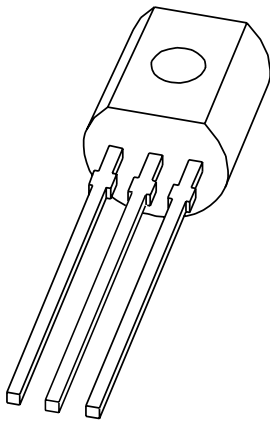


# DATA SHEET



**BC369**

PNP medium power transistor;  
20 V, 1 A

Product data sheet  
Supersedes data of 2003 Nov 20

2004 Nov 05

# 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	

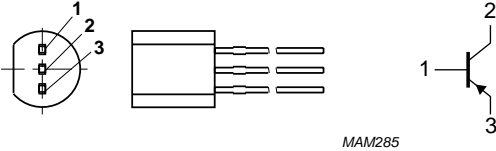
### DESCRIPTION

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	 <p>MAM285</p>	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			

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## 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	$T_{amb} \leq 25\text{ °C}$ ; 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.

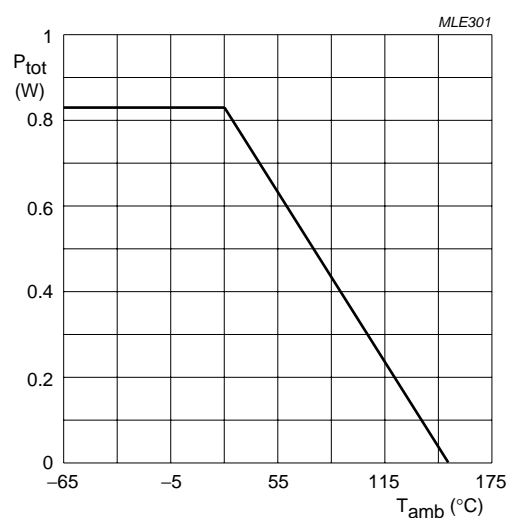


Fig.1 Power derating curve for standard PCB footprint.

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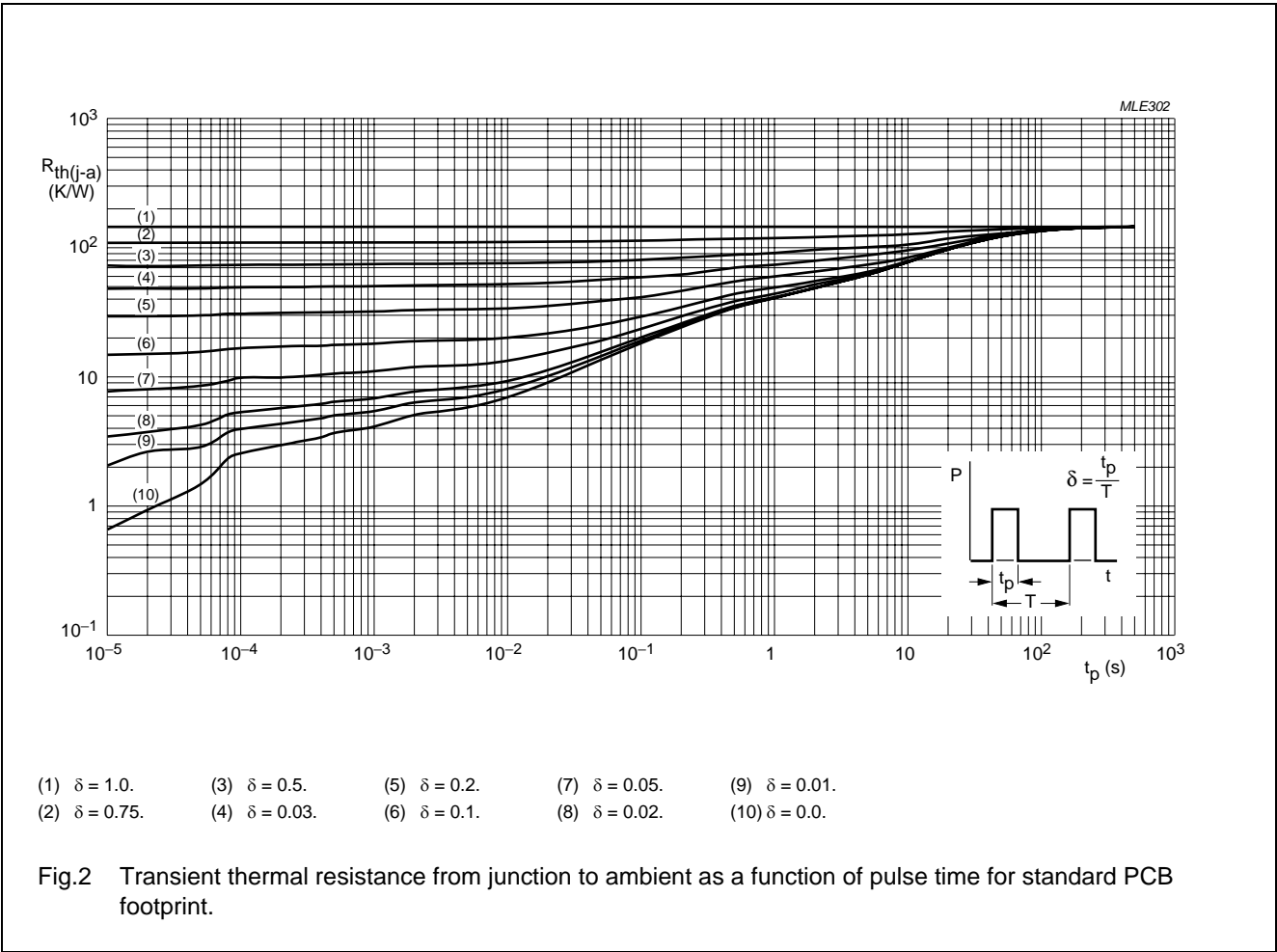
BC369

