NPN video transistor BFQ226

APPLICATIONS

- Primarily intended for cascode output and buffer stages in high resolution colour monitors.

DESCRIPTION

NPN silicon transistor encapsulated in a 4-lead plastic SOT223 package.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	emitter
4	collector

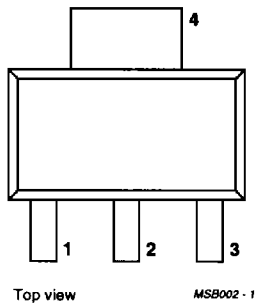


Fig.1 Simplified outline SOT223.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	100	V
I_C	collector current (DC)	see Fig.2	–	100	mA
P_{tot}	total power dissipation	up to T_s = 60 °C; see Fig.3	–	3	W
f_T	transition frequency	I_C = 25 mA; V_{CE} = 10 V; see Fig.5	1	–	GHz
C_{re}	feedback capacitance	I_C = 0; V_{CB} = 10 V; see Fig.6	1.7	–	pF
T_j	junction temperature		–	175	°C

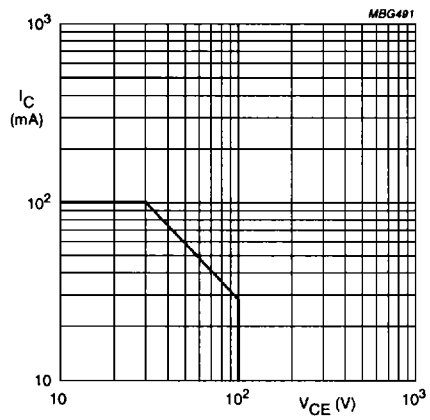
LIMITING VALUES

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
V_{CER}	collector-emitter voltage	R_{BE} = 100 Ω	–	95	V
V_{EBO}	emitter-base voltage	open collector	–	3	V
I_C	collector current (DC)	see Fig.2	–	100	mA
P_{tot}	total power dissipation	up to T_s = 60 °C; note 1; see Fig.3	–	3	W
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–	175	°C

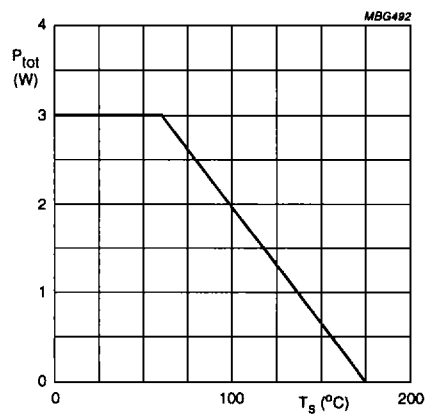
Note

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



T_s = 60 °C.

Fig.2 DC SOAR.



$V_{CE} \leq 50$ V.

Fig.3 Power derating curve.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}s}$	thermal resistance from junction to soldering point	P_{tot} = 3 W up to T_s = 60 °C; note 1	38.5	K/W

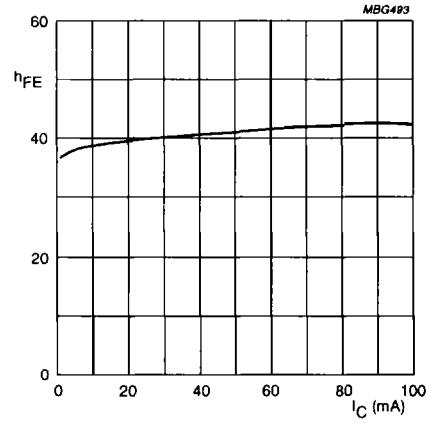
Note

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

CHARACTERISTICS

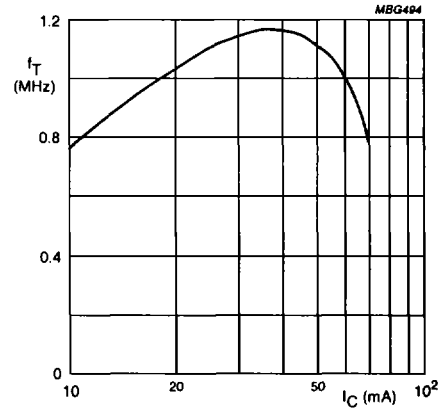
T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	I_C = 0.1 mA; I_E = 0	100	–	–	V
$V_{(BR)CER}$	collector-emitter breakdown voltage	I_C = 1 mA; R_{BE} = 100 Ω	95	–	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	I_C = 0; I_E = 0.1 mA	3	–	–	V
I_{CES}	collector-emitter leakage current	V_{CE} = 50 V; V_{BE} = 0	–	–	100	μA
h_{FE}	DC current gain	I_C = 25 mA; V_{CE} = 10 V; see Fig.4	20	–	–	
f_T	transition frequency	I_C = 25 mA; V_{CE} = 10 V; f = 500 MHz; see Fig.5	–	1	–	GHz
C_{re}	feedback capacitance	I_C = 0; V_{CB} = 10 V; f = 1 MHz; see Fig.6	–	1.7	–	pF



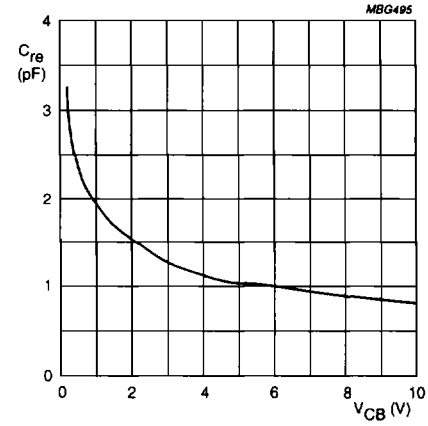
V_{CE} = 10 V; t_p = 500 µs.

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



V_{CE} = 10 V; f = 500 MHz.

Fig.5 Transition frequency as a function of collector current; typical values.



f = 1 MHz.

Fig.6 Feedback capacitance as a function of collector-base voltage; typical values.