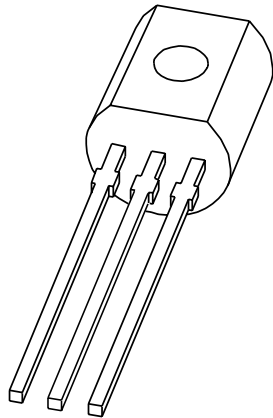


DATA SHEET



BC617; BC618 NPN Darlington transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Jul 04

NPN Darlington transistors

BC617; BC618

FEATURES

- Low current (max. 500 mA)
- Low voltage (max. 55 V)
- High DC current gain.

APPLICATIONS

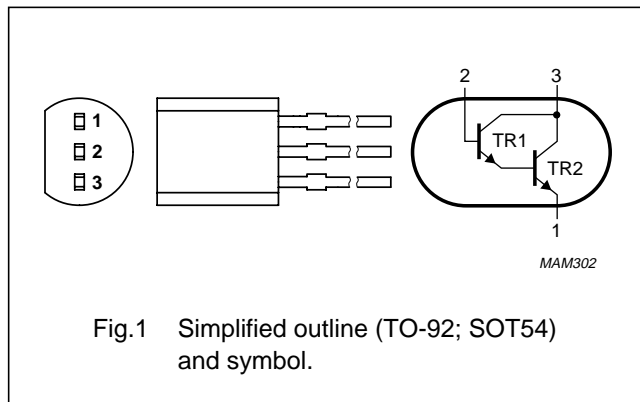
- General purpose low frequency
- Relay drivers.

DESCRIPTION

NPN Darlington transistor in a TO-92; SOT54 plastic package.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	BC617		–	50	V
	BC618		–	80	V
V_{CES}	collector-emitter voltage	$V_{BE} = 0$			
	BC617		–	40	V
	BC618		–	55	V
I_C	collector current		–	1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	–	500	mW
h_{FE}	DC current gain	$I_C = 1\text{ mA}; V_{CE} = 5\text{ V}$			
	BC617		4000	–	
	BC618		2000	–	
f_T	transition frequency	$I_C = 500\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	155	–	MHz

NPN Darlington transistors

BC617; BC618

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			
	BC617		–	50	V
	BC618		–	80	V
V _{CES}	collector-emitter voltage	V _{BE} = 0			
	BC617		–	40	V
	BC618		–	55	V
V _{EBO}	emitter-base voltage	open collector	–	12	V
I _C	collector current (DC)		–	500	mA
I _{CM}	peak collector current		–	800	mA
I _B	base current (DC)		–	200	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	500	mW
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating 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	250	K/W

Note

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

NPN Darlington transistors

BC617; BC618

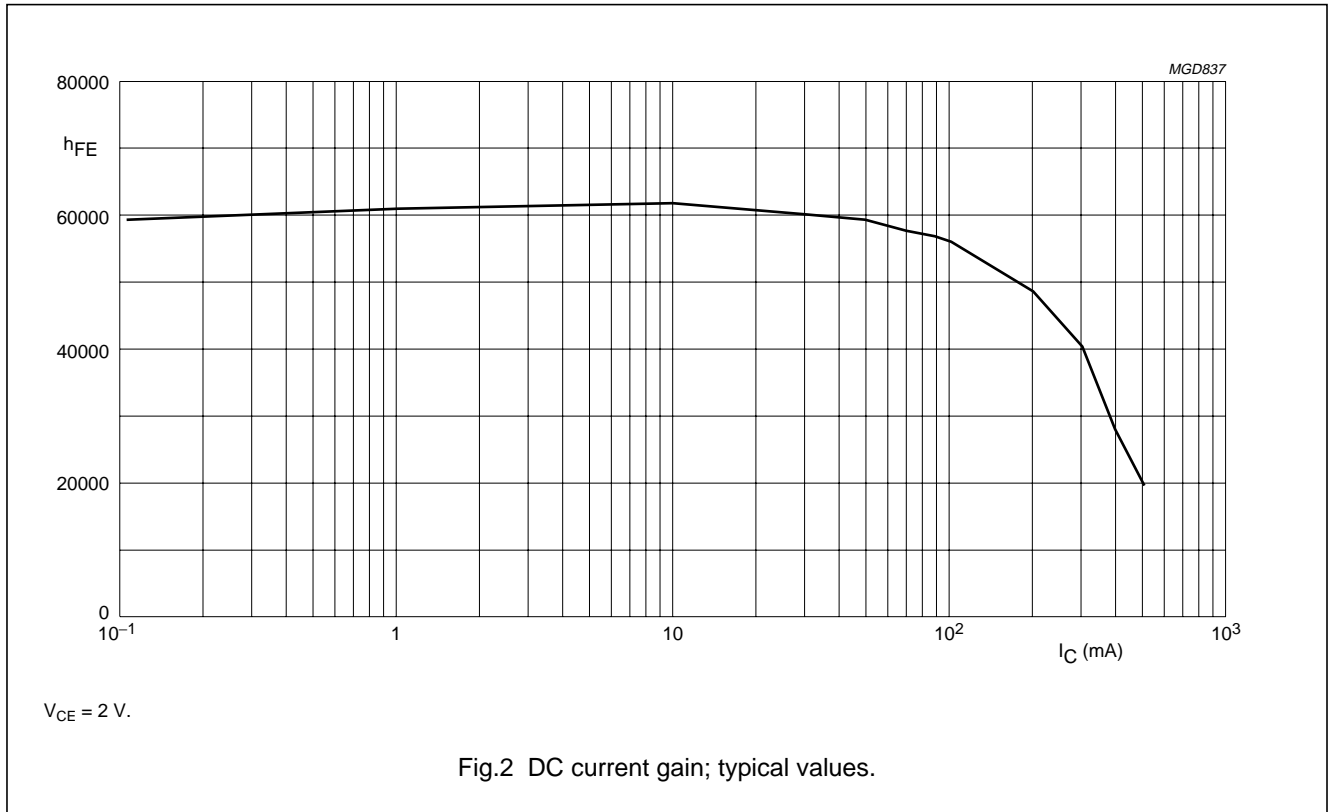
CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current BC617	$I_E = 0; V_{CB} = 40\text{ V}$	–	–	50	nA
	BC618	$I_E = 0; V_{CB} = 60\text{ V}$	–	–	50	nA
I_{CES}	collector cut-off current BC617	$V_{BE} = 0; V_{CE} = 40\text{ V}$	–	–	50	μA
	BC618	$V_{BE} = 0; V_{CE} = 60\text{ V}$	–	–	50	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 10\text{ V}$	–	–	50	nA
h_{FE}	DC current gain BC617	$I_C = 1\text{ mA}; V_{CE} = 5\text{ V};$ see Fig.2	4000	–	–	
	BC618		2000	–	–	
h_{FE}	DC current gain BC617	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V};$ see Fig.2	10000	–	–	
	BC618		4000	–	–	
h_{FE}	DC current gain	$I_C = 200\text{ mA}; V_{CE} = 5\text{ V};$ see Fig.2	10000	–	70000	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 200\text{ mA}; I_B = 0.2\text{ mA}$	–	–	1.1	V
V_{BEsat}	base-emitter saturation voltage	$I_C = 200\text{ mA}; I_B = 0.2\text{ mA}$	–	–	1.6	V
C_c	collector capacitance	$I_E = 0; V_{CB} = 30\text{ V}$	–	3.5	–	pF
f_T	transition frequency	$I_C = 500\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	155	–	–	MHz

