RF Products
Microsemi
Progress Powered by Technology

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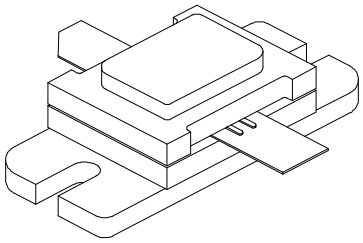
MS2475

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS



.400 x .500 2LFL (M112)
hermetically sealed

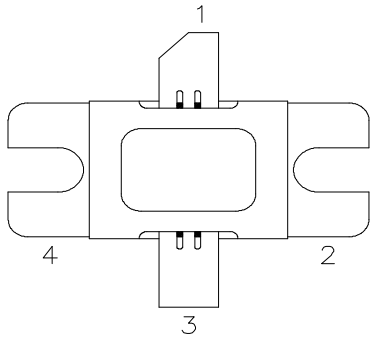
Features

- DESIGNED FOR HIGH POWER PULSED IFF
- 720 WATTS (min.) IFF 1030 or 1090 MHz
- REFRACTORY GOLD METALLIZATION
- 6.8 dB MIN. GAIN
- LOW THERMAL RESISTANCE FOR RELIABILTY AND RUGGEDNESS
- 30:1 LOAD VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- INPUT MATCHED, COMMON BASE CONFIGURATION

DESCRIPTION:

The MS2475 is a silicon NPN power transistor designed for IFF applications. The MS2475 is designed to exceed the high peak power requirements of today's IFF systems. Hermetic sealing, gold metalization and internal input matching provide superior long term reliability and broadband performance.

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CC}	Collector-Supply Voltage*	55	V
I_C	Device Current* ($T_C \leq 100°C$)	45	A
P_{DISS}	Power Dissipation*	1670	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	- 65 to + 200	°C

Thermal Data

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	0.06	°C/W

*** Applies only to rated RF operation.**

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ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions	Value			
		Min.	Typ.	Max.	Unit
BV_{CBO}	I_C = 25 mA I_E = 0 mA	65	----	----	V
BV_{CER}	I_C = 25 mA R_{BE} = 10 Ω	65	----	----	V
BV_{EBO}	I_E = 10 mA I_C = 0 mA	3.5	----	----	V
I_{CES}	V_{CE} = 50 V V_{BE} = 0 V	----	----	60	mA
h_{FE}	V_{CE} = 5 V I_C = 2 A	10	----	250	----

DYNAMIC

Symbol	Test Conditions	Value			
		Min.	Typ.	Max.	Unit
P_{OUT}	f = 1090 MHz P_{IN} = 150 W V_{CC} = 50 V	720	----	----	W
η_C	f = 1090 MHz P_{IN} = 150 W V_{CC} = 50 V	35	----	----	%
G_P	f = 1090 MHz P_{IN} = 150 W V_{CC} = 50 V	6.8	----	----	dB

Note: Pulse width = 10μSec. Duty Cycle = 1%

IMPEDANCE DATA:

FREQUENCY	Zin	Zcl
1030 MHz	4.18 + j1.32	0.81 + j0.55
1090 MHz	3.16 + j1.24	0.75 + j0.60

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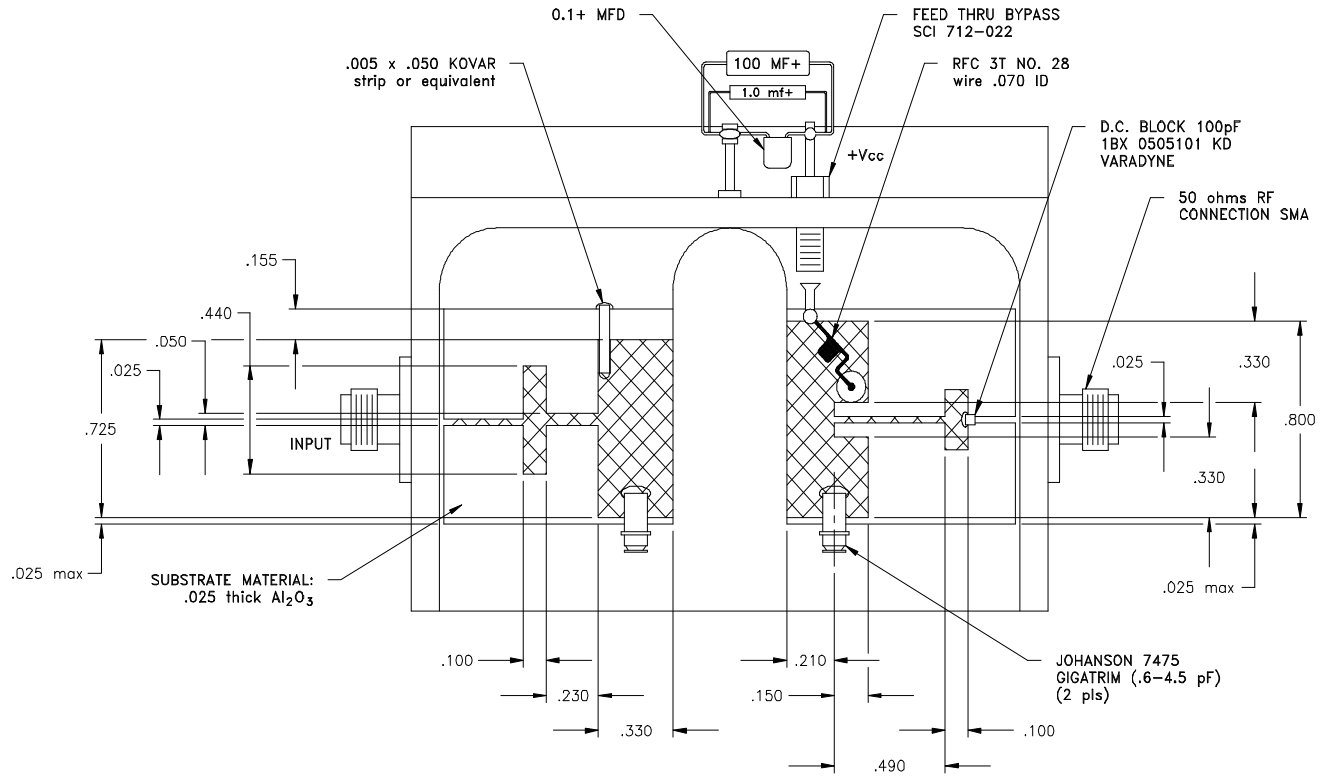
Test Circuit (1090 MHz)



