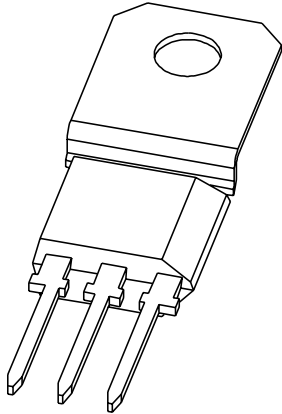


# DATA SHEET



## **BFQ235A** NPN video transistor

Product specification  
Supersedes data of 1997 Oct 02

1998 Oct 06

## NPN video transistor

## BFQ235A

## FEATURES

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

## APPLICATIONS

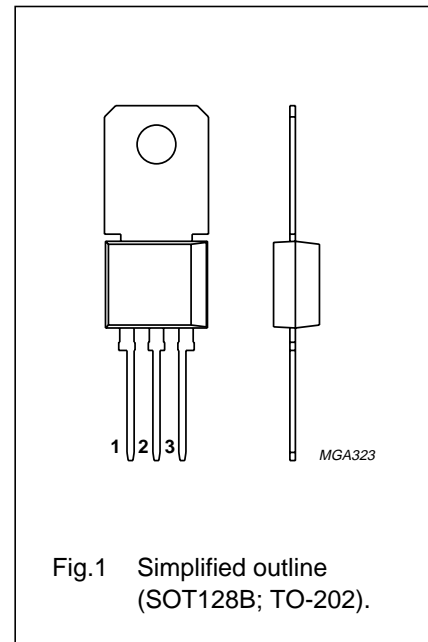
- CRT amplifier buffer/driver in high-resolution colour graphics monitors.

## DESCRIPTION

NPN video transistor in a SOT128B (TO-202) plastic package.  
PNP complement: BFQ255A.

## 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	–	–	115	V
$V_{CER}$	collector-emitter voltage	$R_{BE} = 100 \Omega$	–	–	110	V
$I_C$	collector current (DC)		–	–	300	mA
$P_{tot}$	total power dissipation	$T_s \leq 100 \text{ }^\circ\text{C}$ ; 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	35	–	
$f_T$	transition frequency	$I_C = 50 \text{ mA}$ ; $V_{CE} = 10 \text{ V}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$	0.8	1.2	–	GHz

## Note

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

## 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	–	115	V
$V_{CEO}$	collector-emitter voltage	open base	–	95	V
$V_{CER}$	collector-emitter voltage	$R_{BE} = 100 \Omega$	–	110	V
$V_{EBO}$	emitter-base voltage	open collector	–	3	V
$I_C$	collector current (DC)		–	300	mA
$P_{tot}$	total power dissipation	$T_s \leq 100 \text{ }^\circ\text{C}$ ; note 1; see Fig.3	–	3	W
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	175	$^\circ\text{C}$

## Note

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

NPN video transistor

BFQ235A

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	$T_s \leq 100\text{ }^\circ\text{C}$ ; note 1	25	K/W

