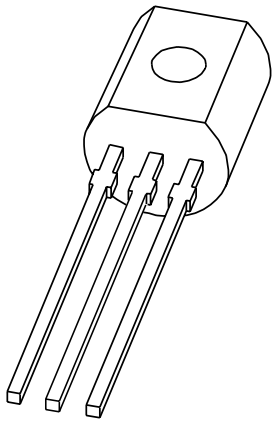
DATA SHEET



BSR62
PNP Darlington transistor

Product specification
Supersedes data of 1999 Apr 26

2004 Nov 11

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PNP Darlington transistor BSR62

FEATURES

- High current (max. 1 A)
- Low voltage (max. 80 V)
- Integrated diode and resistor.

APPLICATIONS

- Industrial applications such as:
  - Print hammer
  - Solenoid
  - Relay and lamp driving.

DESCRIPTION

PNP Darlington transistor in a TO-92; SOT54 plastic package. NPN complement: BSR52.

PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter

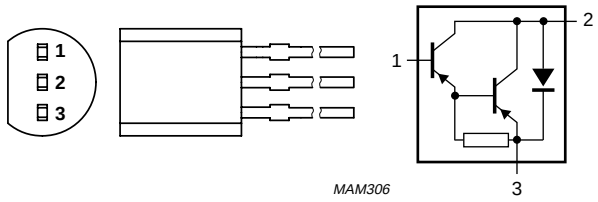


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BSR62	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54

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	–	–90	V
V_{CES}	collector-emitter voltage	V_{BE} = 0 V	–	–80	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–1	A
I_{CM}	peak collector current		–	–2	A
I_B	base current (DC)		–	–0.2	A
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	830	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	ambient temperature		–65	+150	°C

