

# DATA SHEET

## **BFQ151** PNP video transistor

Product specification  
File under Discrete Semiconductors, SC05

1997 Sep 19

# PNP video transistor

# BFQ151

### FEATURES

- High gain bandwidth
- Good thermal stability
- Gold metallization ensures excellent reliability.

### APPLICATIONS

- Pre-stage driver between video amplifier and video module.

### DESCRIPTION

PNP video transistor in a SOT54 plastic package.

### PINNING

PIN	DESCRIPTION
1	base
2	collector
3	emitter

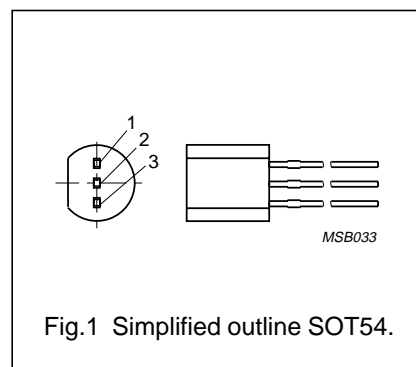


Fig.1 Simplified outline SOT54.

### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	–20	V
$I_C$	collector current (DC)		–	–100	mA
$P_{tot}$	total power dissipation	$T_s \leq 60\text{ °C}$	–	1.25	W
$f_T$	transition frequency	$I_C = -70\text{ mA}; V_{CE} = -10\text{ V}$	3.5	–	GHz
$C_{re}$	feedback capacitance	$I_C = 0; V_{CB} = -10\text{ V}$	1.8	–	pF
$T_j$	junction temperature		–	175	°C

### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	–20	V
$V_{CEO}$	collector-emitter voltage	open base	–	–15	V
$V_{EBO}$	emitter-base voltage	open collector	–	–3	V
$I_C$	collector current (DC)		–	–100	mA
$P_{tot}$	total power dissipation	$T_s \leq 60\text{ °C}; \text{note 1; see Fig.2}$	–	1.25	W
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	175	°C

### Note

1.  $T_s$  is the temperature at the soldering point of the collector pin.

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**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	$T_s \leq 60\text{ }^\circ\text{C}$ ; note 1	90	K/W

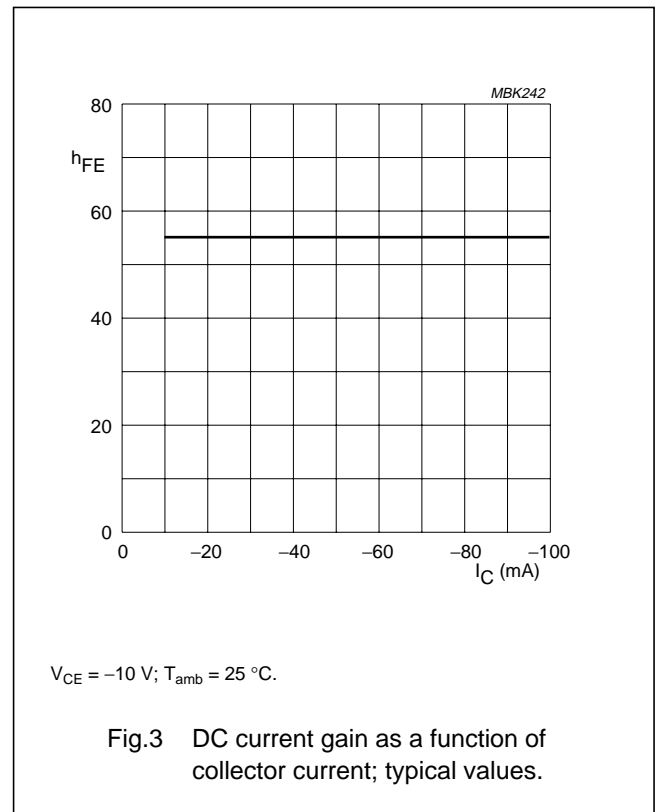
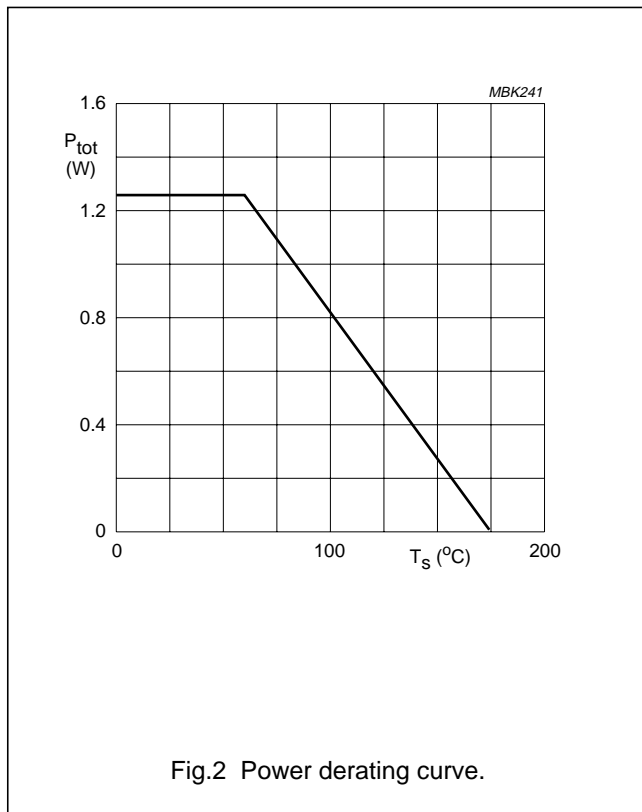
**Note**

