

DATA SHEET

BFQ236; BFQ236A NPN video transistors

Product specification
Supersedes data of November 1992
File under Discrete Semiconductors, SC05

1997 Oct 02

NPN video transistors

BFQ236; BFQ236A

FEATURES

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

APPLICATIONS

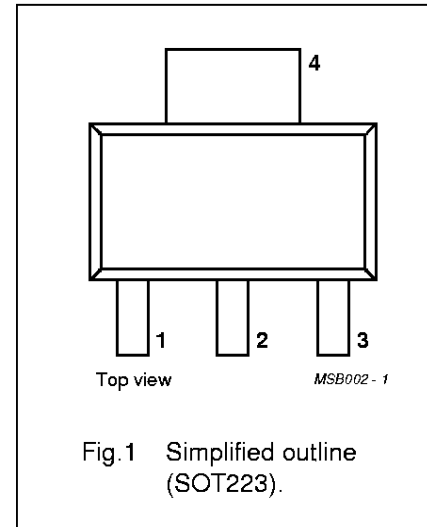
- CRT amplifier buffer/driver in high-resolution colour graphics monitors.

DESCRIPTION

NPN video transistor in a SOT223 plastic package. PNP complements: BFQ256 and BFQ256A.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	emitter
4	collector



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter				
	BFQ236		–	–	100	V
	BFQ236A		–	–	115	V
V_{CER}	collector-emitter voltage	$R_{BE} = 100 \Omega$				
	BFQ236		–	–	95	V
	BFQ236A		–	–	110	V
I_C	collector current (DC)		–	–	300	mA
P_{tot}	total power dissipation	$T_s \leq 115 \text{ }^\circ\text{C}$; note 1	–	–	2	W
h_{FE}	DC current gain	$I_C = 50 \text{ mA}$; $V_{CE} = 10 \text{ V}$; see Fig.4	20	35	–	
f_T	transition frequency	$I_C = 50 \text{ mA}$; $V_{CE} = 10 \text{ V}$; $f = 100 \text{ MHz}$				
	BFQ236		1	1.4	–	GHz
	BFQ236A		0.8	1.2	–	GHz

Note

1. T_s is the temperature at the soldering point of the collector lead.

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BFQ236; BFQ236A

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	–	100	V
	BFQ236		–	115	V
V _{CEO}	collector-emitter voltage	open base	–	65	V
	BFQ236A		–	95	V
V _{CER}	collector-emitter voltage	R _{BE} = 100 Ω	–	95	V
	BFQ236A		–	110	V
V _{EBO}	emitter-base voltage	open collector	–	3	V
I _C	collector current (DC)		–	300	mA
P _{tot}	total power dissipation	T _s ≤ 115 °C; note 1; see Fig.3	–	2	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 lead.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-s}	thermal resistance from junction to soldering point	T _s = 115 °C; P _{tot} = 2 W; notes 1 and 2	30	K/W

Notes

1. T_s is the temperature at the soldering point of the collector lead.
2. Device mounted on a printed-circuit board measuring 40 × 40 × 1 mm (collector pad 35 × 17 mm).

