

DATA SHEET



BC875; BC879 NPN Darlington transistors

Product specification
Supersedes data of 1999 May 28

2004 Nov 05

NPN Darlington transistors

BC875; BC879

FEATURES

- High DC current gain (min. 1000)
- High current (max. 1 A)
- Low voltage (max. 80 V)
- Integrated diode and resistor.

APPLICATIONS

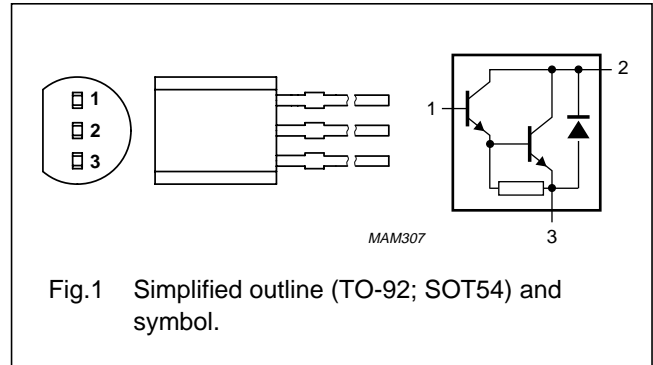
- Relay drivers.

DESCRIPTION

NPN Darlington transistor in a TO-92 (SOT54) plastic package. PNP complement: BC878.

PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BC875	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54
BC879			

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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	–	60	V
	BC875			100	V
V _{CES}	collector-emitter voltage	V _{BE} = 0 V	–	45	V
	BC875			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} ≤ 25 °C; note 1	–	0.83	W
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.

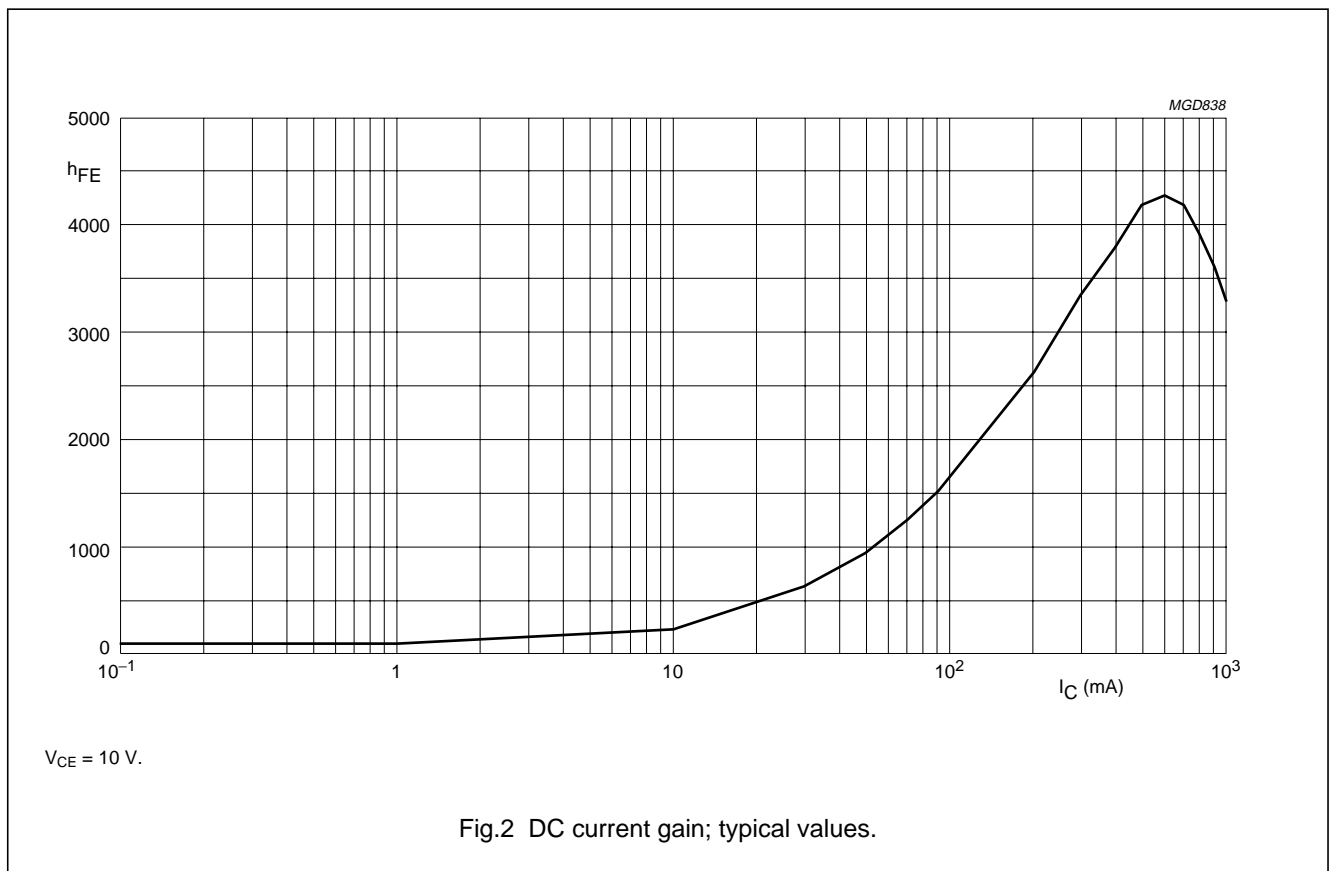
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CHARACTERISTICS

