

DATA SHEET

BFQ262; BFQ262A NPN video transistors

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

1997 Oct 02

NPN video transistors

BFQ262; BFQ262A

FEATURES

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

APPLICATIONS

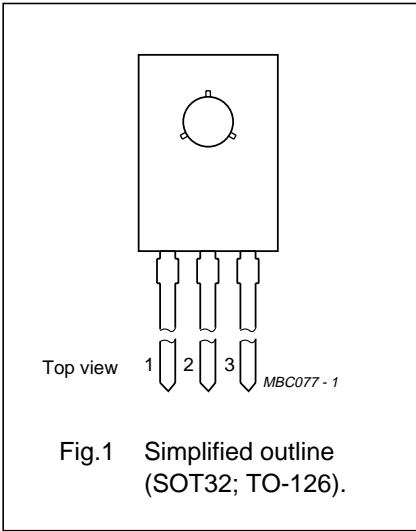
- Buffer/driver in high-resolution colour graphics monitors.

DESCRIPTION

NPN video transistor in a SOT32 (TO-126) plastic package.

PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage BFQ262 BFQ262A	open emitter	— —	— —	100 115	V V
V_{CER}	collector-emitter voltage BFQ262 BFQ262A	$R_{BE} = 100\ \Omega$	— —	— —	95 110	V V
I_C	collector current (DC)		—	—	400	mA
P_{tot}	total power dissipation	$T_s \leq 85\ ^\circ\text{C}$; note 1	—	—	5	W
h_{FE}	DC current gain BFQ262 BFQ262A	$I_C = 100\ \text{mA}$; $V_{CE} = 10\ \text{V}$; $T_{amb} = 25\ ^\circ\text{C}$	50 20	60 35	— —	
f_T	transition frequency BFQ262 BFQ262A	$I_C = 100\ \text{mA}$; $V_{CE} = 10\ \text{V}$; $f = 100\ \text{MHz}$; $T_{amb} = 25\ ^\circ\text{C}$	1 0.8	1.4 1.2	— —	GHz 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_{CBO}	collector-base voltage	open emitter	—	100	V
	BFQ262 BFQ262A		—	115	V
V_{CEO}	collector-emitter voltage	open base	—	65	V
	BFQ262 BFQ262A		—	95	V
V_{CER}	collector-emitter voltage	$R_{BE} = 100\ \Omega$	—	95	V
	BFQ262 BFQ262A		—	110	V
V_{EBO}	emitter-base voltage	open collector	—	3	V
I_C	collector current (DC)		—	400	mA
P_{tot}	total power dissipation	$T_s \leq 85\ ^\circ\text{C}$; note 1; see Fig.3	—	5	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.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	$T_s \leq 85\ ^\circ\text{C}$; note 1	18	K/W

Note

1. T_s 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 BFQ262 BFQ262A	$I_C = 0.1\text{ mA}; I_E = 0$	100	—	—	V
			115	—	—	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage BFQ262 BFQ262A	$I_C = 10\text{ mA}; I_B = 0$	65	—	—	V
			95	—	—	V
$V_{(BR)CER}$	collector-emitter breakdown voltage BFQ262 BFQ262A	$I_C = 10\text{ mA}; R_{BE} = 100\text{ }\Omega$	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	μA
I_{CBO}	collector-base cut-off current	$I_E = 0; V_{CB} = 50\text{ V}$	—	—	20	μA
h_{FE}	DC current gain BFQ262 BFQ262A	$I_C = 100\text{ mA}; V_{CE} = 10\text{ V};$ $T_{amb} = 25\text{ }^{\circ}\text{C};$ see Fig.4	50	60	—	
			20	35	—	
f_T	transition frequency BFQ262 BFQ262A	$I_C = 100\text{ mA}; V_{CE} = 10\text{ V};$ $f = 100\text{ MHz}; T_{amb} = 25\text{ }^{\circ}\text{C};$ see Fig.6	1	1.4	—	GHz
			0.8	1.2	—	GHz
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	—	pF
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = 10\text{ V};$ $f = 1\text{ MHz}$	—	3.5	—	pF

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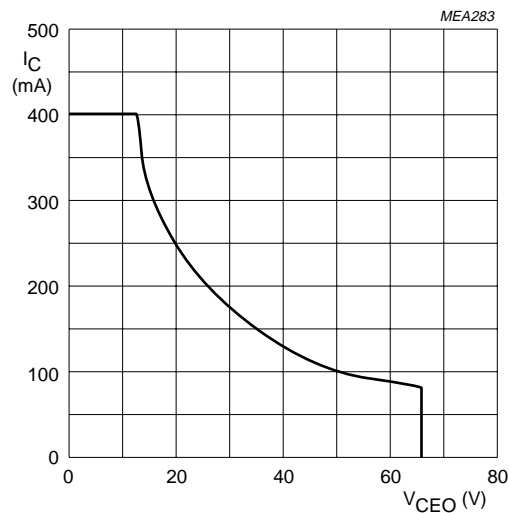


Fig.2 DC SOAR.

