ADVANCED POWER TECHNOLOGY RF®

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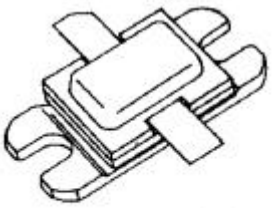
MS2210

RF AND MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

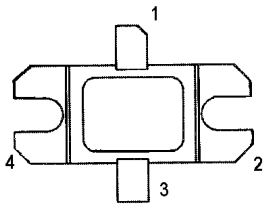


.400 x .500 2LFL (M216)
hermetically sealed

Features

- 255 MHz BANDWIDTH
- GOLD METALLIZATION
- EMITTER SITE BALLASTED
- P_{OUT} = 300W MINIMUM
- G_P = 7.0 dB
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- 15:1 VSWR CAPABILITY

PIN CONNECTION



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

DESCRIPTION:

The MS2210 avionics power transistor is a broadband, high peak pulse power device specifically designed for avionics applications requiring broad bandwidth with moderate duty cycle and pulse width constraints such as ground/ship DME/TACAN.

The MS2210 is also designed for specialized applications where reduced power is provided under pulse formats utilizing short pulse widths and high burst or overall duty cycles. This device is capable of withstanding 15:1 VSWR mismatch load conditions at any phase angle under full rated conditions.

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation*	940	W
I_C	Device Current*	24	A
V_{CC}	Collector-Supply Voltage*	50	
T_J	Junction Temperature (RF Pulsed Operation)	+200	°C
T_{STG}	Storage Temperature	- 65 to + 200	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	0.16	°C/W

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

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

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	I_C = 50 mA I_E = 0 mA	65	----	----	V
BV_{EBO}	I_E = 15 mA I_C = 0 mA	3.0	----	----	V
BV_{CER}	I_C = 50 mA R_{BE} = 10 Ω	65	----	----	V
I_{CES}	V_{CE} = 50 V	----	----	30	mA
h_{FE}	V_{CE} = 5 V I_C = 5A	10	----	---	----

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	f = 960 - 1215 MHz P_{IN} = 60 W V_{CC} = 50 V	300	330	----	W
η_C	f = 960 - 1215 MHz P_{IN} = 60 W V_{CC} = 50 V	38	45	----	%
G_P	f = 960 - 1215 MHz P_{IN} = 60 W V_{CC} = 50 V	7.0	7.4	----	Db

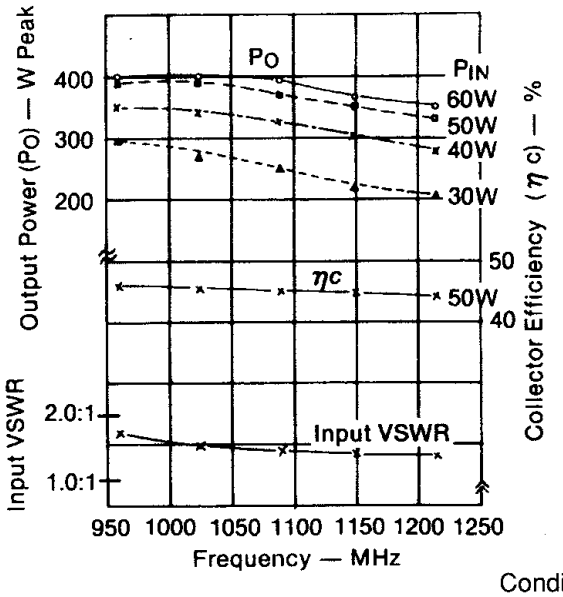
Note: Pulse Format: 10 μS
Duty Cycle: 10%

