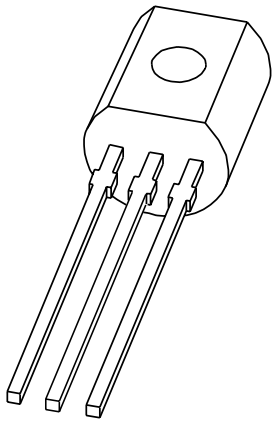
DATA SHEET



BC635; BC637; BC639
NPN medium power transistors

Product specification
Supersedes data of 1999 Apr 23

2001 Oct 10

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NPN medium power transistors BC635; BC637; BC639

FEATURES

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

APPLICATIONS

- Driver stages of audio/video amplifiers.

DESCRIPTION

NPN transistor in a TO-92; SOT54 plastic package.
PNP complements: BC636, BC638 and BC640.

PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter

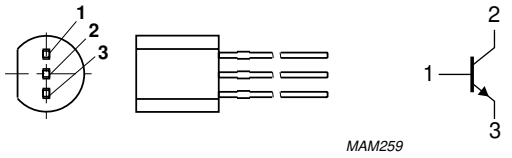


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	BC635		–	45	V
	BC637		–	60	V
	BC639		–	100	V
V_{CEO}	collector-emitter voltage	open base			
	BC635		–	45	V
	BC637		–	60	V
	BC639		–	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	$T_{amb} \leq 25$ °C	–	0.83	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	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 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	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 = 150 °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	63	–	
		I_C = 150 mA	63	250	
		I_C = 500 mA	40	–	
	DC current gain	I_C = 150 mA; V_{CE} = 2 V; see Fig.2			
	BC639-10		63	160	
	BC635-16; BC637-16; BC639-16		100	250	
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 = 50 mA; V_{CE} = 5 V; f = 100 MHz	100	–	MHz
$\frac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	$\lvert I_C \rvert$ = 150 mA; $\lvert V_{CE} \rvert$ = 2 V	–	1.6	

