

# DATA SHEET

## **BFQ252; BFQ252A** PNP video transistors

Product specification  
Supersedes data of November 1995  
File under Discrete Semiconductors, SC05

1997 Oct 02

## PNP video transistors

## BFQ252; BFQ252A

## FEATURES

- High breakdown voltages
- Low output capacitance
- Optimum temperature profile
- Excellent reliability properties.

## APPLICATIONS

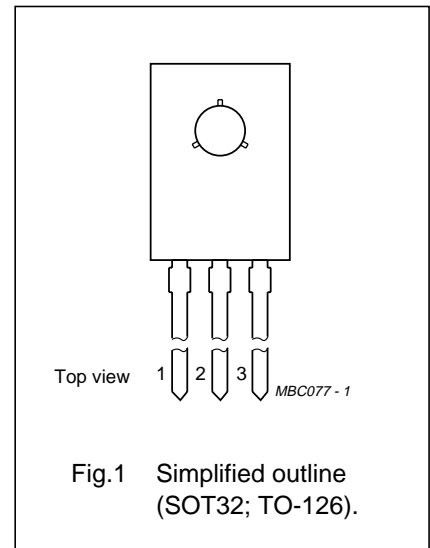
- Buffer/driver in high-resolution colour graphics monitors.

## DESCRIPTION

PNP video transistor in a SOT32 (TO-126) plastic package.  
NPN complements: BFQ232 and BFQ232A.

## PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base



## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter				
	BFQ252		–	–	–100	V
	BFQ252A		–	–	–115	V
$V_{CER}$	collector-emitter voltage	$R_{BE} = 100 \Omega$				
	BFQ252		–	–	–95	V
	BFQ252A		–	–	–110	V
$I_C$	collector current (DC)		–	–	–300	mA
$P_{tot}$	total power dissipation	$T_s \leq 115 \text{ }^\circ\text{C}$ ; note 1	–	–	3	W
$h_{FE}$	DC current gain	$I_C = -50 \text{ mA}$ ; $V_{CE} = -10 \text{ V}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$	20	30	–	
$f_T$	transition frequency	$I_C = -50 \text{ mA}$ ; $V_{CE} = -10 \text{ V}$ ; $f = 100 \text{ MHz}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$				
	BFQ252		1	1.3	–	GHz
	BFQ252A		0.8	1.2	–	GHz

## Note

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

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**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BFQ252		–	–100	V
	BFQ252A		–	–115	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BFQ252		–	–65	V
	BFQ252A		–	–95	V
V <sub>CER</sub>	collector-emitter voltage	R <sub>BE</sub> = 100 Ω			
	BFQ252		–	–95	V
	BFQ252A		–	–110	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	–3	V
I <sub>C</sub>	collector current (DC)		–	–300	mA
P <sub>tot</sub>	total power dissipation	T <sub>s</sub> ≤ 115 °C; note 1; see Fig.3	–	3	W
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	175	°C

**Note**

1. T<sub>s</sub> is the temperature at the soldering point of the collector pin.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-s</sub>	thermal resistance from junction to soldering point	T <sub>s</sub> ≤ 115 °C; note 1	20	K/W

