ADVANCED POWER TECHNOLOGY RF®

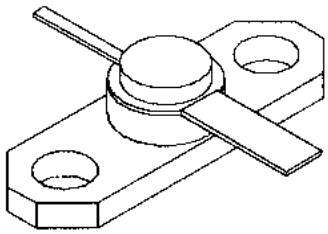
140 COMMERCE DRIVE
MONTGOMERYVILLE, PA
18936-1013
PHONE: (215) 631-9840
FAX: (215) 631-9855

MS3024

RF AND MICROWAVE TRANSISTORS
GENERAL PURPOSE AMPLIFIER APPLICATIONS

Features

- **EMITTER BALLASTED**
- **INFINITE VSWR CAPABILITY AT RATED CONDITIONS**
- **REFRACTORY/GOLD METALLIZATION**
- **HERMETIC STRIPAC® PACKAGE**
- **P_{OUT} = 5.0 W MIN. WITH 7.0 dB GAIN AT 2.0 GHz**

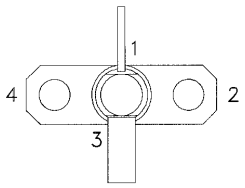


.250 2LFL (M210)

DESCRIPTION:

The MS3024 is a common base hermetically sealed silicon NPN microwave transistor that utilizes a fishbone emitter ballasted geometry with a refractory/gold metallization system. This device is capable of withstanding an infinite load VSWR at any phase angle under rated conditions. The MS3024 was designed for Class C amplifier applications in the 1.0 – 2.0 GHz frequency range.

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	35	V
I_C	Device Current	1	A
P_{DISS}	Power Dissipation	29	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	6	°C/W

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Units
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 1 mA	I_E = 0 mA	45			V
BV_{EBO}	I_E = 1 mA	I_C = 0 mA	3.5			V
BV_{CER}	I_C = 5 mA	R_{BE} = 10 Ω	45			V
I_{CBO}	V_{CB} = 28V				2.5	mA
h_{FE}	V_{CE} = 5 V	I_C = 500 mA	15		120	

DYNAMIC

Symbol	Test Conditions			Value			Units
				Min.	Typ.	Max.	
P_{OUT}	f = 2 GHz	P_{IN} = 1 W	V_{CE} = 28 V	5	6		W
çC *	f = 2 GHz	P_{IN} = 1 W	V_{CE} = 28 V	35	40		%
G_P *	f = 2 GHz	P_{IN} = 1 W	V_{CE} = 28 V	7	7.8		dB
C_{OB}	f = 1 MHz	V_{CB} = 28 V				10	PF

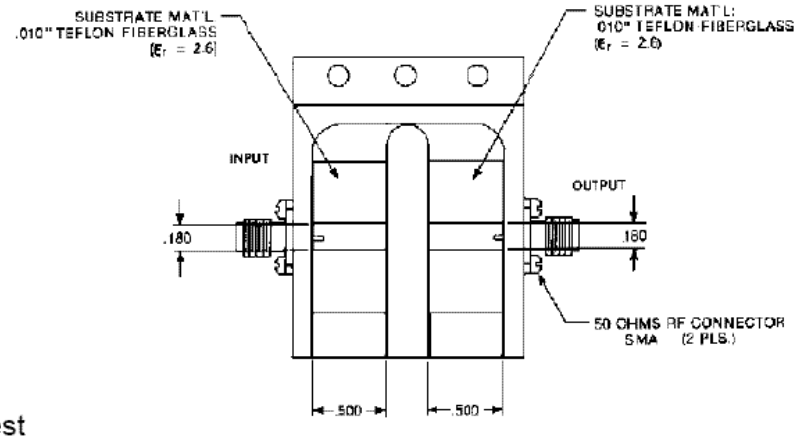
IMPEDANCE DATA

Freq.	ZIN (Ω)	ZCL (Ω)
1.0 GHz	3.0 = j 6.0	7.2 + j 6.0
1.5 GHz	3.5 + j 8.0	3.7 – j 0.2
1.7 GHz	4.0 + j 9.0	2.8 – j 2.3
2.0 GHz	4.8 + j 10.5	2.3 – j 4.5

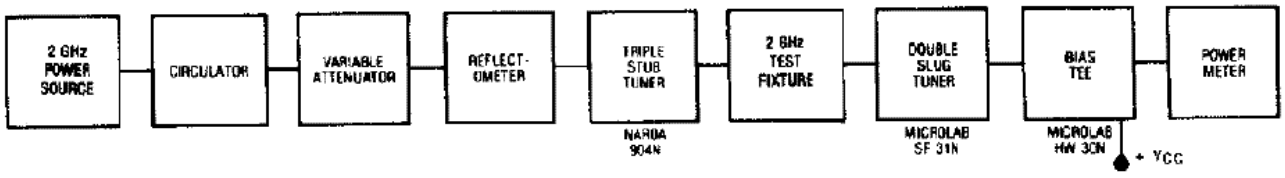
TEST CIRCUIT

Ref.: Dwg. No. C125518

All dimensions are in inches.
Frequency 2.0 GHz



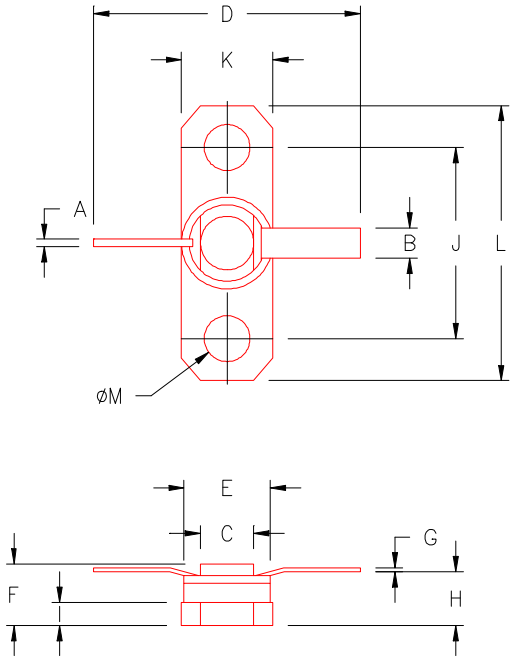
RF Amplifier Power Output Test



MS3024

PACKAGE MECHANICAL DATA

PACKAGE STYLE M210



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.028/0,71	.032/0,81	J	.560/14,22	.570/14,48
B	.110/2,80	.117/2,97	K	.245/6,22	.255/6,48
C	.165/4,19	.185/4,70	L	.790/20,07	.810/20,57
D	.740/18,80		M	.128/3,25	.132/3,35
E	.225/5,72	.235/5,97			
F	.149/2,30	.187/4,75			
G	.003/0,08	.007/0,18			
H	.117/2,97	.133/3,38			
I	.058/1,47	.068/1,73			