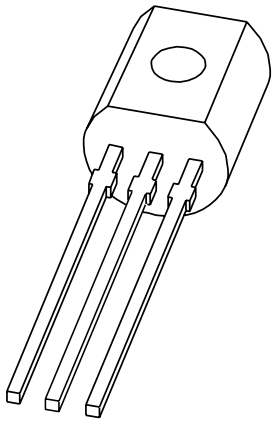
DATA SHEET



BC369

PNP medium power transistor; 20 V, 1 A

Product data sheet
Supersedes data of 2003 Nov 20

2004 Nov 05

NXP founded by Philips

PNP medium power transistor; 20 V, 1 A

BC369

FEATURES

- High current
- Two current gain selections.

APPLICATIONS

- Linear voltage regulators
- High side switches
- Supply line switches
- MOSFET drivers
- Audio pre-amplifiers.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_{CEO}	collector-emitter voltage	–	–20	V
I_C	collector current (DC)	–	–1	A
I_{CM}	peak collector current	–	–2	A
h_{FE}	DC current gain			
	BC369	85	375	
	BC369-16	100	250	
	BC369-25	160	375	

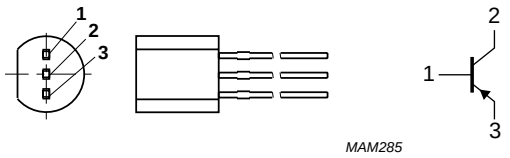
DESCRIPTION

PNP medium power transistor (see “Simplified outline, symbol and pinning”) for package details.

PRODUCT OVERVIEW

TYPE NUMBER	PACKAGE		MARKING CODE
	PHILIPS	EIAJ	
BC369	SOT54	SC-43A	C369
BC369-16	SOT54	SC-43A	C36916
BC369-25	SOT54	SC-43A	C36925

SIMPLIFIED OUTLINE, SYMBOL AND PINNING

TYPE NUMBER	SIMPLIFIED OUTLINE AND SYMBOL	PINNING	
		PIN	DESCRIPTION
BC369		1 2 3	base collector emitter

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BC369	SC-43A	plastic single-ended leaded (through hole) package; 3 leads	SOT54
BC369-16			
BC369-25			

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	–	−32	V
V_{CEO}	collector-emitter voltage	open base	–	−20	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_{BM}	peak base current		–	−200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; notes 1 and 2	–	830	mW
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	ambient temperature		−65	+150	°C

Notes

1. Refer to SOT54 (SC-43A) standard mounting conditions.
2. Device mounted on a FR4 printed-circuit board; single-sided copper; tin-plated; standard footprint for SOT54.

