

MS2214

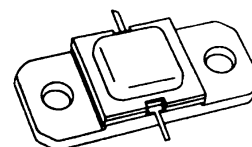
RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

Features

- GOLD METALLIZATION
- EMITTER SITE BALLASTED
- Pout = 85 W MINIMUM
- Gp = 7.5 dB
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- LOW THERMAL RESISTANCE

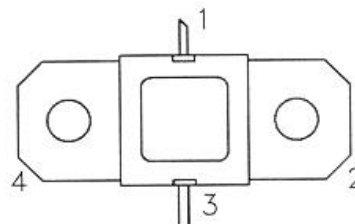
DESCRIPTION:

The MS2214 is a silicon NPN bipolar transistor designed for avionics applications with high duty cycle requirements. Gold metallization and emitter ballasting provides long term reliability under JTIDS and similar pulse formats.



.400 x .400 2NLFL (M218)
hermetically sealed

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V _{CC}	Collector-Supply Voltage*	40	V
I _C	Device Current*	8.0	A
P _{DISS}	Power Dissipation*	300	W
T _J	Junction Temperature	+250	°C
T _{STG}	Storage Temperature	- 65 to + 200	°C

Thermal Data

R _{TH(i-c)}	Junction-Case Thermal Resistance*	0.75	°C/W
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* Applies only to rated RF operation.

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ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 25mA	I_E = 0 mA	55	----	----	V
BV_{CER}	I_C = 25 mA	R_{BE} = 10 Ω	55	----	----	V
BV_{EBO}	I_E = 10 mA	I_C = 0 mA	3.5	----	----	V
I_{CES}	V_{CE} = 35 V	V_{BE} = 0 V	----	----	20	mA
h_{FE}	V_{CE} = 5 V	I_C = 2A	20	----	200	----

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960 - 1215 MHz	P_{IN} = 15 W	V_{CC} = 35 V	85	----	----	W
η_C	f = 960 - 1215 MHz	P_{IN} = 15 W	V_{CC} = 35 V	40	----	----	%
G_P	f = 960 - 1215 MHz	P_{IN} = 15 W	V_{CC} = 35 V	7.5	----	----	dB
Note:	Pulse Format: 6.4 μS on 6.6 μS off, repeat for 3.3 ms. Duty Cycle: Burst 49.2%, overall 20.8%						

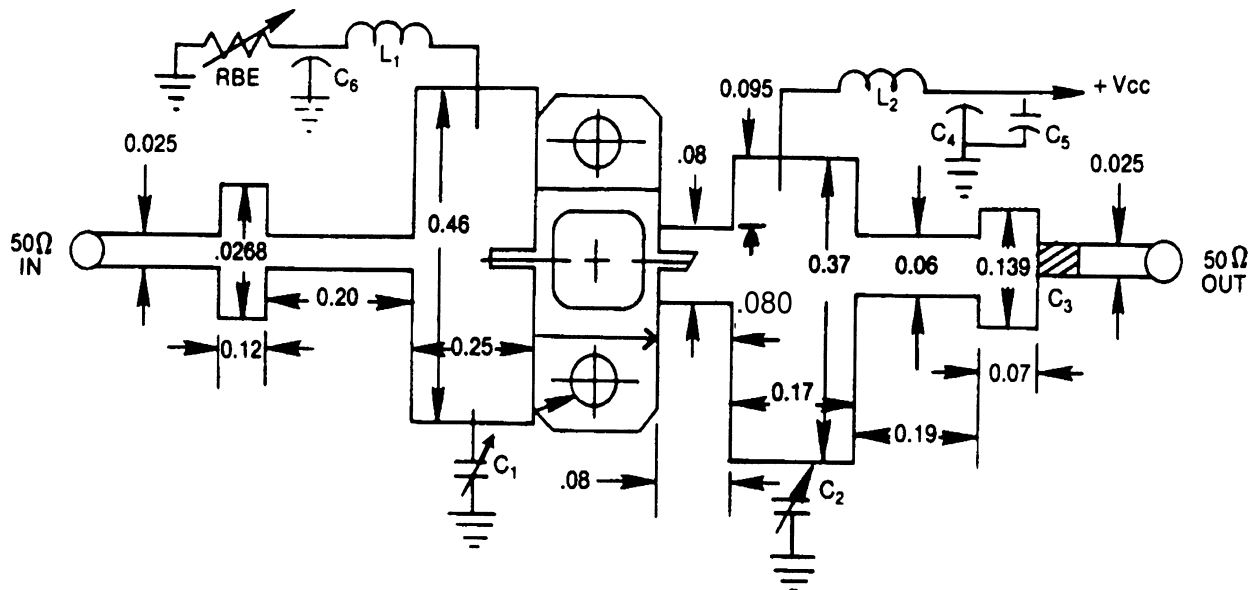
IMPEDANCE DATA:

