ADVANCED POWER TECHNOLOGY RF®

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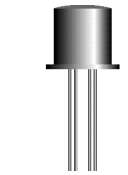
2N2857

RF & MICROWAVE DISCRETE LOW POWER TRANSISTORS

Features

- Silicon NPN, To-72 packaged UHF Transistor
- 1.6 GHz Current-Gain Bandwidth Product @ 5mA IC
- Maximum Unilateral Gain = 13 dB (typ) @ 500 MHz



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

TO-72

DESCRIPTION:

The 2N2857 is a silicon NPN transistor, designed for UHF equipment. Applications include low noise amplifier; oscillator, and mixer applications.

www.DataSheet

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	15	V
V_{CBO}	Collector-Base Voltage	30	V
V_{EBO}	Emitter-Base Voltage	2.5	V
P_D	Maximum Device Dissipation	200	mW
I_C	Collector Current	40	mA

Thermal Data

$R_{TH(J-C)}$	Thermal Resistance Junction-case	0.88	°C/mW

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ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions	Value			
		Min.	Typ.	Max.	Unit
BVCEO	Collector-Emitter Breakdown Voltage (IC = 3.0 mAdc, IB = 0)	15	-	-	V
BVCBO	Collector-Base Breakdown Voltage (IC=1.0 μAdc, IE=0)	30	-	-	V
BVEBO	Emitter-Base Breakdown Voltage (IE = 10 μAdc, IC = 0)	2.5	-	-	V
ICBO	Collector Cutoff Current (VCE = 15 V, IE = 0 V)	-	-	.01	μA
HFE	DC Current Gain (IC = 3.0 mAdc, VCE = 1.0 V)	30	-	150	

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
f_T	Current-Gain - Bandwidth Product (IC = 5.0 mAdc, VCE = 6 V, f = 100 MHz)		1.6	-	GHz
NF	Noise Figure (50 Ohms) (IC = 1.5 mAdc, VCE = 6 V, f = 500 MHz)		5.5		dB

FUNCTIONAL

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$G_{U\ max}$	Maximum Unilateral Gain	IC = 12 mAdc, VCE = 10V, f = 500 MHz	-	13	-	dB
MAG	Maximum Available Gain	IC = 12 mAdc, VCE = 10V, f = 500 MHz	-	13.5	-	dB
$\|S_{21}\|^2$	Insertion Gain	IC = 12 mAdc, VCE = 10V, f = 500 MHz	9.5	10.5	-	dB

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Table 1. Common Emitter S-Parameters, @ VCE = 10 V, IC = 12 mA

f	S11		S21		S12		S22	
(MHz)	|S11|	∠ϕ	|S21|	∠ϕ	|S12|	∠ϕ	|S22|	∠ϕ
100	0.457	-44	12.49	122	0.012	63	0.823	-23
200	0.291	-56	8.06	101	0.018	55	0.712	-35
300	0.233	-60	5.3	89	0.024	81	0.728	-46
400	0.212	-68	3.88	80	0.032	55	0.723	-60
500	0.184	-76	3.36	80	0.037	49	0.711	-73
600	0.173	-79	2.97	69	0.043	46	0.717	-86
700	0.192	-89	2.39	61	0.044	44	0.72	-100
800	0.165	-96	1.89	57	0.055	43	0.731	-115
900	0.261	-121	2.72	60	0.068	29	0.746	-131
1000	0.083	149	1.27	39	0.064	18	0.749	-148

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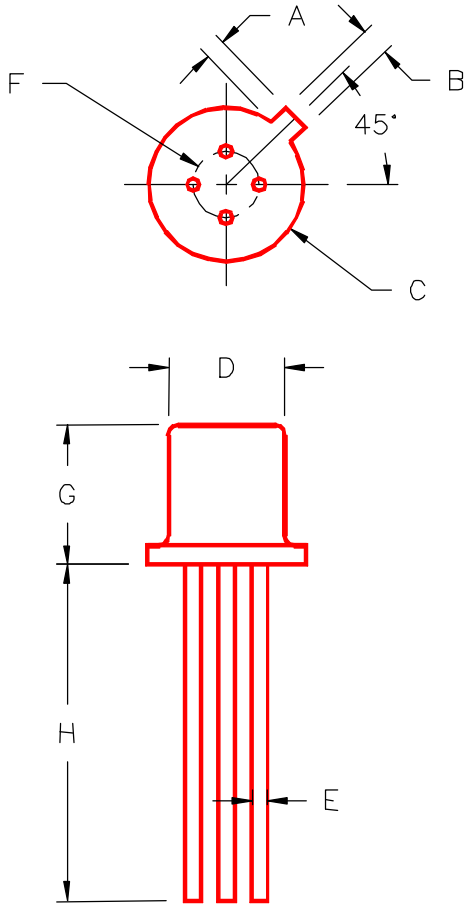
PACKAGE STYLE M244



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				

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