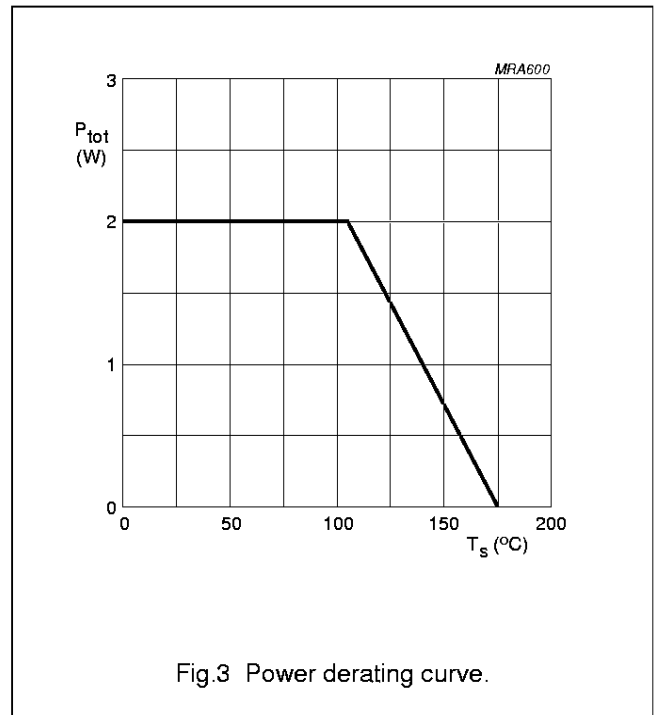
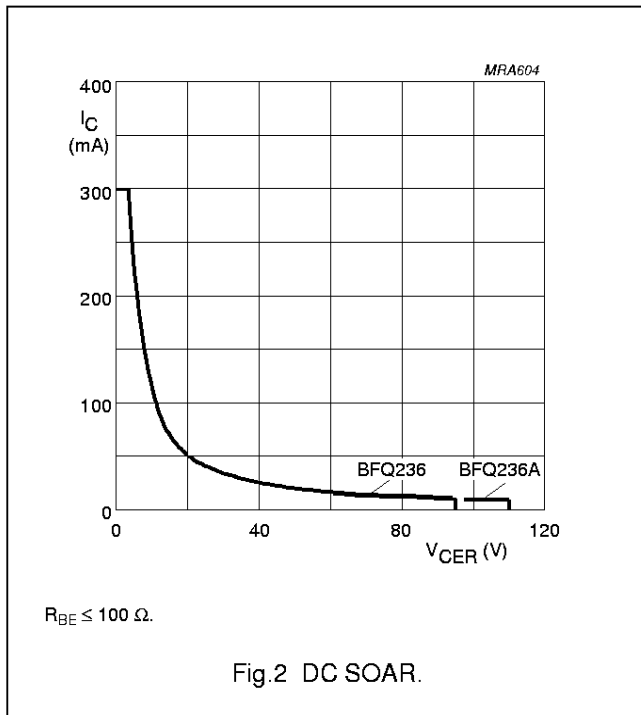
NPN video transistors

