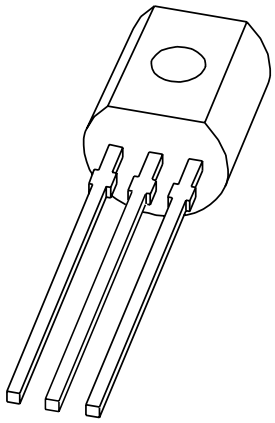
DATA SHEET



BC618
NPN Darlington transistor

Product data sheet
Supersedes data of 2003 Oct 16

2004 Nov 05

NPN Darlington transistor 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

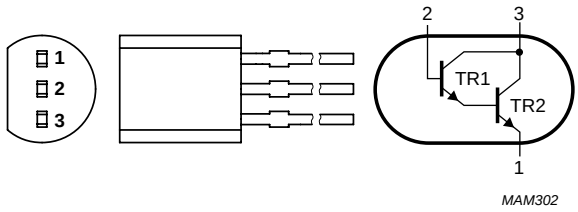


Fig.1 Simplified outline (TO-92; SOT54) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BC618	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	–	80	V
V_{CES}	collector-emitter voltage	V_{BE} = 0 V	–	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	$T_{amb} \leq 25$ °C; note 1	–	625	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	200	K/W

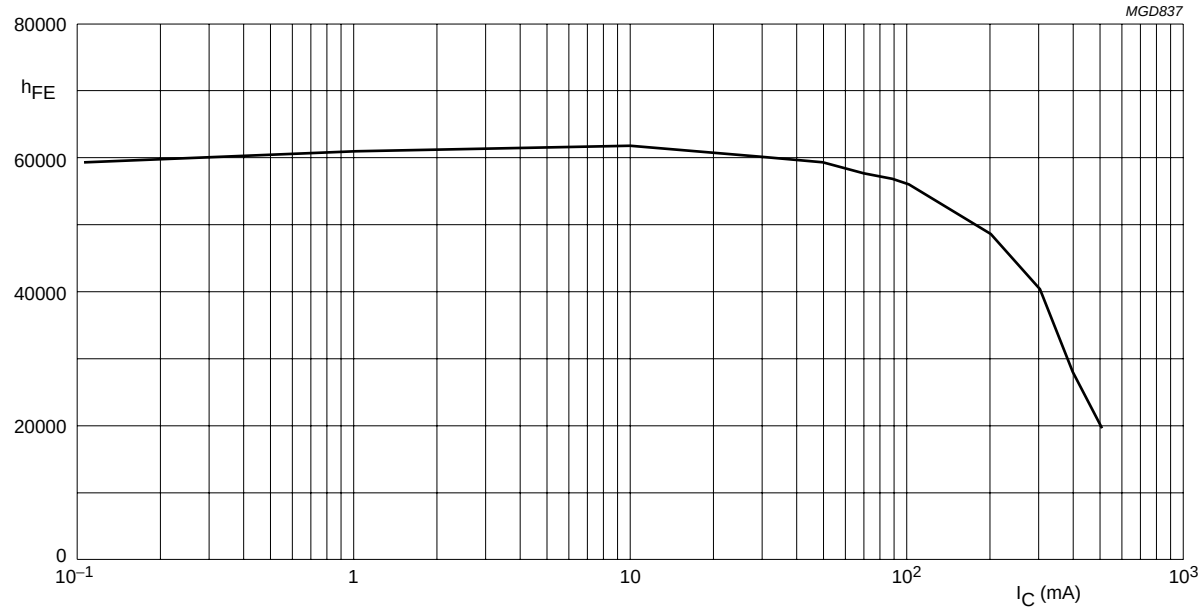
Note

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

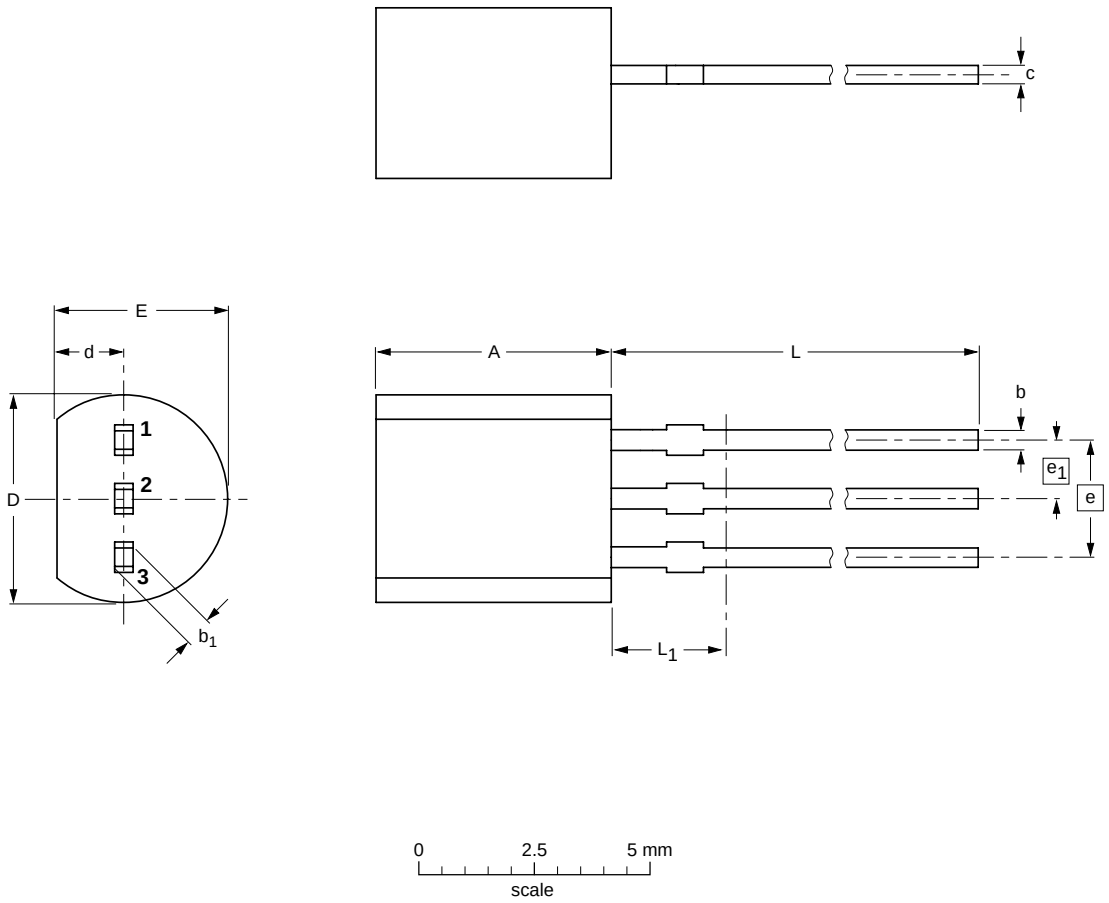


V_{CE} = 2 V.

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			~~04-06-28~~ 04-11-16

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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NXP Semiconductors

Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

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