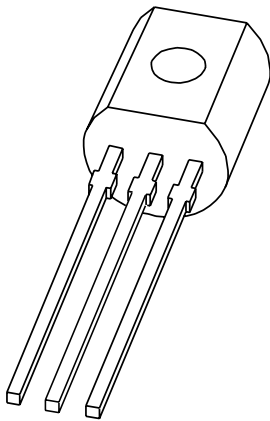


DATA SHEET



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	

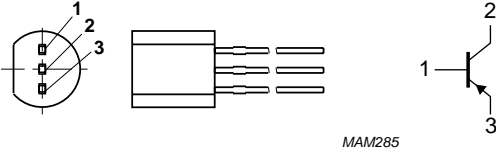
DESCRIPTION

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		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			

PNP medium power transistor; 20 V, 1 A

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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.

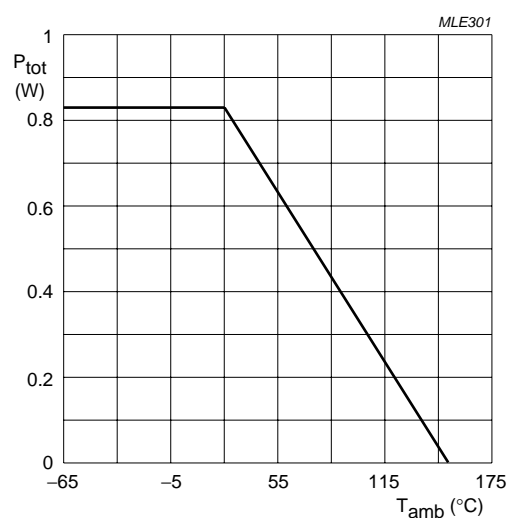


Fig.1 Power derating curve for standard PCB footprint.

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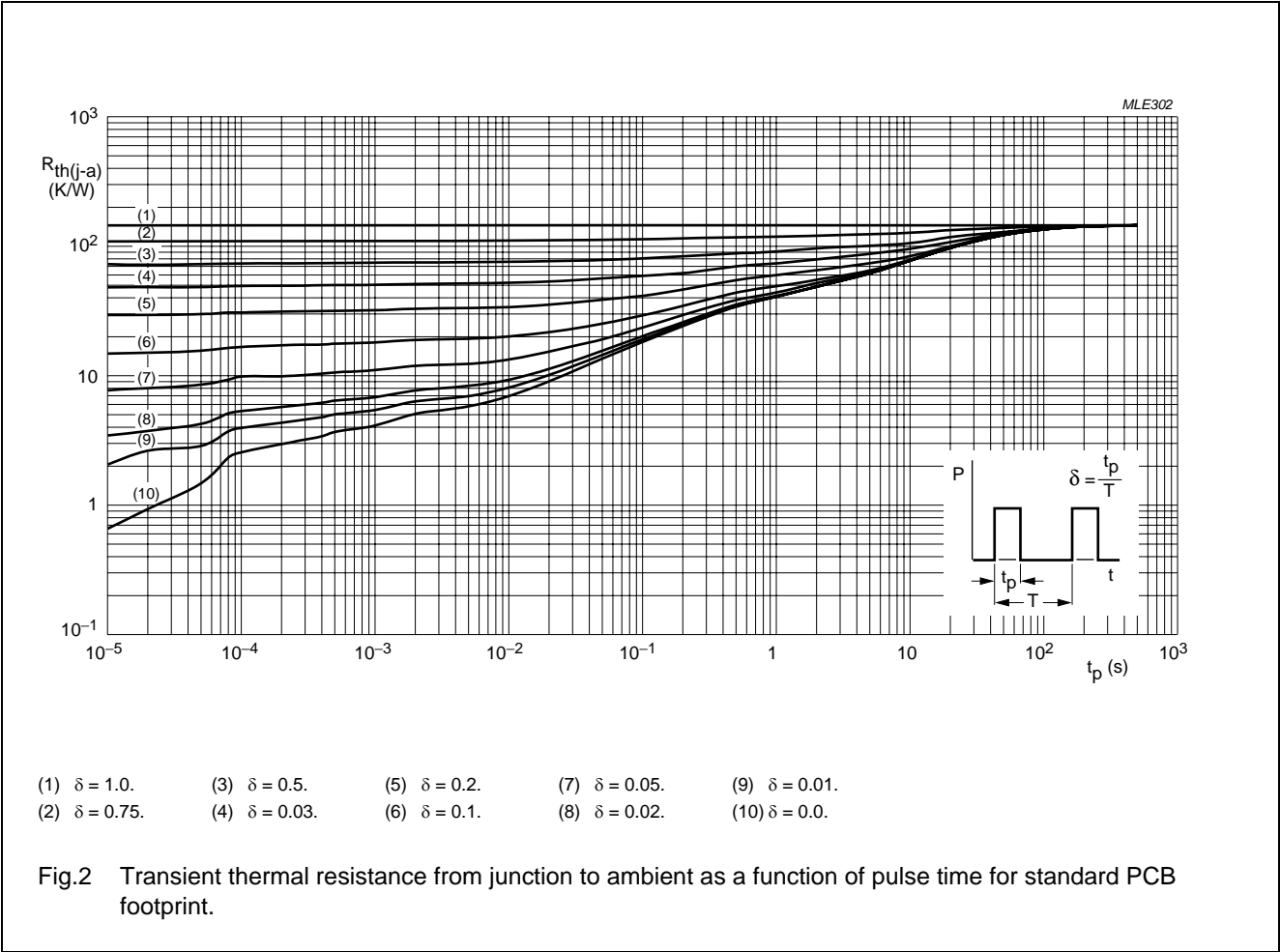
BC369