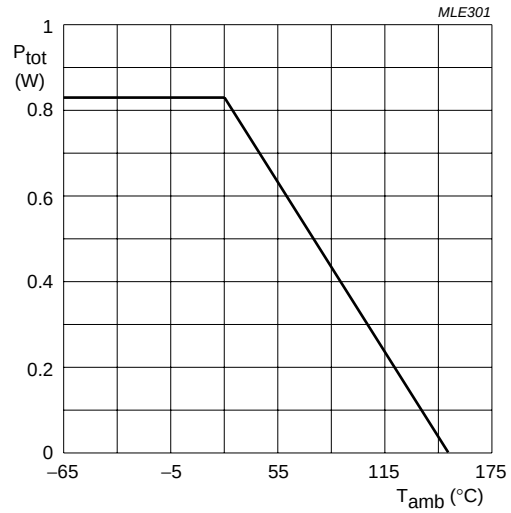


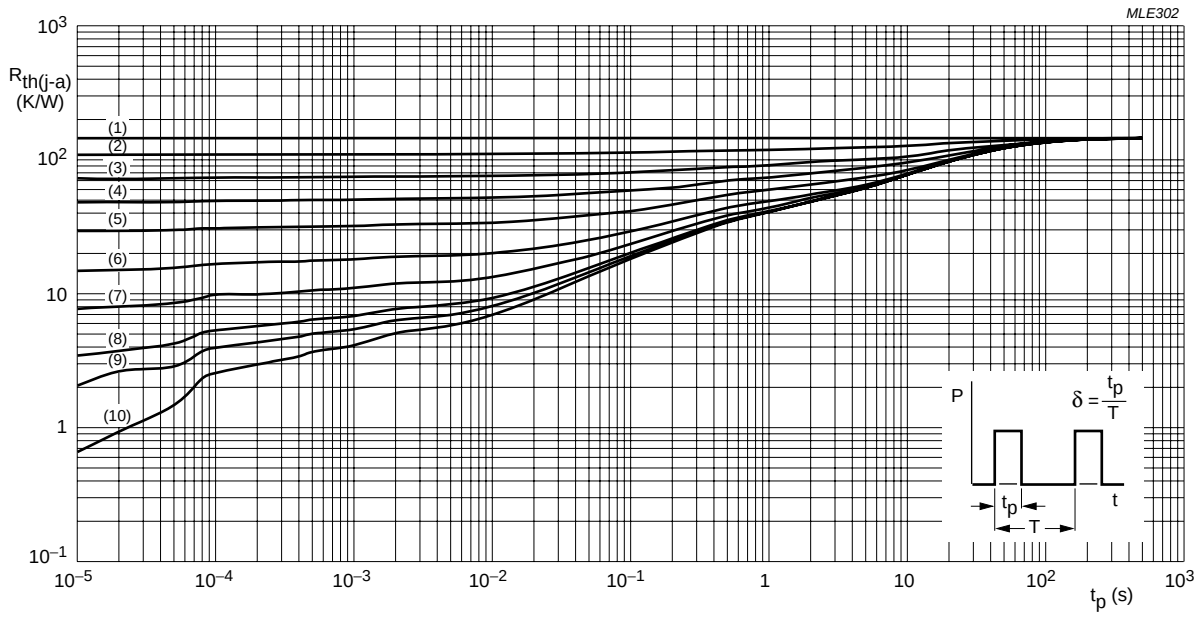
Fig.1 Power derating curve for standard PCB footprint.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	$T_{amb} \leq 25$ °C; notes 1 and 2	150	K/W

Notes

1. Refer to SOT54 (SC-43A) standard mounting conditions.
2. Device mounted on a FR4 printed-circuit board; single-sided copper; tin-plated; standard footprint for SOT54.



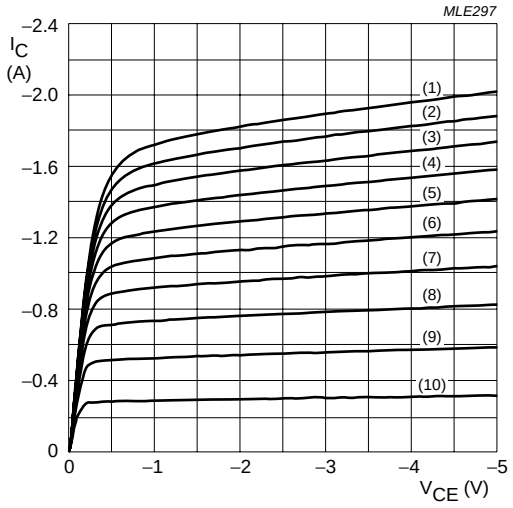
(1) δ = 1.0. (3) δ = 0.5. (5) δ = 0.2. (7) δ = 0.05. (9) δ = 0.01.
(2) δ = 0.75. (4) δ = 0.03. (6) δ = 0.1. (8) δ = 0.02. (10) δ = 0.0.

Fig.2 Transient thermal resistance from junction to ambient as a function of pulse time for standard PCB footprint.

CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	V_{CB} = –25 V; I_E = 0 A	–	–	–100	nA
		V_{CB} = –25 V; I_E = 0 A; T_j = 150 °C	–	–	–10	μA
I_{EBO}	emitter-base cut-off current	V_{EB} = –5 V; I_C = 0 A	–	–	–100	nA
h_{FE}	DC current gain					
	BC369	V_{CE} = –10 V; I_C = –5 mA	50	–	–	
		V_{CE} = –1 V; I_C = –500 mA	85	–	375	
		V_{CE} = –1 V; I_C = –1 A	60	–	–	
	BC369-16	V_{CE} = –1 V; I_C = –500 mA	100	–	250	
	BC369-25	V_{CE} = –1 V; I_C = –500 mA	160	–	375	
V_{CEsat}	collector-emitter saturation voltage	I_C = –1 A; I_B = –100 mA	–	–	–500	mV
V_{BE}	base-emitter voltage	V_{CE} = –10 V; I_C = –5 mA	–	–	–700	mV
		V_{CE} = –1 V; I_C = –1 A	–	–	–1	V
C_c	collector capacitance	V_{CB} = –10 V; I_E = i_e = 0 A; f = 1 MHz	–	28	–	pF
f_T	transition frequency	V_{CE} = –5 V; I_C = –50 mA; f = 100 MHz	40	140	–	MHz

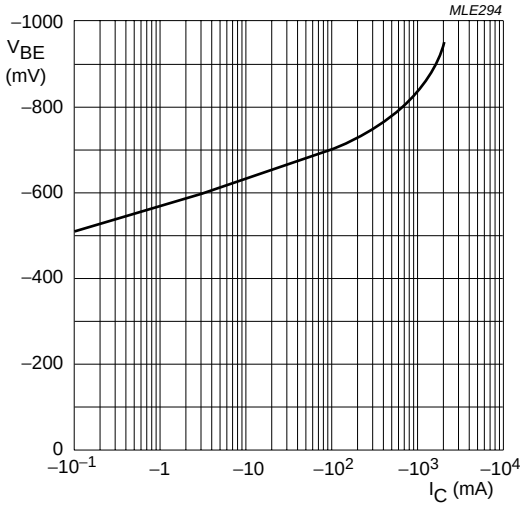


BC369-16.

T_{amb} = 25 °C.

(1) I_B = −18 mA.
(2) I_B = −16.2 mA.
(3) I_B = −14.4 mA.
(4) I_B = −12.6 mA.
(5) I_B = −10.8 mA.
(6) I_B = −9.0 mA.
(7) I_B = −7.2 mA.
(8) I_B = −5.4 mA.
(9) I_B = −3.6 mA.
(10) I_B = −1.8 mA.

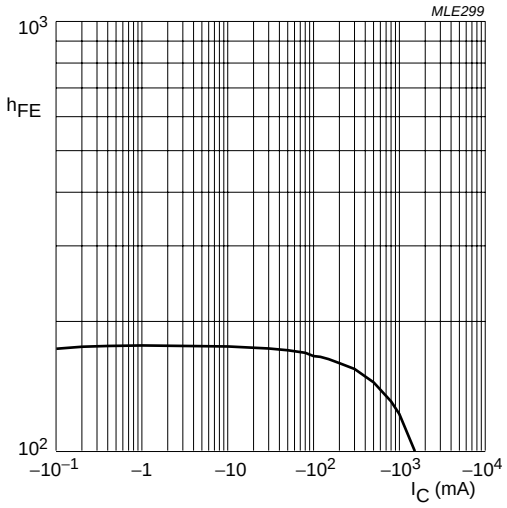
Fig.3 Collector current as a function of collector-emitter voltage; typical values.



BC369-16.

V_{CE} = −1 V.

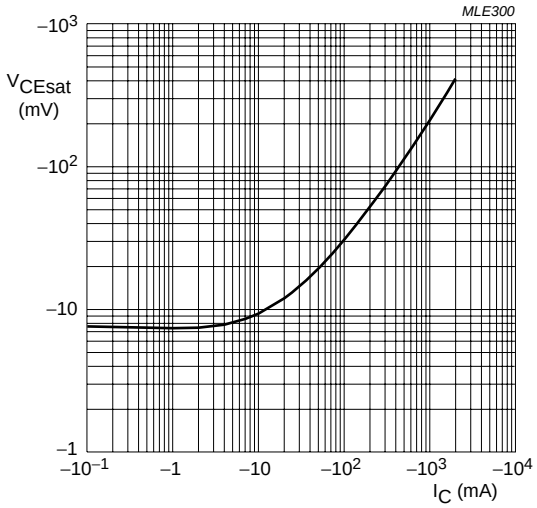
Fig.4 Base-emitter voltage as a function of collector current; typical values.



