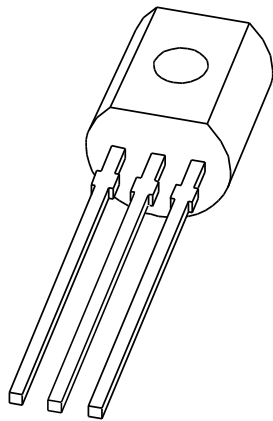


DATA SHEET



BC635; BC637; BC639 NPN medium power transistors

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

1997 Mar 12

NPN medium power transistors

BC635; BC637; BC639

FEATURES

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

APPLICATIONS

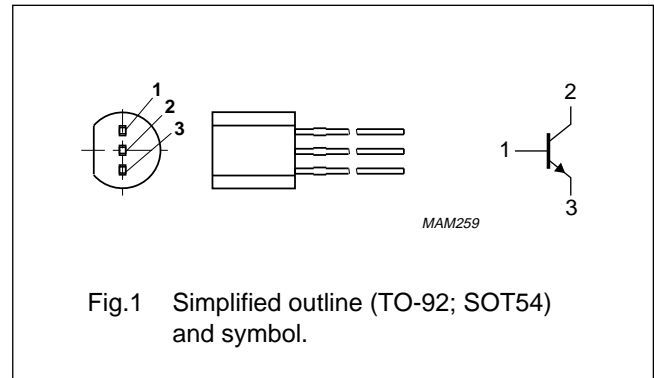
- Driver stages of audio/video amplifiers.

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



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter			
	BC635		–	45	V
	BC637		–	60	V
V _{CEO}	collector-emitter voltage	open base			
	BC635		–	45	V
	BC637		–	60	V
	BC639		–	80	V
I _{CM}	peak collector current		–	1.5	A
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	–	0.83	W
h _{FE}	DC current gain	I _C = 150 mA; V _{CE} = 2 V	40	250	
f _T	transition frequency	I _C = 50 mA; V _{CE} = 5 V; f = 100 MHz	100	–	MHz

NPN medium power transistors

BC635; BC637; BC639

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			
	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} ≤ 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-a}	thermal resistance from junction to ambient	note 1	150	K/W

Note

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

NPN medium power transistors

BC635; BC637; BC639

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	40	–	
		I _C = 150 mA	40	250	
h _{FE}	DC current gain BC635-10; BC637-10; BC639-10 BC635-16; BC637-16; BC639-16	I _C = 150 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 = 50 mA; V _{CE} = 5 V; f = 100 MHz	100	–	MHz
$\frac{h_{FE1}}{h_{FE2}}$	DC current gain ratio of the complementary pairs	I _C = 150 mA; V _{CE} = 2 V	–	1.6	

