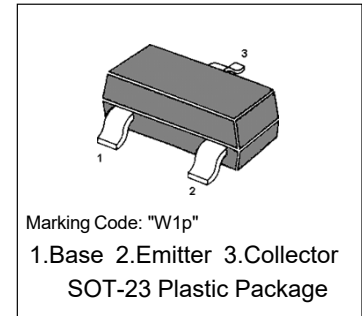


BFT92**PNP 5 GHz wideband transistor**

It is primarily intended for use in RF wideband amplifiers, such as in aerial amplifiers, radar systems, oscilloscopes, spectrum analyzers, etc. The transistor features low intermodulation distortion and high power gain; due to its very high transition frequency, it also has excellent wideband properties and low noise up to high frequencies.

**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	–	–2	V
I_C	DC collector current		–	–25	mA
I_{CM}	peak collector current	$f > 1$ MHz	–	–35	mA
P_{tot}	total power dissipation	up to $T_s = 95$ °C; note 1	–	300	mW
T_{stg}	storage temperature		–65	150	°C
T_j	junction temperature		–	175	°C

THERMAL RESISTANCE

SYMBOL	PARAMETER	CONDITIONS	THERMAL RESISTANCE
$R_{th\ j-s}$	thermal resistance from junction to soldering point	up to $T_s = 95$ °C; note 1	260 K/W

Note 1. T_s is the temperature at the soldering point of the collector tab.

Characteristics ($T_a = 25$ °C)

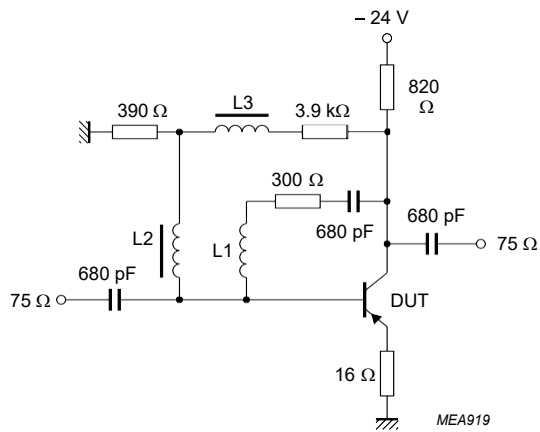
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = -10$ V;	–	–	–50	nA
h_{FE}	DC current gain	$I_C = -14$ mA; $V_{CE} = -10$ V	20	50	–	
f_T	transition frequency	$I_C = -14$ mA; $V_{CE} = -10$ V; $f = 500$ MHz	–	5	–	GHz
C_c	collector capacitance	$I_E = i_e = 0$; $V_{CB} = -10$ V; $f = 1$ MHz	–	0.75	–	pF
C_e	emitter capacitance	$I_C = i_c = 0$; $V_{EB} = -0.5$ V; $f = 1$ MHz	–	0.8	–	pF
C_{re}	feedback capacitance	$I_C = -2$ mA; $V_{CE} = -10$ V; $f = 1$ MHz	–	0.7	–	pF
G_{UM}	maximum unilateral power gain (note 1)	$I_C = -14$ mA; $V_{CE} = -10$ V; $f = 500$ MHz; $T_{amb} = 25$ °C	–	18	–	dB
F	noise figur	$I_C = -5$ mA; $V_{CE} = -10$ V; $f = 500$ MHz; $T_{amb} = 25$ °C	–	2.5	–	dB
V_o	output voltage	note 2	–	150	–	mV

Notes

- 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.
- $d_{im} = -60$ dB (DIN 45004B); $I_C = -14$ mA; $V_{CE} = -10$ V; $R_L = 75 \Omega$; $V_p = V_o$ at $d_{im} = -60$ dB; $f_p = 495.25$ MHz;
 $V_q = V_o - 6$ dB; $f_q = 503.25$ MHz;
 $V_r = V_o - 6$ dB; $f_r = 505.25$ MHz;
measured at $f_{(p+q-r)} = 493.25$ MHz.

PNP 5 GHz wideband transistor

BFT92



L2 = L3 = 5 μH Ferroxcube choke, catalogue number 3122 108 20150.
L1 = 4 turns 0.35 mm copper wire;
winding pitch 1 mm; internal diameter 4 mm.

Fig.1 Intermodulation distortion test circuit.

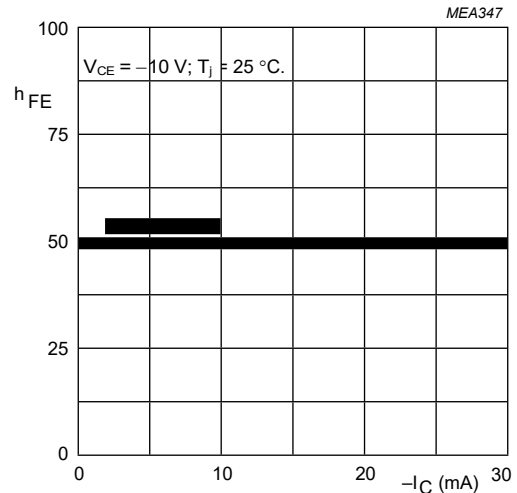


Fig.2 DC current gain as a function of collector current.

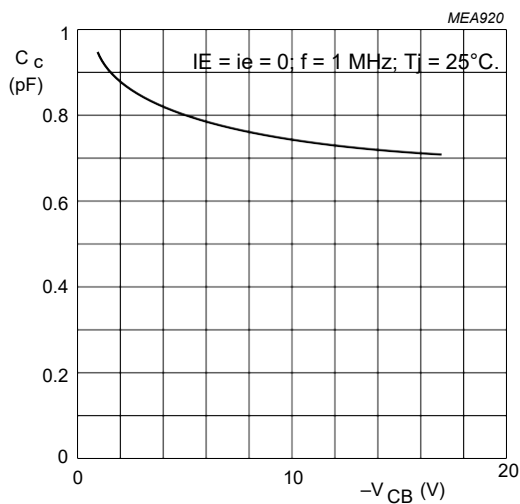


Fig.3 Collector capacitance as a function of collector-base voltage.