NPN Darlington transistors

BC617; BC618



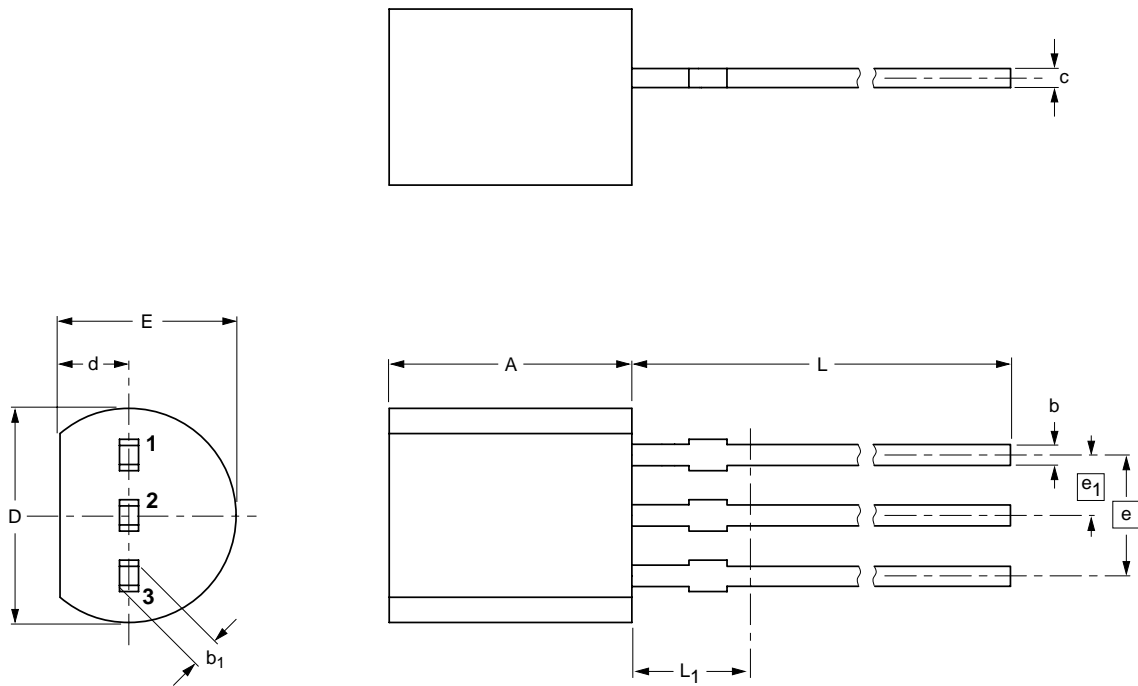
NPN Darlington transistors

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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⁾
mm	5.2	0.48	0.66	0.45	4.8	1.7	4.2	2.54	1.27	14.5	2.5
	5.0	0.40	0.56	0.40	4.4	1.4	3.6				

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 Darlington transistors

BC617; BC618

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.	

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