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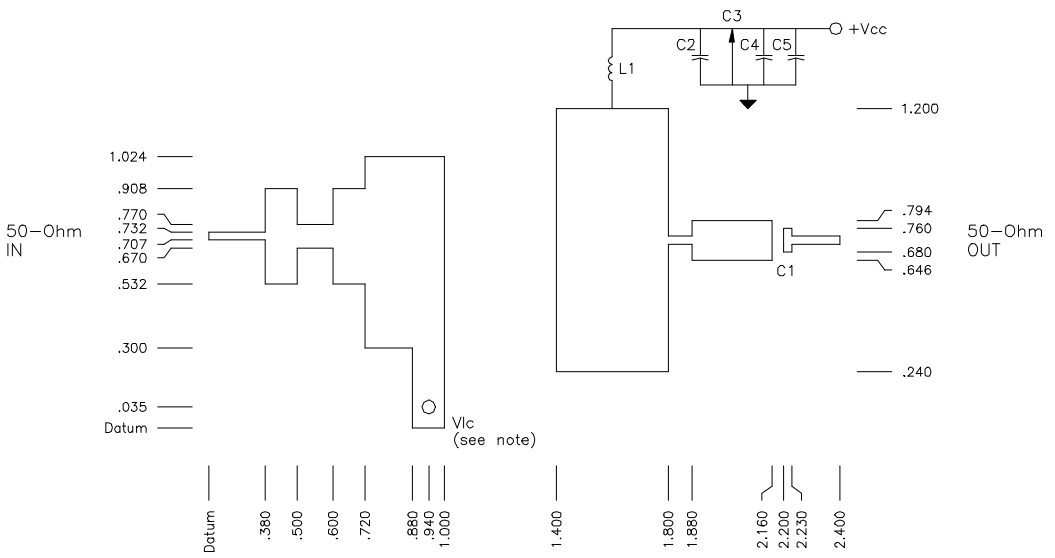
1030 MHz Typical Circuit



C1: DC block 100pF chip
C2: 0.1 pF Monolithic
C3: Feedthrough 1500pF
C4: 1.0 wF Film 63V
C5: 100uF Electrolytic 63V
L1: 1/2 turn #18 wire .620 ID
Substrate:
RT Duroid 6010−2

Notes:
1. Insert pin in via hole for emitter ground return.
2. All dimensions are in inches.

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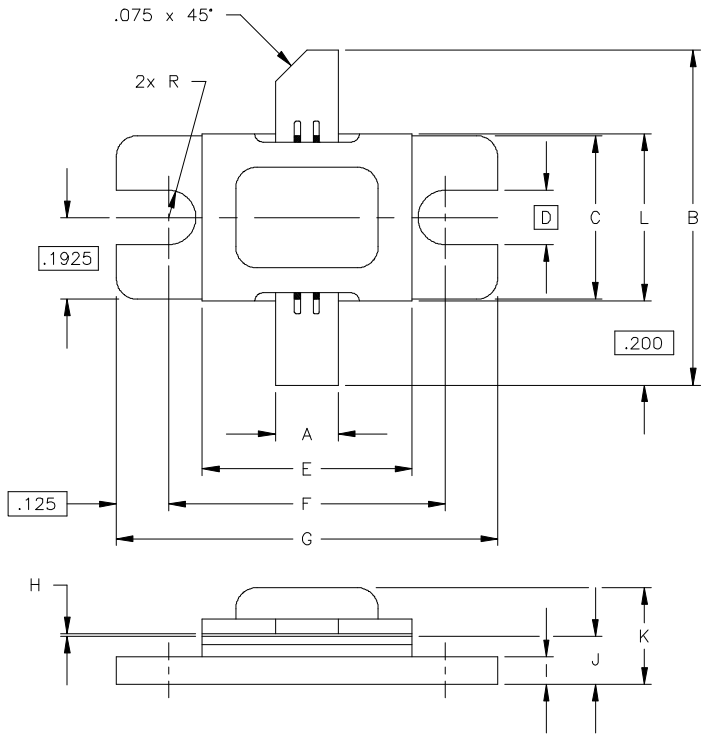
PACKAGE MECHANICAL DATA



	Minimum Inches/mm	Maximum Inches/mm
A	.145/3,68	.155/3,93
B	.750/19,05	---
C	.380/9,65	.390/9,91
D	---	.130/3,30
E	.495/12,57	.507/12,88
F	.640/16,26	.655/16,64
G	.890/22,61	.910/23,11
H	.002/0,05	.006/0,15
I	.055/1,40	.065/1,65
J	.115/2,92	.135/3,43
K	---	.230/5,84
L	.395/10,03	.407/10,34