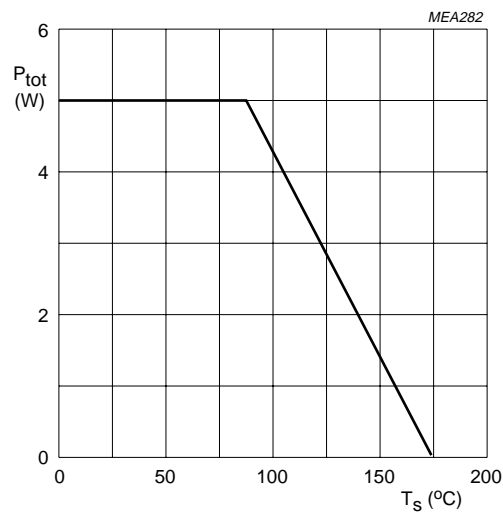
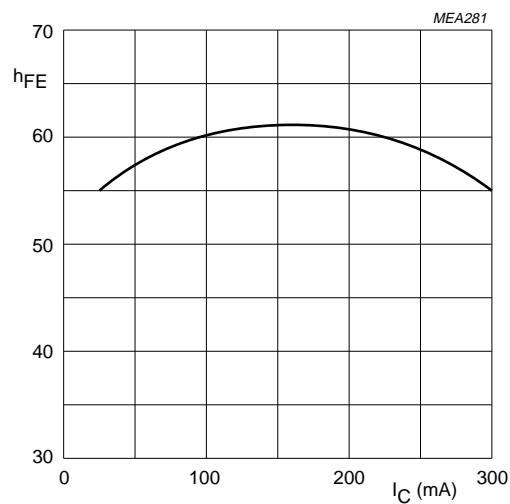
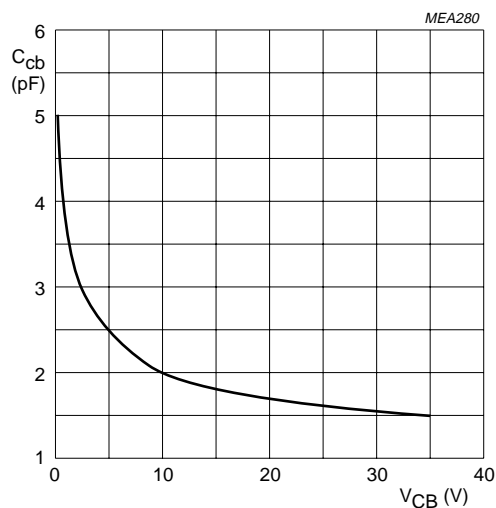


Fig.3 Power derating curve.



$V_{CE} = 10\text{ V}$; $T_{amb} = 25\text{ °C}$.

Fig.4 DC current gain as a function of collector current; typical values.

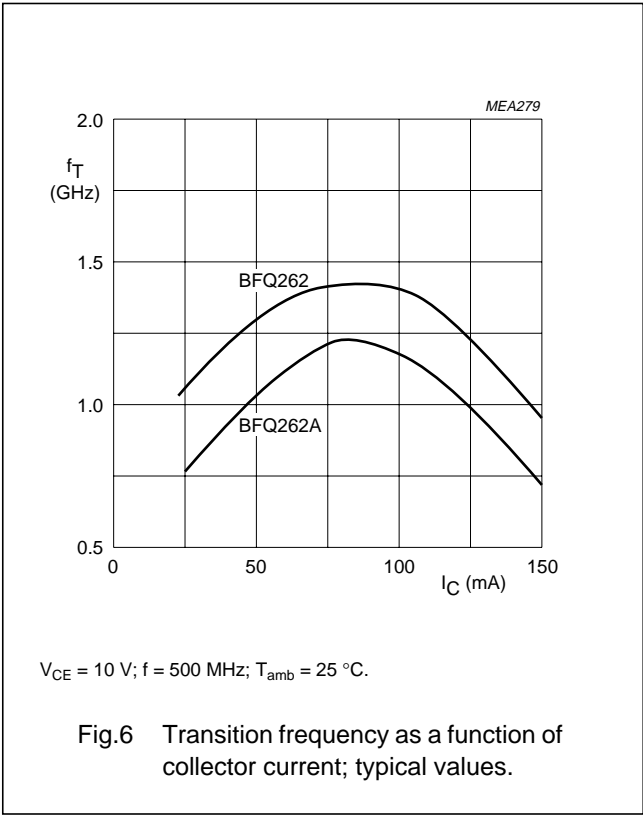


$f = 1\text{ MHz}$; $T_{amb} = 25\text{ °C}$.