IMPEDANCE DATA

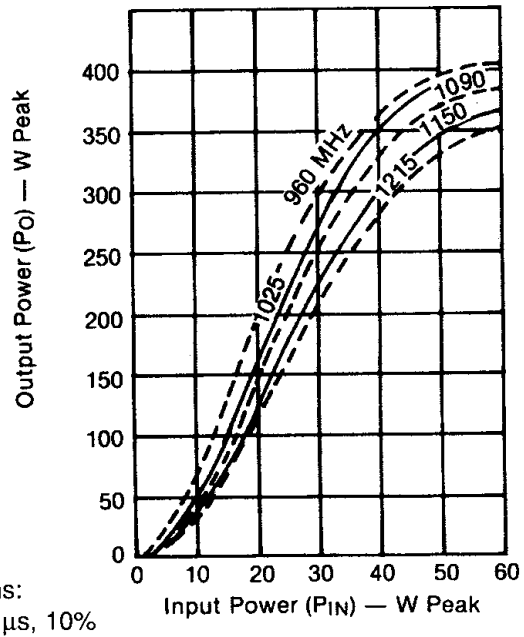
FREQ	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
960 MHz	2.0 + j3.6	1.7 - j2.2
1090 MHz	3.5 + j1.7	2.0 - j1.7
1215 MHz	1.6 + j0.5	1.8 - j2.0

