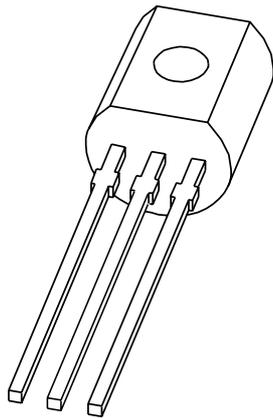


# DATA SHEET



## **BC368**

**NPN medium power transistor;  
20 V, 1 A**

Product data sheet  
Supersedes data of 2003 Dec 01

2004 Nov 05

# NPN medium power transistor; 20 V, 1 A

**BC368**

**FEATURES**

- High current.

**APPLICATIONS**

- Linear voltage regulators
- Low side switch
- Supply line switch for negative voltages
- MOSFET driver
- Audio (pre-) amplifier.

**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	85	375	–

**DESCRIPTION**

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

**PRODUCT OVERVIEW**

TYPE NUMBER	PACKAGE		MARKING CODE	PNP COMPLEMENT
	PHILIPS	EIAJ		
BC368	SOT54	SC-43A	C368	BC369

**SIMPLIFIED OUTLINE, SYMBOL AND PINNING**

TYPE NUMBER	SIMPLIFIED OUTLINE AND SYMBOL	PINNING	
		PIN	DESCRIPTION
BC368		1 2 3	base collector emitter

**ORDERING INFORMATION**

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BC368	SC-43A	plastic single-ended (through hole) package; 3 leads	SOT54

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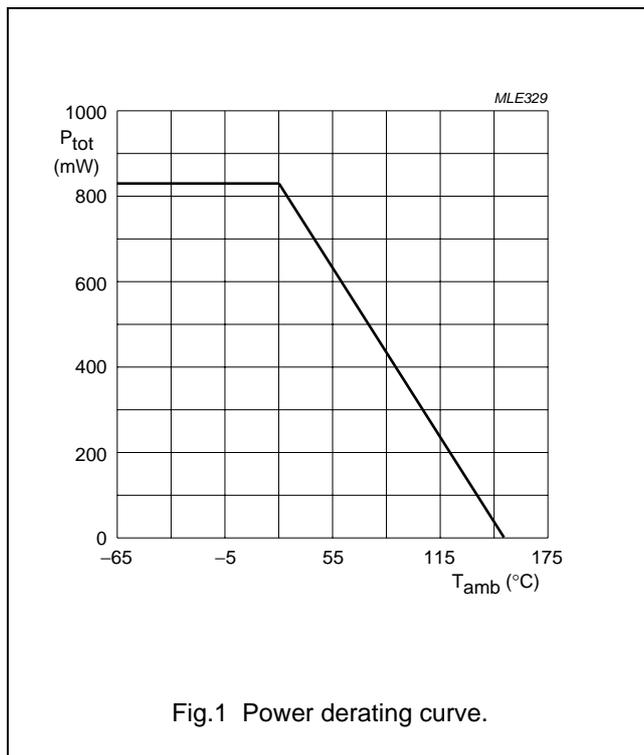
**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CB0</sub>	collector-base voltage	open emitter	–	32	V
V <sub>CEO</sub>	collector-emitter voltage	open base	–	20	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	5	V
I <sub>C</sub>	output current (DC)		–	1	mA
I <sub>CM</sub>	peak collector current		–	2	mA
I <sub>BM</sub>	peak collector current		–	200	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; notes 1 and 2	–	0.83	W
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	ambient temperature		–65	+150	°C

