THERMAL CHARACTERISTICS**

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

**Note**

- Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 6 cm<sup>2</sup>.  
For other mounting conditions, see “*Thermal considerations for SOT89 in the General Part of associated Handbook*”.

PNP medium power transistors

BCX51; BCX52; BCX53

**CHARACTERISTICS**

T<sub>amb</sub> = 25 °C unless otherwise specified.

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

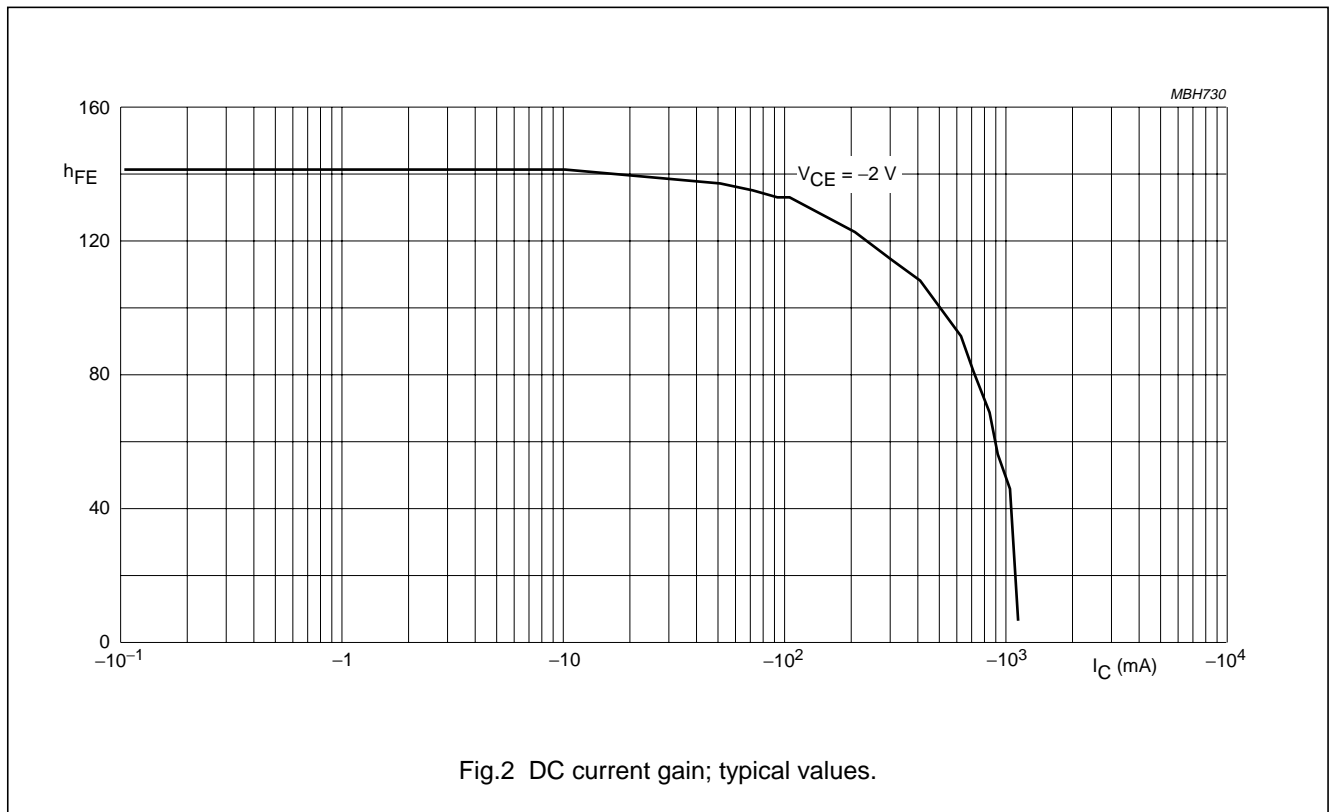


Fig.2 DC current gain; typical values.

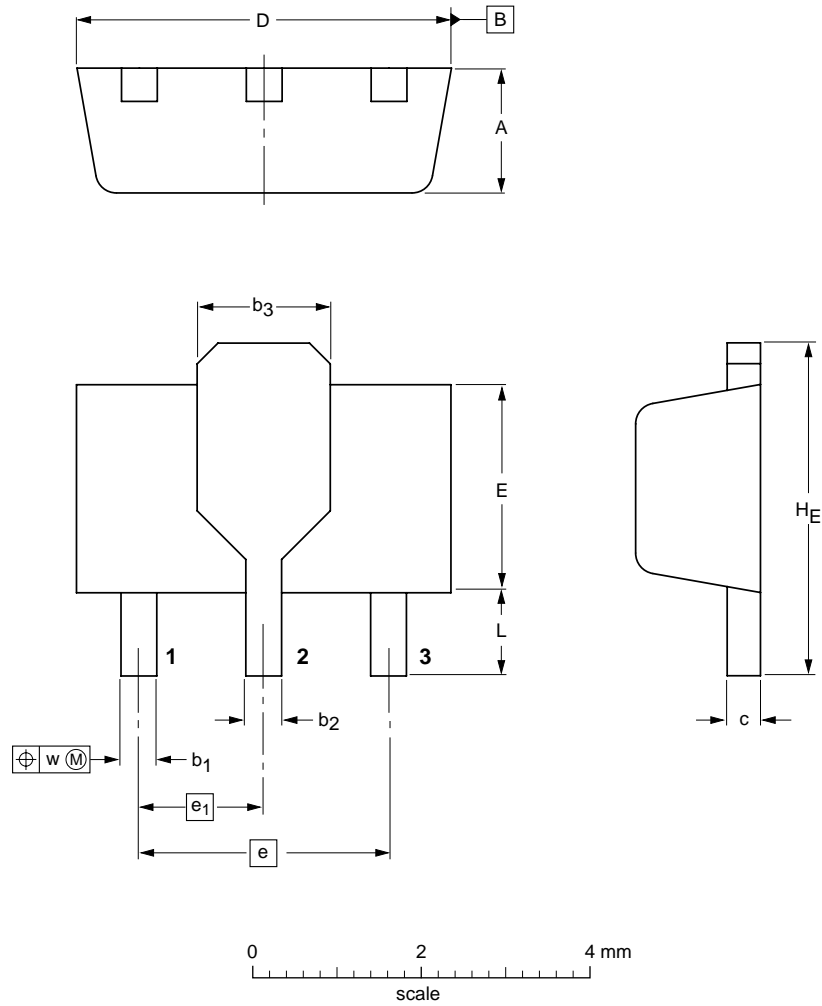
PNP medium power transistors

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 <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	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**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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PNP medium power transistors

BCX51; BCX52; BCX53

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