**Note**

1. T<sub>s</sub> is the temperature at the soldering point of the collector pin.

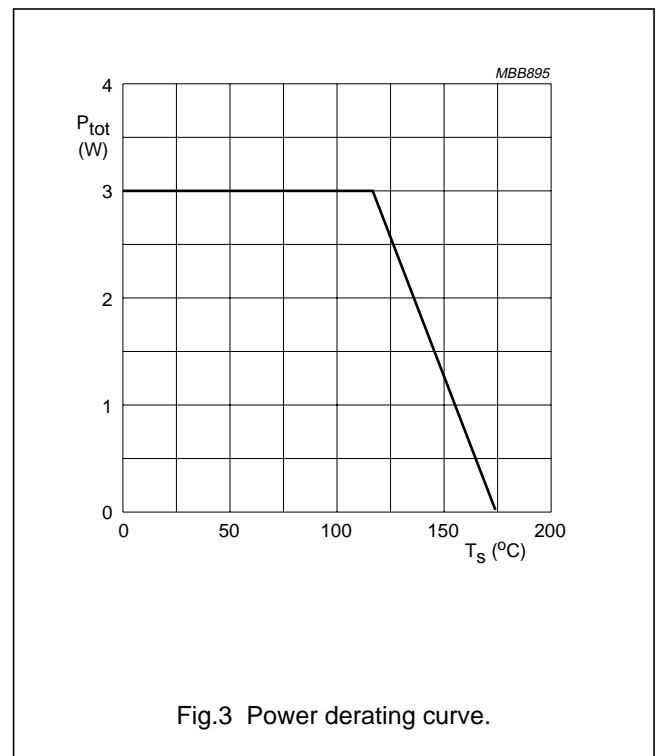
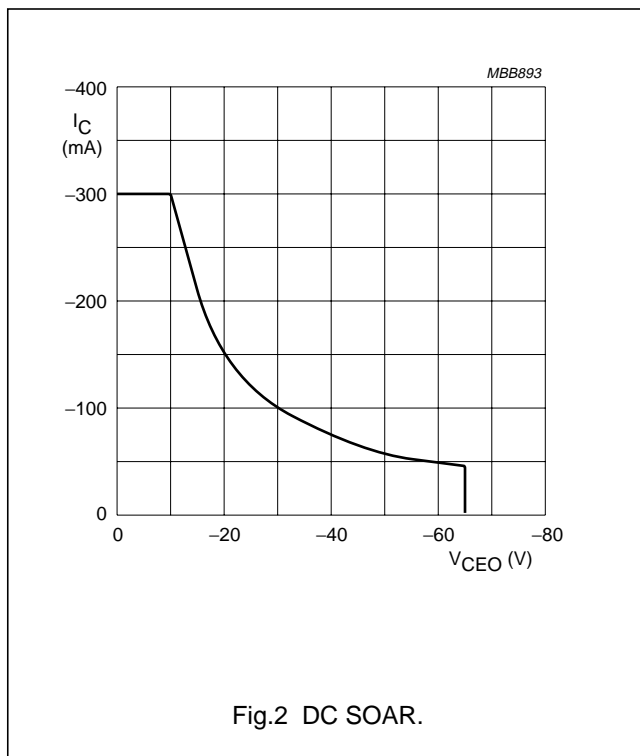
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**CHARACTERISTICS**