**Notes**

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



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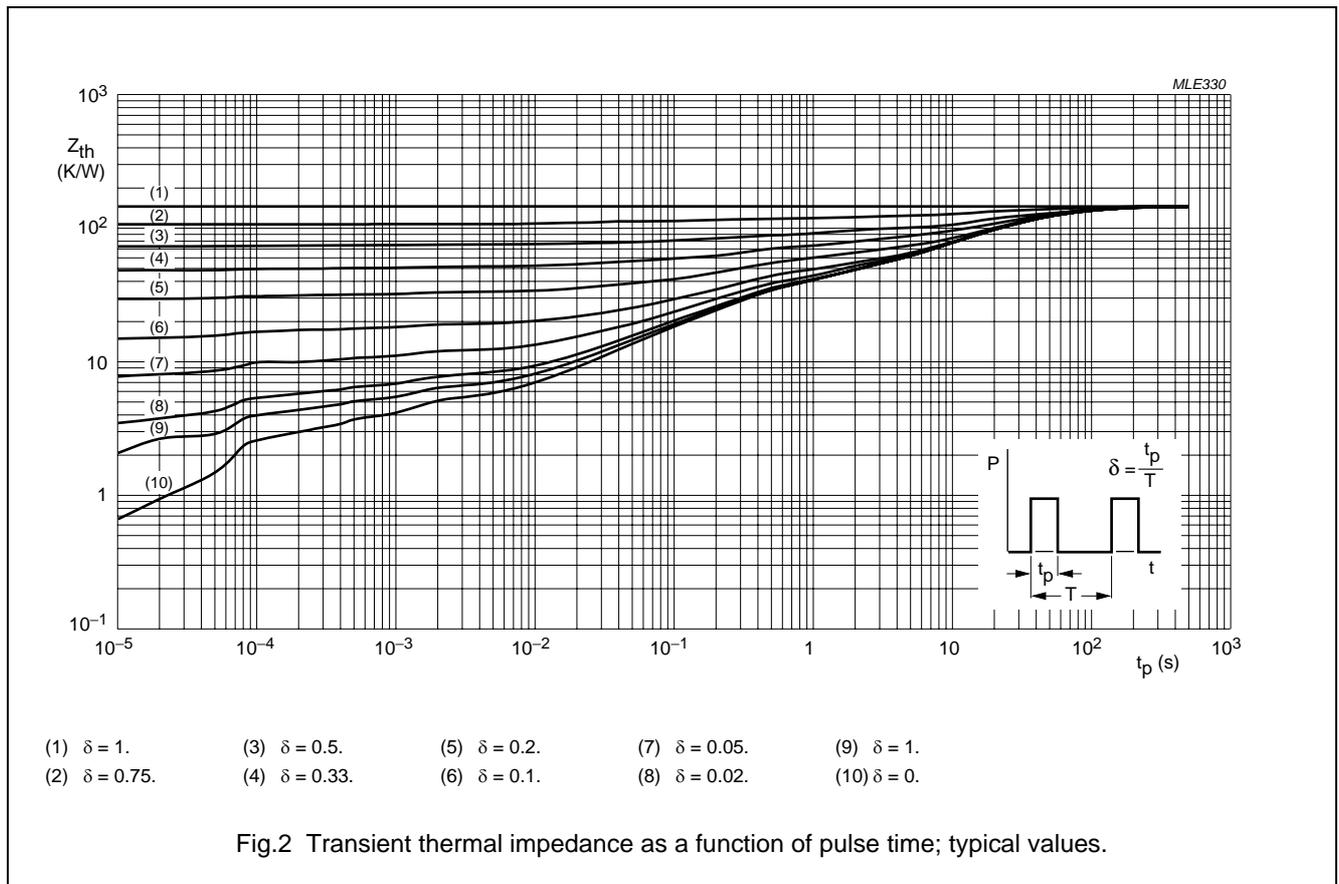
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**THERMAL CHARACTERISTICS**

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 an FR4 printed-circuit board, single-sided copper, tin-plated footprint.