FREQUENCY	Z _{in}	Z _{cl}
960 MHz	3.0 + j5.0	7.0 - j5.0
1090 MHz	5.5 + j5.5	3.7 - j1.8
1215 MHz	5.3 + j4.5	3.0 - j2.5

Pin = 15W Vcc = 35V

TEST CIRCUIT

Ref. Dwg. No. J-313119



All dimensions are in inches.

Substrate material: .025 thick Al_2O_3 ($E_r = 9.6$)

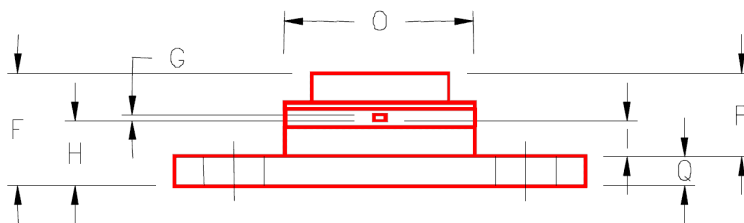
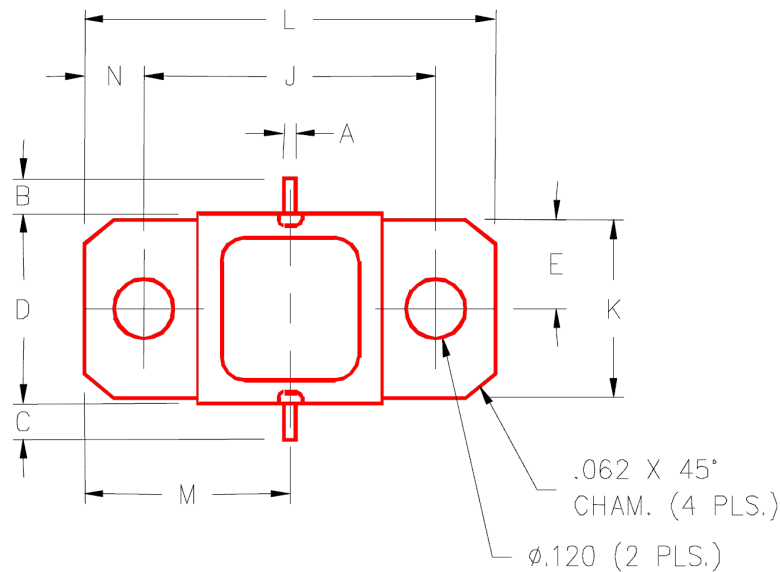
C1 : 0.3—3.5 pF Variable Johanson Capacitor or Equiv.
 C2 : 0.3—3.5 pF Variable Johanson Capacitor or Equiv.
 C3 : 100 pF Chip Capacitor
 C4 : 1500 pF Erie RF Feedthrough, or Equiv.

C5 : 100 MF, Electrolytic Capacitor, 50V
 C6 : 1500 pF Erie RF Feedthrough, or Equiv.
 L1 : No. 32 Wire, 4 Turns 1/16" I.D.
 L2 : No. 32 Wire, 4 Turns 1/16" I.D.

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PACKAGE MECHANICAL DATA

PACKAGE STYLE M218



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.025/0,64		J	.650/16,51	
B	.100/2,54		K	.386/9,80	
C	.100/2,54		L	.900/22,86	
D	.395/10,03	.407/10,34	M	.450/11,43	
E	.193/4,90		N	.125/3,18	
F		.230/5,84	O	.405/10,29	
G	.004/0,10	.007/0,18	P	.170/4,32	
H	.118/3,00	.131/3,33	Q	.062/1,58	
I	.063/1,60				