

T-33-05

NPN 1 GHz video transistor

BFQ268; BFQ268/

PHILIPS INTERNATIONAL

56E D ■ 7110826 0045657 344 ■ PHIN

DESCRIPTION

NPN silicon epitaxial transistor with emitter-ballasting resistors and a gold sandwich metallization to ensure optimum temperature profile and excellent reliability properties. It features high breakdown voltages and a low output capacitance.

This transistor is primarily intended for application in the driver for high-resolution colour graphics monitors.

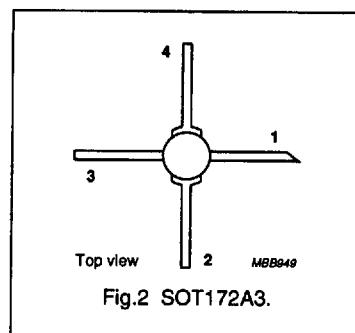
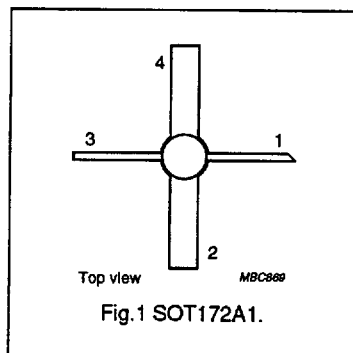
The BFQ268 has a 4-lead stud envelope with a ceramic cap (SOT172A1). All leads are isolated from the stud.

The BFQ268/1 uses the SOT172A3 envelope, with the leads formed in accordance with the footprint of the industry standard package 244D-01 (Motorola).

A version with $V_{(BR)CBO} = 115$ V, $V_{(BR)CER} = 110$ V and $V_{(BR)CEO} = 95$ V is available on request.

PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter
4	base



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	—	100	V
V_{CER}	collector-emitter voltage	$R_{BE} = 100 \Omega$	—	95	V
I_C	DC collector current		—	400	mA
P_{tot}	total power dissipation	up to $T_c = 100^\circ\text{C}$	—	5	W
h_{FE}	DC current gain	$I_C = 100$ mA; $V_{CE} = 10$ V; $T_{amb} = 25^\circ\text{C}$	50	—	
f_T	transition frequency	$I_C = 100$ mA; $V_{CE} = 10$ V; $f = 500$ MHz; $T_{amb} = 25^\circ\text{C}$	1	—	GHz

WARNING

Product and environmental safety - toxic materials

This product contains beryllium oxide. The product is entirely safe provided that the BeO disc is not damaged. All persons who handle, use or dispose of this product should be aware of its nature and of the necessary safety precautions. After use, dispose of as chemical or special waste according to the regulations applying at the location of the user. It must never be thrown out with the general or domestic waste.

T-33-05

NPN 1 GHz video transistor

BFQ268; BFQ268/I

PHILIPS INTERNATIONAL

56E D ■ 7110826 0045658 280 ■ PHIN

LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	—	100	V
V_{CEO}	collector-emitter voltage	open base	—	65	V
V_{CER}	collector-emitter voltage	$R_{BE} = 100 \Omega$	—	95	V
V_{EBO}	emitter-base voltage	open collector	—	3	V
I_C	DC collector current		—	400	mA
P_{tot}	total power dissipation	up to $T_c = 100^\circ\text{C}$	—	5	W
T_{stg}	storage temperature		-65	175	$^\circ\text{C}$
T_j	junction temperature		—	200	$^\circ\text{C}$

THERMAL RESISTANCE

SYMBOL	PARAMETER	THERMAL RESISTANCE
$R_{th JC}$	thermal resistance from junction to case	20 K/W