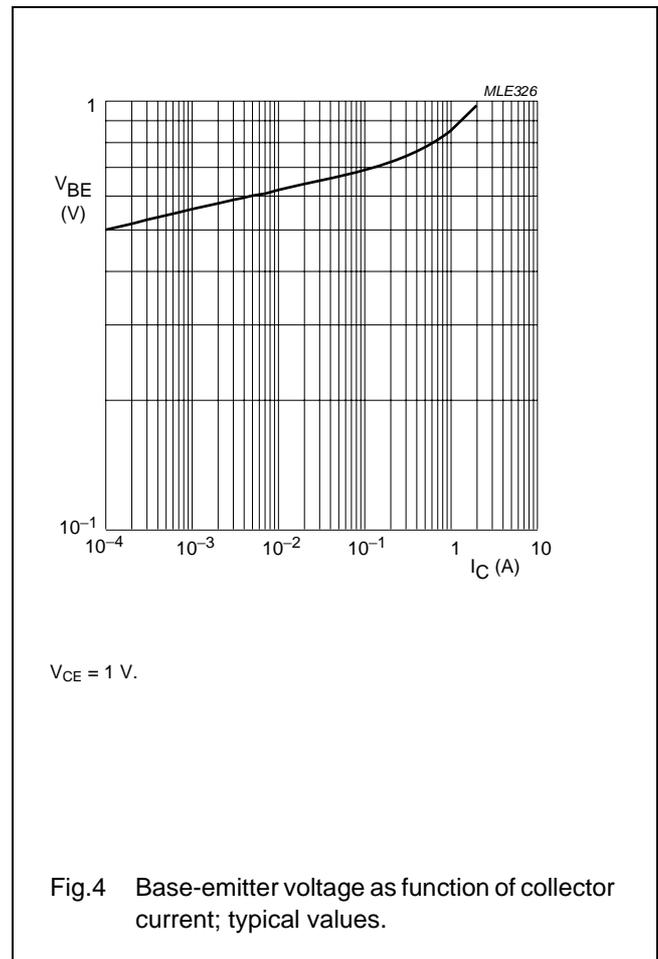
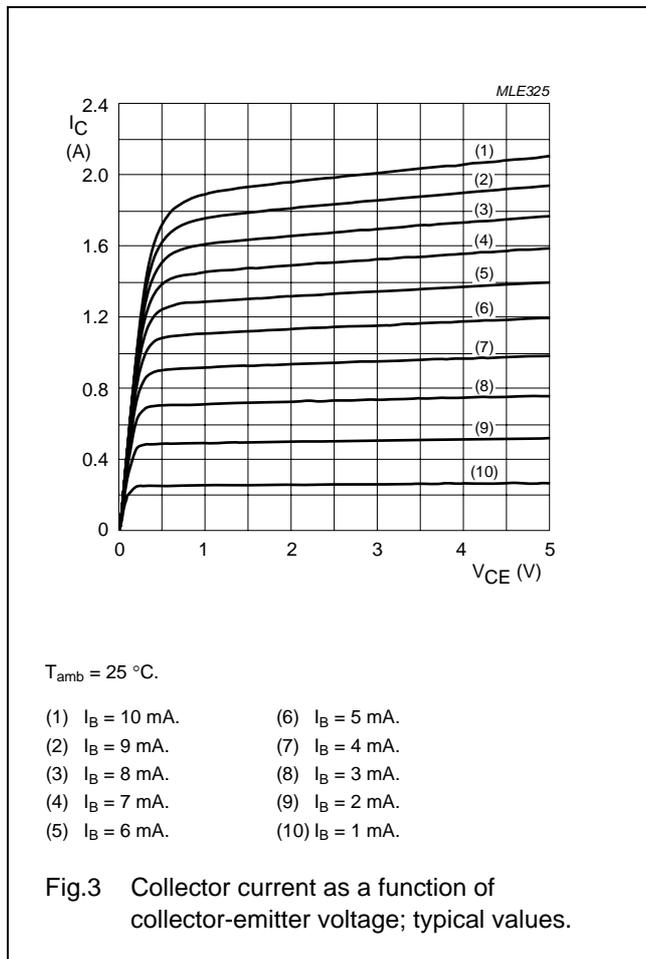
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**CHARACTERISTICS**

