ADVANCED POWER TECHNOLOGY RF®

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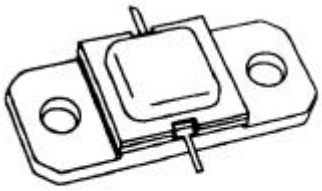
MS2218

RF & MICROWAVE TRANSISTORS
L-BAND RADAR APPLICATIONS

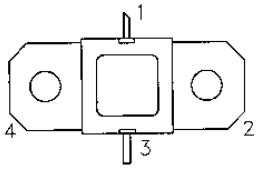


.400 x .400 2NLFL (M218)
hermetically sealed

Features

- 1.2 – 1.4 GHz
- 28 VOLTS
- INFINITE VSWR CAPABILITY @ RATED CONDITIONS
- P_{OUT} = 55 WATTS
- GP = 6.6 dB MINIMUM
- INPUT/OUTPUT MATCHING
- COMMON BASE CONFIGURATION

PIN CONNECTION



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

DESCRIPTION:

The MS2218 is a NPN silicon bipolar transistor designed for L-Band pulsed radar applications. This devices utilizes an overlay die geometry to provide superior reliability under long pulse width and high duty cycle applications.

Computer controlled, automatic wirebonding and internal impedance matching assures consistent broadband performance.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation*	107	W
I_C	Device Current*	5.0	A
V_{CC}	Collector-Supply Voltage	32	V
T_J	Junction Temperature (RF Pulsed Operation)	250	°C
T_{STG}	Storage Temperature	-65 to +200	°C

Thermal Data

$R_{TH(J-C)}$	Junction-case Thermal Resistance*	1.4	°C/W

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 20 mA	I_E = 0 mA	55	---	---	V
BV_{EBO}	I_E = 2 mA	I_C = 0 mA	3.5	---	---	V
BV_{CER}	I_C = 40 mA	R_{BE} = 10 Ω	55	---	---	V
I_{CES}	V_{CE} = 28 V	V_{BE} = 0 V	---	---	10	mA
h_{FE}	V_{CE} = 5 V	I_C = 2 A	15	---	150	---

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1215 - 1400 MHz	P_{IN} = 12W	Vcc = 28V	55	---	---	W
η_C	f = 1215 - 1400 MHz	P_{IN} = 12W	Vcc = 28V	50	---	---	%
G_P	f = 1215 - 1400 MHz	P_{IN} = 12W	Vcc = 28V	6.6	---	---	dB

Conditions: Pulse Width = 1.0μS Duty Cycle = 10%

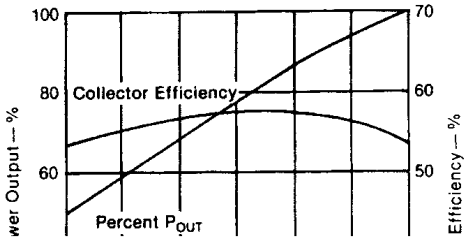
IMPEDANCE DATA

FREQ	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
1.2 GHz	6.0 + j10	7.0 – j10
1.3 GHz	4.5 + j11	6.0 – j9.5
1.4 GHz	4.0 + j9.0	5.0 – j9.0

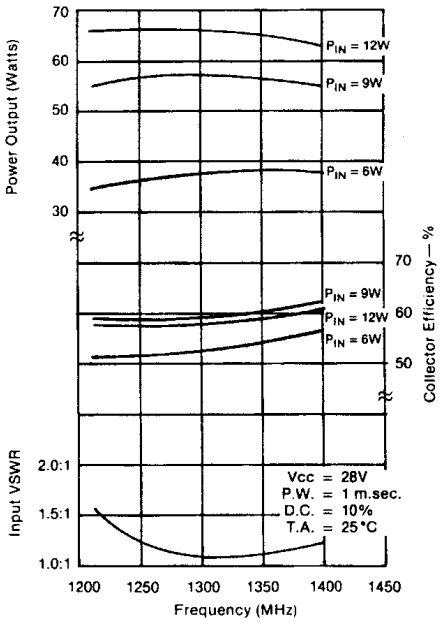
P_{IN} = 12W
V_{CC} = 28V

TYPICAL PERFORMANCE

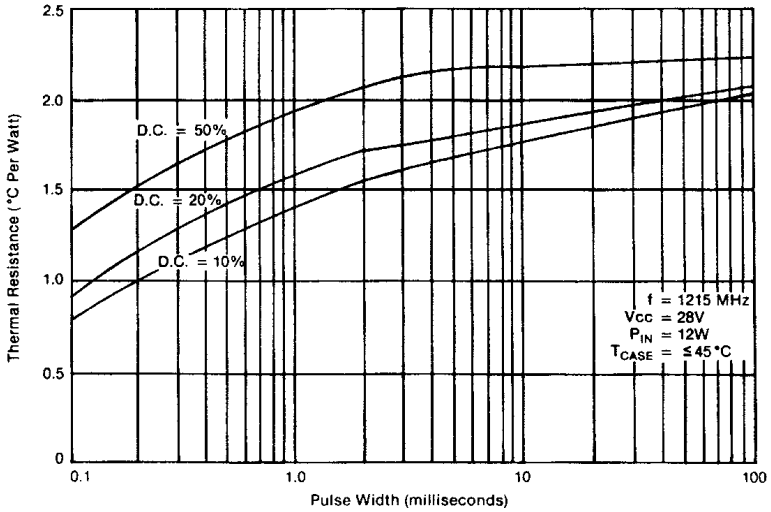
RELATIVE POWER OUTPUT & COLLECTOR EFFICIENCY vs COLLECTOR VOLTAGE



