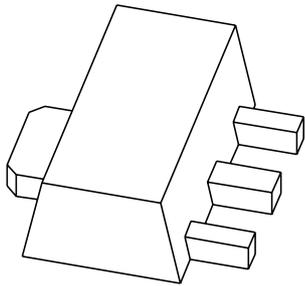


# DATA SHEET



**BC869**

PNP medium power transistor;  
20 V, 1 A

Product data sheet  
Supersedes data of 2003 Dec 02

2004 Nov 08

# PNP medium power transistor; 20 V, 1 A

**BC869**

**FEATURES**

- High current
- Three current gain selections
- 1.2 W total power dissipation.

**APPLICATIONS**

- Linear voltage regulators
- High side switch
- Supply line switch
- 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			
	BC869	85	375	–
	BC869-16	100	250	–
	BC869-25	160	375	–

**DESCRIPTION**

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

**PRODUCT OVERVIEW**

TYPE NUMBER	PACKAGE		MARKING
	PHILIPS	EIAJ	
BC869	SOT89	SC-62	CEC
BC869-16	SOT89	SC-62	CGC
BC869-25	SOT89	SC-62	CHC

**SIMPLIFIED OUTLINE, SYMBOL AND PINNING**

TYPE NUMBER	SIMPLIFIED OUTLINE AND SYMBOL	PINNING	
		PIN	DESCRIPTION
BC869		1 2 3	emitter collector base

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**ORDERING INFORMATION**

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BC869	SC-62	plastic surface mounted package; collector pad for good heat transfer; 3 leads	SOT89
BC869-16			
BC869-25			

**LIMITING VALUES**

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

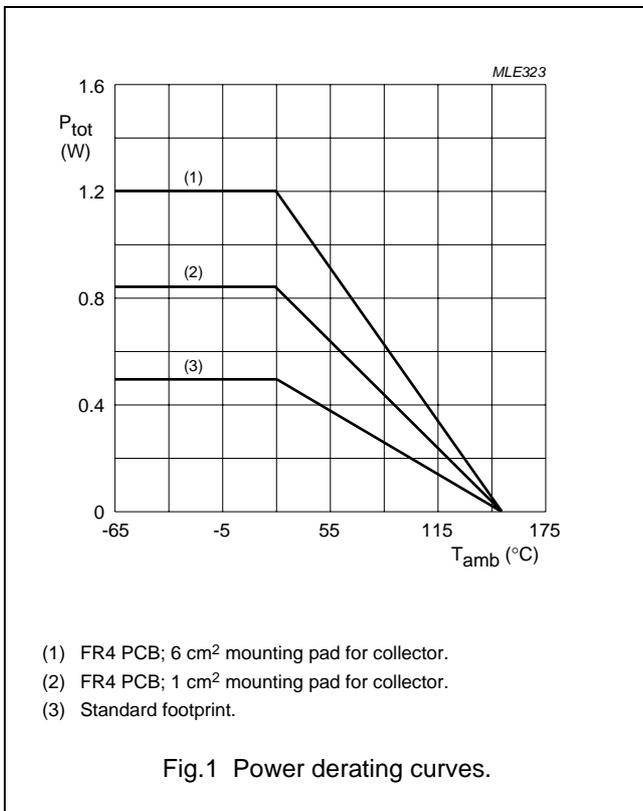
SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	–32	V
$V_{CEO}$	collector-emitter voltage	open base	–	–20	V
$V_{EBO}$	emitter-base voltage	open collector	–	–5	V
$I_C$	collector current (DC)		–	–1	A
$I_{CM}$	peak collector current		–	–2	A
$I_{BM}$	peak base current		–	–200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$			
		notes 1 and 2	–	0.5	W
		notes 1 and 3	–	0.85	W
		notes 1 and 4	–	1.2	W
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	ambient temperature		–65	+150	°C

**Notes**

1. Refer to SOT89 standard mounting conditions.
2. Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated footprint.
3. Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 1 cm<sup>2</sup>.
4. Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 6 cm<sup>2</sup>.