BC369-16.

V_{CE} = −1 V.

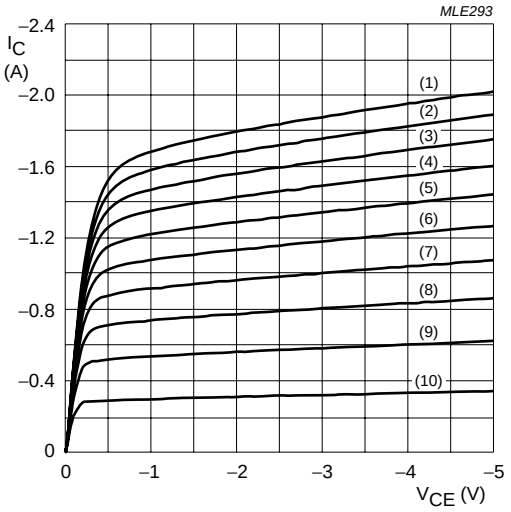
Fig.5 DC current gain as a function of collector current; typical values.



BC369-16.

I_C/I_B = 10.

Fig.6 Collector-emitter saturation voltage as a function of collector current; typical values.

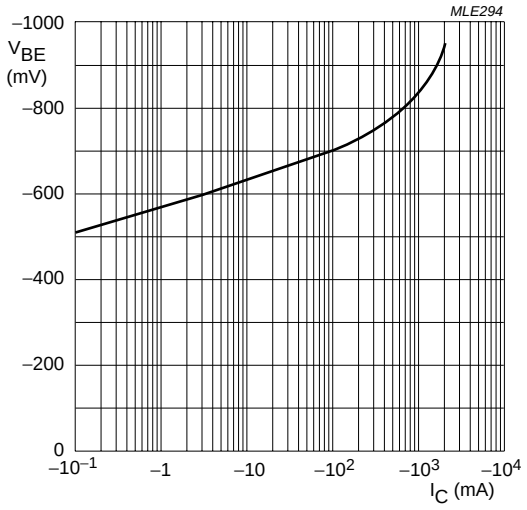


BC369-25.

T_{amb} = 25 °C.

(1) I_B = −12 mA.
(2) I_B = −10.8 mA.
(3) I_B = −9.6 mA.
(4) I_B = −8.4 mA.
(5) I_B = −7.2 mA.
(6) I_B = −6.0 mA.
(7) I_B = −4.8 mA.
(8) I_B = −3.6 mA.
(9) I_B = −2.4 mA.
(10) I_B = −1.2 mA.

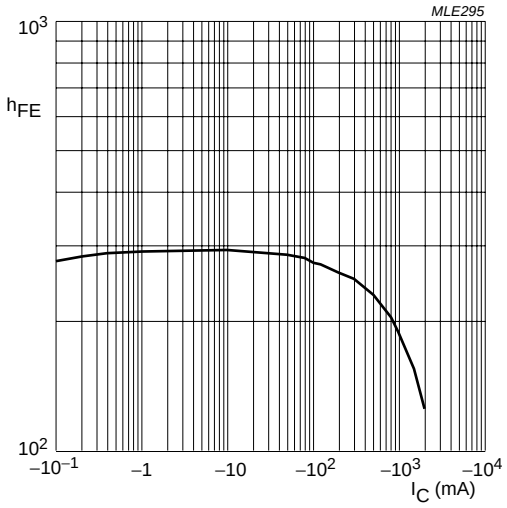
Fig.7 Collector current as a function of collector-emitter voltage; typical values.



BC369-25.

V_{CE} = −1 V.

