

SD4012

RF & MICROWAVE TRANSISTORS UHF COMMUNICATIONS APPLICATIONS

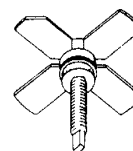
Features

- 400 MHz
- 28 VOLTS
- $P_{OUT} = 3$ WATTS
- $G_p = 11.7$ dB GAIN MINIMUM
- OVERLAY GEOMETRY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- REFRACTORY/GOLD METALIZATION

DESCRIPTION:

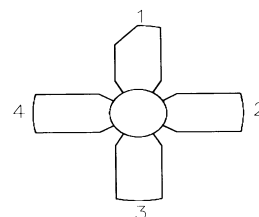
The SD4012 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for superior ruggedness. The SD4012 can withstand a 30:1 VSWR.

Ideal for military communications applications in the 225 – 400 MHz frequency range, the SD4012 provides typically 13 dB gain with 60% collector efficiency.



.280 4L STUD (M122)
epoxy sealed

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	55	V
V _{CEO}	Collector-Emitter Voltage	30	V
V _{EBO}	Emitter-Base Voltage	3.5	V
I _C	Device Current	0.7	A
P _{DISS}	Power Dissipation	11	W
T _J	Junction Temperature	+200	°C
T _{STG}	Storage Temperature	-65 to +150	°C

Thermal Data

R _{TH(J-C)}	Thermal Resistance Junction-case	16.0	°C/W
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ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 20 \text{ mA}$	$I_E = 0 \text{ mA}$	55	---	---	V
BV_{EBO}	$I_E = 5 \text{ mA}$	$I_C = 0 \text{ mA}$	3.5	---	---	V
BV_{CES}	$I_C = 20 \text{ mA}$	$V_{BE} = 0 \text{ V}$	55	---	---	V
BV_{CEO}	$I_C = 50 \text{ mA}$	$I_B = 0 \text{ mA}$	30	---	---	V
I_{CBO}	$V_{CB} = 30 \text{ V}$	$I_E = 0 \text{ mA}$	---	---	1	mA
HFE	$V_{CE} = 5 \text{ V}$	$I_C = 1 \text{ A}$	10	---	150	---

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 400 \text{ MHz}$	$P_{IN} = 0.2 \text{ W}$	$V_{CC} = 28 \text{ V}$	3.0	---	---	W
η_C	$f = 400 \text{ MHz}$	$P_{IN} = 0.2 \text{ W}$	$V_{CC} = 28 \text{ V}$	---	---	---	%
G_P	$f = 400 \text{ MHz}$	$P_{IN} = 0.2 \text{ W}$	$V_{CC} = 28 \text{ V}$	11.7	---	---	dB
VSWR	$f = 400 \text{ MHz}$	$P_{IN} = 0.2 \text{ W}$	$V_{CC} = 28 \text{ V}$	---	---	30:1	W
C_{OB}	$f = 1 \text{ MHz}$	$V_{CB} = 28 \text{ V}$		---	---	6	W

IMPEDANCE DATA

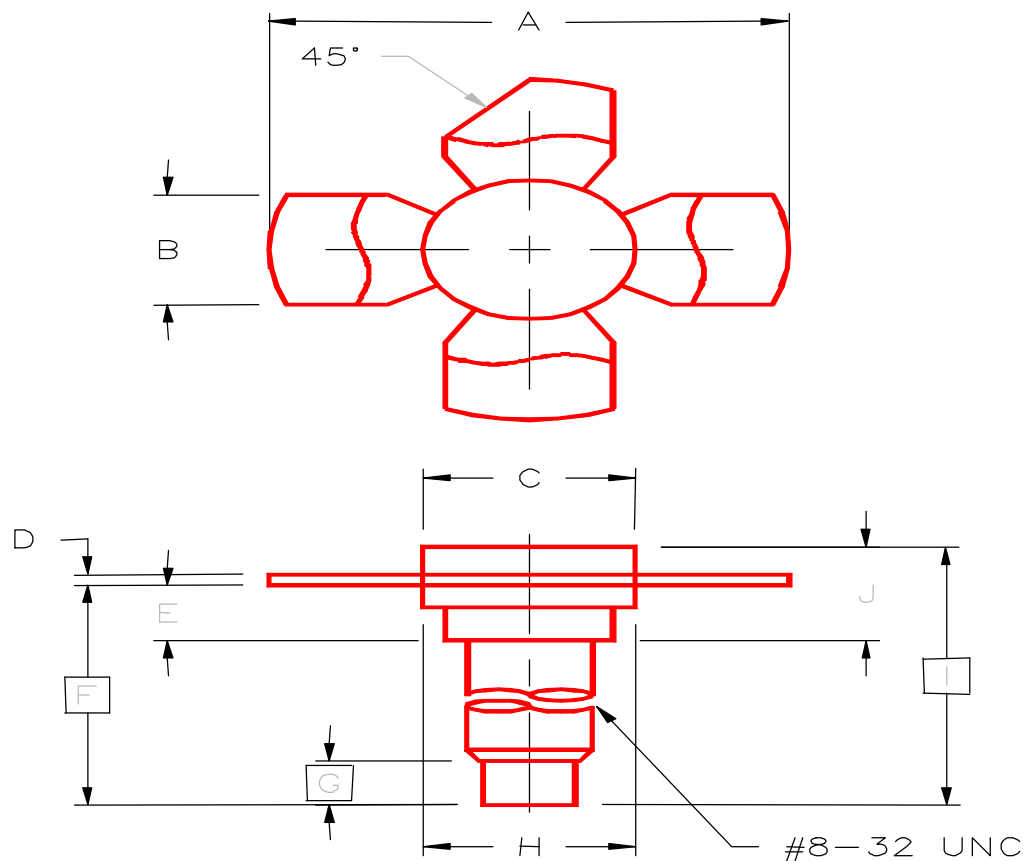
FREQ	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
300 MHz	0.8 – j0.5	33.0 + j57.0
325 MHz	0.9 – j0.2	31.0 + j52.0
350 MHz	1.1 + j.25	28.0 + j49.0
375 MHz	1.5 + j.75	26.0 + j46.0
400 MHz	1.9 + j1.0	23.0 + j45.0
425 MHz	2.5 + j0.7	20.0 + j42.0
450 MHz	3.3 + j0.1	17.0 + j36.0

$P_{OUT} = 3 \text{ W}$

$V_{CE} = 28 \text{ V}$

PACKAGE MECHANICAL DATA

PACKAGE STYLE M122



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	1.010/25,65	1.055/26,80	I	.640/16,26	
B	.220/5,59	.230/5,84	J	.175/4,45	.217/5,51
C	.270/6,86	.285/7,24			
D	.003/0,08	.007/0,18			
E	.117/2,97	.137/3,48			
F	.572/14,53				
G	.130/3,30				
H	.275/6,99	.285/7,24			