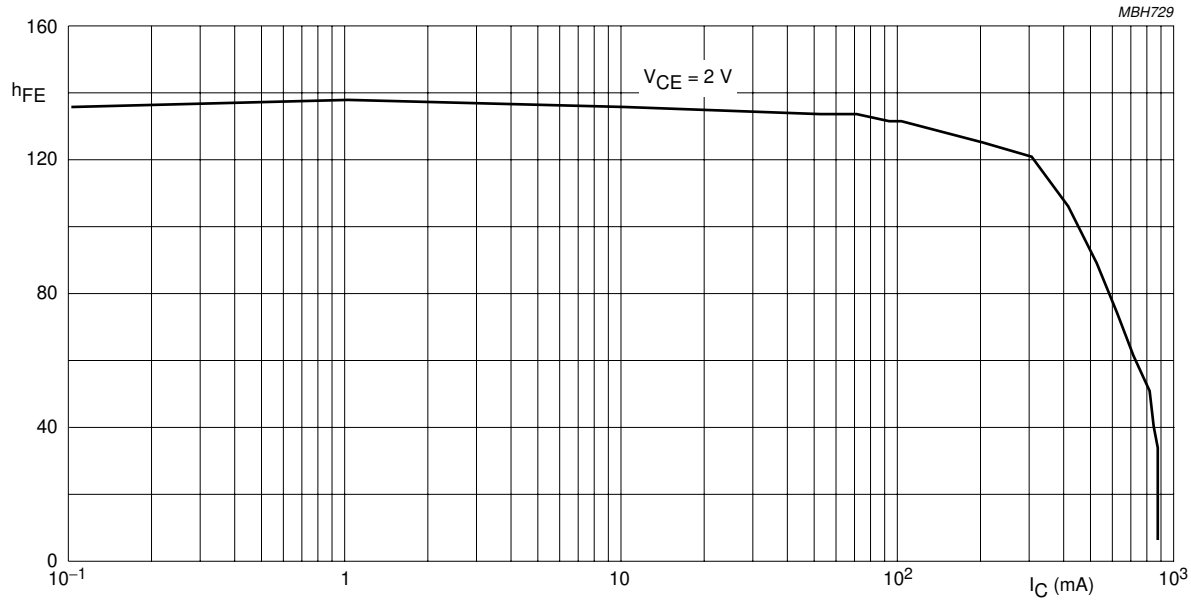
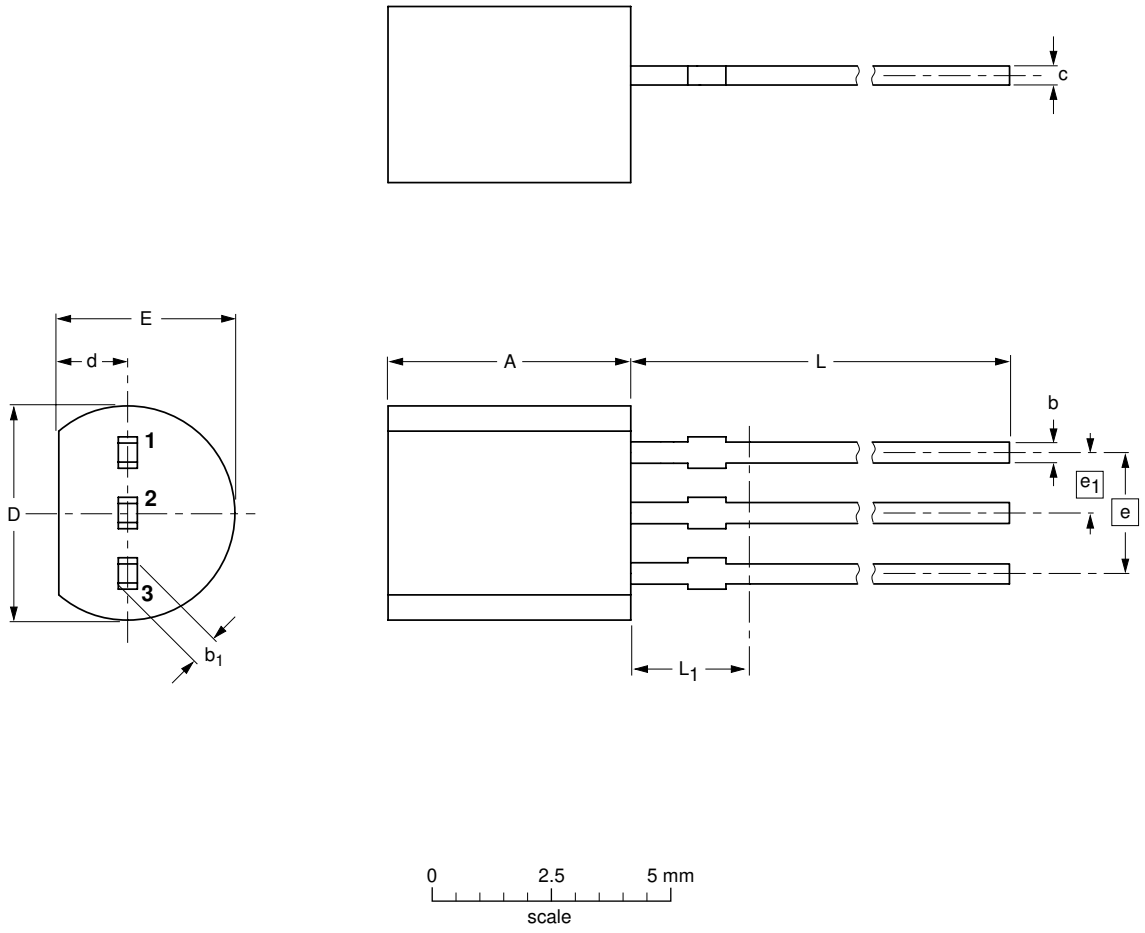


Fig.2 DC current gain; typical values.

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads **SOT54**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b_1	c	D	d	E	e	e_1	L	L_1(1)
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

DATA SHEET STATUS

DATA SHEET STATUS[1]	PRODUCT STATUS[2]	DEFINITIONS
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Printed in The Netherlands 613514/04/pp8 Date of release: 2001 Oct 10 Document order number: 9397 750 08738

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