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$ ; 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.



# PNP medium power transistor; 20 V, 1 A

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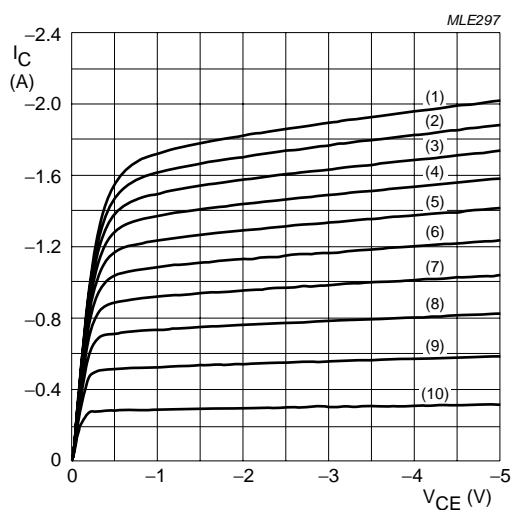
## CHARACTERISTICS

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

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

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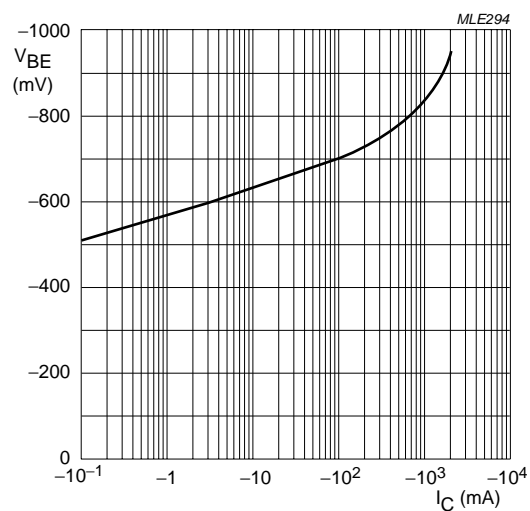


BC369-16.