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**THERMAL CHARACTERISTICS**

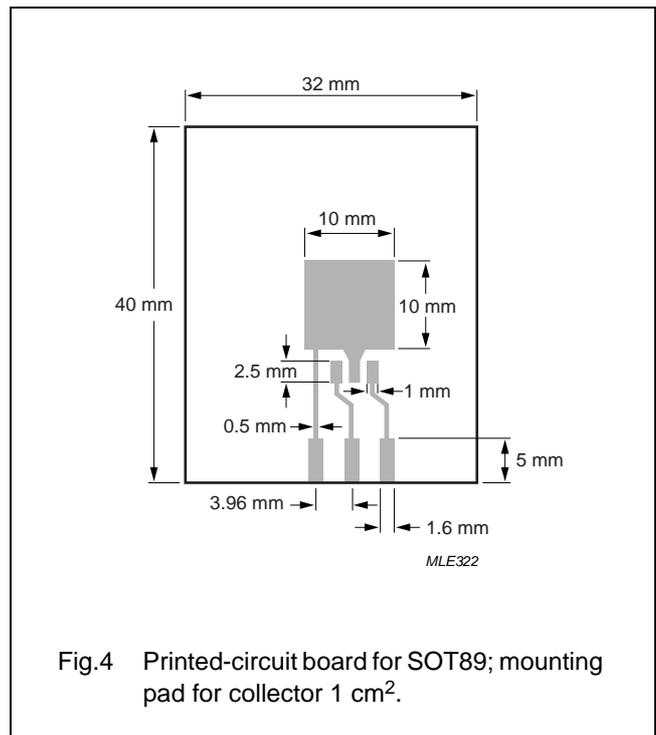
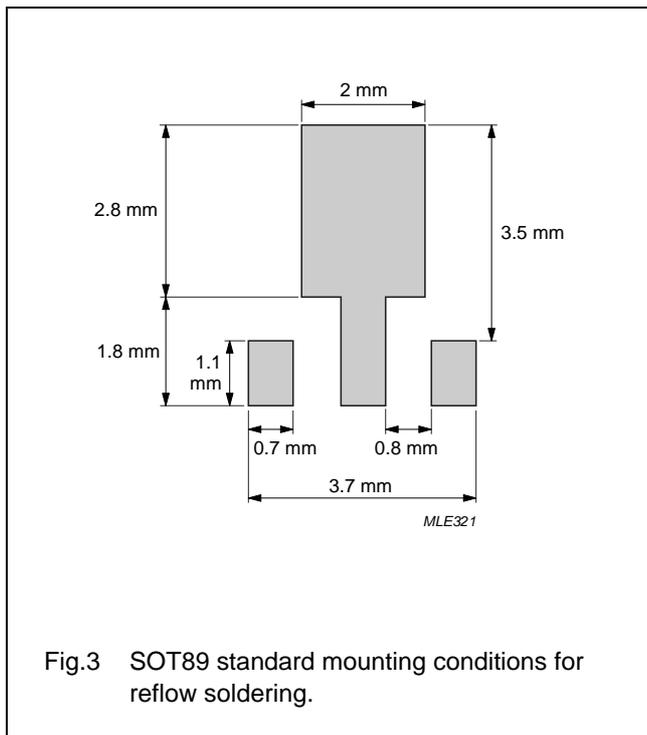
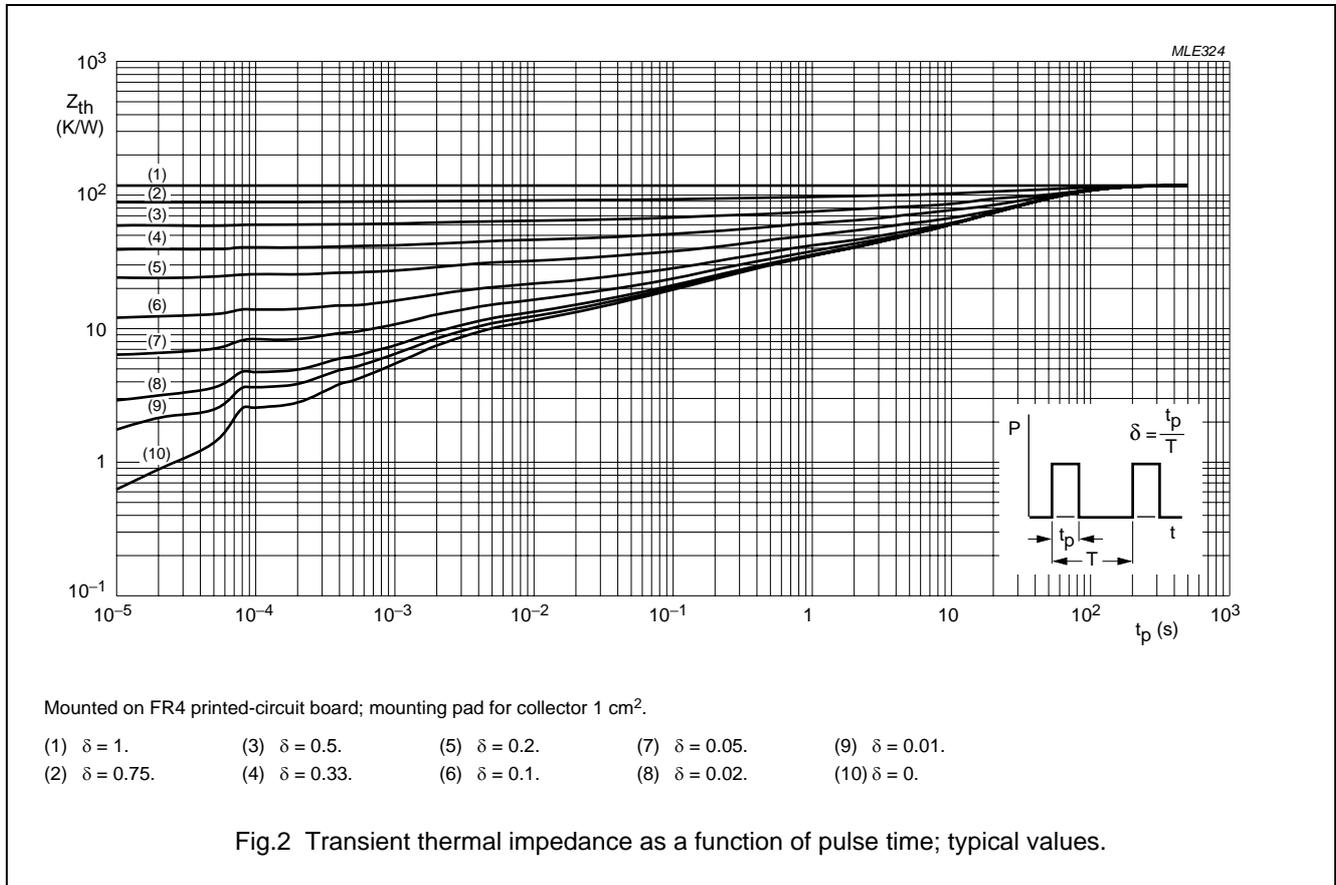
SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th(j-a)</sub>	thermal resistance from junction to ambient	T <sub>amb</sub> ≤ 25 °C		
		notes 1 and 2	250	K/W
		notes 1 and 3	147	K/W
		notes 1 and 4	104	K/W
R <sub>th(j-s)</sub>	thermal resistance from junction to solder point	T <sub>amb</sub> ≤ 25 °C	20	K/W

