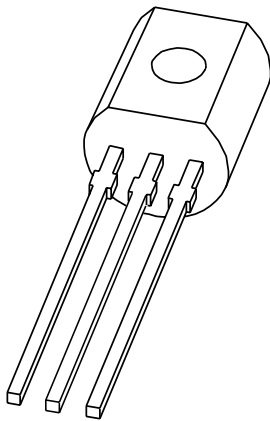


DATA SHEET



BC635; BC637; BC639 NPN medium power transistors

Product specification
Supersedes data of 1997 Mar 12

1999 Apr 23

NPN medium power transistors

BC635; BC637; BC639

FEATURES

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

APPLICATIONS

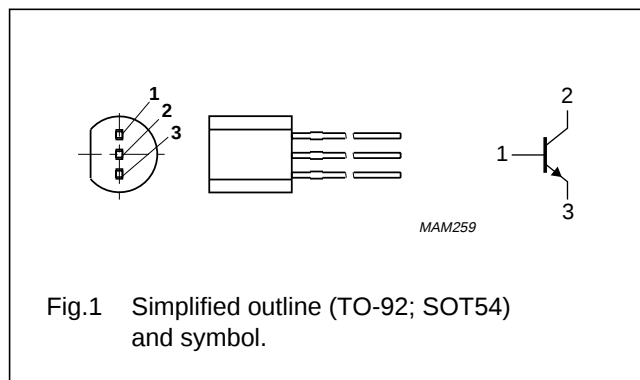
- Driver stages of audio/video amplifiers.

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



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	—	45	V
	BC635		—	60	V
	BC637		—	100	V
	BC639		—	100	V
V_{CEO}	collector-emitter voltage	open base	—	45	V
	BC635		—	60	V
	BC637		—	80	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	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	—	0.83	W
T_{stg}	storage temperature		−65	+150	$^{\circ}\text{C}$
T_j	junction temperature		—	150	$^{\circ}\text{C}$
T_{amb}	operating ambient temperature		−65	+150	$^{\circ}\text{C}$

NPN medium power transistors

BC635; BC637; BC639

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.