 $T_{amb} = 25\text{ }^{\circ}\text{C}.$ 

- |                              |                              |
|------------------------------|------------------------------|
| (1) $I_B = -18\text{ mA}.$   | (6) $I_B = -9.0\text{ mA}.$  |
| (2) $I_B = -16.2\text{ mA}.$ | (7) $I_B = -7.2\text{ mA}.$  |
| (3) $I_B = -14.4\text{ mA}.$ | (8) $I_B = -5.4\text{ mA}.$  |
| (4) $I_B = -12.6\text{ mA}.$ | (9) $I_B = -3.6\text{ mA}.$  |
| (5) $I_B = -10.8\text{ mA}.$ | (10) $I_B = -1.8\text{ mA}.$ |

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



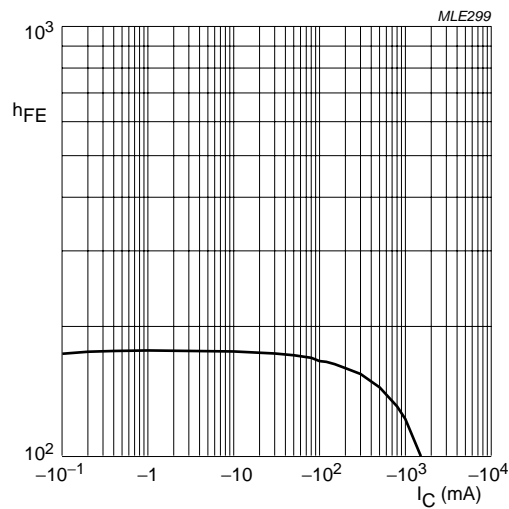
BC369-16.

 $V_{CE} = -1\text{ V}.$ 

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

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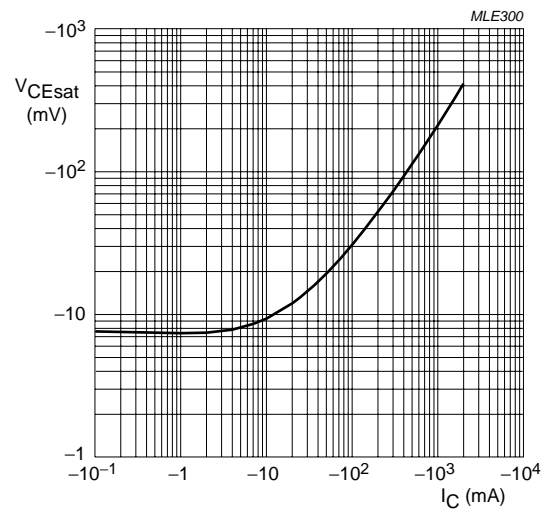
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BC369-16.

$V_{CE} = -1\text{ V}$ .

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



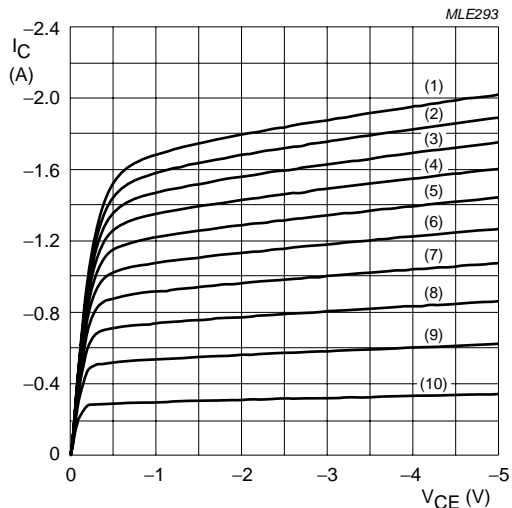
BC369-16.

$I_C/I_B = 10$ .

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

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**BC369-25.** $T_{amb} = 25\text{ }^{\circ}\text{C}.$ 

- |                              |                              |
|------------------------------|------------------------------|
| (1) $I_B = -12\text{ mA}.$   | (6) $I_B = -6.0\text{ mA}.$  |
| (2) $I_B = -10.8\text{ mA}.$ | (7) $I_B = -4.8\text{ mA}.$  |
| (3) $I_B = -9.6\text{ mA}.$  | (8) $I_B = -3.6\text{ mA}.$  |
| (4) $I_B = -8.4\text{ mA}.$  | (9) $I_B = -2.4\text{ mA}.$  |
| (5) $I_B = -7.2\text{ mA}.$  | (10) $I_B = -1.2\text{ mA}.$ |

