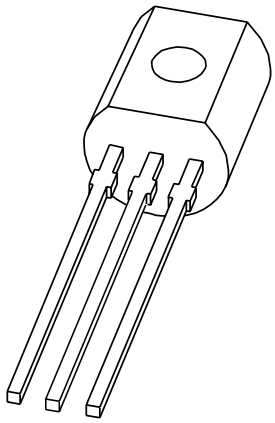
DATA SHEET



BC875; BC879
NPN Darlington transistors

Product specification
Supersedes data of 1999 May 28

2004 Nov 05

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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

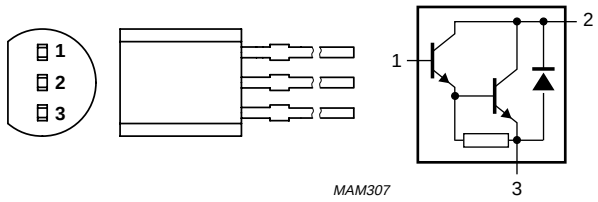


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

ORDERING INFORMATION

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

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			
	BC875		–	60	V
	BC879		–	100	V
V_{CES}	collector-emitter voltage	V_{BE} = 0 V			
	BC875		–	45	V
	BC879		–	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	–	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

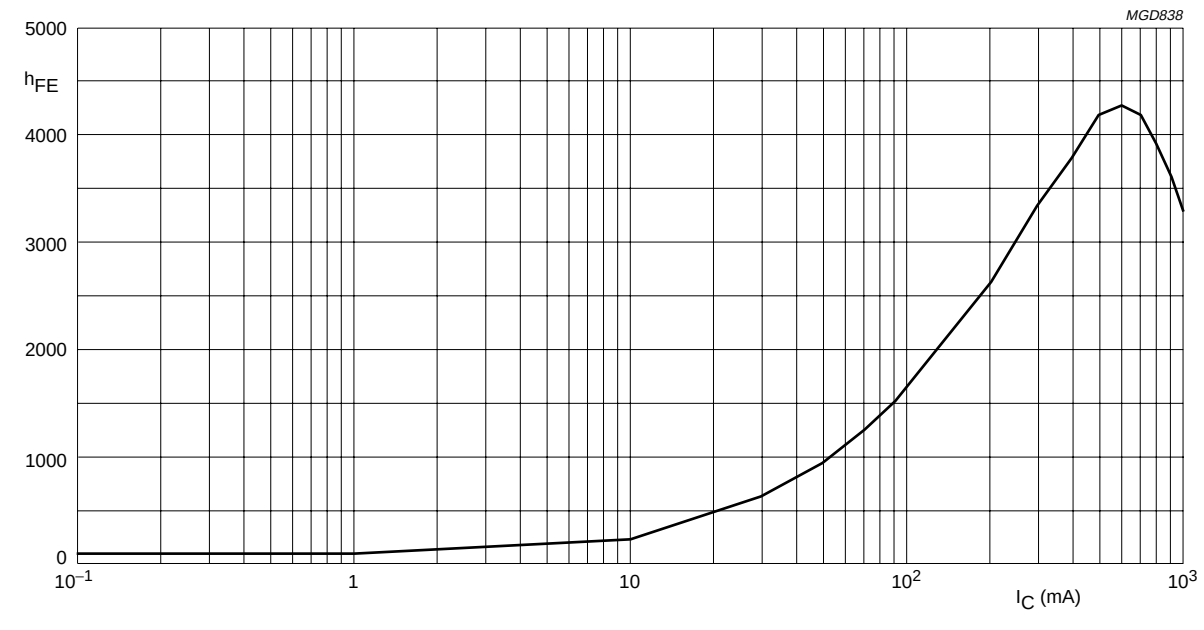
Note

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

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	1000	–	–	
		I_C = 0.5 A	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; I_{Boff} = −0.5 mA	–	500	–	ns
t_{off}	turn-off time		–	1300	–	ns

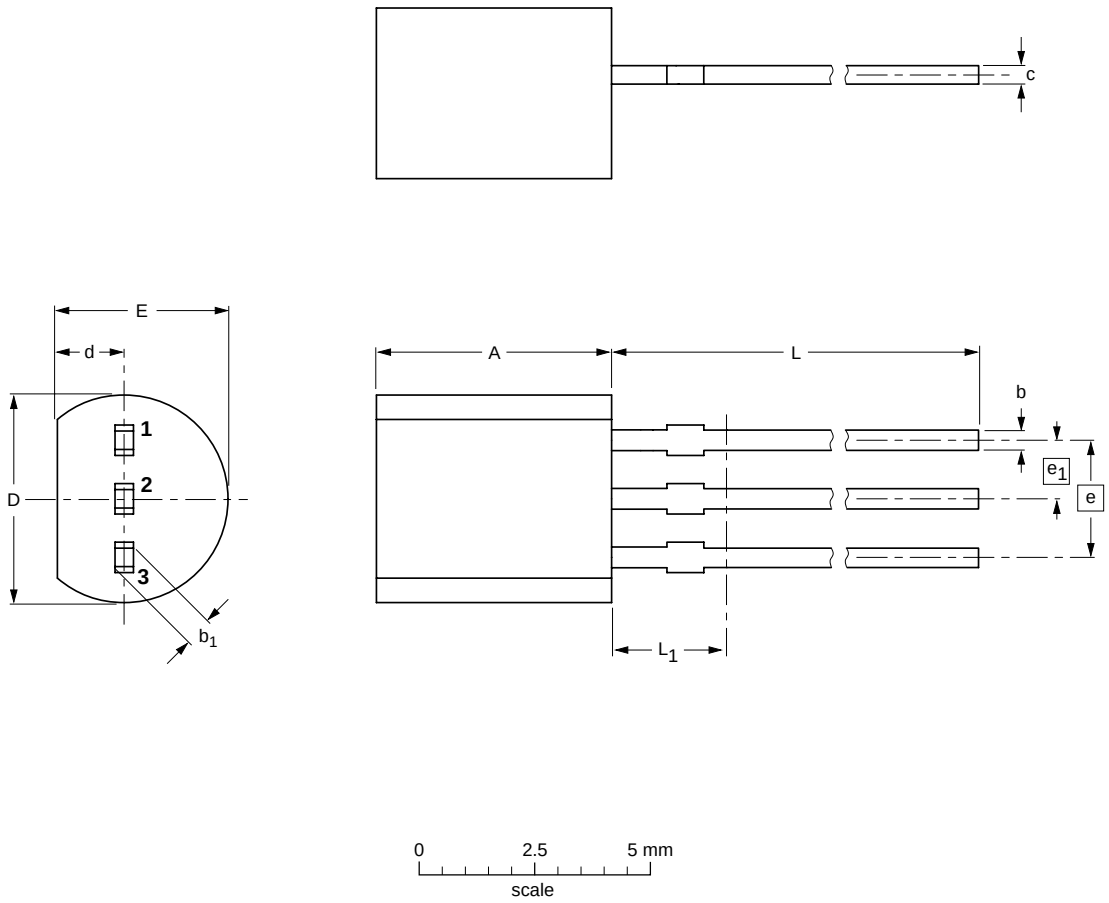


V_{CE} = 10 V.

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) 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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