RF Products
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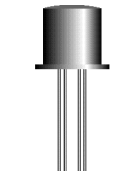
BFY90

RF & MICROWAVE DISCRETE LOW POWER TRANSISTORS

Features

- Silicon NPN, To-72 packaged VHF/UHF Transistor
- Low Noise, 2.5 dB (typ) @ 500 MHz, 5v, 2.0 mA,
- 1.3 GHz Current-Gain Bandwidth Product @ 25mA IC
- Power Gain, G_{PE} = 19 dB (typ) @ 200 MHz



1. Emitter
2. Base
3. Collector
4. Case

TO-72

DESCRIPTION:

Silicon NPN transistor, designed for VHF/UHF equipment. Applications include low noise amplifier; oscillator, and mixer applications.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	15	Vdc
V_{CBO}	Collector-Base Voltage	30	Vdc
V_{EBO}	Emitter-Base Voltage	2.5	Vdc
I_C	Collector Current	50	mA

Thermal Data

P_D	Total Device Dissipation @ T_A = 25ºC Derate above 25ºC	200 1.14	mWatts mW/ ºC

BFY90

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

(off)

Symbol	Test Conditions	Value			
		Min.	Typ.	Max.	Unit
BVCEO	Collector-Emitter Breakdown Voltage (IC = 10 mAdc, IB = 0)	15	-	-	Vdc
ICBO	Collector Cutoff Current (VCE = 15 Vdc, IE = 0 Vdc)	-	-	10	nA

(on)

HFE	DC Current Gain (IC = 25 mAdc, VCE = 1.0 Vdc)	20	-	125	-

DYNAMIC

Symbol	Test Conditions	Value			
		Min.	Typ.	Max.	Unit
f_T	Current-Gain - Bandwidth Product (IC = 25 mAdc, VCE = 5 Vdc, f = 500 MHz)	1.3	-	-	GHz
NFmin	(IC = 2.0 mAdc, VCE = 5.0 Vdc, f = 500 MHz	-	2.5	5.0	dB
Cibo	Emitter-Base Capacitance (VEB = 0.5 Vdc, IC = 0, f = 1.0 MHz)	-	-	2.0	pF

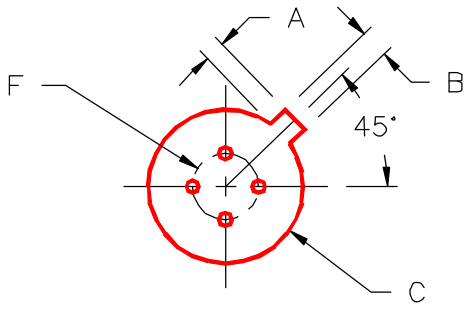
FUNCTIONAL

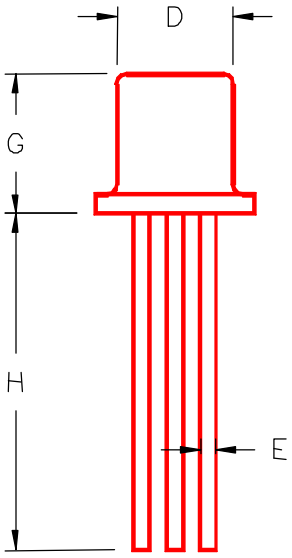
Symbol	Test Conditions		Value			
			Min.	Typ.	Max.	Unit
$G_{U\ max}$	Maximum Unilateral Gain (1)	IC = 8 mAdc, VCE = 10 Vdc, f = 200 MHz	-	20	-	dB
MSG	Maximum Stable Gain	IC = 8 mAdc, VCE = 10 Vdc, f = 200 MHz	-	22	-	dB
$\|S_{21}\|^2$	Insertion Gain	IC = 8 mAdc, VCE = 10 Vdc, f = 200 MHz	15	16	-	dB

Table 1. Common Emitter S-Parameters, @ VCE = 10 V, IC = 8 mA

f	S11		S21		S12		S22	
(MHz)	|S11|	∠ϕ	|S21|	∠ϕ	|S12|	∠ϕ	|S22|	∠ϕ
100	.574	-79	10.65	127	.023	67	.788	-56
200	.374	-130	7.01	105	.036	60	.682	-97
300	.292	-172	4.44	97	.047	66	.654	-136
400	.259	142	3.62	92	.063	63	.640	-178
500	.221	96	3.02	88	.072	60	.617	140
600	.198	53	2.57	80	.082	58	.614	98
700	.185	8.8	2.08	76	.087	58	.611	55
800	.187	-38	1.90	76	.104	58	.621	10
900	.185	-91	1.79	72	.117	50	.620	-35
1000	.177	-136	1.70	61	.118	44	.632	-78

PACKAGE STYLE M244





TO–72

	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.020/0,51	.048/1,22			
B	.036/0,91	.046/1,17			
C	.209/5,31	.230/5,84			
D	.178/4,52	.195/4,95			
E	.016/0,41	.020/0,51			
F	.100/2,54				
G	.170/4,32	.210/5,33			
H	.500/12,70				