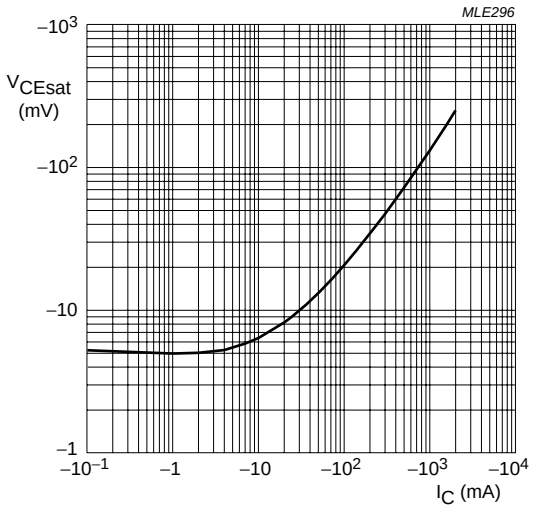
Fig.8 Base-emitter voltage as a function of collector current; typical values.



BC369-25.

$V_{CE} = -1$ V.

Fig.9 DC current gain as a function of collector current; typical values.



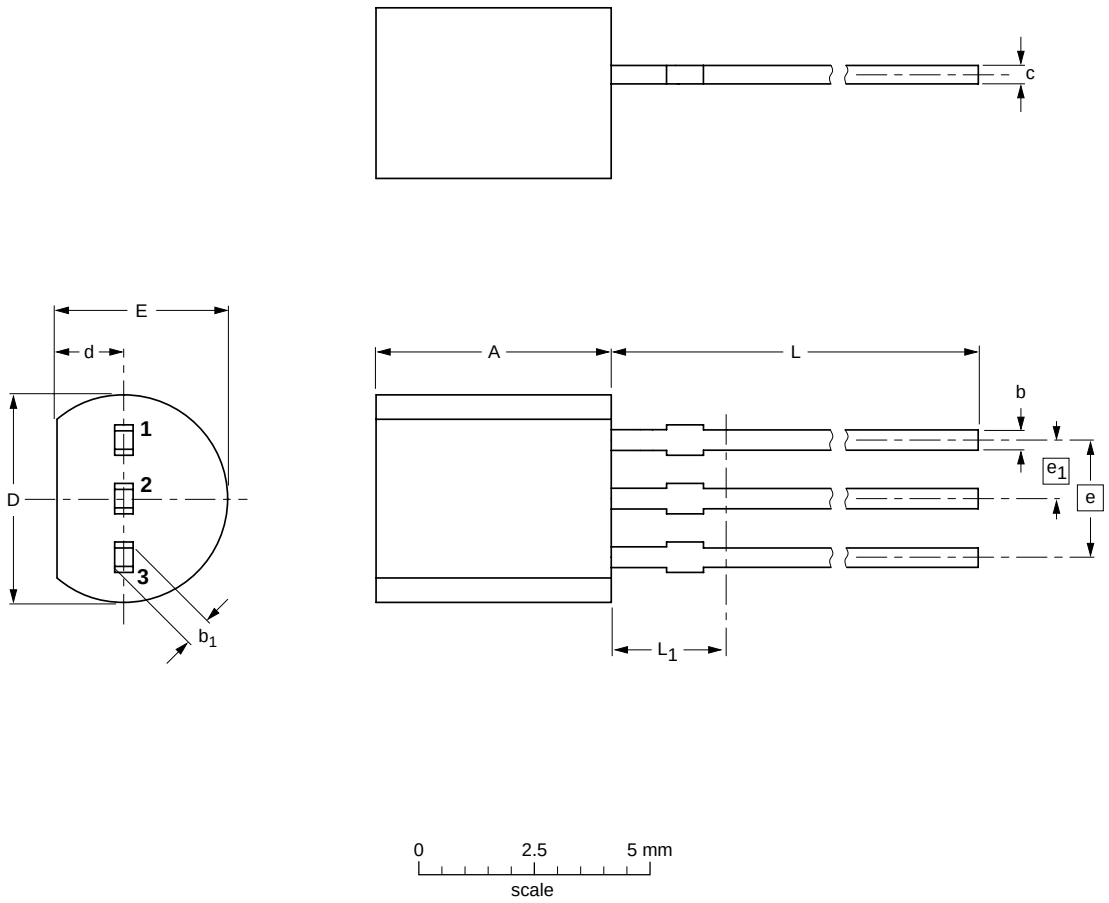
BC369-25.

$I_C/I_B = 10$.

Fig.10 Collector-emitter saturation voltage as a function of collector current; 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