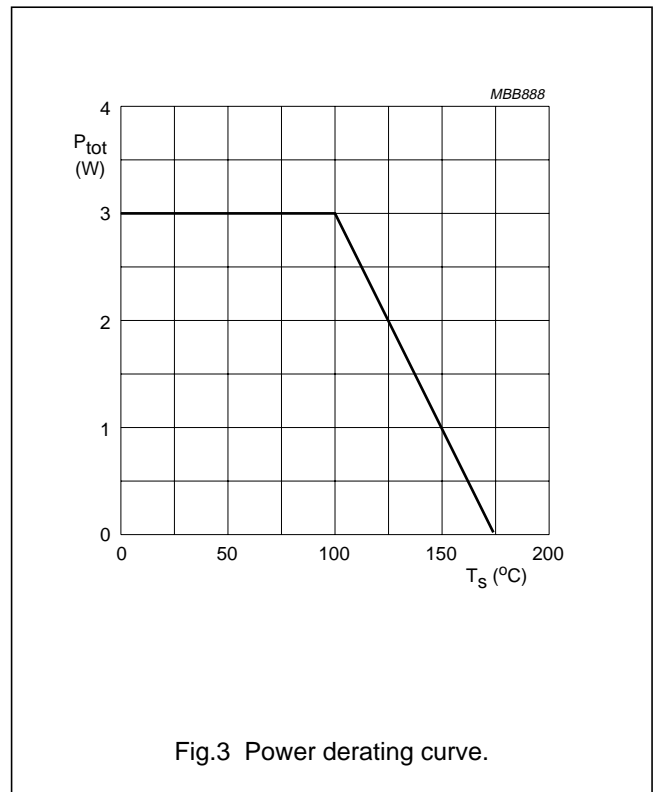
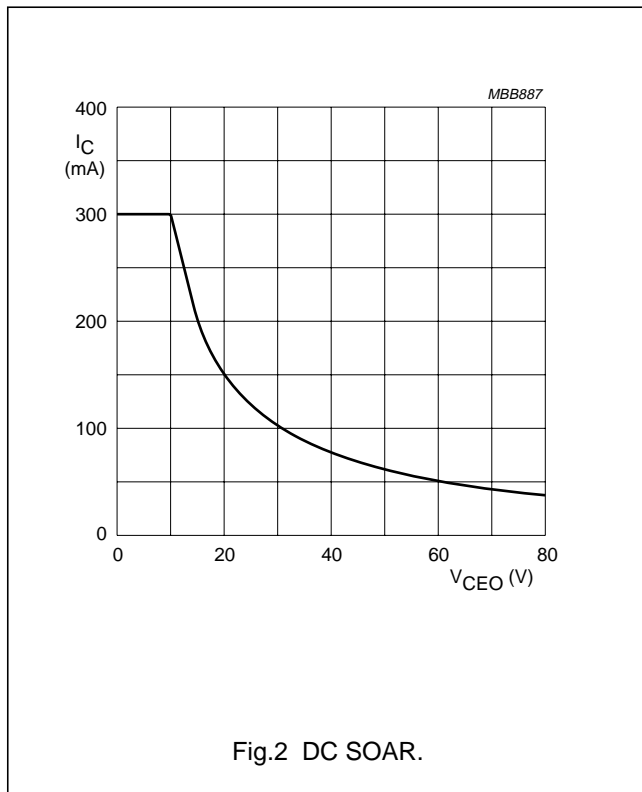
**Note**