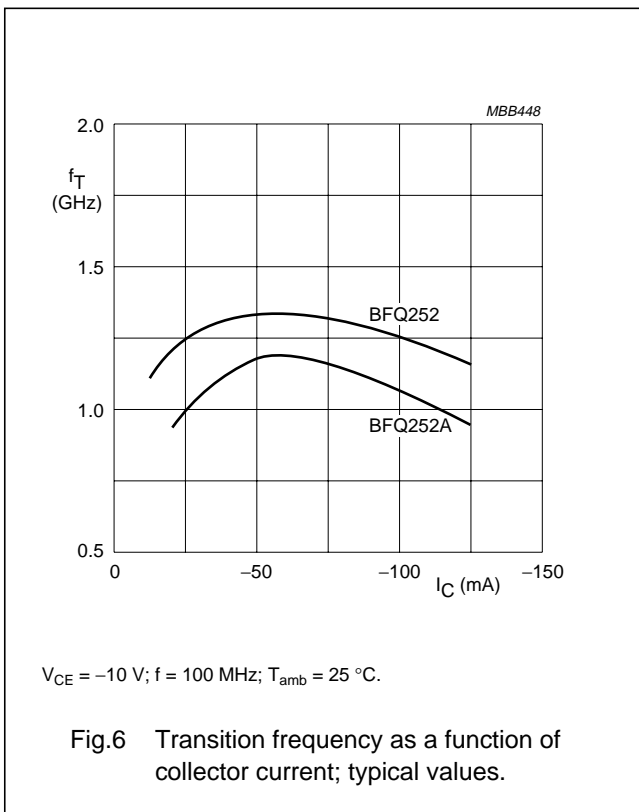
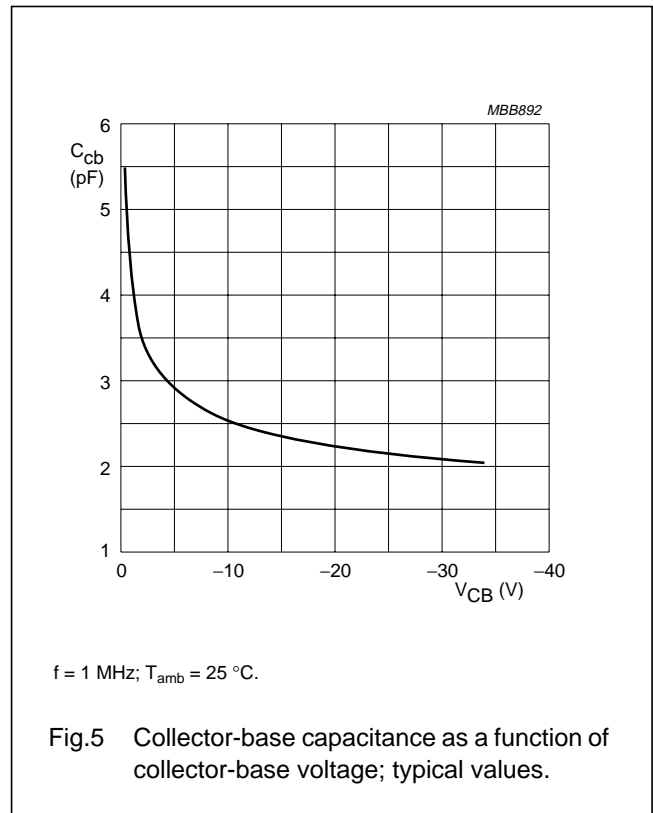
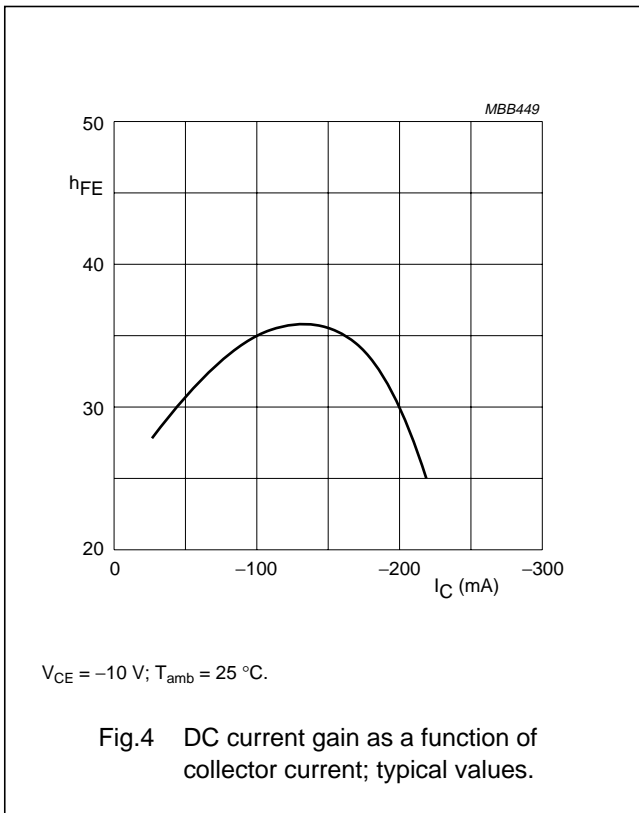
$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage BFQ252 BFQ252A	$I_C = -0.1\text{ mA}; I_E = 0$	-100	-	-	V
			-115	-	-	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage BFQ252 BFQ252A	$I_C = -10\text{ mA}; I_B = 0$	-65	-	-	V
			-95	-	-	V
$V_{(BR)CER}$	collector-emitter breakdown voltage BFQ252 BFQ252A	$I_C = -10\text{ mA}; R_{BE} = 100\ \Omega$	-95	-	-	V
			-110	-	-	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	$I_E = -0.1\text{ mA}; I_C = 0$	-3	-	-	V
$I_{CES}$	collector-emitter cut-off current	$I_B = 0; V_{CE} = -50\text{ V}$	-	-	-100	$\mu\text{A}$
$I_{CBO}$	collector-base cut-off current	$I_E = 0; V_{CB} = -50\text{ V}$	-	-	-20	$\mu\text{A}$
$h_{FE}$	DC current gain	$I_C = -50\text{ mA}; V_{CE} = -10\text{ V};$ $T_{amb} = 25\text{ }^\circ\text{C};$ see Fig.4	20	30	-	
$C_{cb}$	collector-base capacitance	$I_C = i_c = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz};$ $T_{amb} = 25\text{ }^\circ\text{C};$ see Fig.5	-	2.5	-	pF
$f_T$	transition frequency BFQ252 BFQ252A	$I_C = -50\text{ mA}; V_{CE} = -10\text{ V};$ $f = 100\text{ MHz}; T_{amb} = 25\text{ }^\circ\text{C};$ see Fig.6	1	1.3	-	GHz
			0.8	1.2	-	GHz