**Notes**

1. Refer to SOT89 standard mounting conditions.
2. Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated footprint.
3. Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 1 cm<sup>2</sup>.
4. Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 6 cm<sup>2</sup>.

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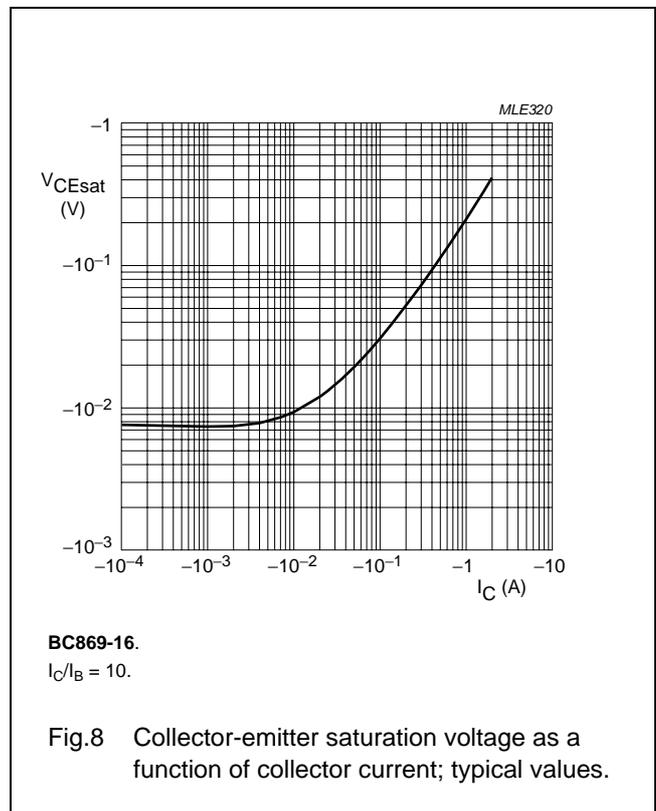
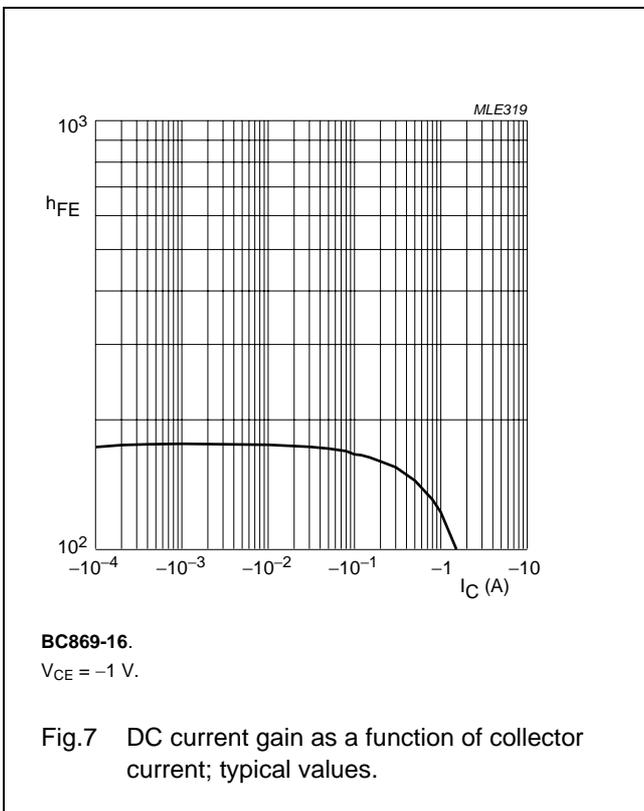
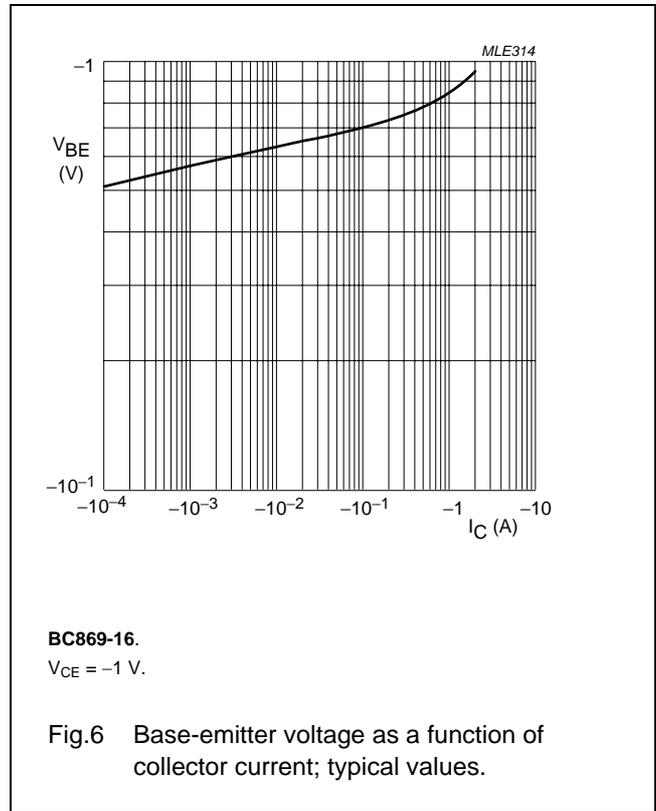
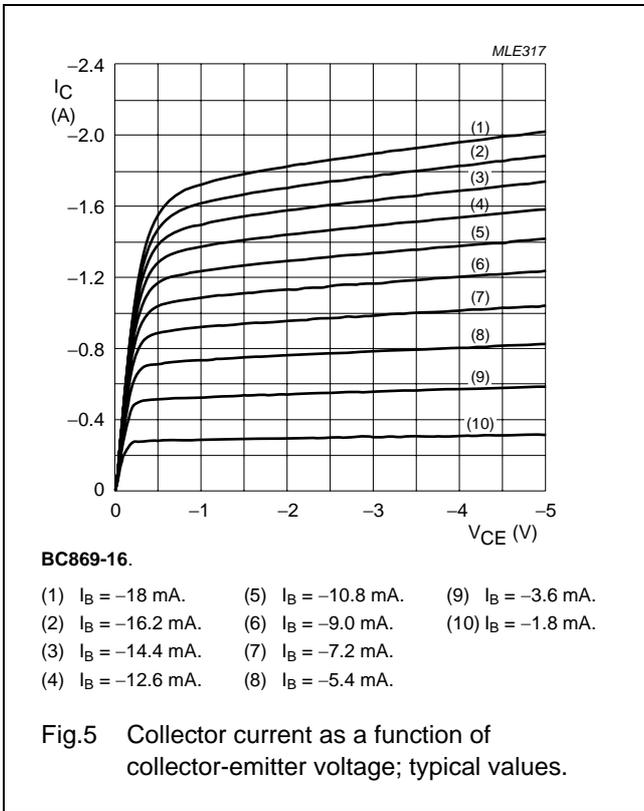
BC869