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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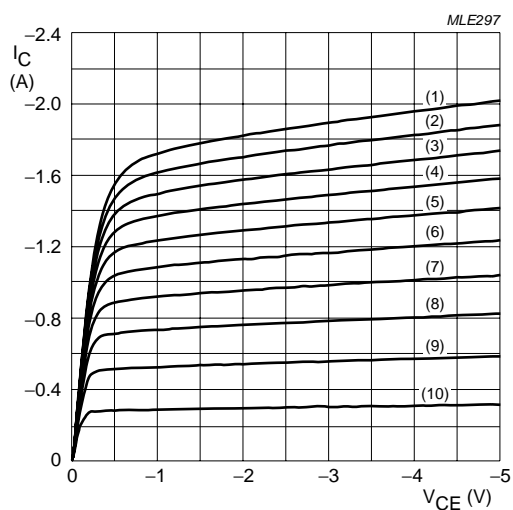
CHARACTERISTICS

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

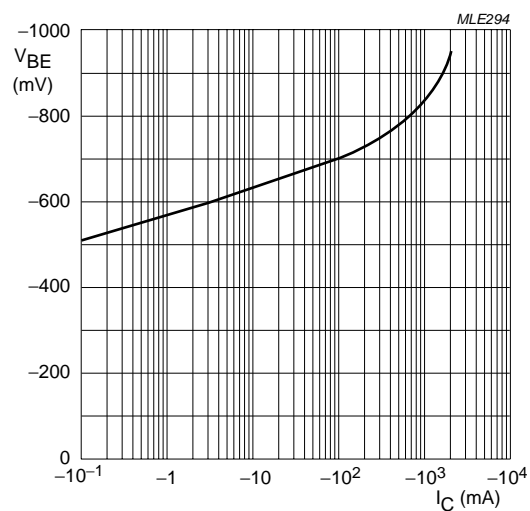
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = -25\text{ V}; I_E = 0\text{ A}$	–	–	–100	nA
		$V_{CB} = -25\text{ V}; I_E = 0\text{ A}; T_J = 150\text{ °C}$	–	–	–10	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = -5\text{ V}; I_C = 0\text{ A}$	–	–	–100	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

PNP medium power transistor; 20 V, 1 A

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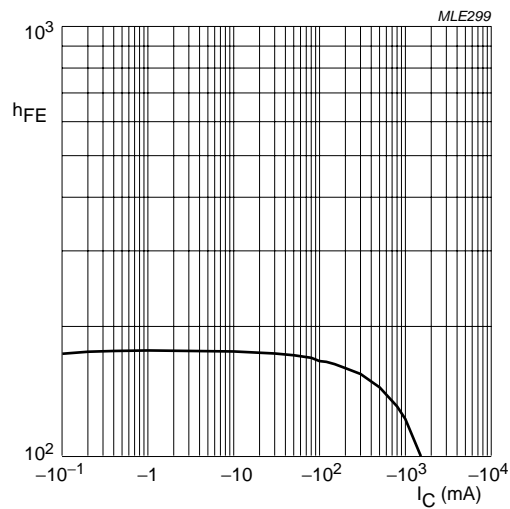
**BC369-16.** $T_{amb} = 25\text{ }^{\circ}\text{C}.$

- | | |
|------------------------------|------------------------------|
| (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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20 V, 1 A

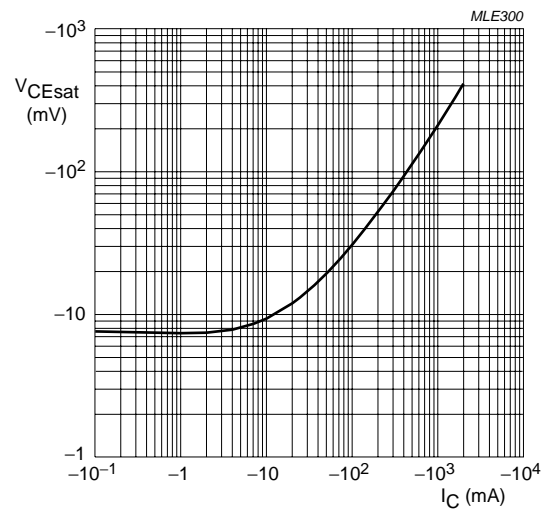
BC369



BC369-16.