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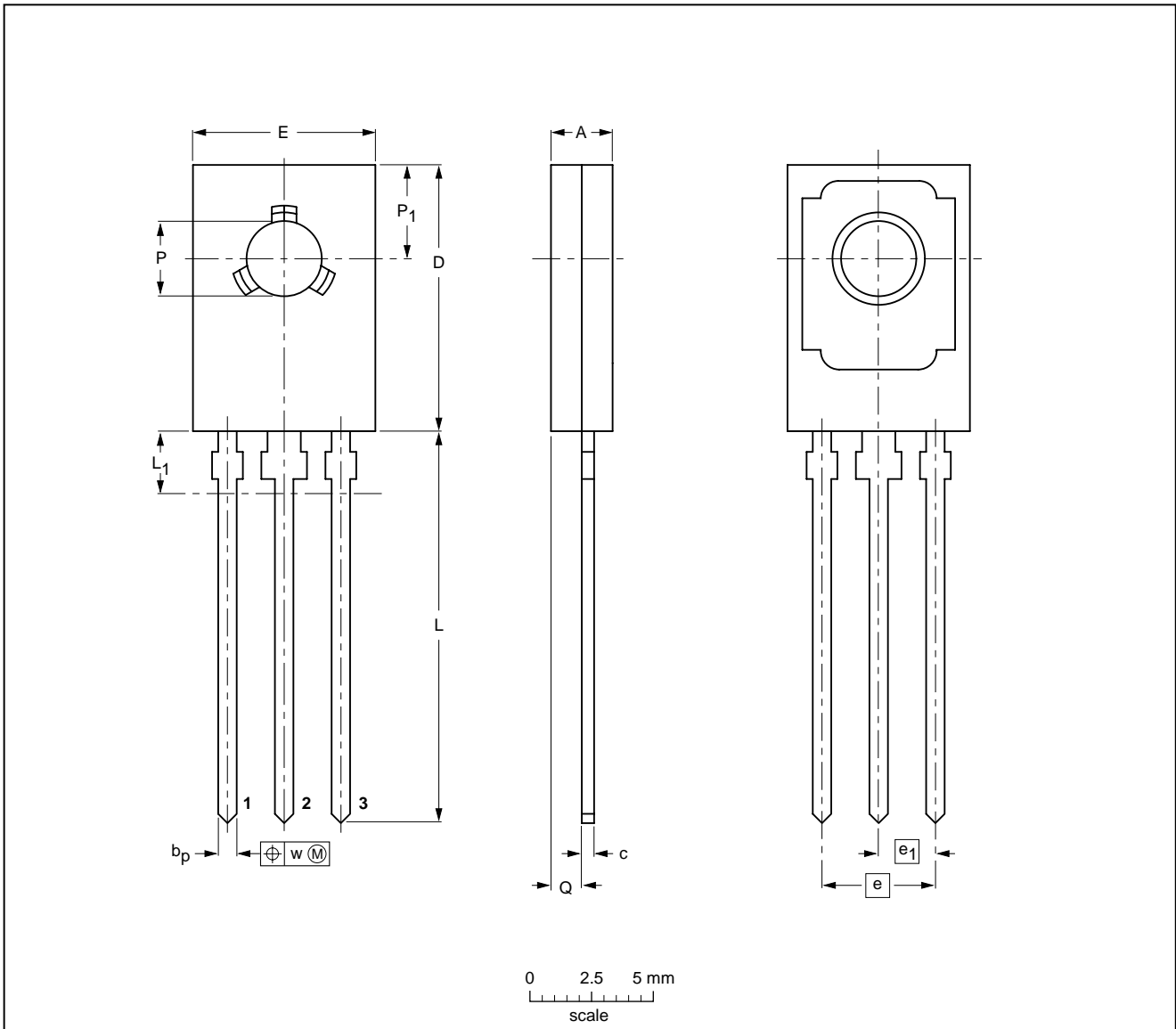


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PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; mountable to heatsink, 1 mounting hole; 3 leads SOT32



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup> max	Q	P	P <sub>1</sub>	w
mm	2.7 2.3	0.88 0.65	0.60 0.45	11.1 10.5	7.8 7.2	4.58	2.29	16.5 15.3	2.54	1.5 0.9	3.2 3.0	3.9 3.6	0.254

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			
SOT32		TO-126				97-03-04

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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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