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

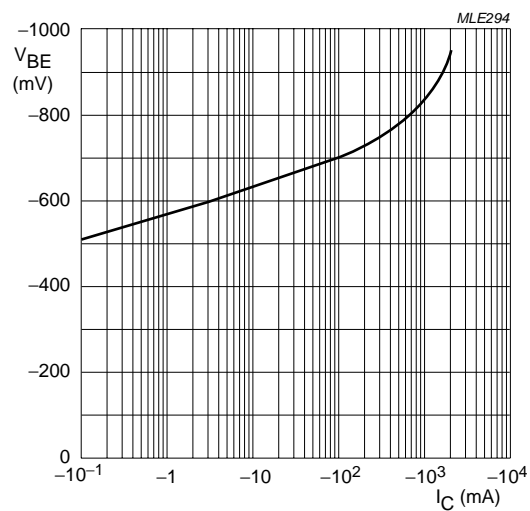
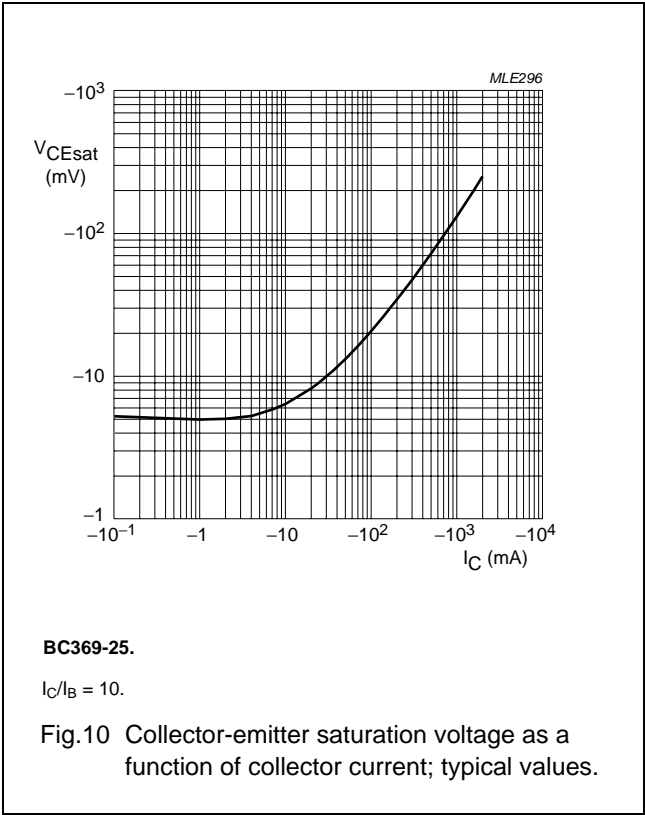
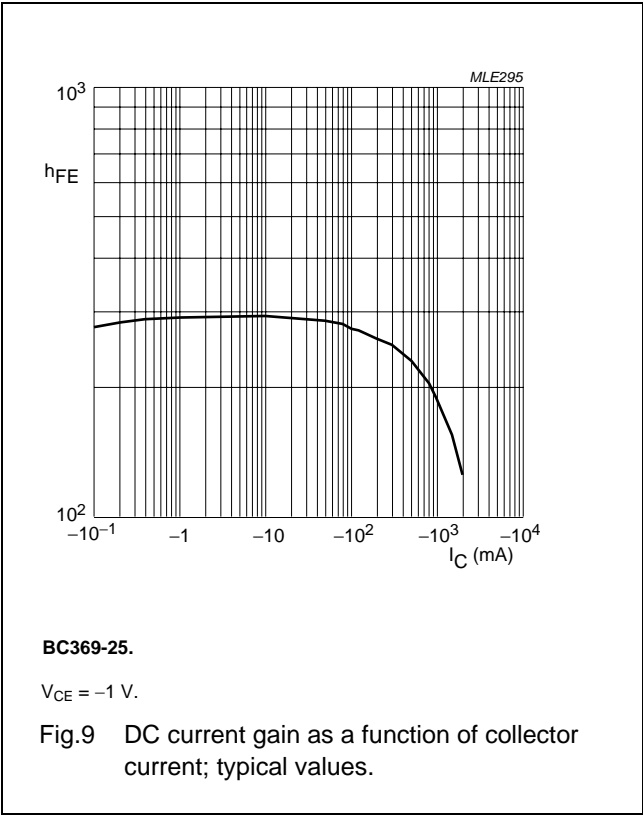
**BC369-25.** $V_{CE} = -1\text{ V}.$ 