Note

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

THERMAL CHARACTERISTICS

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

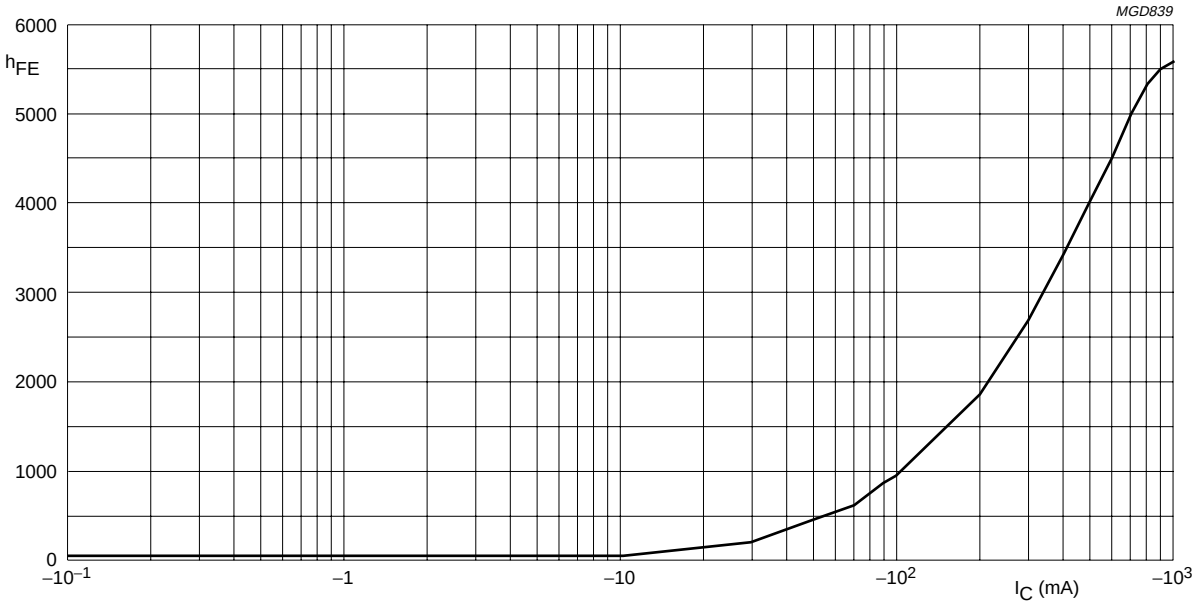
Note

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

CHARACTERISTICS

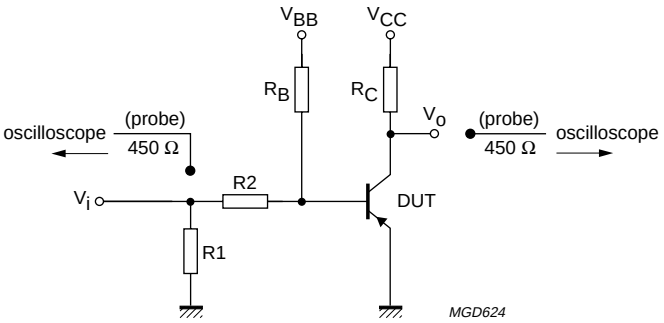
T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CES}	collector-emitter cut-off current	V_{BE} = 0 V; V_{CE} = –80 V	–	–	–50	nA
I_{EBO}	emitter-base cut-off current	V_{EB} = –4 V; I_C = 0 A	–	–	–50	nA
h_{FE}	DC current gain	V_{CE} = –10 V; see Fig.2				
		I_C = –150 mA	1000	–	–	
		I_C = –500 mA	2000	–	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = –0.5 A; I_B = –0.5 mA	–	–	–1.4	V
		I_C = –1 A; I_B = –4 mA	–	–	–1.8	V
V_{BEsat}	base-emitter saturation voltage	I_C = –0.5 A; I_B = –0.5 mA	–	–	–2	V
		I_C = –1 A; I_B = –4 mA	–	–	–2.4	V
f_T	transition frequency	V_{CE} = –5 V; I_C = –500 mA; f = 100 MHz	–	200	–	MHz
Switching times (between 10% and 90% levels); see Fig.3						
t_{on}	turn-on time	I_{Con} = –500 mA; I_{Bon} = –0.5 mA; I_{Boff} = 0.5 mA	–	–	0.5	µs
t_{off}	turn-off time		–	–	0.7	µs



V_{CE} = −10 V.

Fig.2 DC current gain; typical values.

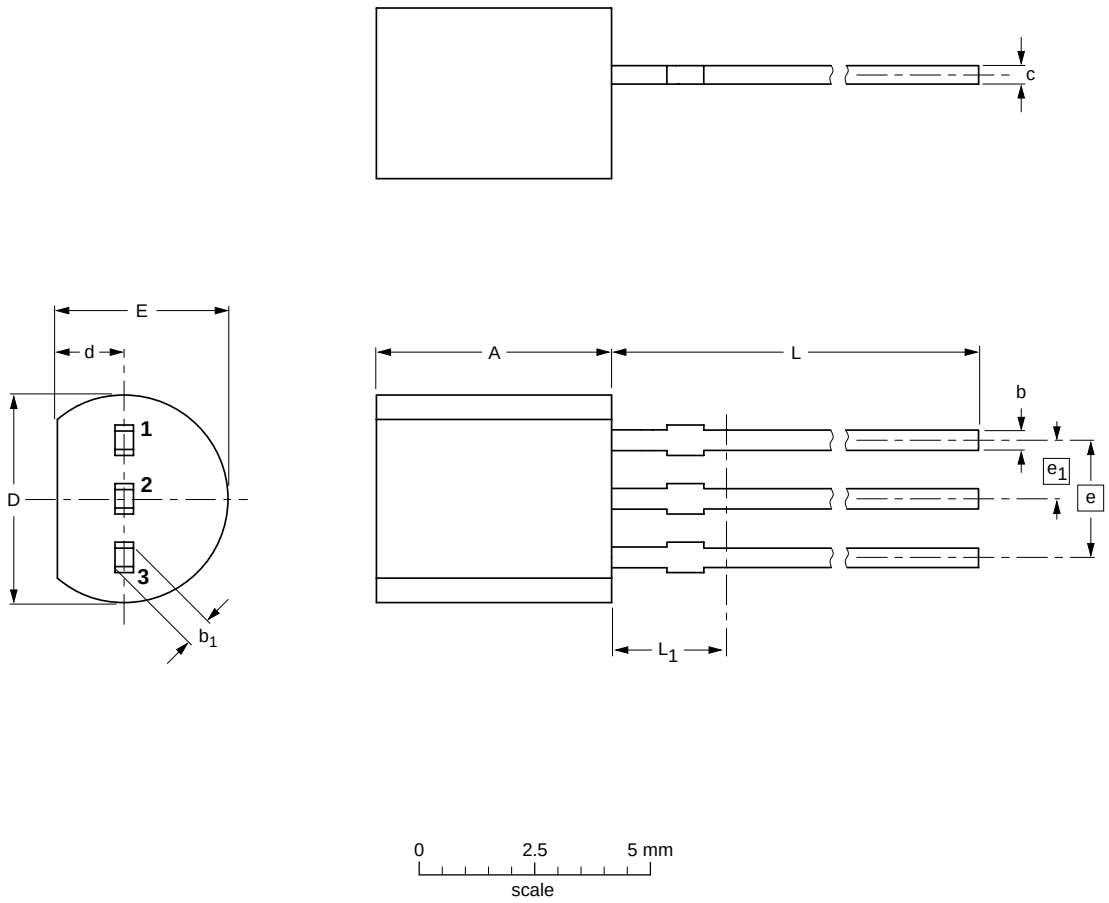


V_i = −10 V; T = 200 µs; t_p = 6 µs; t_r = t_f ≤ 3 ns.
R1 = 56 Ω; R2 = 10 kΩ; R_B = 10 kΩ; R_C = 18 Ω.
V_{BB} = 1.8 V; V_{CC} = −10.7 V.
Oscilloscope: input impedance Z_i = 50 Ω.

Fig.3 Test circuit for switching times.

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) max.
mm	5.2 5.0	0.48 0.40	0.66 0.55	0.45 0.38	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	JEITA			
SOT54		TO-92	SC-43A			~~97-02-28~~ 04-06-28

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS(1)	PRODUCT STATUS(2)(3)	DEFINITION
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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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