

# DATA SHEET



## **BC636; BC638; BC640** PNP medium power transistors

Product specification  
Supersedes data of 1999 Apr 23

2001 Oct 10

# PNP medium power transistors

# BC636; BC638; BC640

### FEATURES

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

### APPLICATIONS

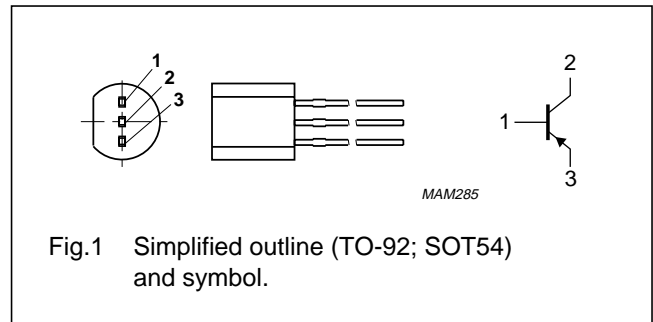
- Audio and video amplifiers.

### DESCRIPTION

PNP medium power transistor in a TO-92; SOT54 plastic package. NPN complements: BC635, BC637 and BC639.

### PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter



### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BC636		–	–45	V
	BC638		–	–60	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BC636		–	–45	V
	BC638		–	–60	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	–5	V
	BC640		–	–100	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	–	0.83	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

1. Transistor mounted on an FR4 printed-circuit board.

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## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	150	K/W

