DATA SHEET

BFQ162
NPN video transistor

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

1997 Oct 02

Philips
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NPN video transistor BFQ162

FEATURES

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

APPLICATIONS

- Pre-stage driver in high-resolution colour graphics monitors.

DESCRIPTION

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

PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base

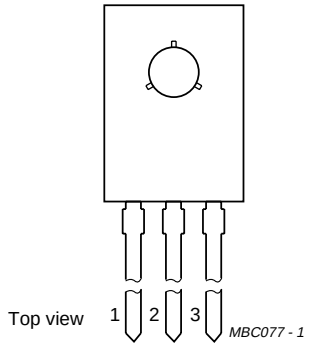


Fig.1 Simplified outline (SOT32; TO-126).

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	–	20	V
V_{CER}	collector-emitter voltage	R_{BE} = 100 Ω	–	–	19	V
I_C	collector current (DC)		–	–	500	mA
P_{tot}	total power dissipation	$T_s \leq 115$ °C; note 1	–	–	3	W
h_{FE}	DC current gain	I_C = 300 mA; V_{CE} = 5 V; T_{amb} = 25 °C	50	60	–	
f_T	transition frequency	I_C = 300 mA; V_{CE} = 5 V; f = 100 MHz; T_{amb} = 25 °C	1	–	–	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	–	20	V
V_{CEO}	collector-emitter voltage	open base	–	10	V
V_{CER}	collector-emitter voltage	R_{BE} = 100 Ω	–	19	V
V_{EBO}	emitter-base voltage	open collector	–	3	V
I_C	collector current (DC)		–	500	mA
P_{tot}	total power dissipation	$T_s \leq 115$ °C; note 1; see Fig.3	–	3	W
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–	175	°C

Note

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

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}s}$	thermal resistance from junction to soldering point	$T_s \leq 115$ °C; note 1	20	K/W

Note

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

CHARACTERISTICS

$T_j = 25$ °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = 5$ mA; $I_E = 0$	20	–	–	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	$I_C = 10$ mA; $I_B = 0$	10	–	–	V
$V_{(BR)CER}$	collector-emitter breakdown voltage	$I_C = 10$ mA; $R_{BE} = 100\ \Omega$	19	–	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	$I_E = 1$ mA; $I_C = 0$	3	–	–	V
I_{CES}	collector-emitter cut-off current	$V_{BE} = 0$ V; $V_{CE} = 10$ V	–	–	100	μA
h_{FE}	DC current gain	$I_C = 300$ mA; $V_{CE} = 5$ V; $T_{amb} = 25$ °C; see Fig.4	50	60	–	
		$I_C = 100$ mA; $V_{CE} = 5$ V; $T_{amb} = 25$ °C; see Fig.4	40	50	–	
f_T	transition frequency	$I_C = 300$ mA; $V_{CE} = 5$ V; f = 100 MHz; $T_{amb} = 25$ °C; see Fig.6	1	–	–	GHz
C_{cb}	collector-base capacitance	$I_C = i_c = 0$; $V_{CB} = 5$ V; f = 1 MHz; $T_{amb} = 25$ °C; see Fig.5	–	4.2	–	pF
C_c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = 5$ V; f = 1 MHz	–	5.8	–	pF

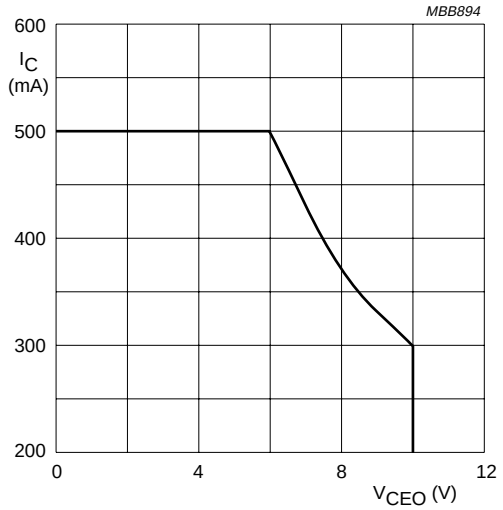


Fig.2 DC SOAR.

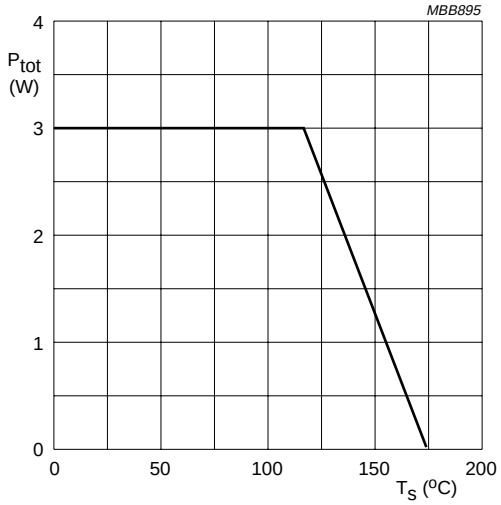
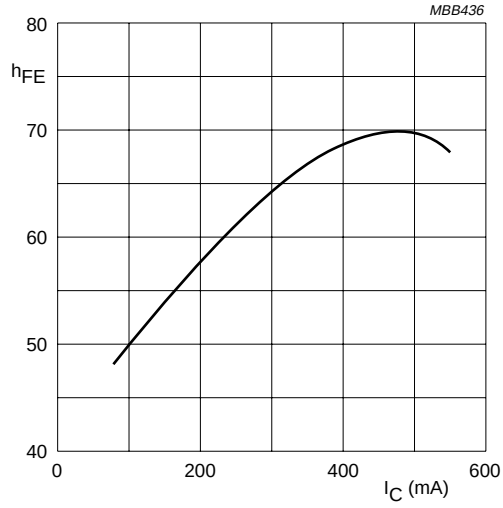
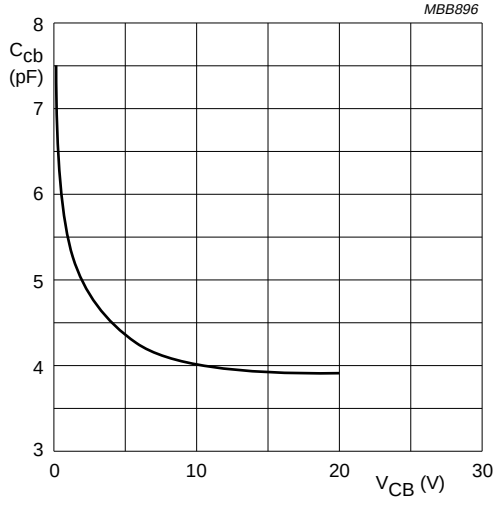