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

**CHARACTERISTICS**

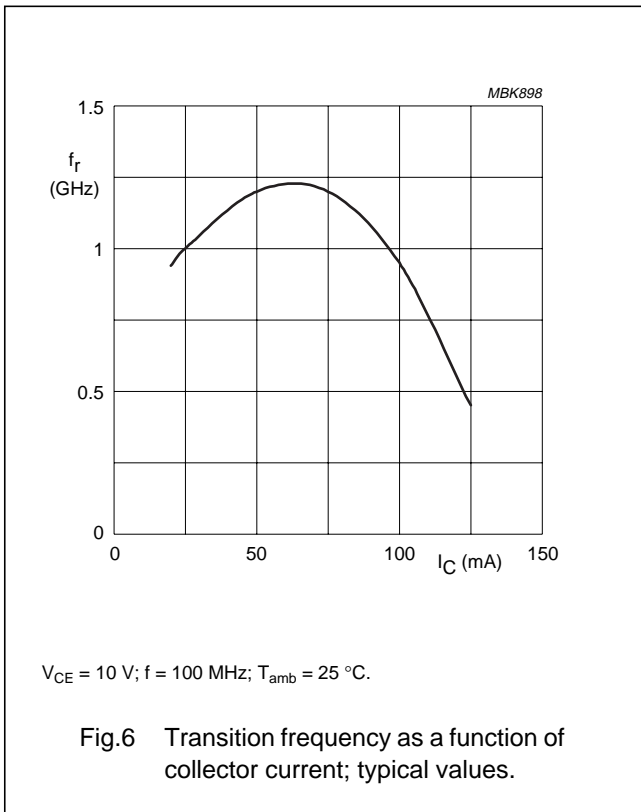
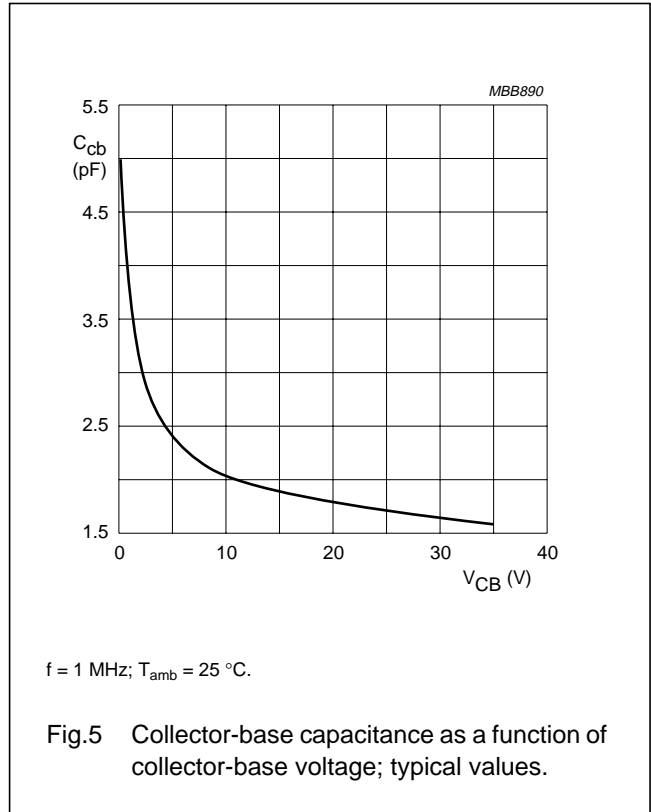
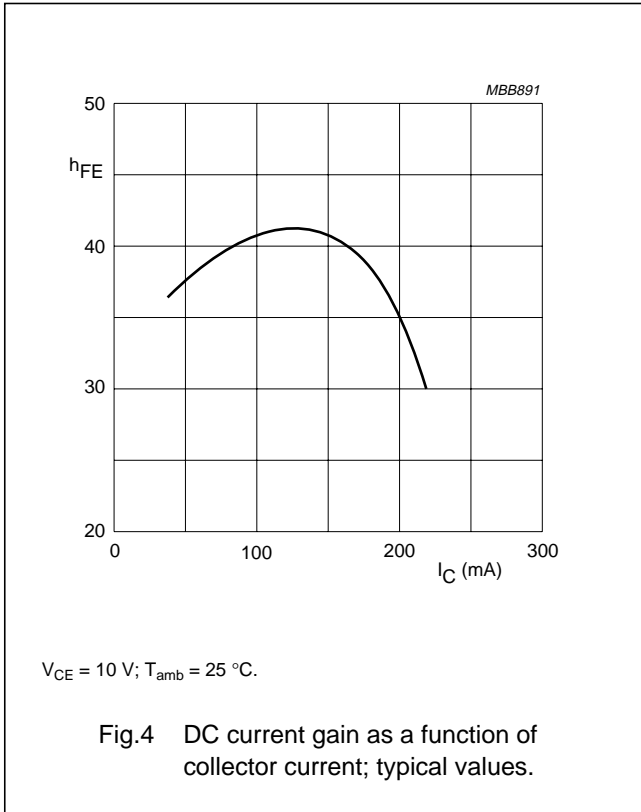
$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = 0.1\text{ mA}$ ; $I_E = 0$	115	–	–	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	$I_C = 10\text{ mA}$ ; $I_B = 0$	95	–	–	V
$V_{(BR)CER}$	collector-emitter breakdown voltage	$I_C = 10\text{ mA}$ ; $R_{BE} = 100\ \Omega$	110	–	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	$I_E = 0.1\text{ mA}$ ; $I_C = 0$	3	–	–	V
$I_{CES}$	collector cut-off current	$I_B = 0$ ; $V_{CE} = 50\text{ V}$	–	–	100	$\mu\text{A}$
$I_{CBO}$	collector 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	35	–	
$f_T$	transition frequency	$I_C = 50\text{ mA}$ ; $V_{CE} = 10\text{ V}$ ; $f = 100\text{ MHz}$ ; $T_{amb} = 25\text{ }^\circ\text{C}$ ; see Fig.6	0.8	1.2	–	GHz
$C_{cb}$	collector-base capacitance	$I_C = 0$ ; $V_{CB} = 10\text{ V}$ ; $f = 1\text{ MHz}$ ; $T_{amb} = 25\text{ }^\circ\text{C}$ ; see Fig.5	–	2	–	pF