## Note

1. Transistor mounted on an FR4 printed-circuit board.

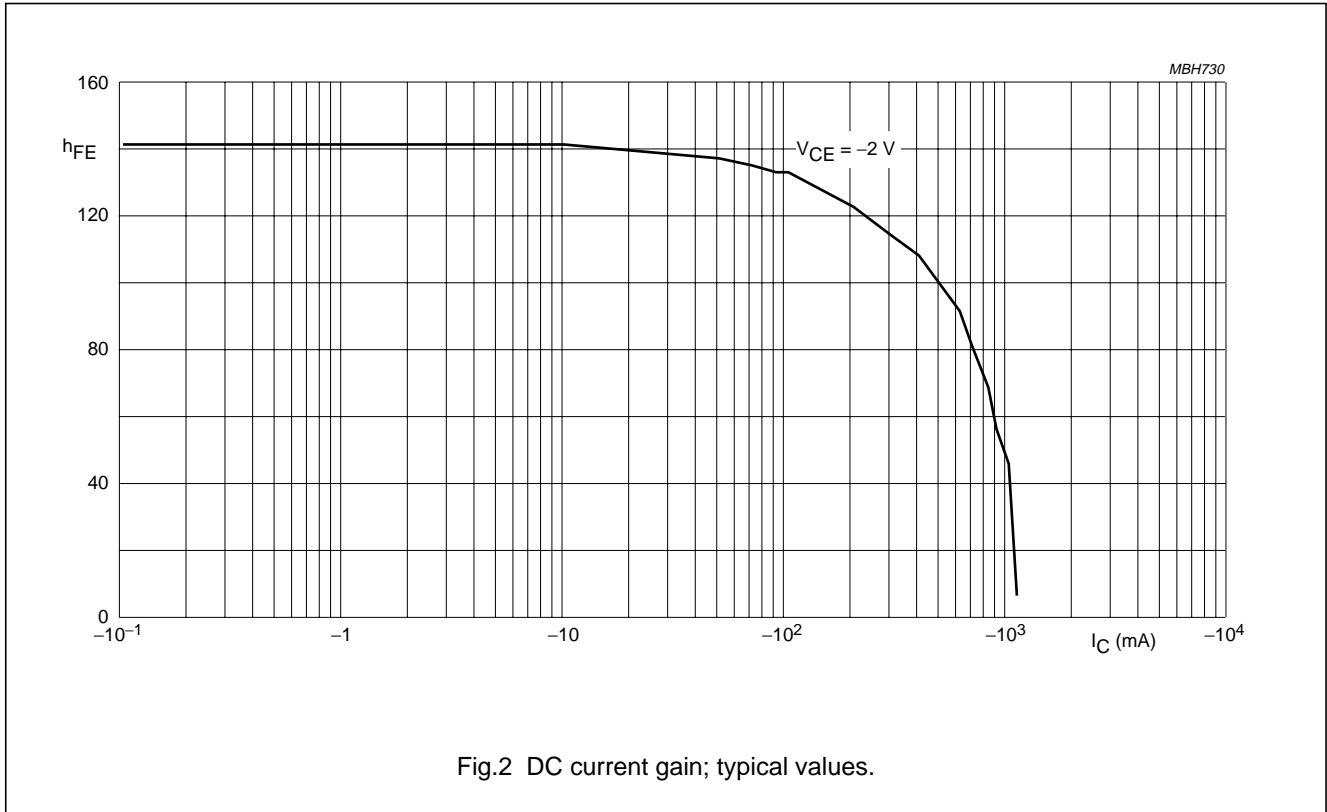
## CHARACTERISTICS

$T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = -30\text{ V}$	–	–100	nA
		$I_E = 0; V_{CB} = -30\text{ V}; T_j = 150\text{ °C}$	–	–10	$\mu\text{A}$
$I_{EBO}$	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 $I_C = -5\text{ mA}$	63	–	
		$I_C = -150\text{ mA}$ $I_C = -500\text{ mA}$	63 40	250 –	
	DC current gain BC636-10 BC636-16; BC638-16; BC640-16	$I_C = -150\text{ mA}; V_{CE} = -2\text{ V}$ ; see Fig.2	63 100	160 250	
$V_{CEsat}$	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	$I_C = -50\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	–	MHz
$\frac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	$ I_C  = 150\text{ mA};  V_{CE}  = 2\text{ V}$	–	1.6	

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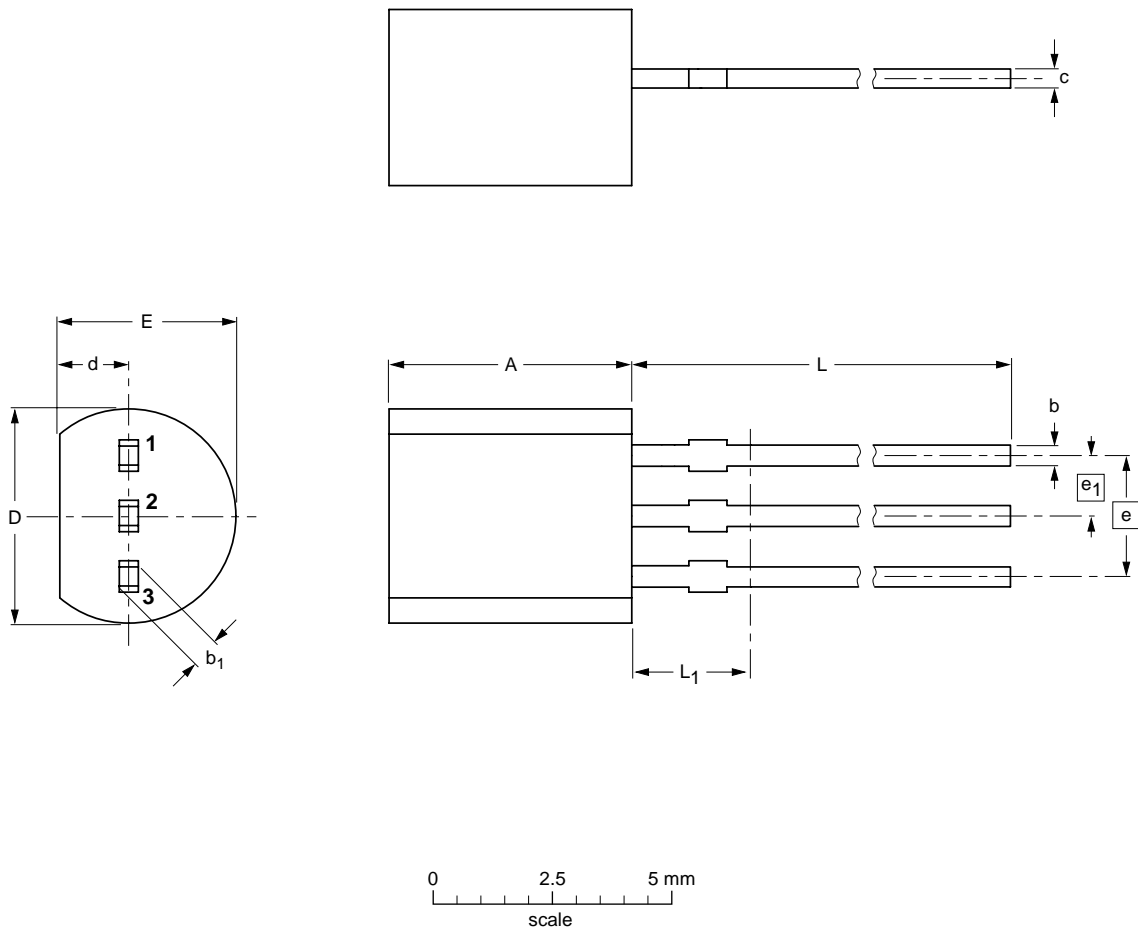
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PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b <sub>1</sub>	c	D	d	E	e	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup>
mm	5.2 5.0	0.48 0.40	0.66 0.56	0.45 0.40	4.8 4.4	1.7 1.4	4.2 3.6	2.54	1.27	14.5 12.7	2.5

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT54		TO-92	SC-43		97-02-28

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DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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