

MS2211

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

Features

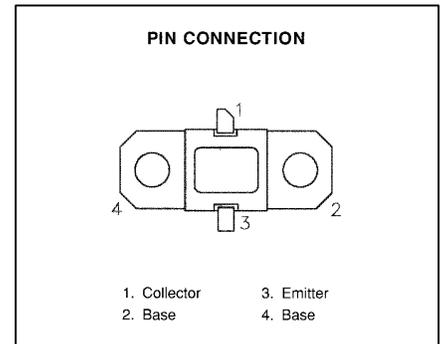
- 960-1215 MHz
- COMMON BASE
- GOLD METALLIZATION
- POUT = 6 W MIN. WITH 9.3 dB GAIN
- 5:1 VSWR CAPABILITY



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.



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

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 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
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* Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (T_{case} = 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	---	---	%

Pulse Format: 6.4 μS ON/ 6.6 μS OFF, repeat for 3mS, then OFF for 4.5125mS.

Conditions Duty Cycle: Burst: 49.2%, overall 20.8%

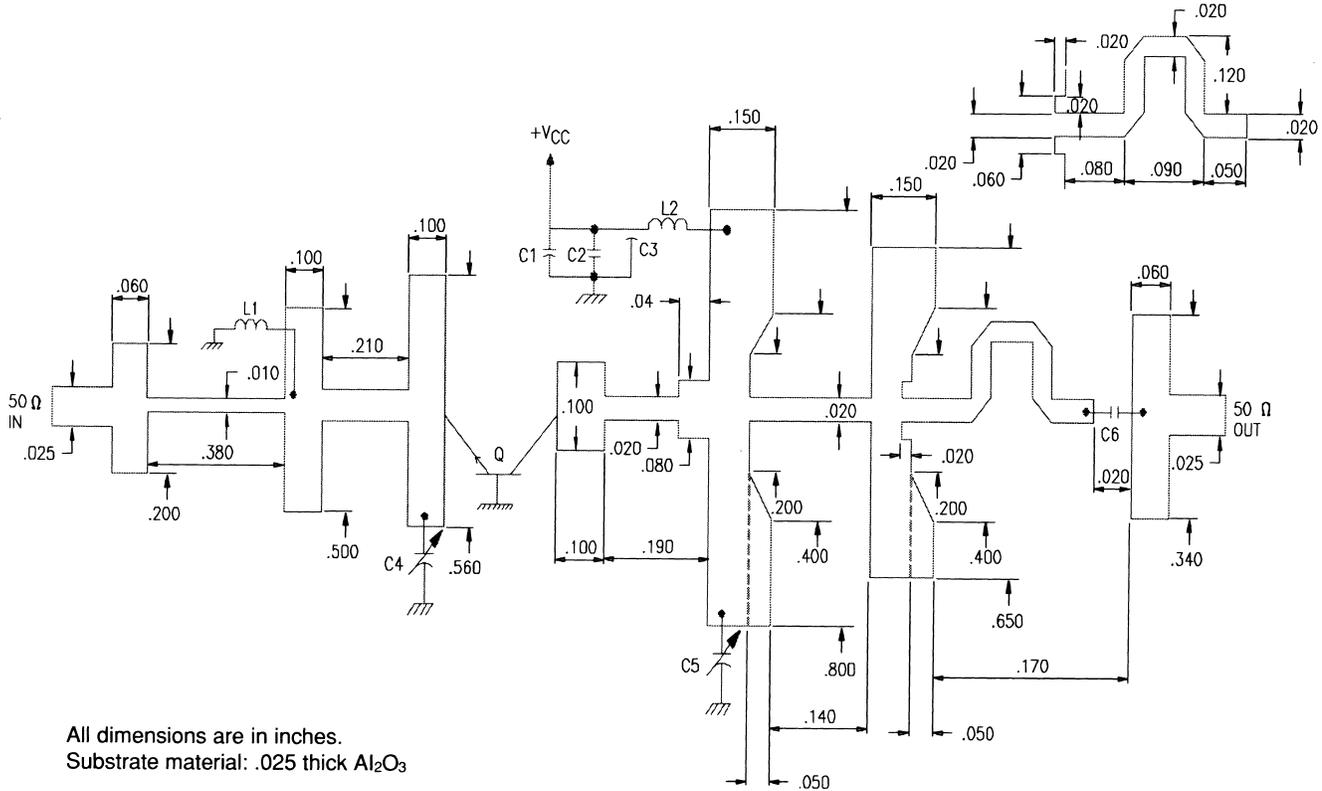
IMPEDANCE DATA

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

TEST CIRCUIT

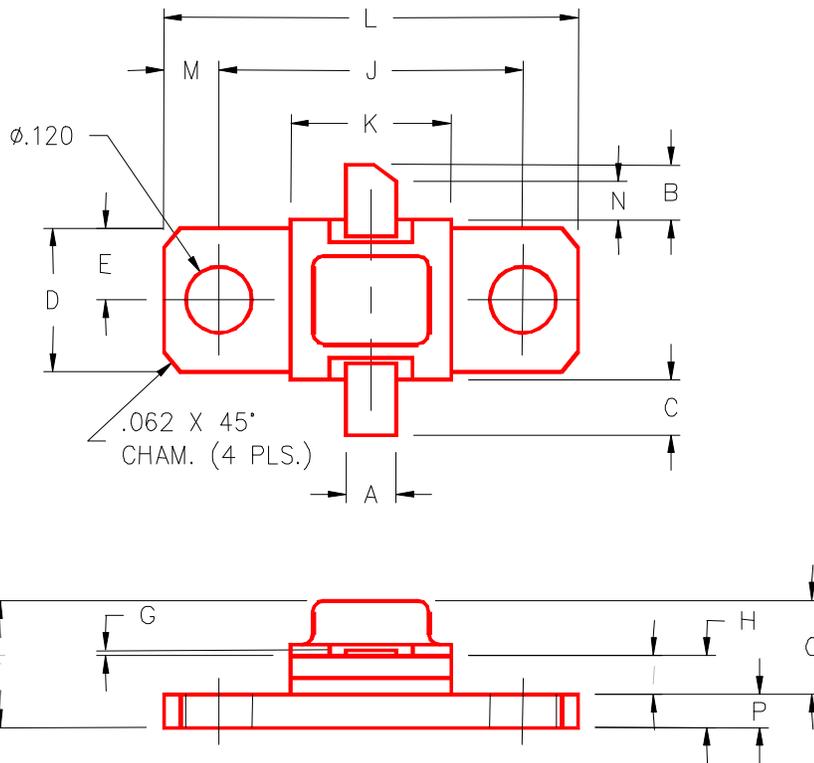


All dimensions are in inches.
Substrate material: .025 thick Al₂O₃

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

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				