PNP 4 GHz wideband transistor BFQ32M

DESCRIPTION

PNP transistor in a TO-72 metal envelope with insulated electrodes and a shield lead connected to the case. It is primarily intended for use in UHF and microwave amplifiers such as aerial amplifiers, radar systems, oscilloscopes, spectrum analyzers etc.

The transistor features high power gain, high transition frequency and low noise up to high frequencies.

NPN complement is BFQ63.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector
4	shield lead (connected to case)

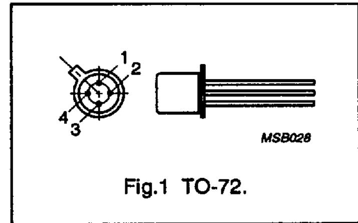


Fig.1 TO-72.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	–20	V
V_{CEO}	collector-emitter voltage	open base	–	–15	V
I_C	DC collector current		–	–100	mA
P_{tot}	total power dissipation	up to T_s = 50 °C (note 1)	–	250	mW
f_T	transition frequency	I_C = –50 mA; V_{CE} = –5 V; f = 500 MHz; T_j = 25 °C	4.5	–	GHz
C_{re}	feedback capacitance	I_C = –10 mA; V_{CE} = –10 V; f = 1 MHz	1.4	–	pF
F	noise figure	I_C = –10 mA; V_{CE} = –5 V; Z_S = opt.; f = 500 MHz; T_{amb} = 25 °C	2.3	–	dB
G_{UM}	maximum unilateral power gain	I_C = –20 mA; V_{CE} = –5 V; f = 500 MHz; T_{amb} = 25 °C	11	–	dB

LIMITING VALUES

In accordance with the Absolute Maximum 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	–	–15	V
V_{EBO}	emitter-base voltage	open collector	–	–3	V
I_C	DC collector current		–	–100	mA
I_{CM}	peak collector current	f > 1 MHz	–	–150	mA
P_{tot}	total power dissipation	up to T_s = 50 °C (note 1)	–	250	mW
T_{stg}	storage temperature		–65	200	°C
T_j	junction temperature		–	200	°C

Note

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

This Material Copyrighted By Its Respective Manufacturer

PNP 4 GHz wideband transistor BFQ32M

THERMAL RESISTANCE

SYMBOL	PARAMETER	CONDITIONS	THERMAL RESISTANCE
$R_{th\ j\text{-}s}$	thermal resistance from junction to soldering point	up to T_s = 50 °C (note 1)	600 K/W

Note

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

CHARACTERISTICS

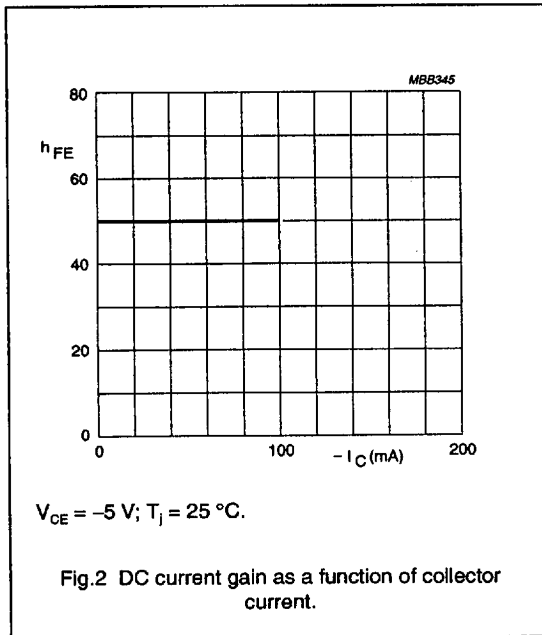
T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = −10 V	–	–	−100	nA
h_{FE}	DC current gain	I_C = −50 mA; V_{CE} = −5 V	20	50	–	
C_c	collector capacitance	$I_E = i_e$ = 0; V_{CB} = −10 V; f = 1 MHz	–	1.8	–	pF
C_e	emitter capacitance	$I_C = i_c$ = 0; V_{EB} = −0.5 V; f = 1 MHz	–	0.4	–	pF
C_{re}	feedback capacitance	I_C = −10 mA; V_{CE} = −10 V; f = 1 MHz; T_{amb} = 25 °C	–	1.4	–	pF
f_T	transition frequency	I_C = −50 mA; V_{CE} = −5 V; f = 500 MHz	–	4.5	–	GHz
F	noise figure	I_C = −10 mA; V_{CE} = −5 V; Z_S = opt.; f = 500 MHz; T_{amb} = 25 °C	–	2.3	–	dB
G_{UM}	maximum unilateral power gain (note 1)	I_C = −50 mA; V_{CE} = −5 V; f = 500 MHz; T_{amb} = 25 °C	–	11	–	dB

Note

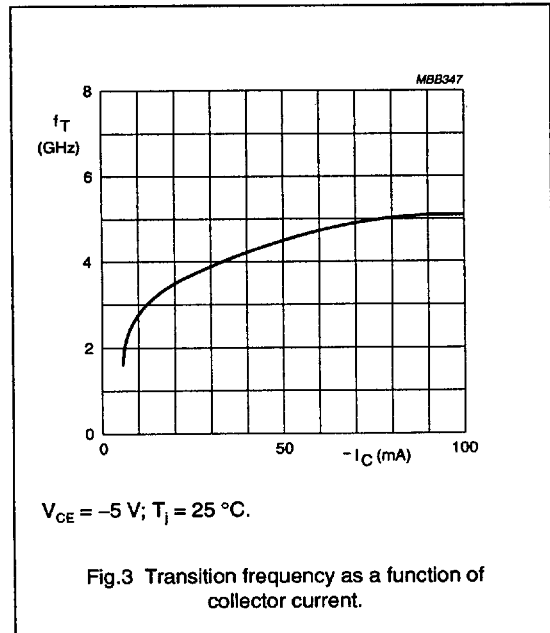
1. G_{UM} is the maximum unilateral power gain, assuming S_{12} is zero and $G_{UM} = 10 \log \frac{|S_{21}|^2}{(1-|S_{11}|^2)(1-|S_{22}|^2)}$ dB.

This Material Copyrighted By Its Respective Manufacturer



$V_{CE} = -5$ V; $T_j = 25$ °C.

Fig.2 DC current gain as a function of collector current.



$V_{CE} = -5$ V; $T_j = 25$ °C.

Fig.3 Transition frequency as a function of collector current.

This Material Copyrighted By Its Respective Manufacturer