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



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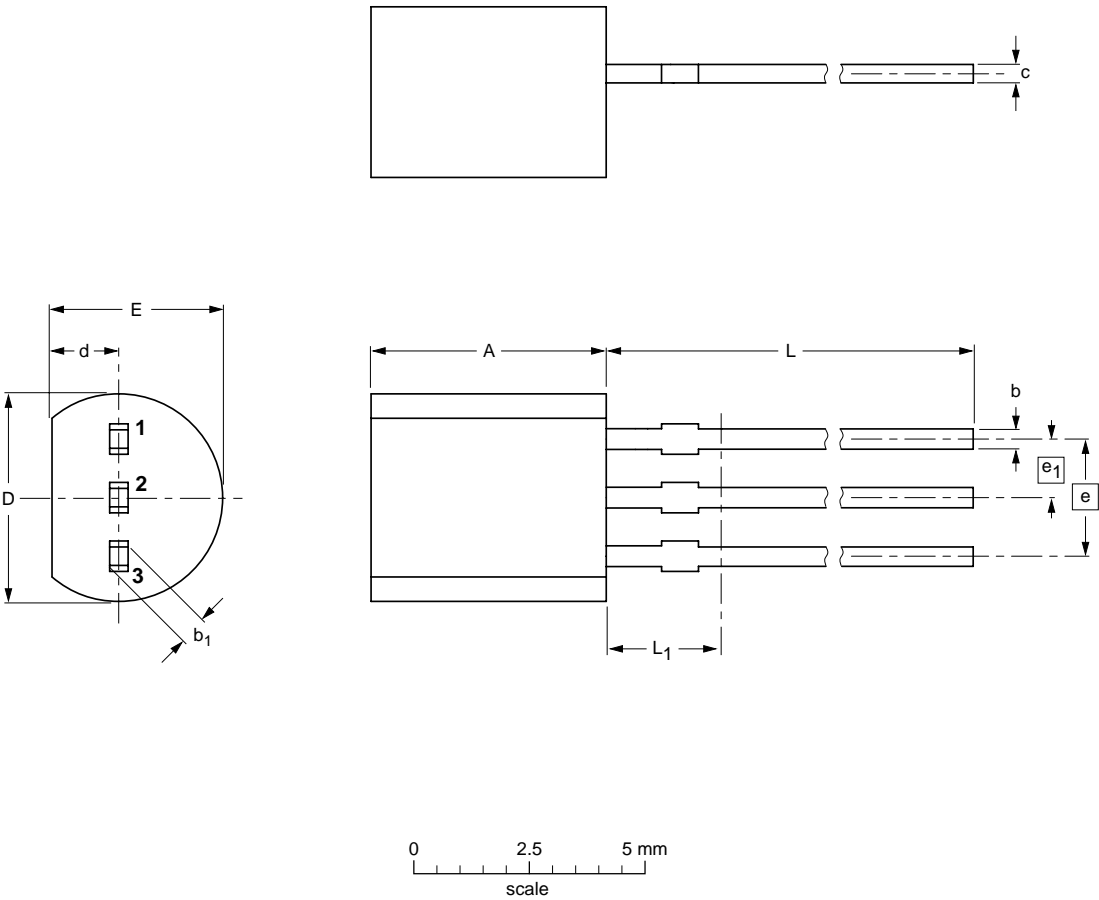
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PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b <sub>1</sub>	c	D	d	E	e	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup> 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

# PNP medium power transistor; 20 V, 1 A

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## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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Printed in The Netherlands

R75/05/pp12

Date of release: 2004 Nov 05

Document order number: 9397 750 13565

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