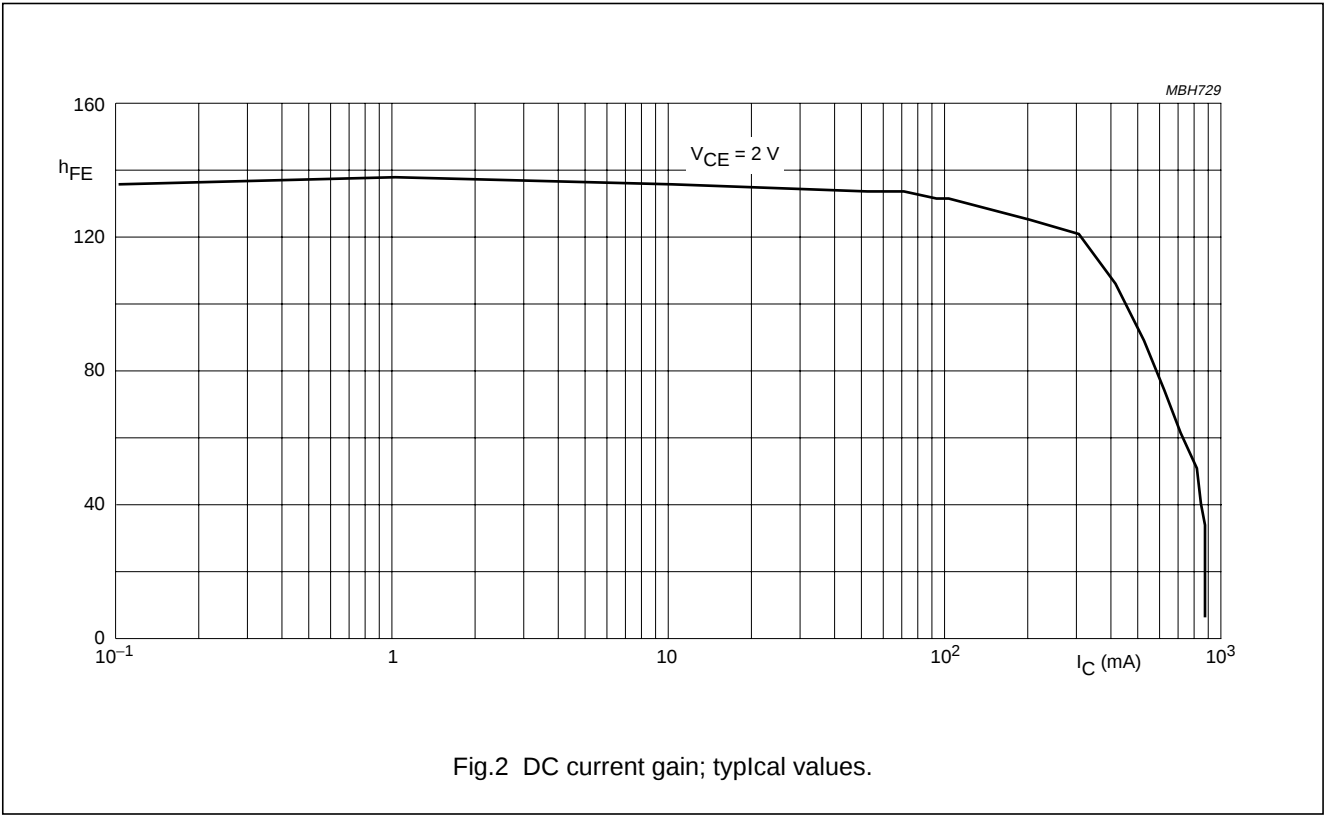
CHARACTERISTICS

$T_j = 25\text{ }^{\circ}\text{C}$ 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
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	–	10	μA
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			
		$I_C = 5\text{ mA}$	40	–	
		$I_C = 150\text{ mA}$	63	250	
		$I_C = 500\text{ mA}$	25	–	
	DC current gain	$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$; see Fig.2			
	BC639-10		63	160	
	BC635-16; BC637-16; BC639-16		100	250	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	–	500	mV
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	

NPN medium power transistors

BC635; BC637; BC639



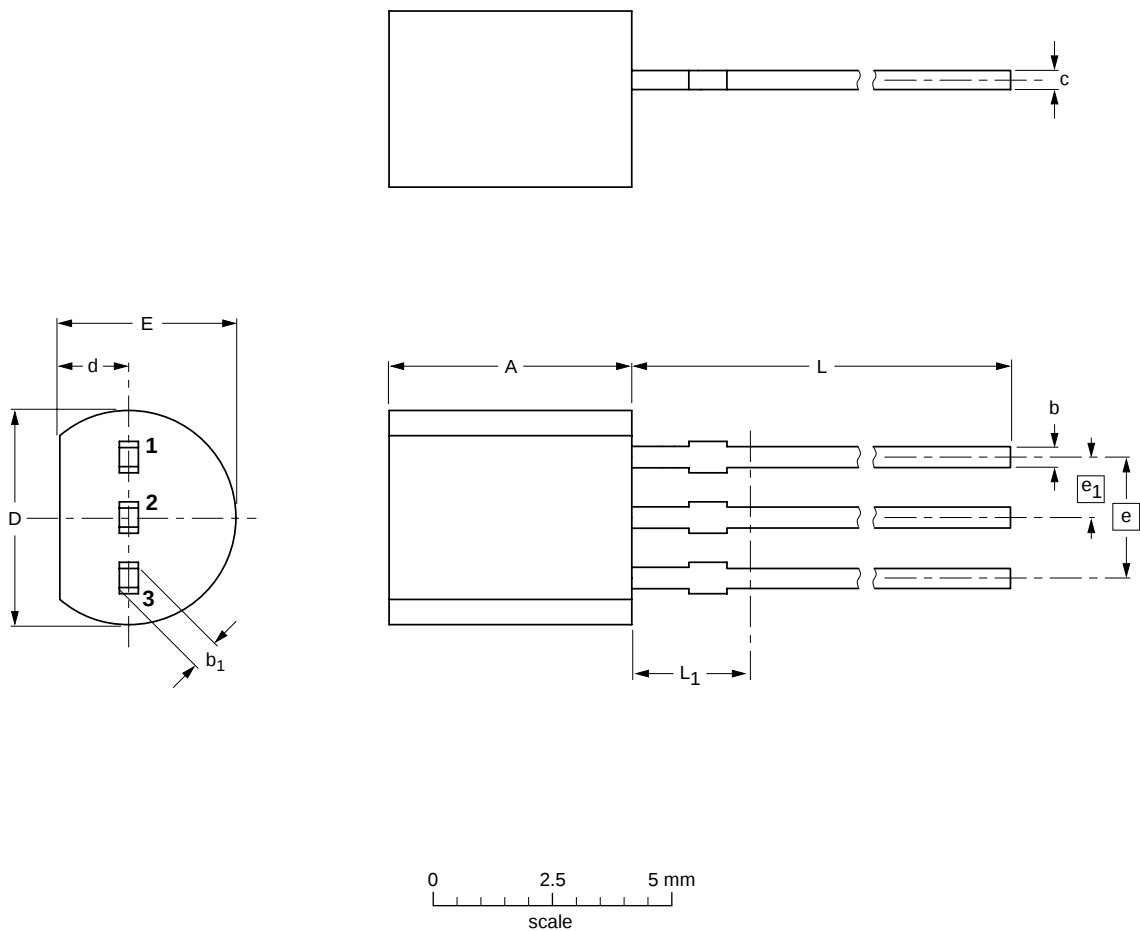
NPN medium power transistors

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 transistorsBC635; 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

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

NPN medium power transistors

BC635; BC637; BC639

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