

# DATA SHEET

## **BFQ232; BFQ232A** NPN video transistors

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

1997 Oct 02

**NPN video transistors**

**BFQ232; BFQ232A**

**FEATURES**

- High breakdown voltages
- Low output capacitance
- Good thermal stability
- Gold metallization ensures excellent reliability.

**APPLICATIONS**

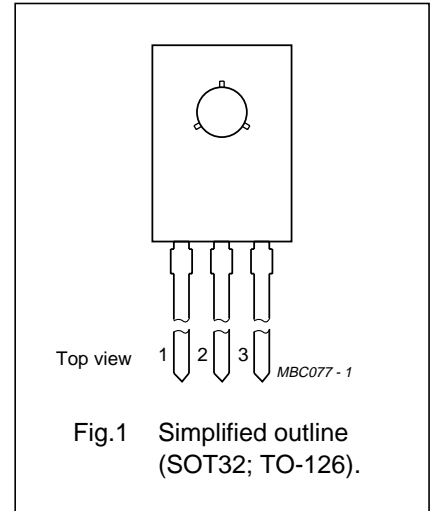
- Buffer/driver in high-resolution colour graphics monitors.

**DESCRIPTION**

NPN video transistor in a SOT32 (TO-126) plastic package. PNP complements: BFQ252 and BFQ252A.

**PINNING**

PIN	DESCRIPTION
1	emitter
2	collector
3	base



**QUICK REFERENCE DATA**

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage BFQ232 BFQ232A	open emitter	–	–	100	V
			–	–	115	V
V <sub>CER</sub>	collector-emitter voltage BFQ232 BFQ232A	R <sub>BE</sub> = 100 Ω	–	–	95	V
			–	–	110	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
h <sub>FE</sub>	DC current gain	I <sub>C</sub> = 50 mA; V <sub>CE</sub> = 10 V; T <sub>amb</sub> = 25 °C	20	35	–	
f <sub>T</sub>	transition frequency BFQ232 BFQ232A	I <sub>C</sub> = 50 mA; V <sub>CE</sub> = 10 V; f = 100 MHz; T <sub>amb</sub> = 25 °C	1	1.4	–	GHz
			0.8	1.2	–	GHz

**Note**

1. T<sub>s</sub> 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			
	BFQ232		–	100	V
	BFQ232A		–	115	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BFQ232		–	65	V
	BFQ232A		–	95	V
V <sub>CER</sub>	collector-emitter voltage	R <sub>BE</sub> = 100 Ω			
	BFQ232		–	95	V
	BFQ232A		–	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	+175	°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.

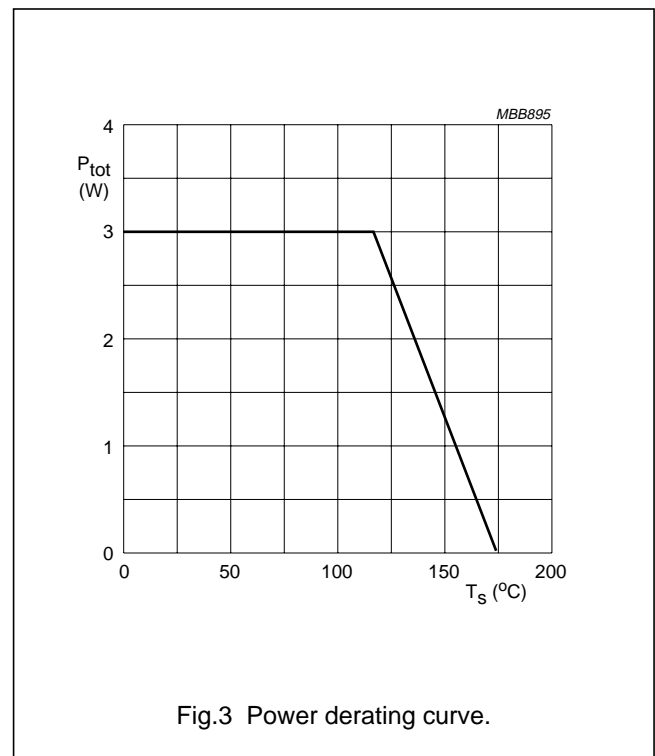
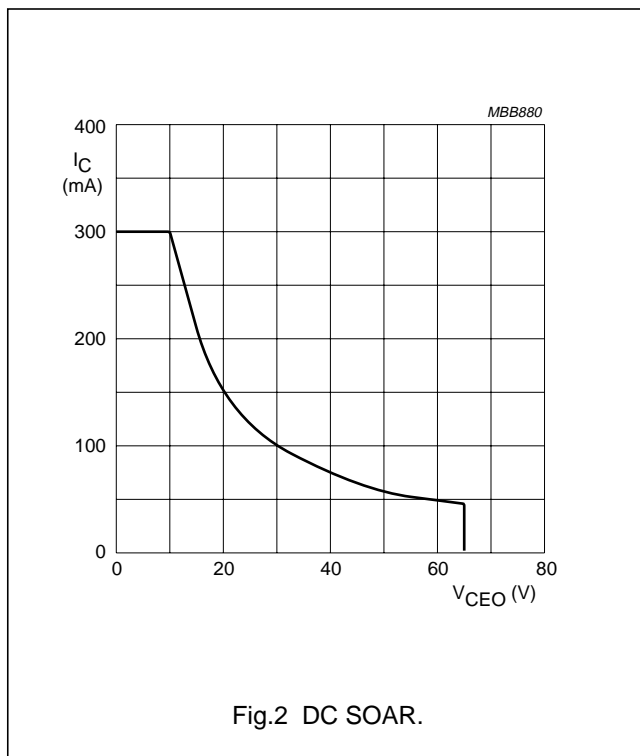
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**CHARACTERISTICS**

