RF Products
Microsemi
Progress Powered by Technology

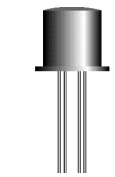
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2N5031

RF & MICROWAVE DISCRETE LOW POWER TRANSISTORS

Features

- Silicon NPN, To-72 packaged VHF/UHF Transistor
- 1.2 GHz Current-Gain Bandwidth Product @ 5mA IC
- Maximum Unilateral Gain – 12 dB (typ) @ 400 MHz





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

TO-72

DESCRIPTION:

General Purpose small-signal, pre-driver, and driver, applications targeted for military and industrial equipment.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	10	Vdc
V_{CBO}	Collector-Base Voltage	15	Vdc
V_{EBO}	Emitter-Base Voltage	3.0	Vdc
I_C	Collector Current	20	mA

Thermal Data

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

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ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

(off)

Symbol	Test Conditions	Value			
		Min.	Typ.	Max.	Unit
BVCEO	Collector-Emitter Breakdown Voltage (IC = 1.0 mAdc, IB = 0)	10	-	-	Vdc
BVCBO	Collector-Base Breakdown Voltage (IC= 0.01 mAdc, IE=0)	15	-	-	Vdc
BVEBO	Emitter-Base Breakdown Voltage (IE = 0.01mAdc, IC = 0)	3.0	-	-	Vdc
ICBO	Collector Cutoff Current (VCE = 6.0 Vdc, IE = 0 Vdc)	-	1.0	10	nA

(on)

HFE	DC Current Gain (IC = 1.0 mAdc, VCE = 6.0 Vdc)	25	-	300	-

DYNAMIC

Symbol	Test Conditions	Value			
		Min.	Typ.	Max.	Unit
f_T	Current-Gain - Bandwidth Product (IC = 5.0 mAdc, VCE = 6 Vdc, f = 100 MHz)	1200	-	2500	MHz
CCB	Output Capacitance (IC = 1.0 mAdc, VCE = 6 Vdc, f = 450 MHz)	-	2.5	-	dB

FUNCTIONAL

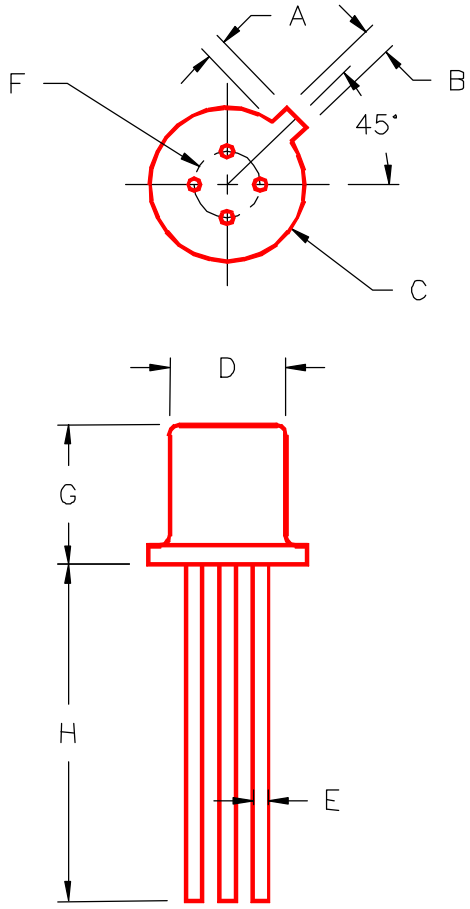
Symbol	Test Conditions		Value			
			Min.	Typ.	Max.	Unit
$G_{U\ max}$	Maximum Unilateral Gain (1)	IC = 1 mAdc, VCE = 6Vdc, f = 400 MHz	-	12	-	dB
MAG	Maximum Available Gain	IC = 1 mAdc, VCE = 6Vdc, f = 400 MHz	-	12.4	-	dB

Table 1. Common Emitter S-Parameters, @ VCE = 10 V, IC = 50 mA

f	S11		S21		S12		S22	
(MHz)	|S11|	∠ϕ	|S21|	∠ϕ	|S12|	∠ϕ	|S22|	∠ϕ
100	.610	-137	23.8	116	.026	46	.522	-78
200	.659	-161	13.2	98	.033	47	.351	-106
300	.671	-171	9.0	89	.040	51	.304	-120
400	.675	-178	6.8	83	.047	55	.292	-128
500	.677	176	5.5	77	.055	58	.293	-132
600	.678	172	4.6	72	.064	61	.299	-134
700	.677	168	4.0	68	.073	62	.306	-135
800	.679	184	3.5	64	.082	63	.314	-136
900	.678	160	3.1	60	.092	64	.322	-138
1000	.682	156	2.8	56	.102	65	.311	-139

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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				