ADVANCED POWER TECHNOLOGY RF®

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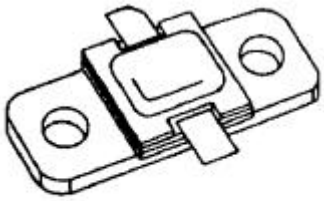
MS2211

RF & MICROWAVE TRANSISTORS
AVIONICS APPLICATIONS



.310 x .310 2LFL (M222)
hermetically sealed

Features

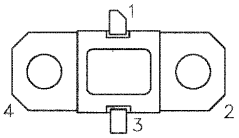
- 960-1215 MHz
- COMMON BASE
- GOLD METALLIZATION
- POUT = 6 W MIN. WITH 9.3 dB GAIN
- 5:1 VSWR CAPABILITY

DESCRIPTION:

The MS2211 is a silicon NPN bipolar device designed For specialized avionics applications, including JTIDS, utilizing pulse formats with short pulse widths and high burst rates or overall duty cycles.

The MS2211 is housed in a hermetic package and utilizes internal input impedance matching. Gold metallization and emitter ballasting assures high reliability under operating conditions.

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 75°C$)	25	W
I_C	Device Current*	0.9	A
V_{CC}	Collector-Supply Voltage	32	V
T_J	Junction Temperature (Pulsed RF Operation)	+250	°C
T_{STG}	Storage Temperature	-65 to +200	°C

Thermal Data

$R_{TH(J-C)}$	Junction-case Thermal Resistance*	7.0	°C/W

*** Applies only to rated RF amplifier operation**

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ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 1mA	I_E = 0mA	48	---	---	V
BV_{CER}	I_C = 5mA	R_{BE} = 10 Ω	48	---	---	V
BV_{EBO}	I_E= 1mA	I_C = 0 mA	3.5	---	---	V
I_{CES}	V_{CE}= 28 V	V_{BE} = 0 V	------	---	0.5	mA
h_{FE}	V_{CE} = 5 V	I_C = 250mA	30	---	300	---

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960-1215 MHz	V_{CC} = 28V	P_{IN} = 0.7W	6.0	---	---	W
G_P	f = 960-1215 MHz	V_{CC} = 28V	P_{IN} = 0.7W	9.3	---	---	dB
η	f = 960-1215 MHz	V_{CC} = 28V	P_{IN} = 0.7W	45	---	---	%

Conditions Pulse Format: 6.4 µS ON/ 6.6 µS OFF, repeat for 3mS, then OFF for 4.5125mS.
Duty Cycle: Burst: 49.2%, overall 20.8%

IMPEDANCE DATA

FREQ	Z_{IN}(Ω)	Z_{CL}(Ω)
960 MHz	8.2 + j8.5	10.5 + j12.9
1090 MHz	11.1 + j8.3	9.4 + j11.3
1215 MHz	15.6 + j6.8	9.0 + j8.3

P_{IN} = 0.7W
V_{CC} = 28V

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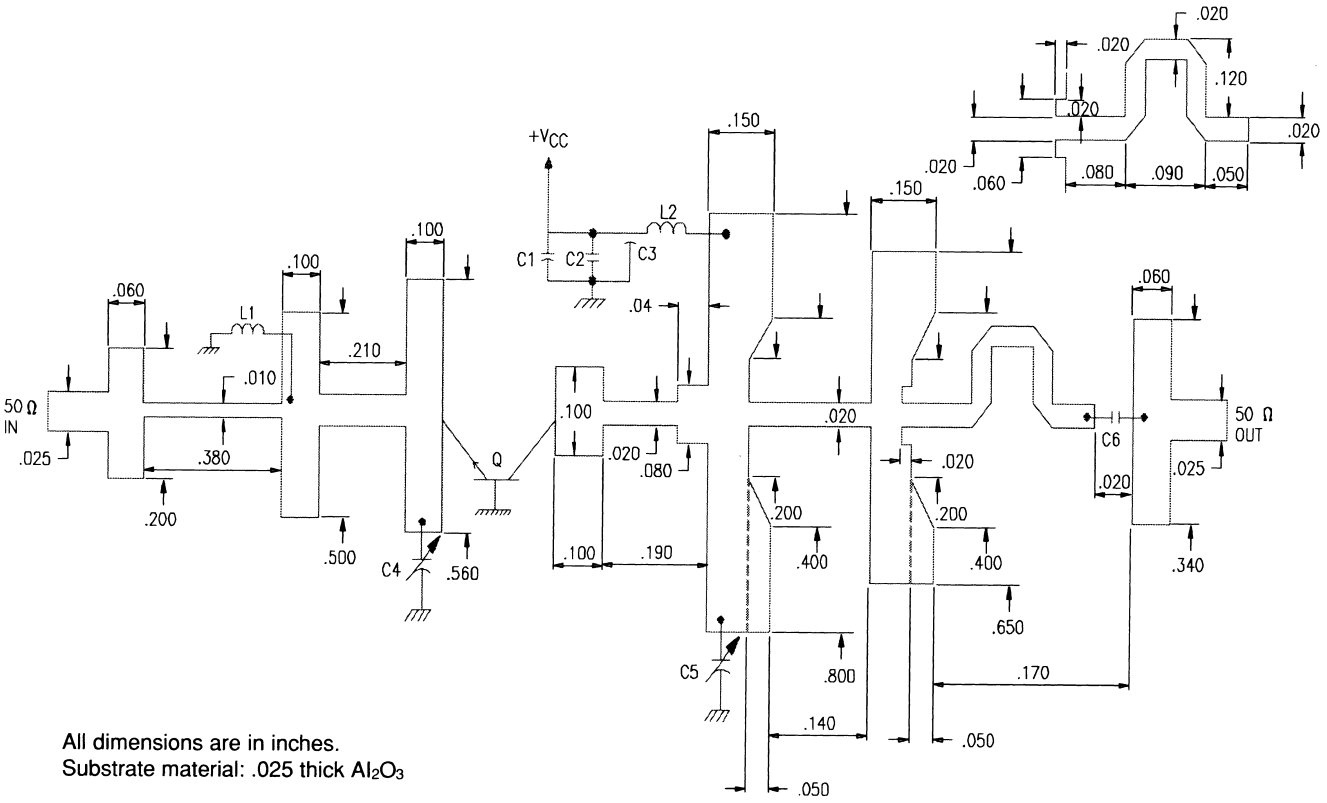
TEST CIRCUIT