- $T_s$  is the temperature of the soldering point of the collector pin.

**CHARACTERISTICS**

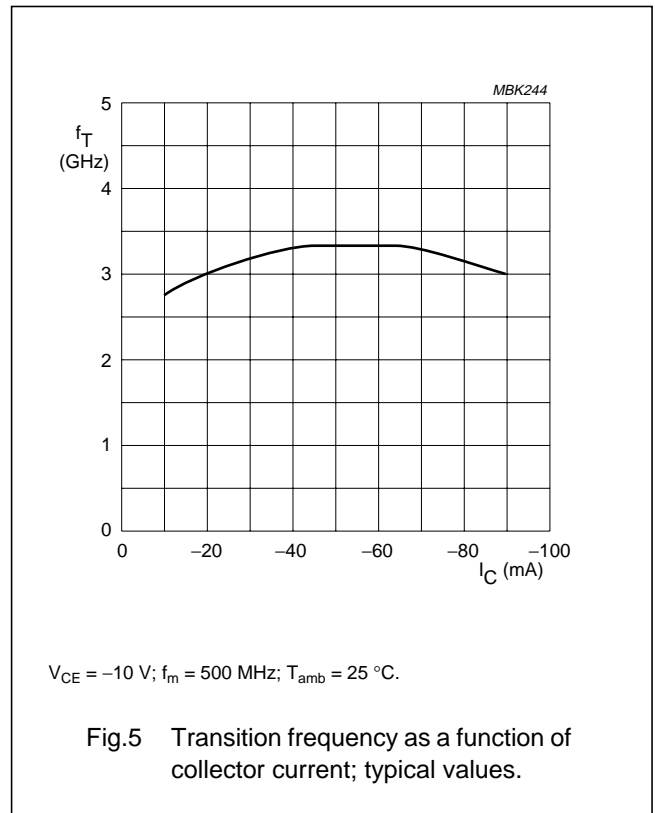
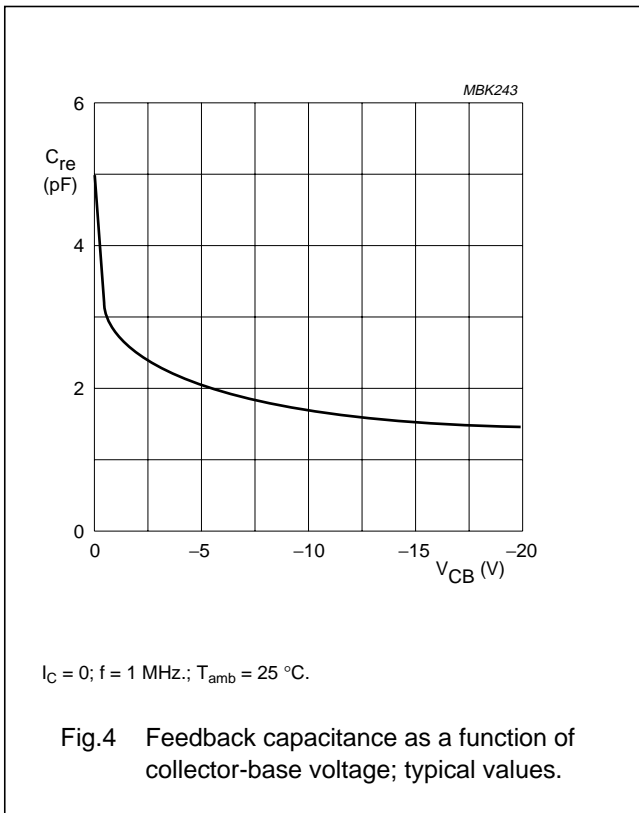
$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = -0.1\text{ mA}$ ; $I_E = 0$	-20	-	-	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	$I_C = -10\text{ mA}$ ; $I_B = 0$	-15	-	-	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	$I_C = 0$ ; $I_E = -0.1\text{ mA}$	-3	-	-	V
$I_{CBO}$	collector-base leakage current	$V_{CB} = -10\text{ V}$ ; $I_E = 0$	-	-	-1	$\mu\text{A}$
$h_{FE}$	DC current gain	$I_C = -70\text{ mA}$ ; $V_{CE} = -10\text{ V}$ ; see Fig.3	25	-	-	
$f_T$	transition frequency	$I_C = -70\text{ mA}$ ; $V_{CE} = -10\text{ V}$ ; $f_m = 500\text{ MHz}$ ; $T_{amb} = 25\text{ }^\circ\text{C}$ ; see Fig.5	-	3.5	-	GHz
$C_{re}$	feedback capacitance	$I_C = 0$ ; $V_{CB} = -10\text{ V}$ ; $f = 1\text{ MHz}$ ; see Fig.4	-	1.8	-	pF