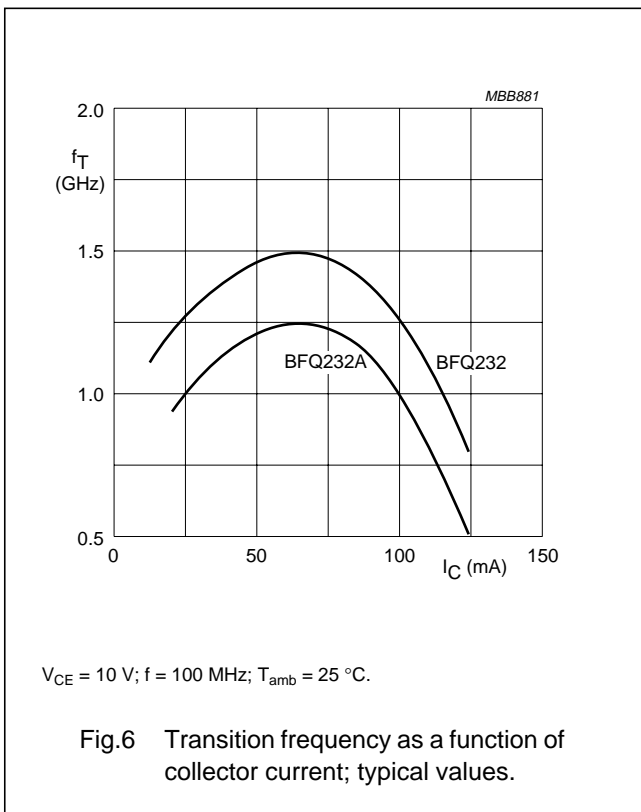
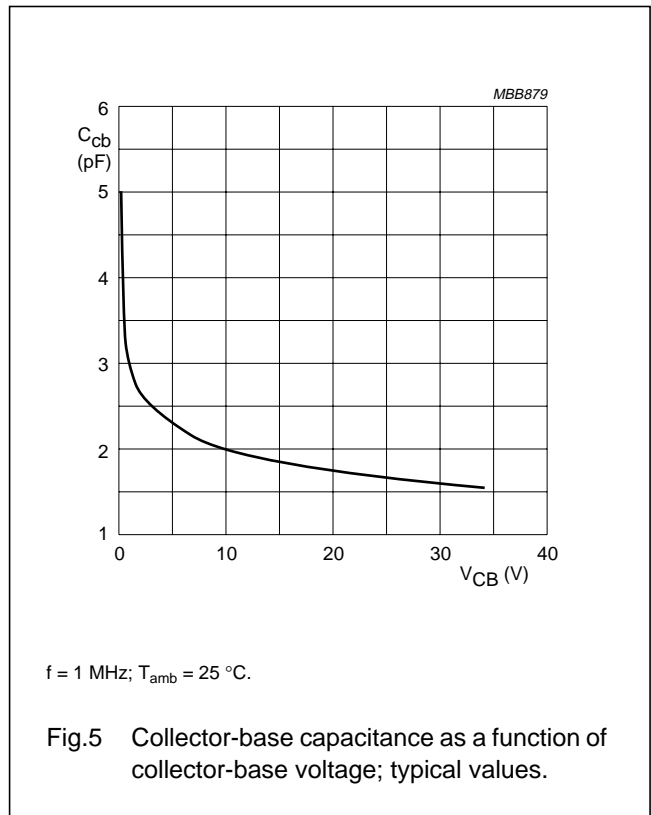
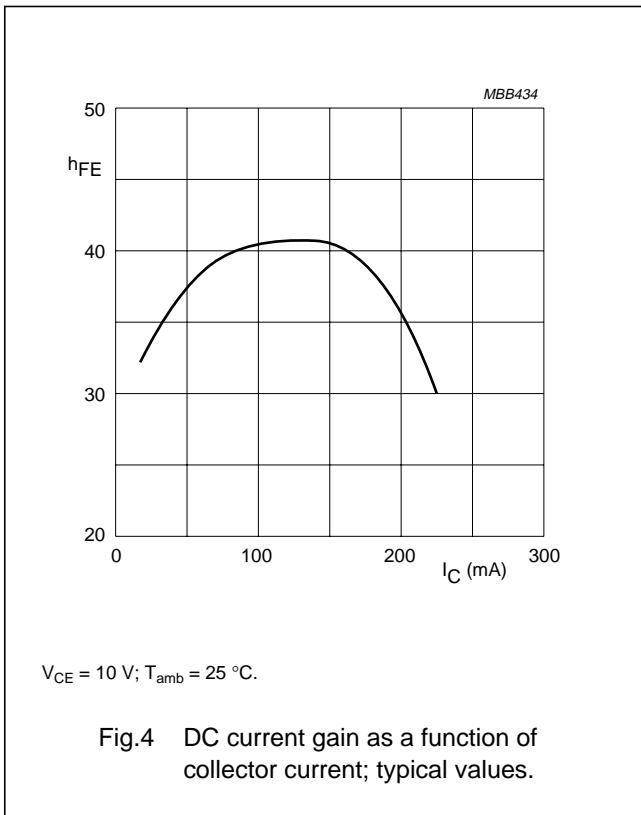
T<sub>j</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V <sub>(BR)CBO</sub>	collector-base breakdown voltage BFQ232 BFQ232A	I <sub>C</sub> = 0.1 mA; I <sub>E</sub> = 0	100	–	–	V
			115	–	–	V
V <sub>(BR)CEO</sub>	collector-emitter breakdown voltage BFQ232 BFQ232A	I <sub>C</sub> = 10 mA; I <sub>B</sub> = 0	65	–	–	V
			95	–	–	V
V <sub>(BR)CER</sub>	collector-emitter breakdown voltage BFQ232 BFQ232A	I <sub>C</sub> = 10 mA; R <sub>BE</sub> = 100 Ω	95	–	–	V
			110	–	–	V
V <sub>(BR)EBO</sub>	emitter-base breakdown voltage	I <sub>E</sub> = 0.1 mA; I <sub>C</sub> = 0	3	–	–	V
I <sub>CES</sub>	collector-emitter cut-off current	I <sub>B</sub> = 0; V <sub>CE</sub> = 50 V	–	–	100	μA
I <sub>CBO</sub>	collector-base cut-off current	I <sub>E</sub> = 0; V <sub>CB</sub> = 50 V	–	–	20	μA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> = 50 mA; V <sub>CE</sub> = 10 V; T <sub>amb</sub> = 25 °C; see Fig.4	20	35	–	
f <sub>T</sub>	transition frequency BFQ232 BFQ232A	I <sub>C</sub> = 50 mA; V <sub>CE</sub> = 10 V; f = 100 MHz; T <sub>amb</sub> = 25 °C; see Fig.6	1	1.4	–	GHz
			0.8	1.2	–	GHz
C <sub>cb</sub>	collector-base capacitance	I <sub>C</sub> = 0; V <sub>CB</sub> = 10 V; f = 1 MHz; T <sub>amb</sub> = 25 °C; see Fig.5	–	2	–	pF