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	–	–	–	–
	BC875	V _{CE} = 45 V	–	–	50	nA
	BC879	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 I _C = 0.5 A	1000 2000	– –	– –	– –
V _{CEsat}	collector-emitter saturation voltage	I _C = 0.5 A; I _B = 0.5 mA	–	–	1.3	V
		I _C = 1 A; I _B = 1 mA	–	–	1.8	V
V _{BEsat}	base-emitter saturation voltage	I _C = 1 A; I _B = 1 mA	–	–	2.2	V
f _T	transition frequency	V _{CE} = 5 V; I _C = 0.5 A; f = 100 MHz	–	200	–	MHz
Switching times (between 10% and 90% levels)						
t _{on}	turn-on time	I _{Con} = 500 mA; I _{Bon} = 0.5 mA;	–	500	–	ns
t _{off}	turn-off time	I _{Boff} = –0.5 mA	–	1300	–	ns



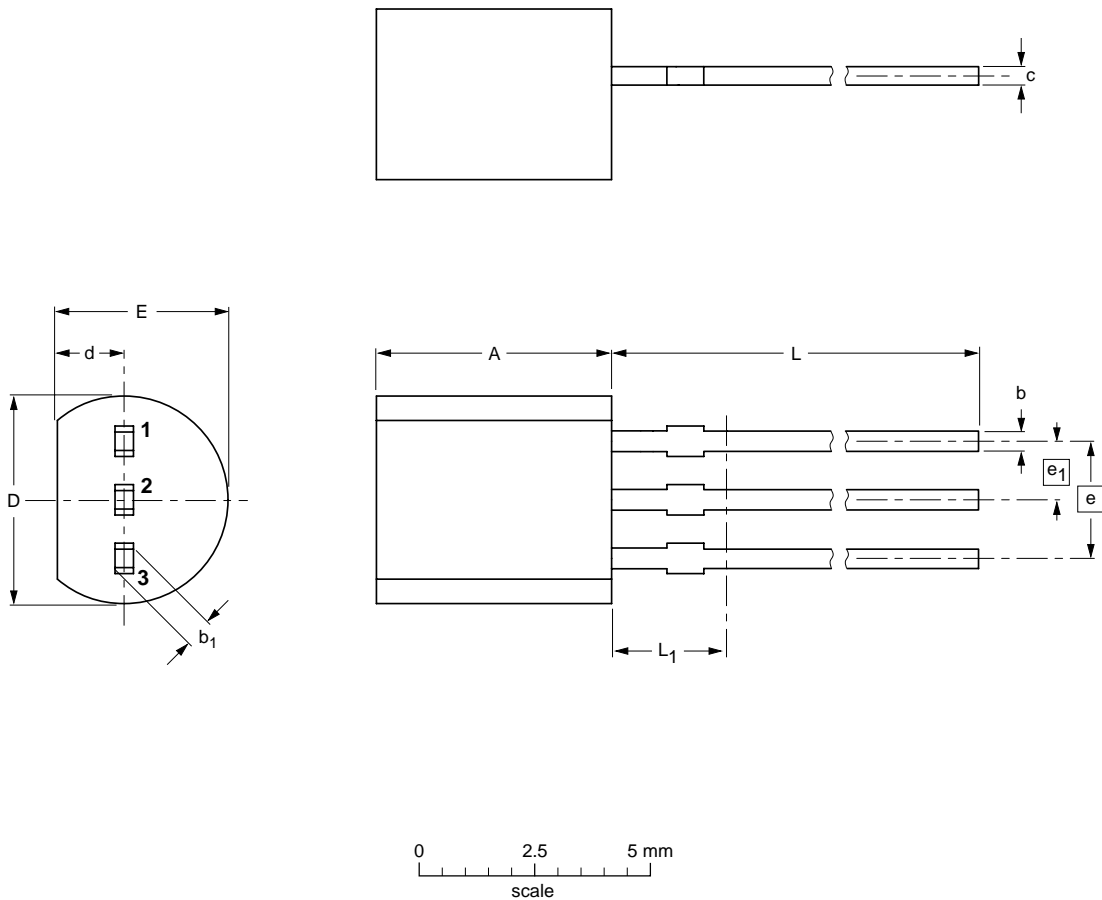
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PACKAGE OUTLINE

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

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b 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

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LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
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