Fig.5 Collector-base capacitance as a function of collector-base voltage; typical values.

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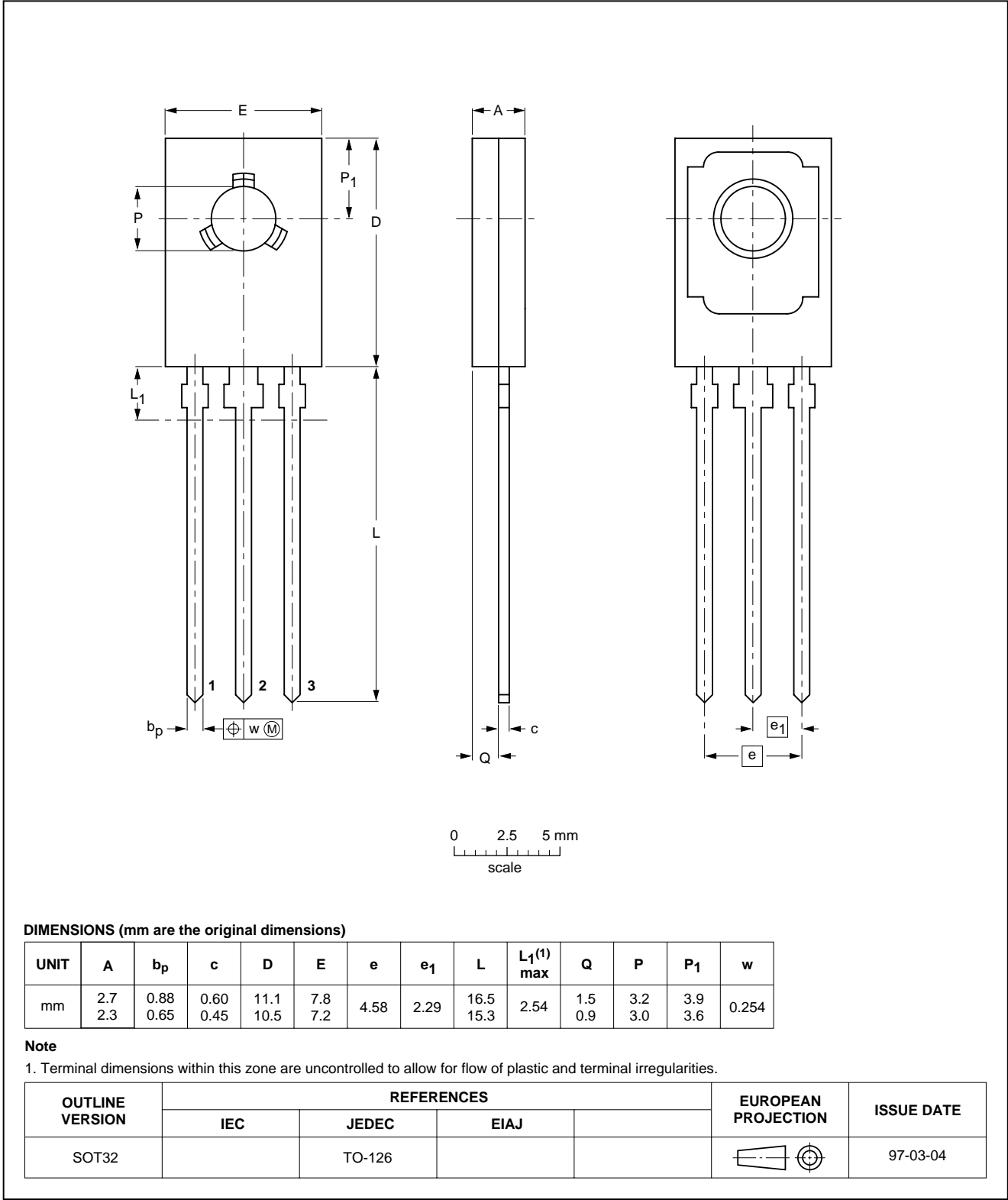


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PACKAGE OUTLINE

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



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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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NOTES

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NOTES

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