Fig.3 Power derating curve.



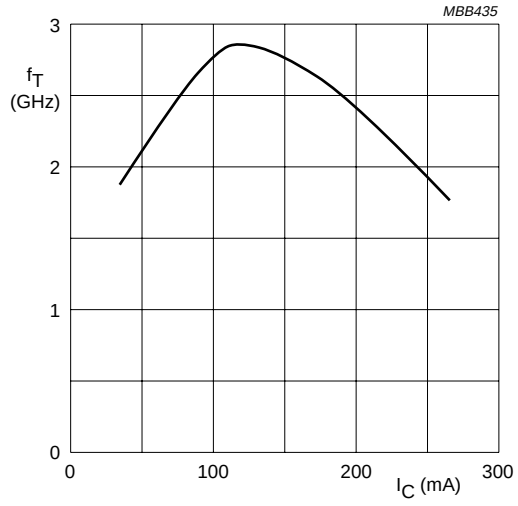
V_{CE} = 5 V; T_{amb} = 25 °C.

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



f = 1 MHz; T_{amb} = 25 °C.

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

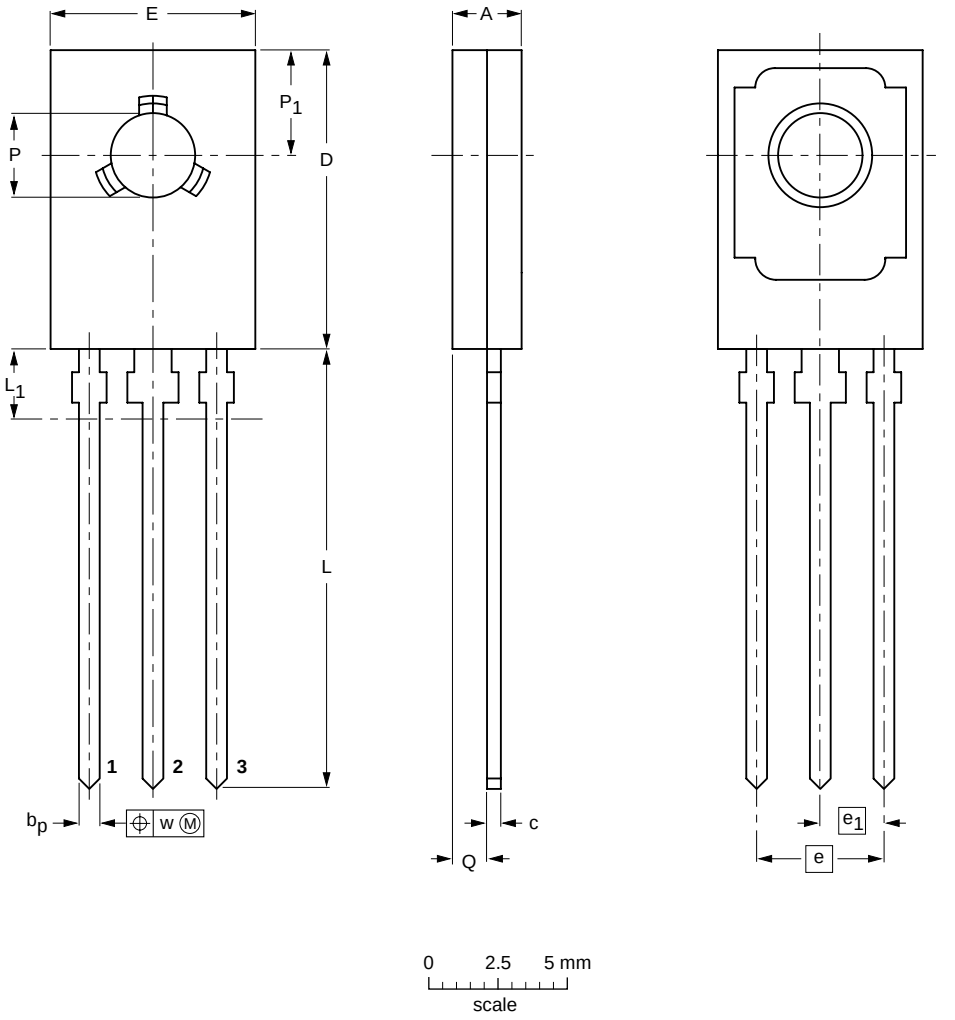


V_{CE} = 5 V; f = 100 MHz; T_{amb} = 25 °C.

Fig.6 Transition frequency as a function of collector current; typical values.

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_p	c	D	E	e	e_1	L	L_1(1) max	Q	P	P_1	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

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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