BFQ236; BFQ236A

CHARACTERISTICS

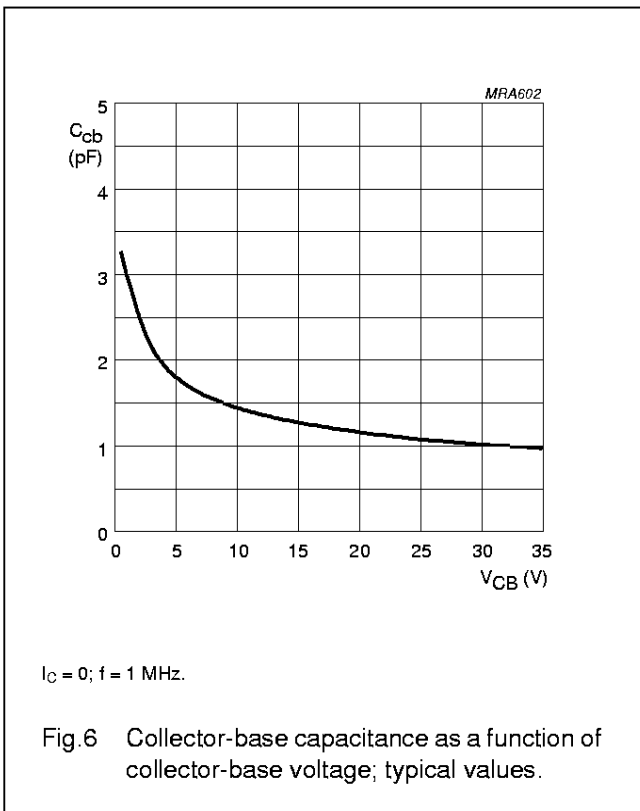
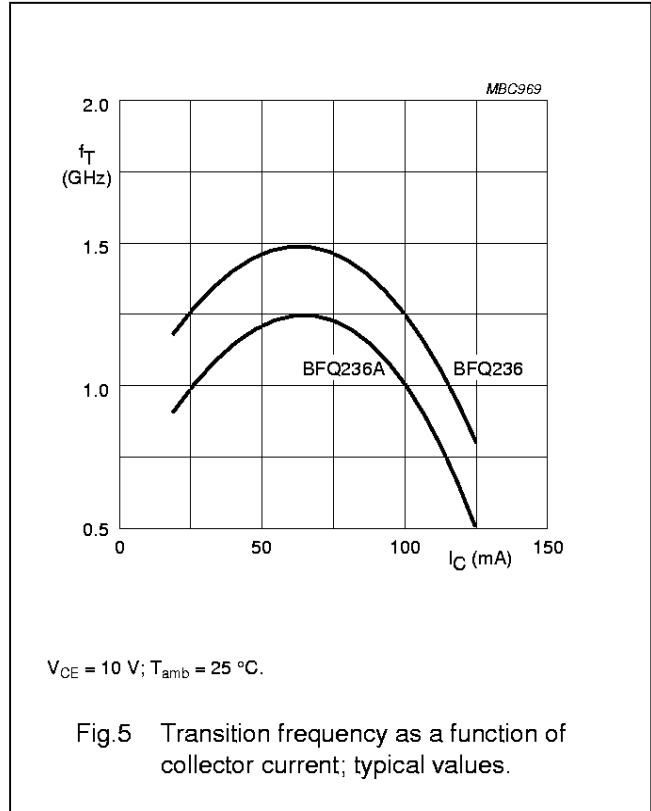
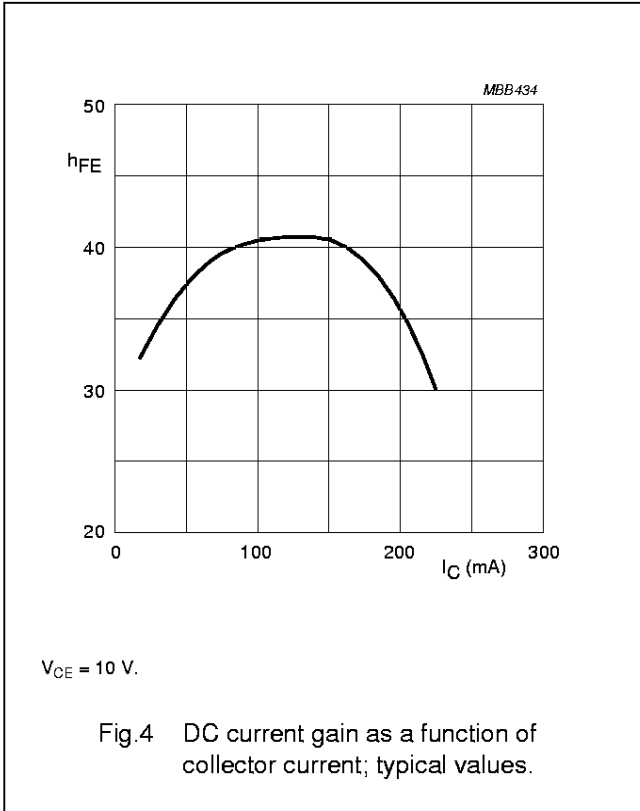
$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = 100\text{ }\mu\text{A}; I_E = 0$	100	–	–	V
	BFQ236 BFQ236A		115	–	–	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	$I_C = 10\text{ mA}; I_B = 0$	65	–	–	V
	BFQ236 BFQ236A		95	–	–	V
$V_{(BR)CER}$	collector-emitter breakdown voltage	$I_C = 1\text{ mA}; R_{BE} = 100\text{ }\Omega$	95	–	–	V
	BFQ236 BFQ236A		110	–	–	V
I_{CES}	collector-emitter cut-off current	$I_B = 0; V_{CE} = 50\text{ V}$	–	–	100	μA
I_{CBO}	collector-base cut-off current	$I_E = 0; V_{CB} = 50\text{ V}$	–	–	20	μA
h_{FE}	DC current gain	$I_C = 50\text{ mA}; V_{CE} = 10\text{ V};$ see Fig.4	20	35	–	
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = 10\text{ V};$ $f = 1\text{ MHz}$	–	1.8	–	pF
C_{cb}	collector-base capacitance	$I_C = i_c = 0; V_{CB} = 10\text{ V};$ $f = 1\text{ MHz};$ see Fig.6	–	1.5	–	pF
f_T	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 10\text{ V};$ $f = 100\text{ MHz};$ see Fig.5	1	1.4	–	GHz
	BFQ236 BFQ236A		0.8	1.2	–	GHz