All dimensions are in inches.
Substrate material: .025 thick Al_2O_3

C1 : 100 µF Electrolytic Capacitor, 63V
C2 : .1 µF Ceramic Capacitor
C3 : Feedthrough Bypass SCI 712-022
C4 : .6 — 4.5 pF, 2 pls, Johanson Gigatrim Capacitor
C5 : .6 — 4.5 pF, 2 pls, Johanson Gigatrim Capacitor
C6 : 100 pF Chip Capacitor
L1 : No. 26 Wire, 4 Turn
L2 : No. 26 Wire, 4 Turn

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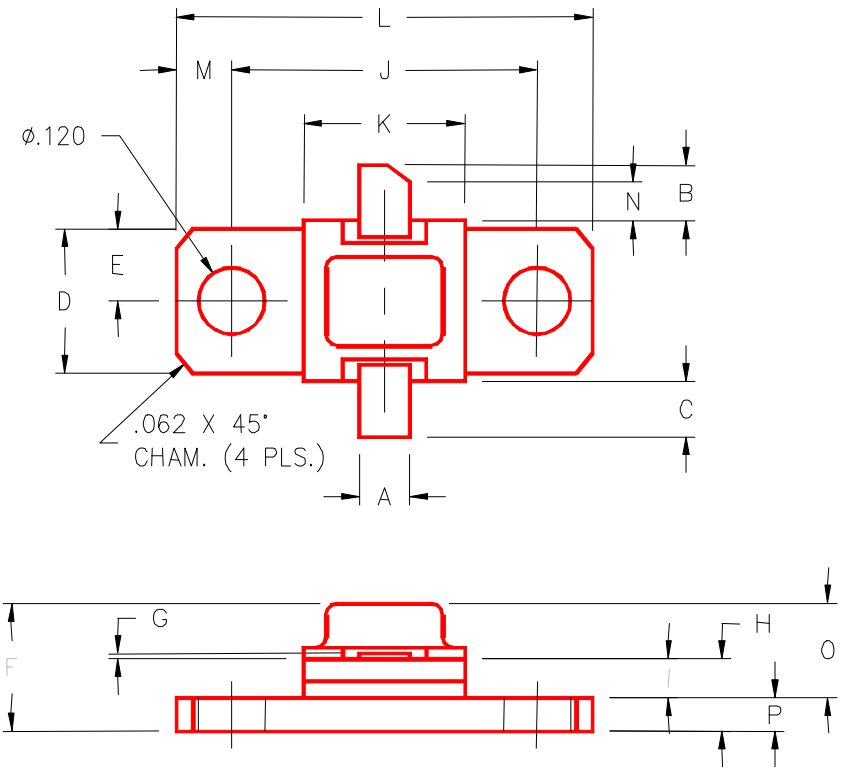
PACKAGE MECHANICAL DATA

PACKAGE STYLE M222



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.100/2,54		J	.562/14,28	
B	.110/2,80		K	.310/7,87	
C	.110/2,80		L	.800/20,32	
D	.296/7,52		M	.119/3,02	
E	.148/3,76		N	.050/1,27	
F		.230/5,84	O		.170/4,32
G	.003/0,08	.006/0,15	P	.062/1,58	
H	.118/3,00	.131/3,33			
I	.059/1,50				

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