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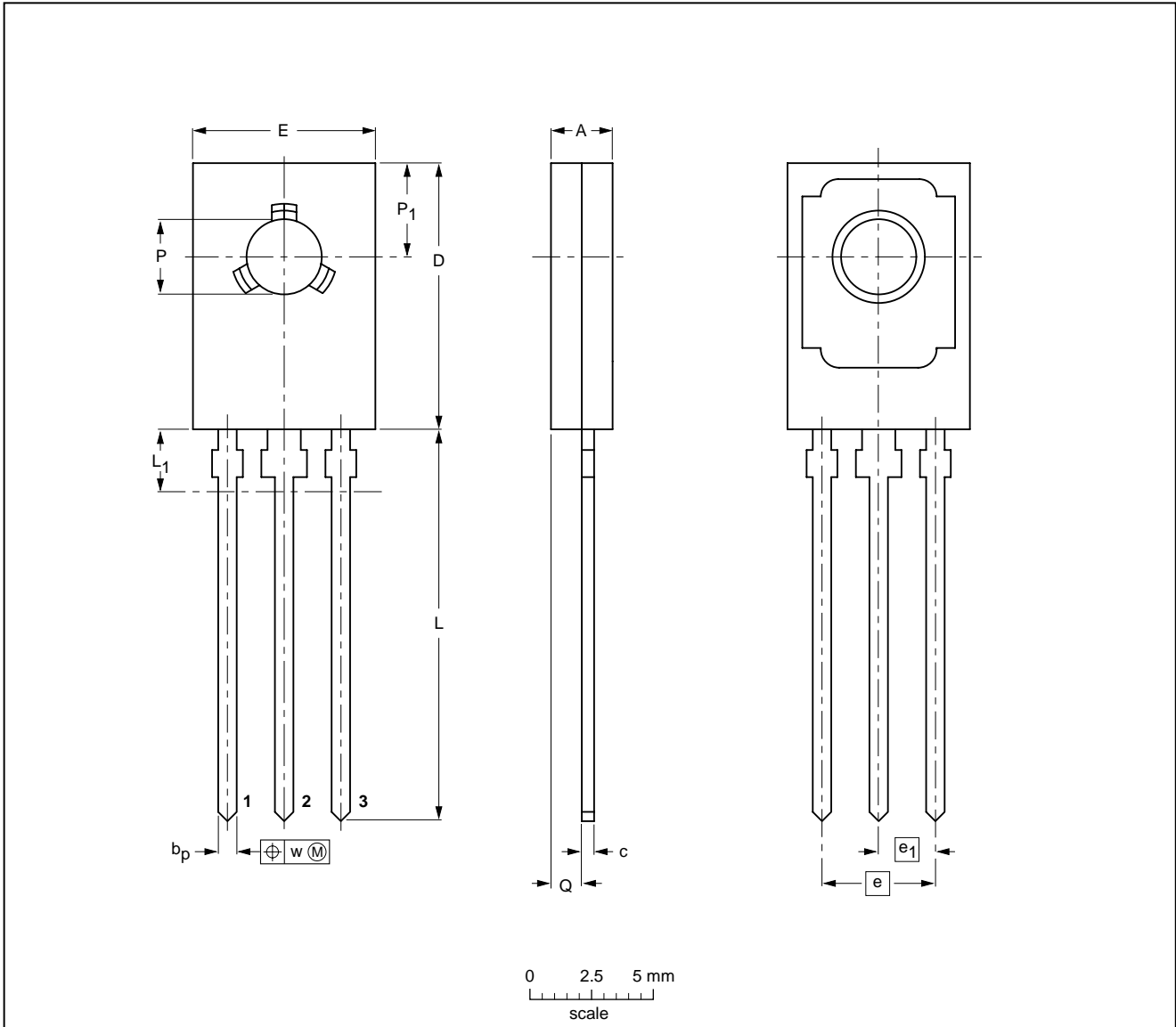


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PACKAGE OUTLINE

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

## NPN video transistors

## BFQ232; BFQ232A

**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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Printed in The Netherlands

127027/00/02/pp8

Date of release: 1997 Oct 02

Document order number: 9397 750 02882

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