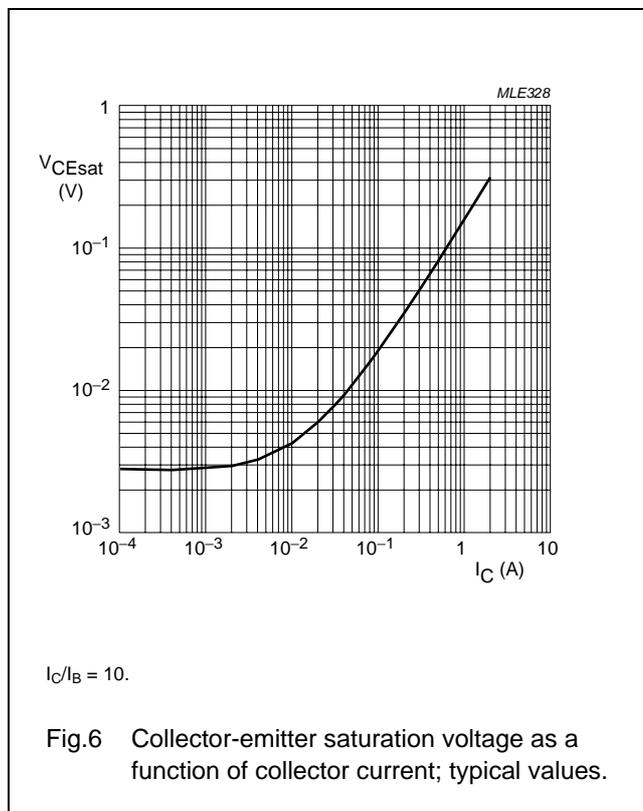
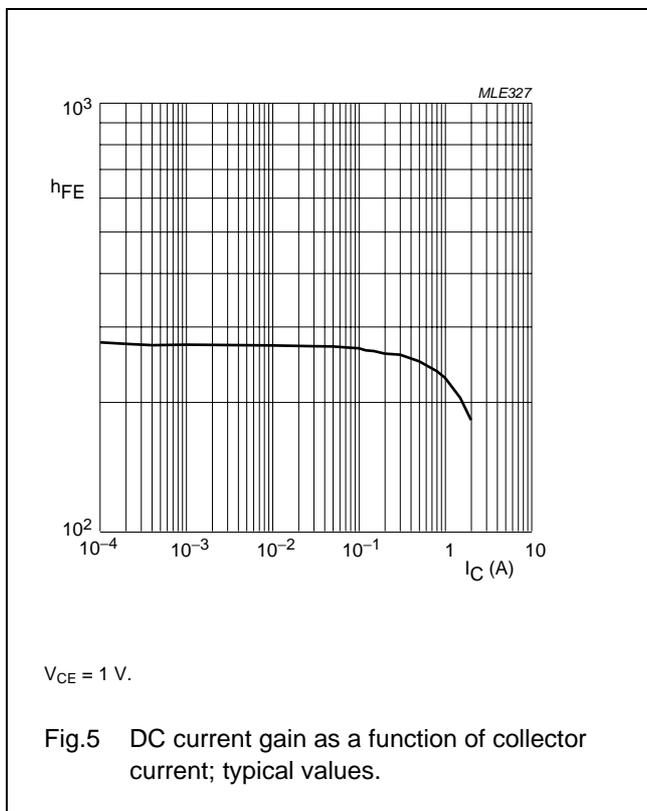
T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I <sub>CBO</sub>	collector-base cut-off current	V <sub>CB</sub> = 25 V; I <sub>E</sub> = 0 A	–	–	100	nA
		V <sub>CB</sub> = 25 V; I <sub>E</sub> = 0 A; T <sub>amb</sub> = 150 °C	–	–	10	μA
I <sub>EBO</sub>	emitter-base cut-off current	V <sub>EB</sub> = 5 V; I <sub>C</sub> = 0 A	–	–	100	nA
h <sub>FE</sub>	DC current gain	V <sub>CE</sub> = 10 V; I <sub>C</sub> = 5 mA	50	–	–	
		V <sub>CE</sub> = 1 V; I <sub>C</sub> = 500 mA	85	–	375	
		V <sub>CE</sub> = 1 V; I <sub>C</sub> = 1 mA	60	–	–	
V <sub>CEsat</sub>	collector-emitter saturation voltage	I <sub>C</sub> = 1 A; I <sub>B</sub> = 100 mA	–	–	500	mV
V <sub>BE</sub>	base-emitter voltage	V <sub>CE</sub> = 10 V; I <sub>C</sub> = 5 mA	–	–	700	mV
		V <sub>CE</sub> = 1 V; I <sub>C</sub> = 1 A	–	–	1	V
C <sub>c</sub>	collector capacitance	V <sub>CB</sub> = 10 V; I <sub>E</sub> = i <sub>e</sub> = 0 A; f = 1 MHz	–	22	–	pF
f <sub>T</sub>	transition frequency	V <sub>CE</sub> = 5 V; I <sub>C</sub> = 50 mA; f = 100 MHz	40	170	–	MHz