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

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



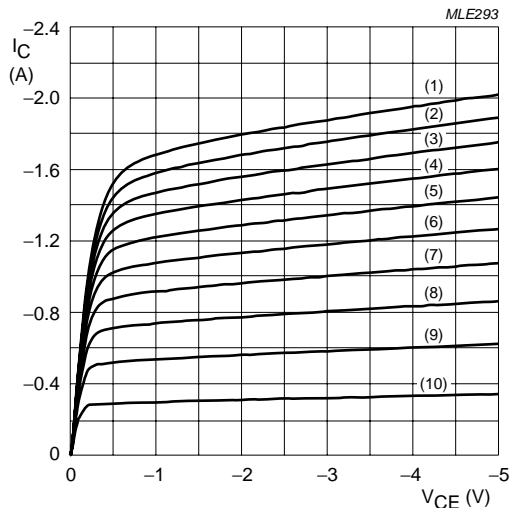
BC369-16.

$I_C/I_B = 10$.

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.

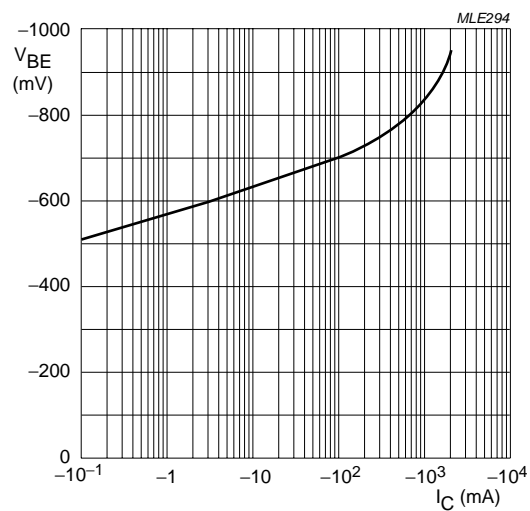
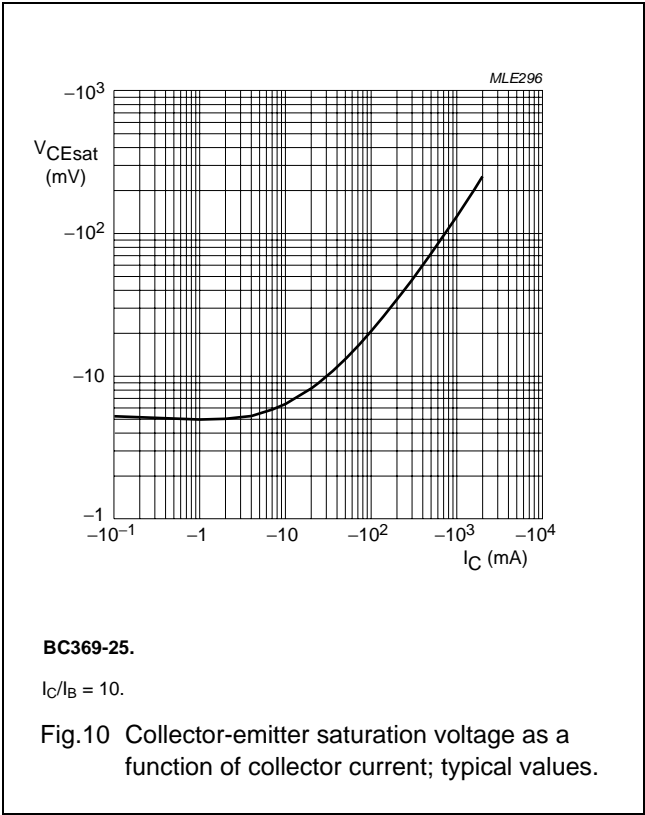
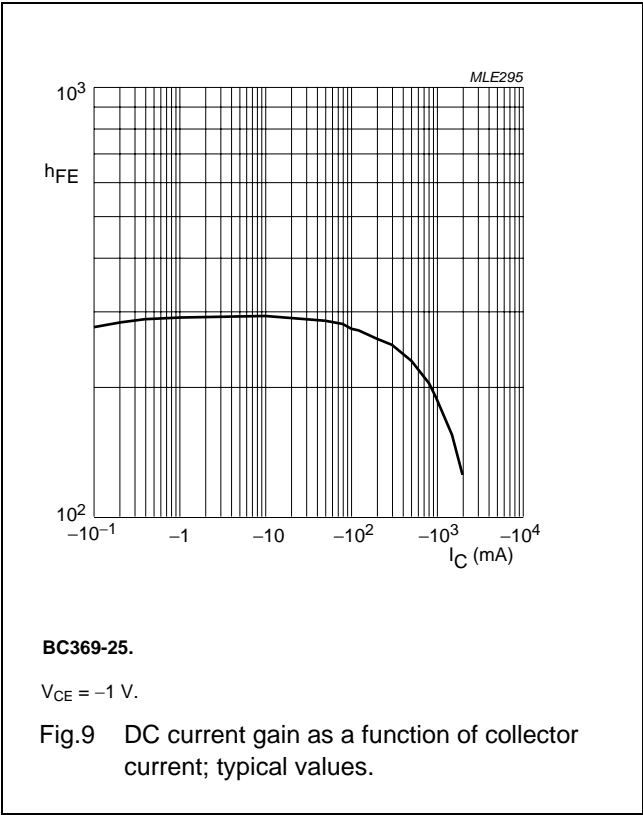
**BC369-25.** $V_{CE} = -1\text{ V}.$