**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	-	-	-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	BC869				
		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 A	60	-	-	
		BC869-16				
V <sub>CE</sub> = -1 V; I <sub>C</sub> = -500 mA	100	-	250			
BC869-25						
V <sub>CE</sub> = -1 V; I <sub>C</sub> = -500 mA	160	-	375			
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	I <sub>E</sub> = i <sub>e</sub> = 0 A; V <sub>CB</sub> = -10 V; f = 1 MHz	-	28	-	pF
f <sub>T</sub>	transition frequency	V <sub>CE</sub> = -5 V; I <sub>C</sub> = -50 mA; f = 100 MHz	40	140	-	MHz

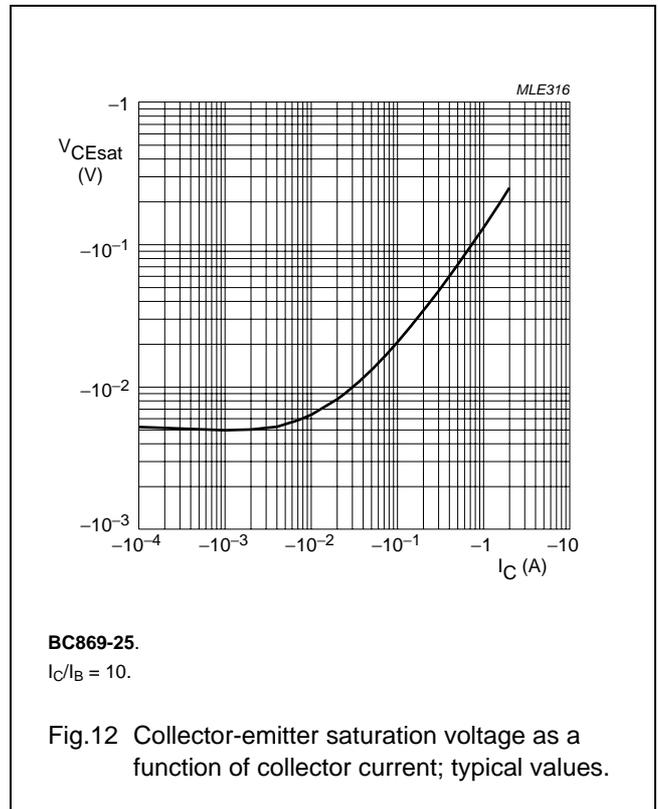
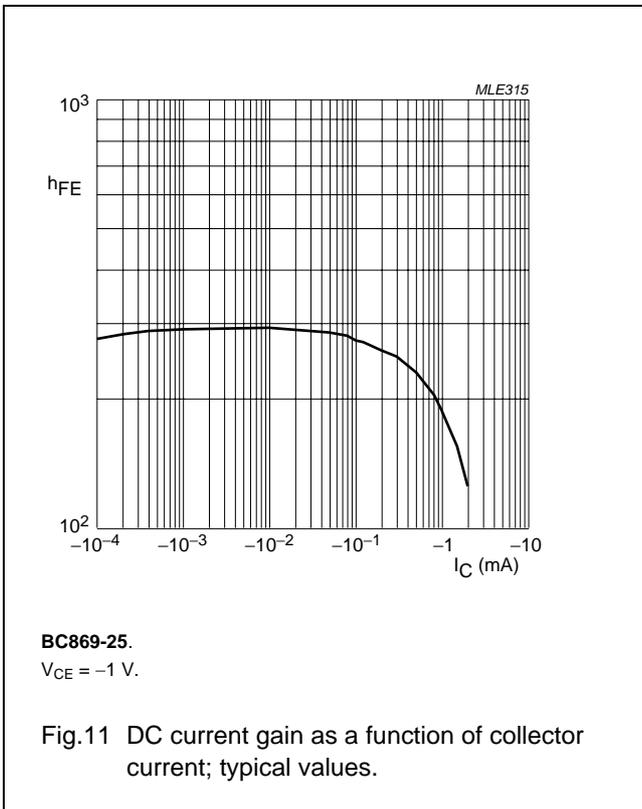
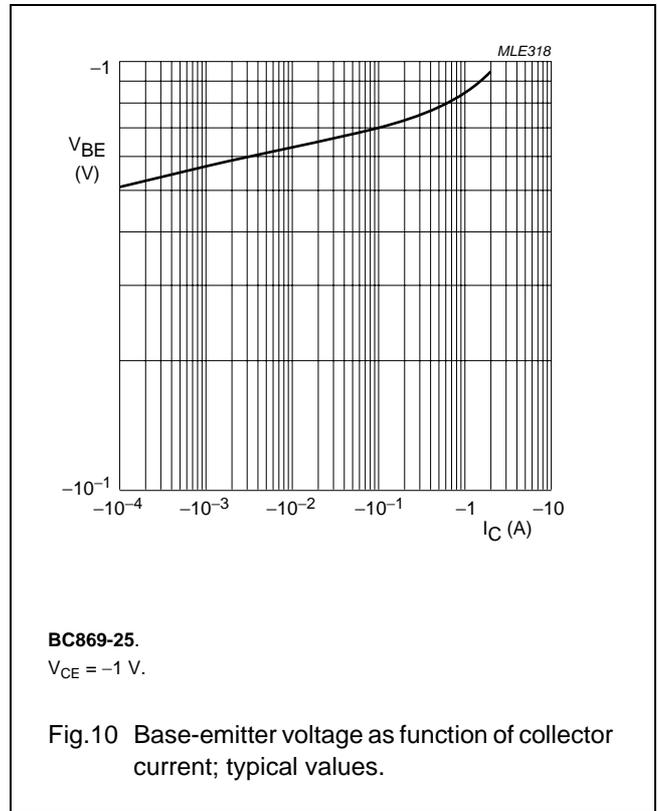
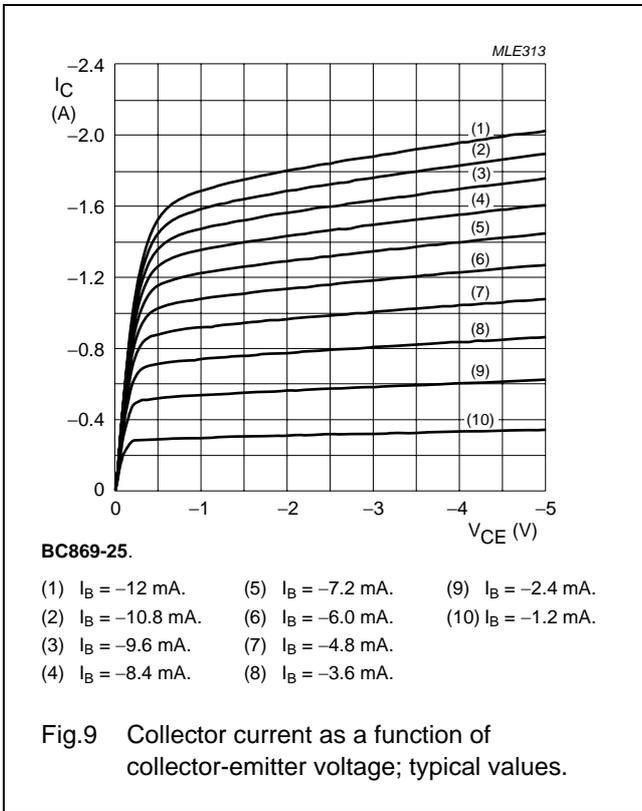