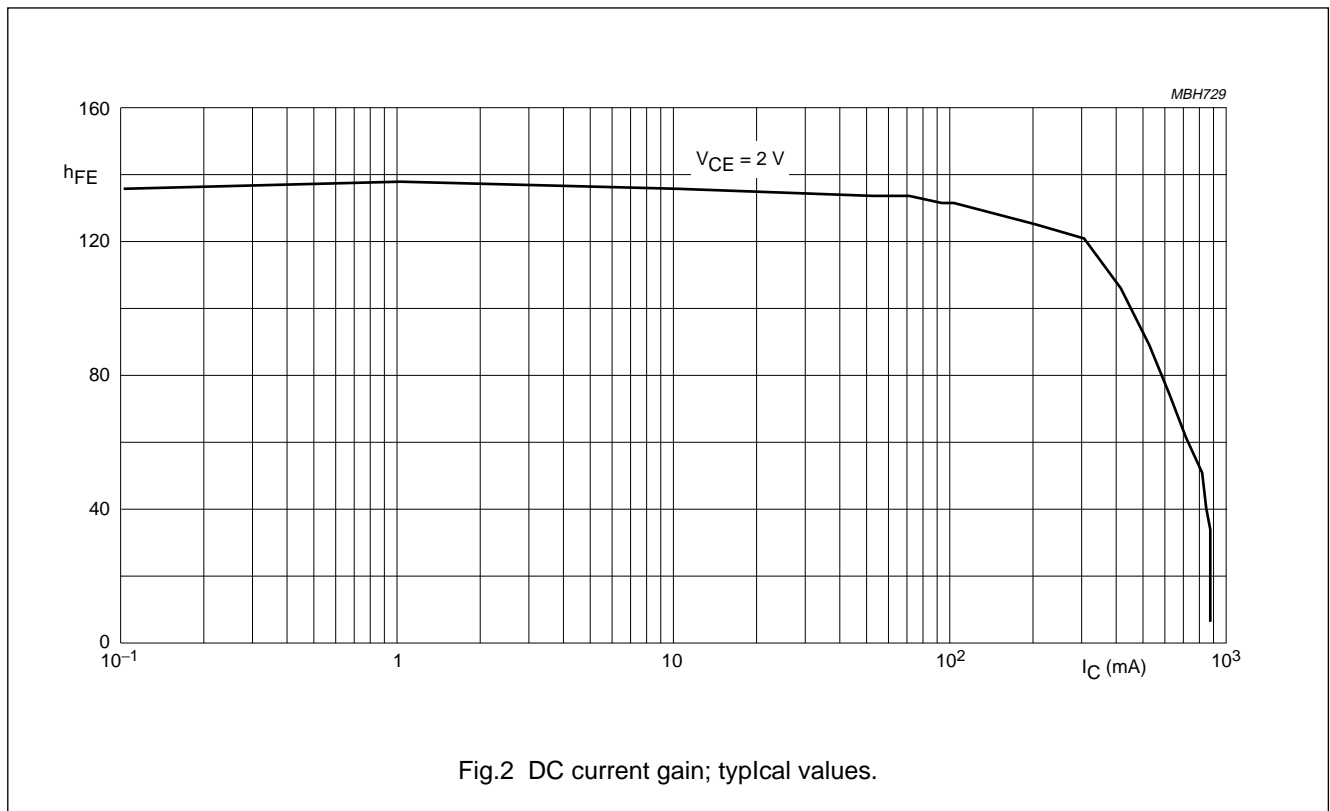


Fig.2 DC current gain; typical values.

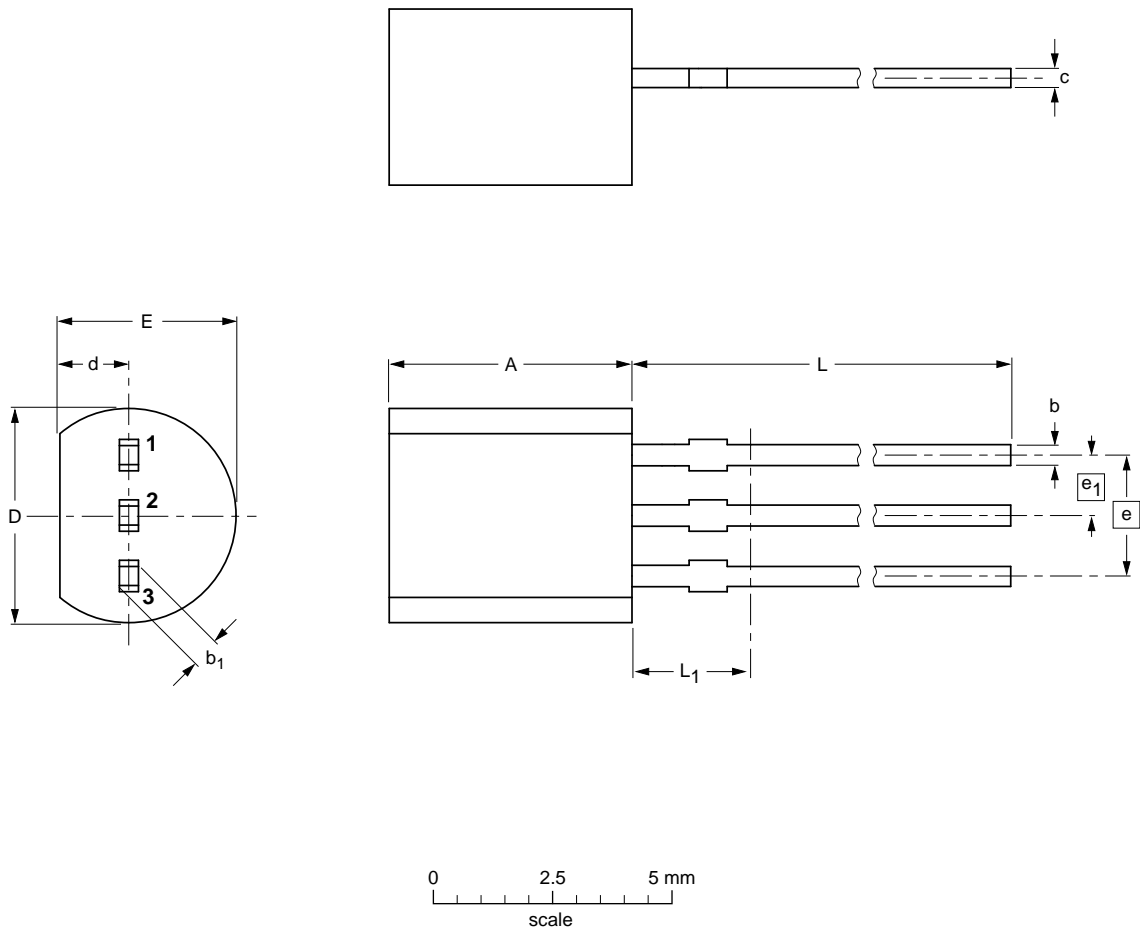
NPN medium power transistors

BC635; BC637; BC639

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

NPN medium power transistors

BC635; BC637; BC639

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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NPN medium power transistors

BC635; BC637; BC639

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