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

PNP medium power transistor;
20 V, 1 A

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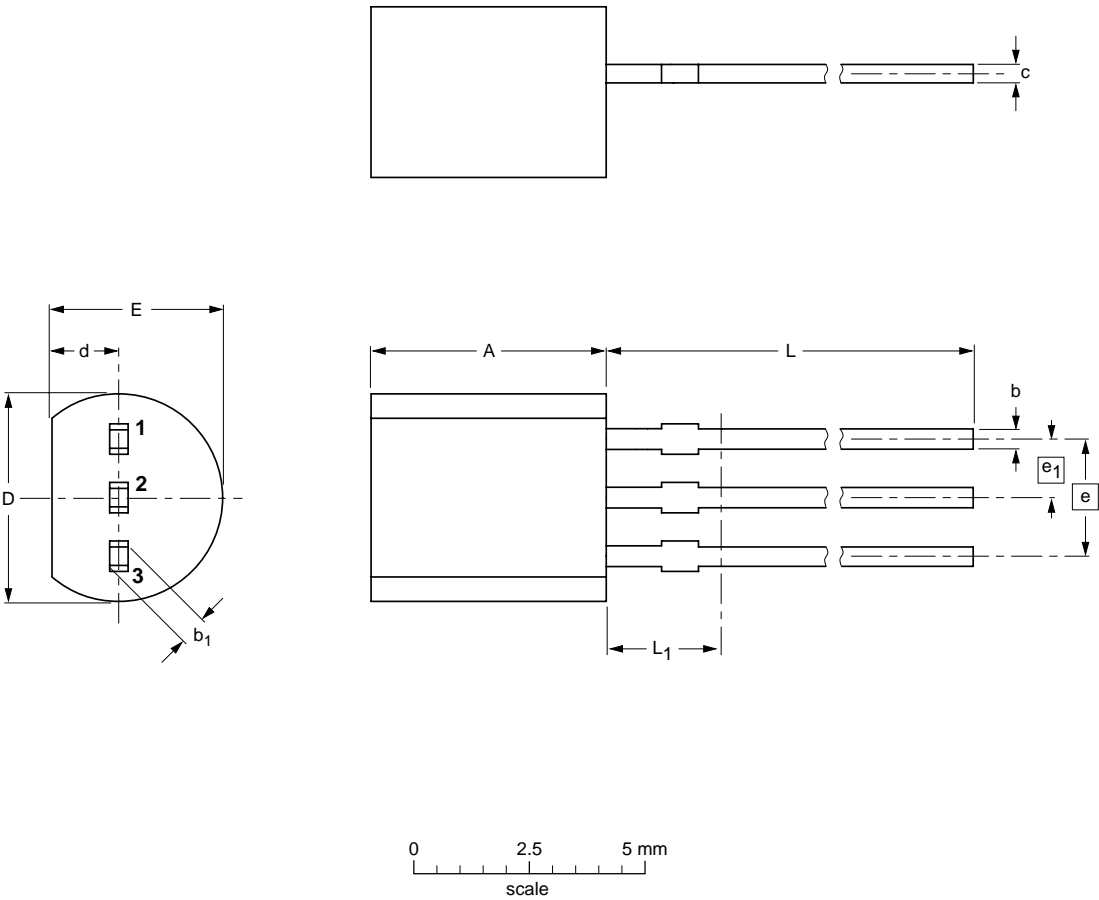
PNP medium power transistor;
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PACKAGE OUTLINE

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⁾ 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 ⁽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.

Notes

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2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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Contact information

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