NPN video transistor

BFQ235A



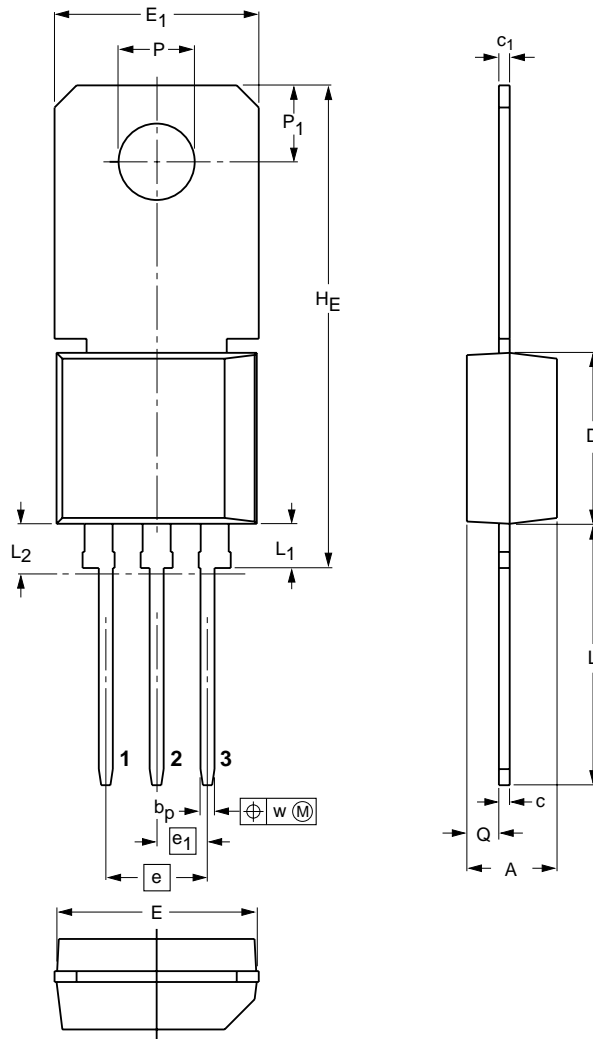
NPN video transistor

BFQ235A

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; with cooling fin, mountable to heatsink, 1 mounting hole; 3 leads (in-line)

SOT128B



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>p</sub>	c	c <sub>1</sub>	D	E	E <sub>1</sub>	e	e <sub>1</sub>	H <sub>E</sub>	L	L <sub>1</sub>	L <sub>2</sub> <sup>(1)</sup> max	P	P <sub>1</sub>	Q	w
mm	4.6 4.4	0.8 0.6	0.65 0.5	0.56 0.46	8.6 8.4	10.1 9.9	10.4 10.0	5.08	2.54	24.2 23.8	13.3 12.2	2.4 2.0	2.5	3.8 3.6	3.9 3.7	1.7 1.5	0.25

Note

1. Plastic flash allowed within this zone

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT128B		TO-202				97-02-28

## NPN video transistor

BFQ235A

**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.	

**LIFE SUPPORT APPLICATIONS**

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NPN video transistor

BFQ235A

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Printed in The Netherlands

125102/00/03/pp8

Date of release: 1998 Oct 06

Document order number: 9397 750 04568

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