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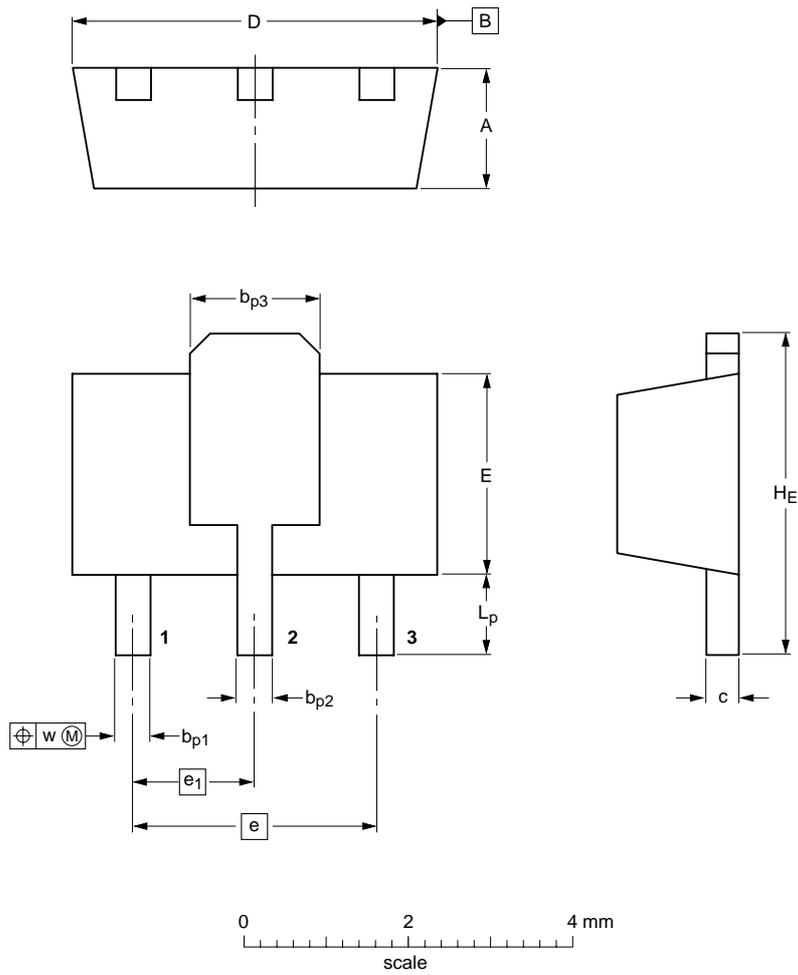
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PACKAGE OUTLINE

Plastic surface-mounted package; collector pad for good heat transfer; 3 leads

SOT89



DIMENSIONS (mm are the original dimensions)

UNIT	A	$b_{p1}$	$b_{p2}$	$b_{p3}$	c	D	E	e	$e_1$	$H_E$	$L_p$	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT89		TO-243	SC-62			04-08-03 06-03-16

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**DATA SHEET STATUS**

<b>DOCUMENT STATUS<sup>(1)</sup></b>	<b>PRODUCT STATUS<sup>(2)</sup></b>	<b>DEFINITION</b>
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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## **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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