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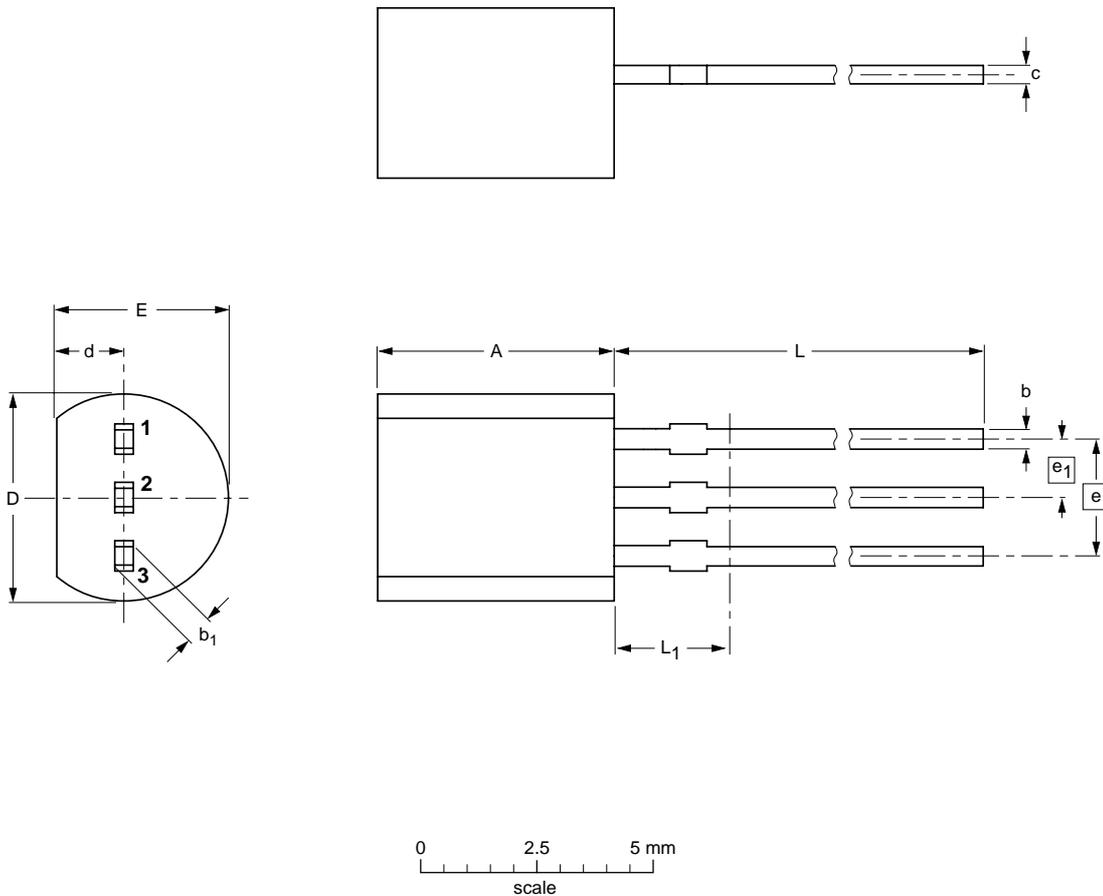
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PACKAGE OUTLINE

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

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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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# ***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.

## **Contact information**

For additional information please visit: <http://www.nxp.com>

For sales offices addresses send e-mail to: [salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)

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