TYPICAL PERFORMANCE

TYPICAL BROADBAND RESPONSE

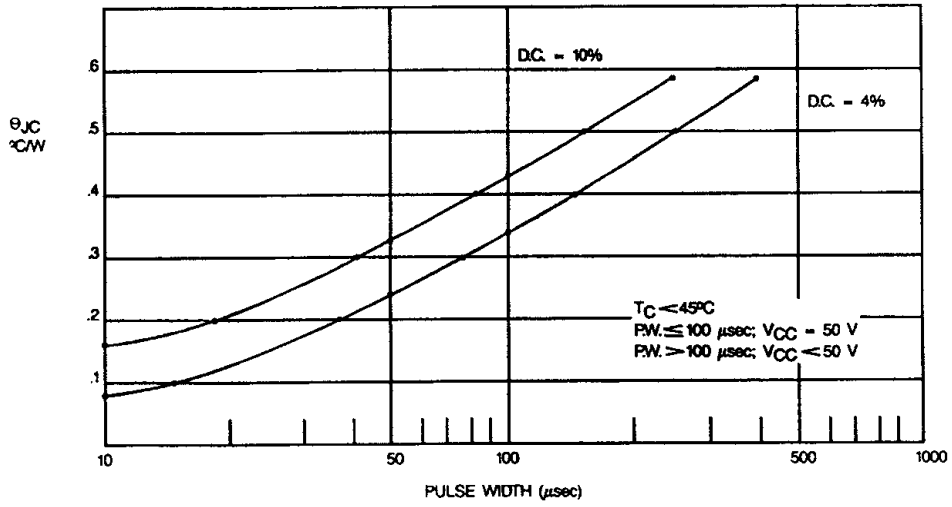


TYPICAL POWER OUTPUT vs POWER INPUT

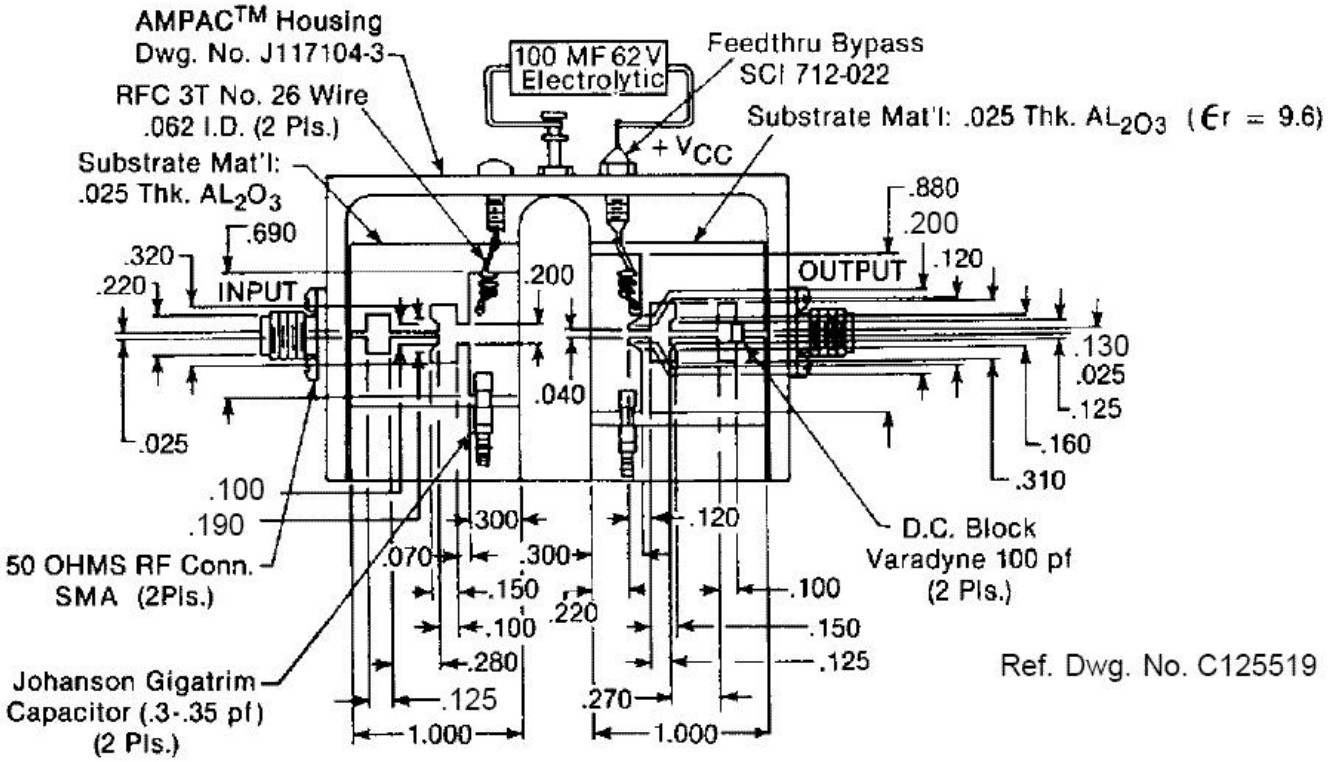


Conditions:
PW = 10 µs, 10%
V_{CC} = 50 V

MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH & DUTY CYCLE



TEST CIRCUIT



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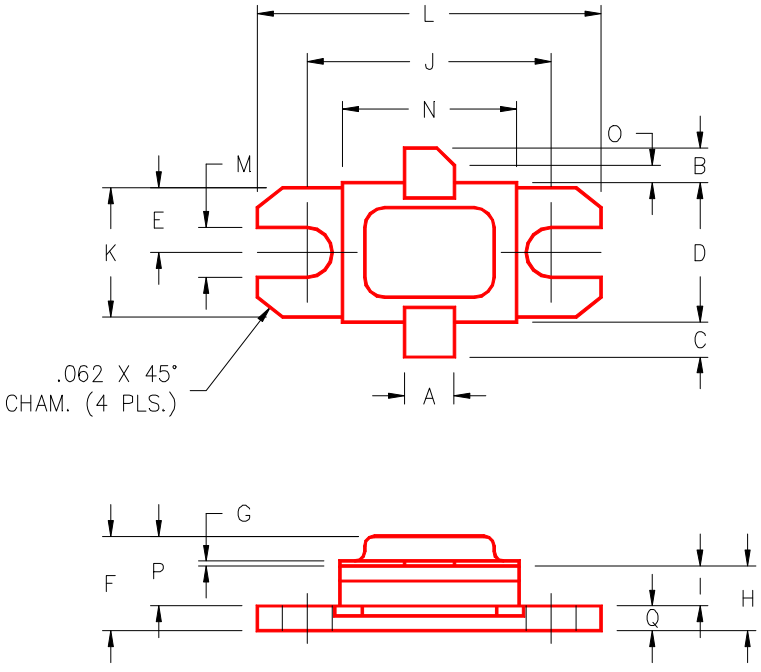
PACKAGE MECHANICAL DATA

PACKAGE STYLE M216



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.140/3,56		J	.700/17,78	
B	.110/2,80		K	.386/9,80	
C	.110/2,80		L	.900/22.86	
D	.395/10,03	.407/10,34	M	.120/3,05	
E	.193/4,90		N	.500/12,70	
F		.230/5,84	O	.050/1,27	
G	.003/0,08	.006/0,15	P		.170/4,32
H	.118/3,00	.131/3,33	Q	.062/1,58	
I	.063/1,60				