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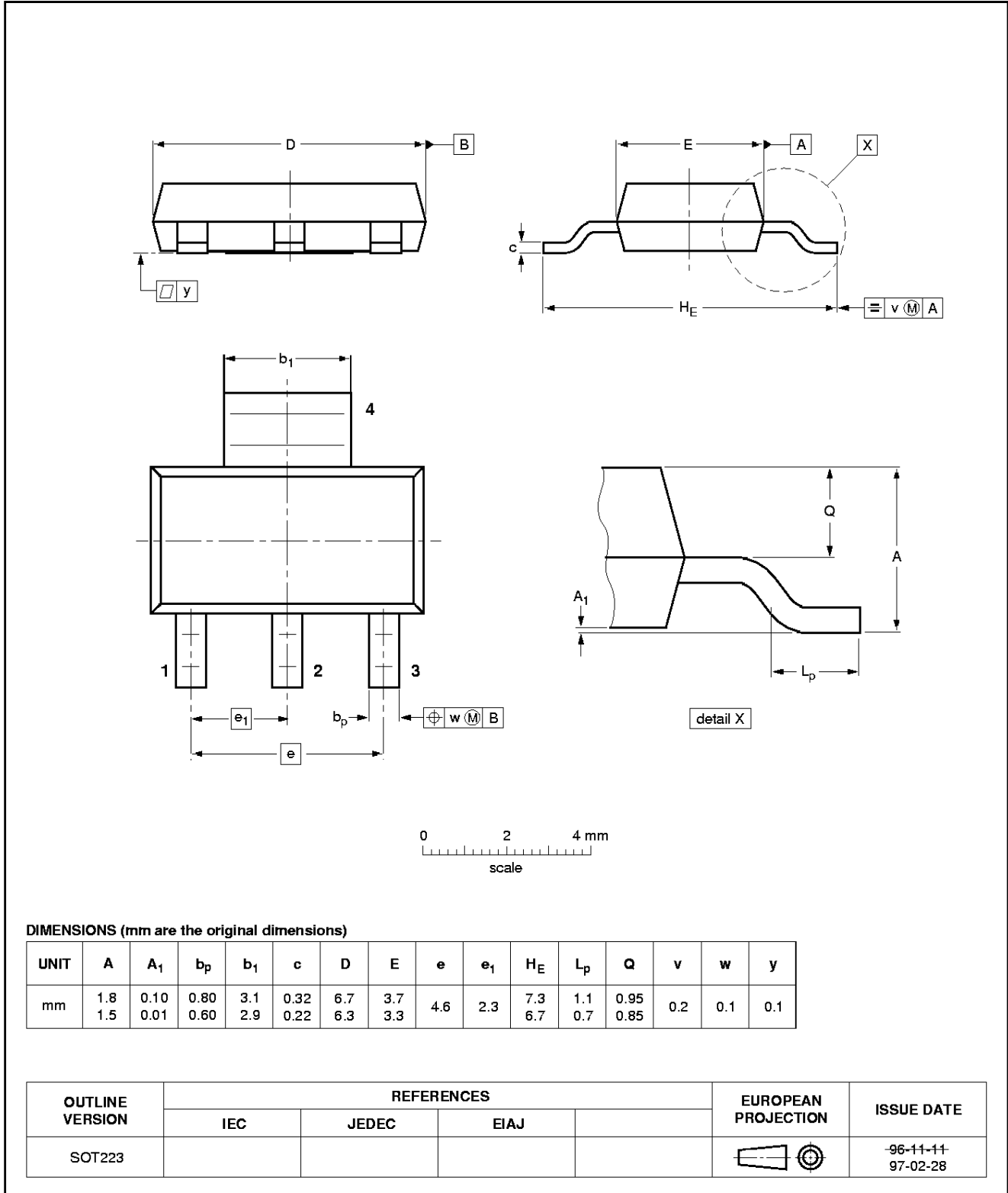
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PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 4 leads

SOT223



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BFQ236; BFQ236A

DEFINITIONS

Data sheet status	
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.
Limiting values	
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.	
Application information	
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 02884

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