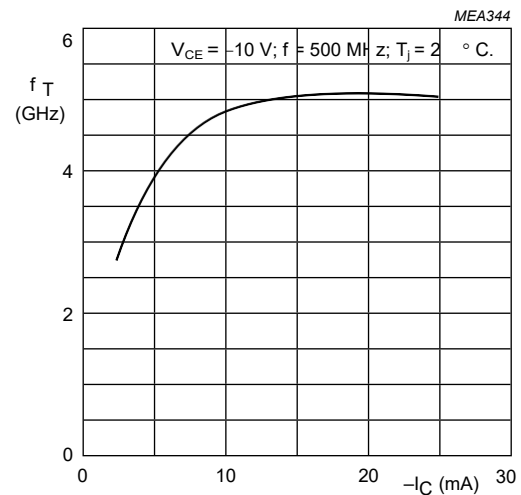


Fig.4 Transition frequency as a function of collector current.

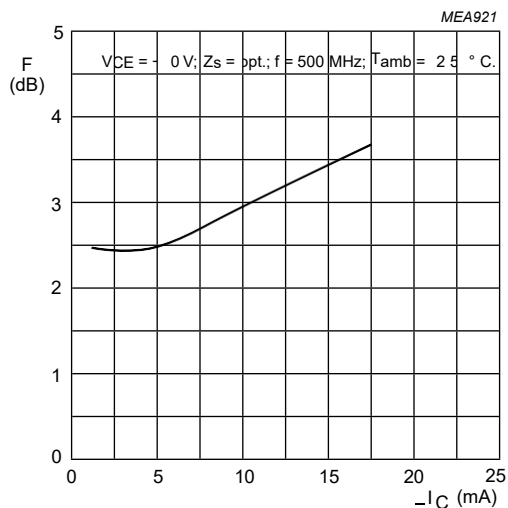


Fig.5 Minimum noise figure as a function of collector current.

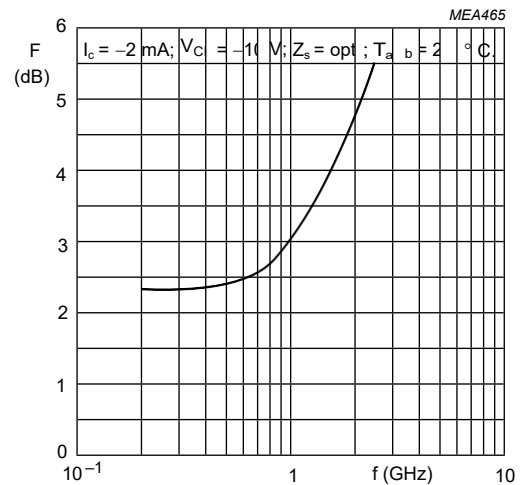
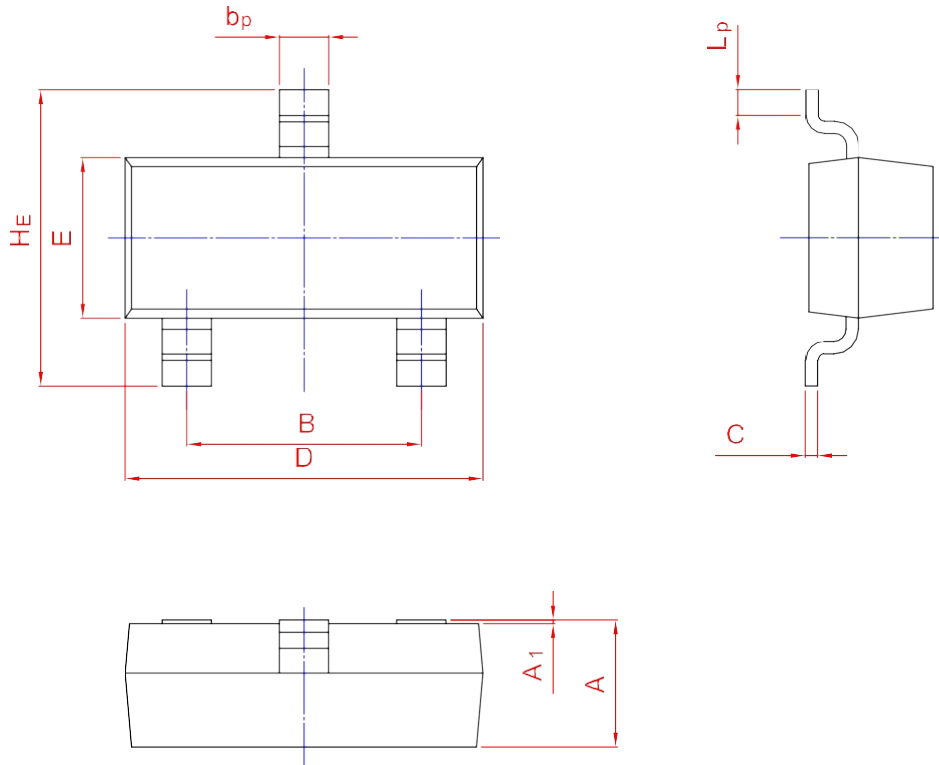
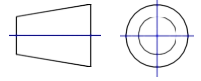


Fig.6 Minimum noise figure as a function of frequency.

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b _p	C	D	E	H _E	A ₁	L _p
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20