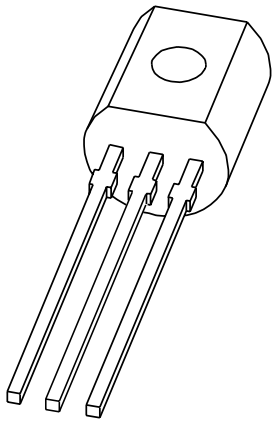
DATA SHEET



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

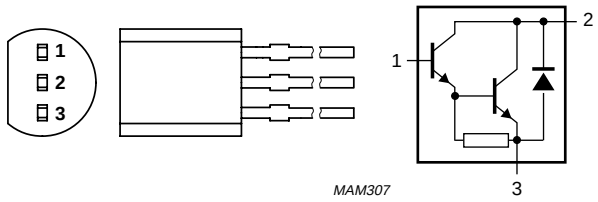


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

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

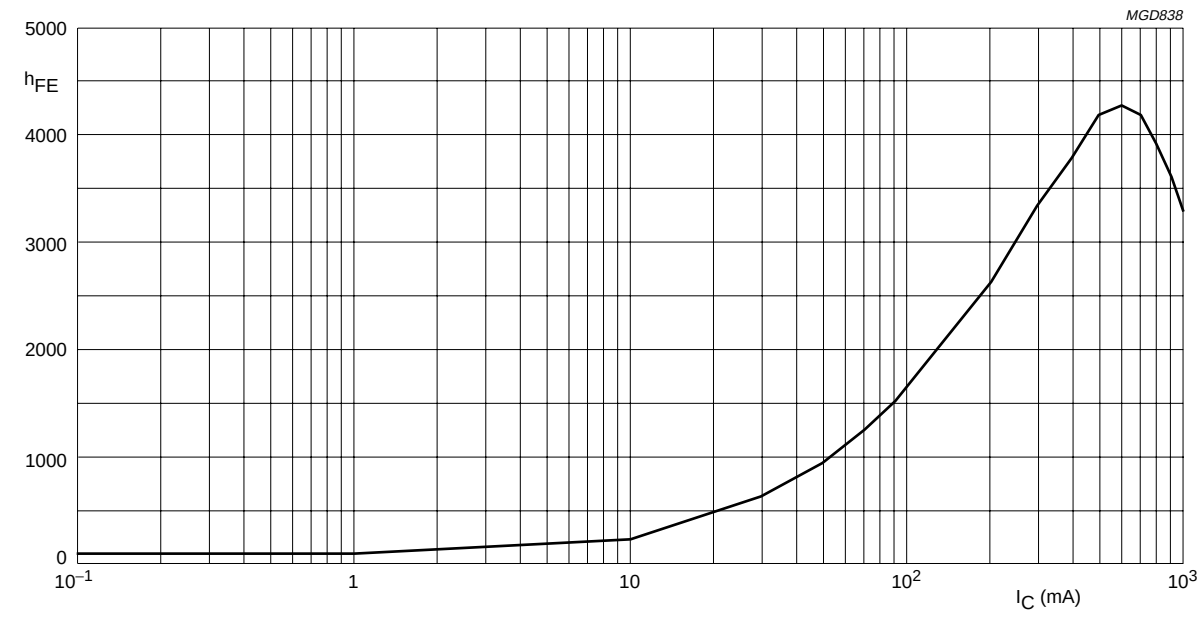
Note

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

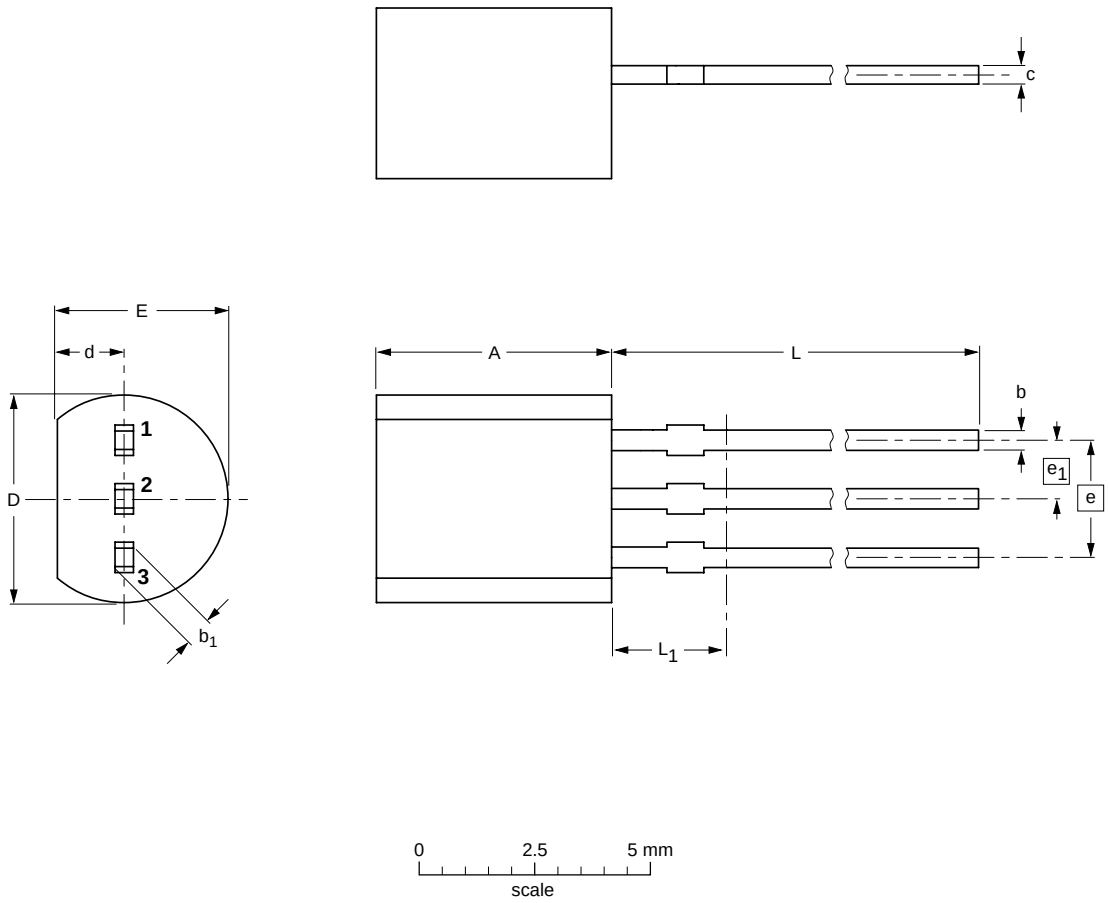


V_{CE} = 10 V.

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

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS[1]	PRODUCT STATUS[2][3]	DEFINITION
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