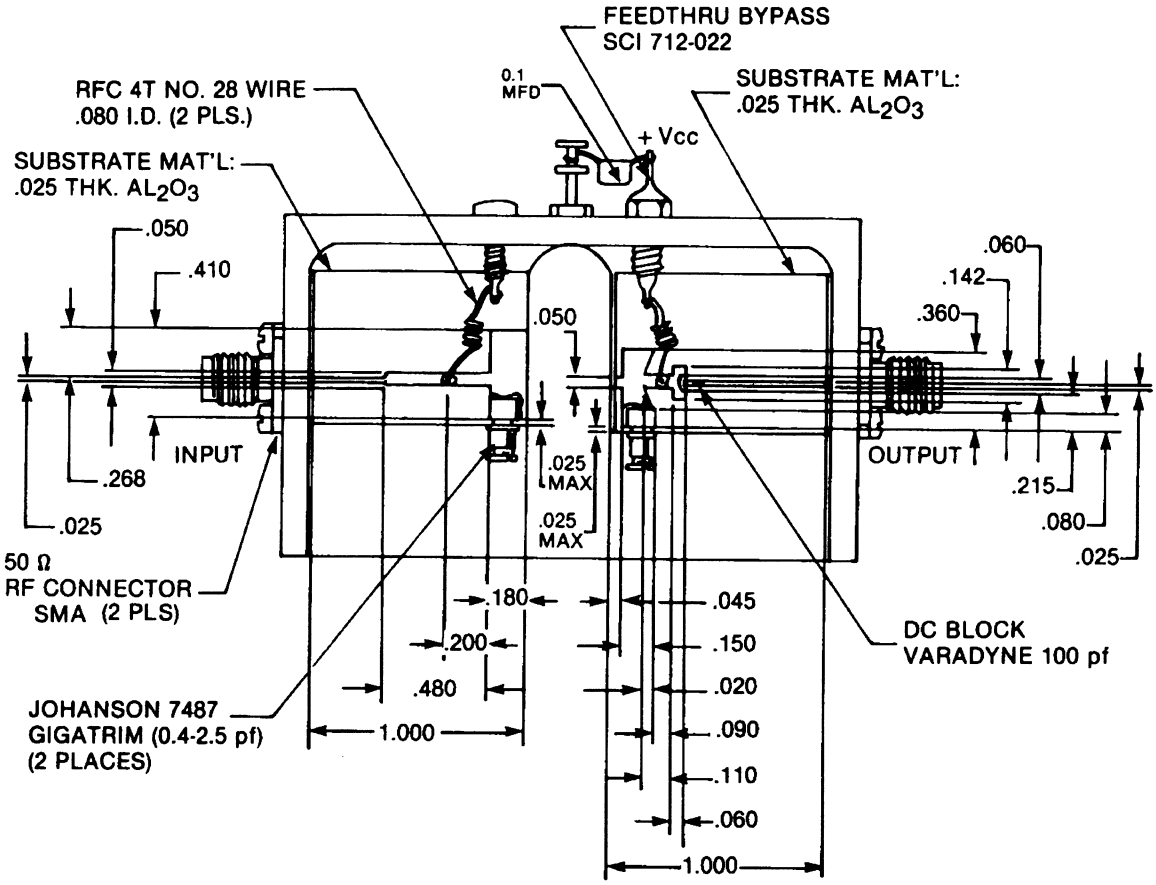
TYPICAL BROADBAND POWER AMPLIFIER



MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH



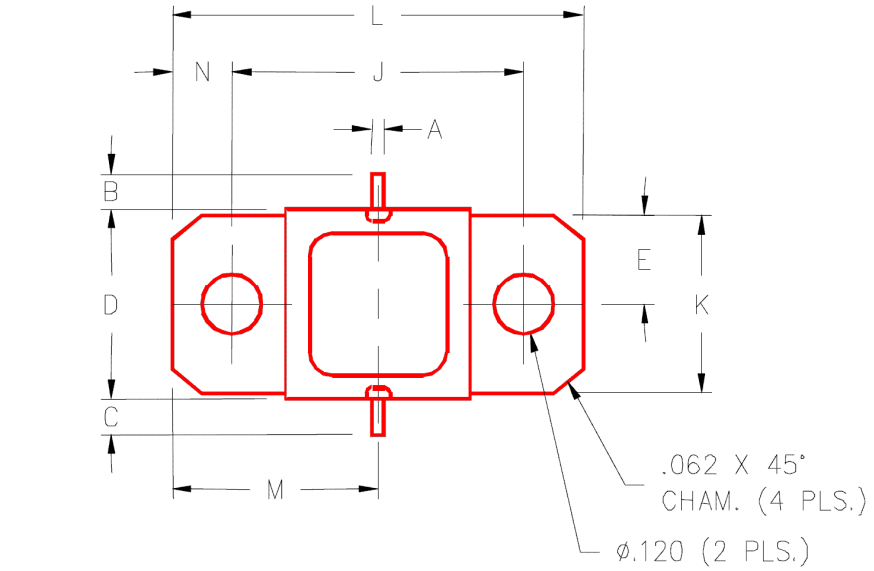
TEST CIRCUIT

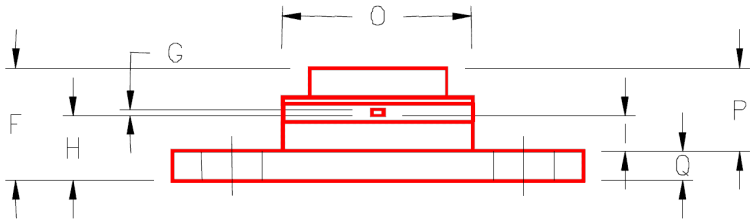


MS2218

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				