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	open emitter; $I_C = 0.1 \text{ mA}$	100	—	—	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	open base; $I_C = 10 \text{ mA}$	65	—	—	V
$V_{(BR)CER}$	collector-emitter breakdown voltage	$I_C = 10 \text{ mA}$; $R_{BE} = 100 \Omega$	95	—	—	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	open collector; $I_E = 0.1 \text{ mA}$	3	—	—	V
I_{CES}	collector cut-off current	$I_B = 0$; $V_{CE} = 50 \text{ V}$	—	—	100	μA
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = 50 \text{ V}$	—	—	20	μA
h_{FE}	DC current gain	$I_C = 100 \text{ mA}$; $V_{CE} = 10 \text{ V}$; $T_{amb} = 25^\circ\text{C}$	50	60	—	
f_T	transition frequency	$I_C = 100 \text{ mA}$; $V_{CE} = 10 \text{ V}$; $f = 500 \text{ MHz}$; $T_{amb} = 25^\circ\text{C}$	1	1.4	—	GHz
C_{cb}	collector-base capacitance	$I_C = 0$; $V_{CB} = 10 \text{ V}$; $f = 1 \text{ MHz}$; $T_{amb} = 25^\circ\text{C}$	—	2	—	pF
C_{ob}	output capacitance	$I_E = I_o = 0$; $V_{CB} = 10 \text{ V}$; $f = 1 \text{ MHz}$	—	4	—	pF

NPN 1 GHz video transistor

BFQ268; BFQ268/I

PHILIPS INTERNATIONAL

56E D

7110826 0045659 117 PHIN

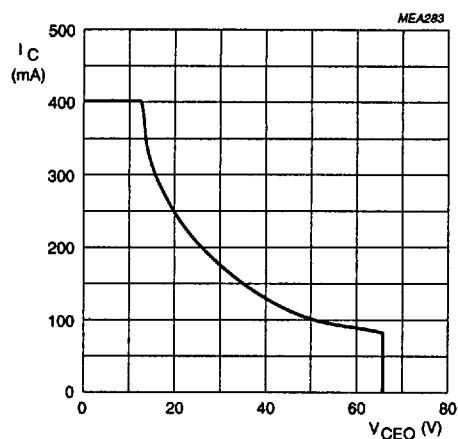


Fig.3 DC SOAR.

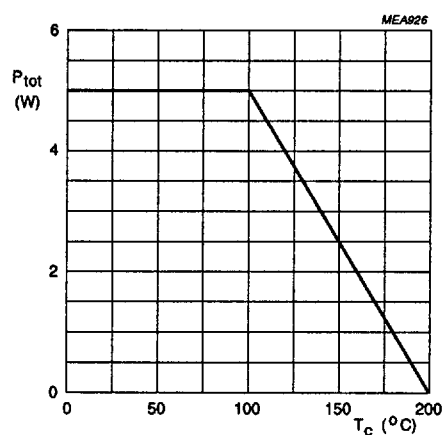


Fig.4 Power derating curve.

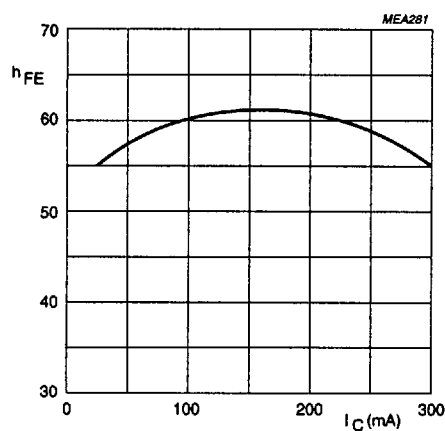
 $V_{CE} = 10$ V; $T_{amb} = 25$ °C.

Fig.5 DC current gain as a function of collector current.

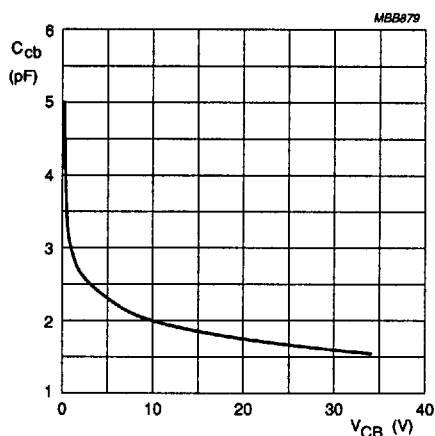
 $f = 1$ MHz; $T_{amb} = 25$ °C.

Fig.6 Collector-base capacitance as a function of collector-base voltage.

NPN 1 GHz video transistor

BFQ268; BFQ268/I

PHILIPS INTERNATIONAL

56E D ■ 7110826 0045660 939 ■ PHIN

T-33-05