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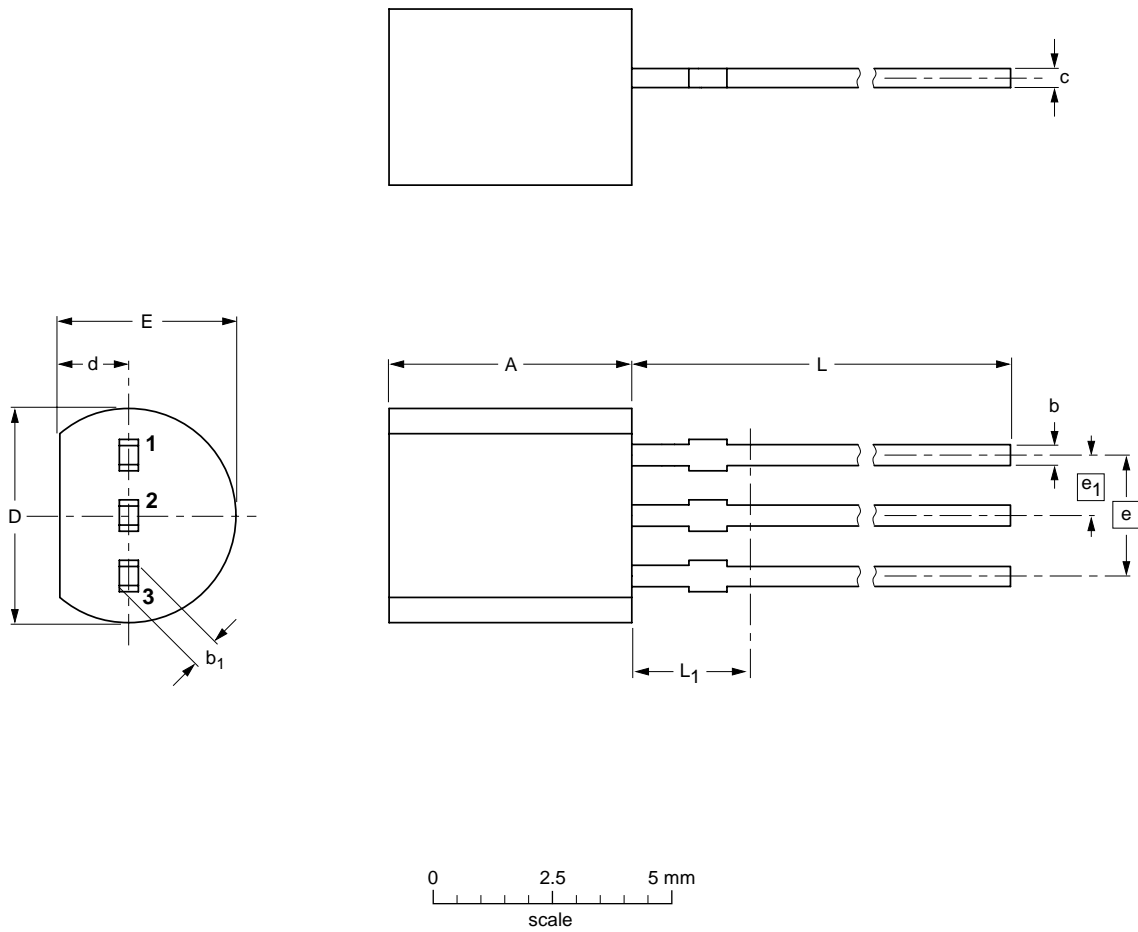
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PACKAGE OUTLINE

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>
mm	5.2 5.0	0.48 0.40	0.66 0.56	0.45 0.40	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	EIAJ		
SOT54		TO-92	SC-43		97-02-28

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**DEFINITIONS**

<b>Data Sheet Status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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