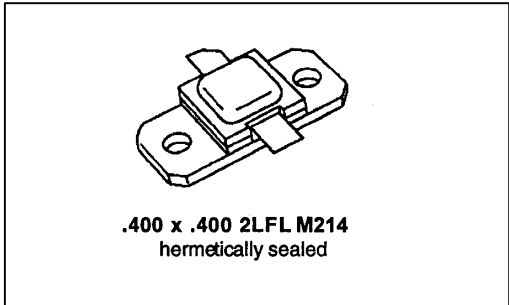


MS2213

RF & MICROWAVE TRANSISTORS AVIONICS/JTIDS APPLICATIONS

Features

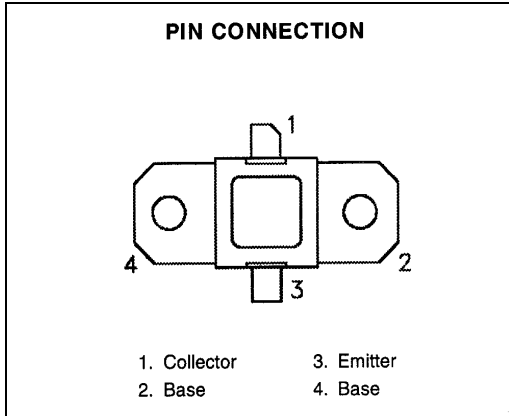
- 960-1215 MHz
- COMMON BASE
- GOLD METALLIZATION
- HERMETIC PACKAGE
- CLASS C OPERATION
- POUT = 30 W MIN. WITH 7.8 dB GAIN



DESCRIPTION:

The MS2213 is a silicon NPN bipolar device specifically designed for JTIDS pulsed power applications from 960-1215 MHz.

Gold metallization and emitter ballasting assure high reliability under Class C amplifier operation. This device operates over a wide range of pulse widths, duty cycles and temperatures, and can withstand a 15:1 VSWR mismatch under load.



ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V _{CC}	Collector-Supply Voltage	40	V
I _C	Device Current	3.5	A
P _{DISS}	Power Dissipation	75	W
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	2.2	°C/W
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ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)
STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	I_C = 10mA	55	---	---	V
BV_{EBO}	I_E = 1mA	3.5	---	---	V
BV_{CER}	I_C = 20mA R_{BE} = 10Ω	55	---	---	V
I_{CES}	V_{CB} = 35 V	-----	---	5.0	mA
h_{FE}	V_{CE} = 5 V I_C = 1A	15	---	150	---

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	f = 960-1215 MHz V_{CC} = 35V P_{IN} = 5.0W	30	---	---	W
G_P	f = 960-1215 MHz V_{CC} = 35V P_{IN} = 5.0W	7.8	---	---	dB
η_C	f = 960-1215 MHz V_{CC} = 35V P_{IN} = 5.0W	40	---		%

Pulse format: 6.4 us on 6.6 us off, repeat for 3.3ms, then off for 4.5125 ms.

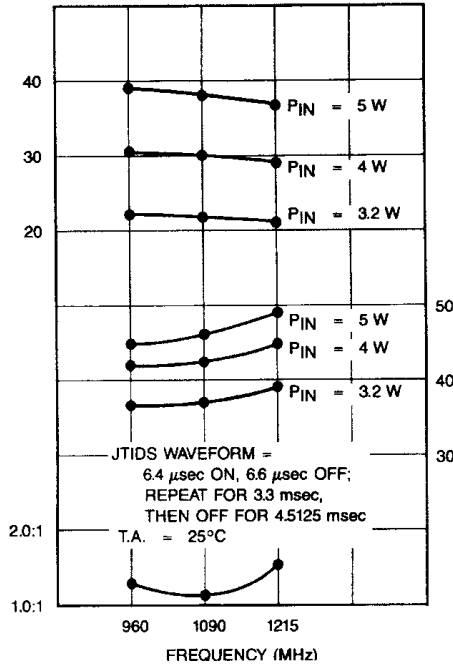
Duty Cycle: Burst 49.2%, overall 20.8%.

IMPEDANCE DATA

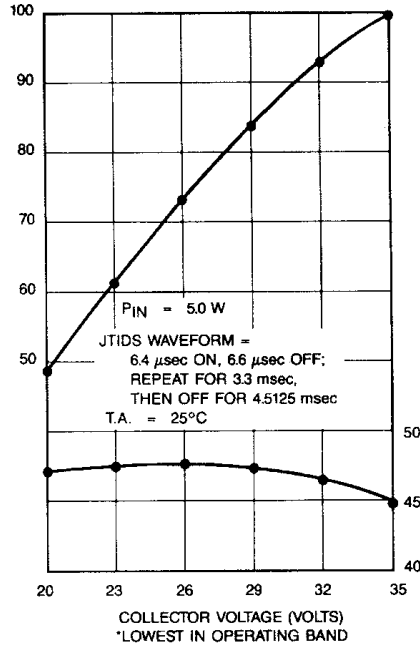
Freq. (MHz)	Z _{IN} (Ω)	Z _{OUT} (Ω)
960	4.5 + j 6.0	11.0 + j 0.5
1090	5.5 + j 6.3	12.0 – j 2.0
1215	5.0 + j 5.0	12.5 – j 5.0

TYPICAL PERFORMANCE

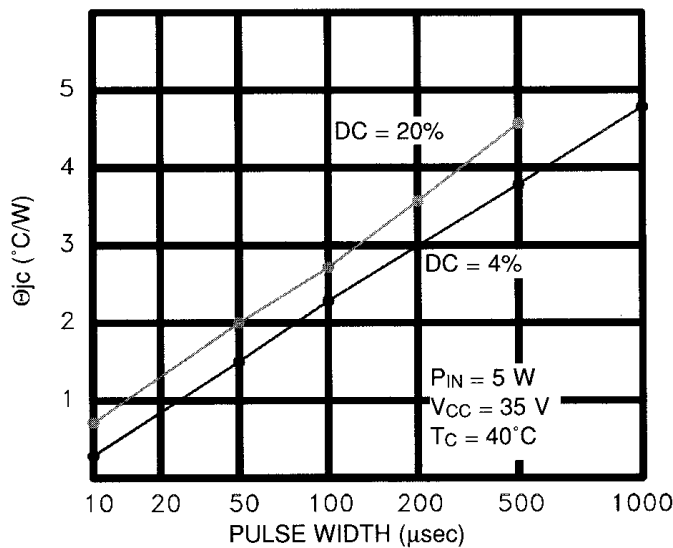
**TYPICAL BROADBAND
POWER AMPLIFIER**



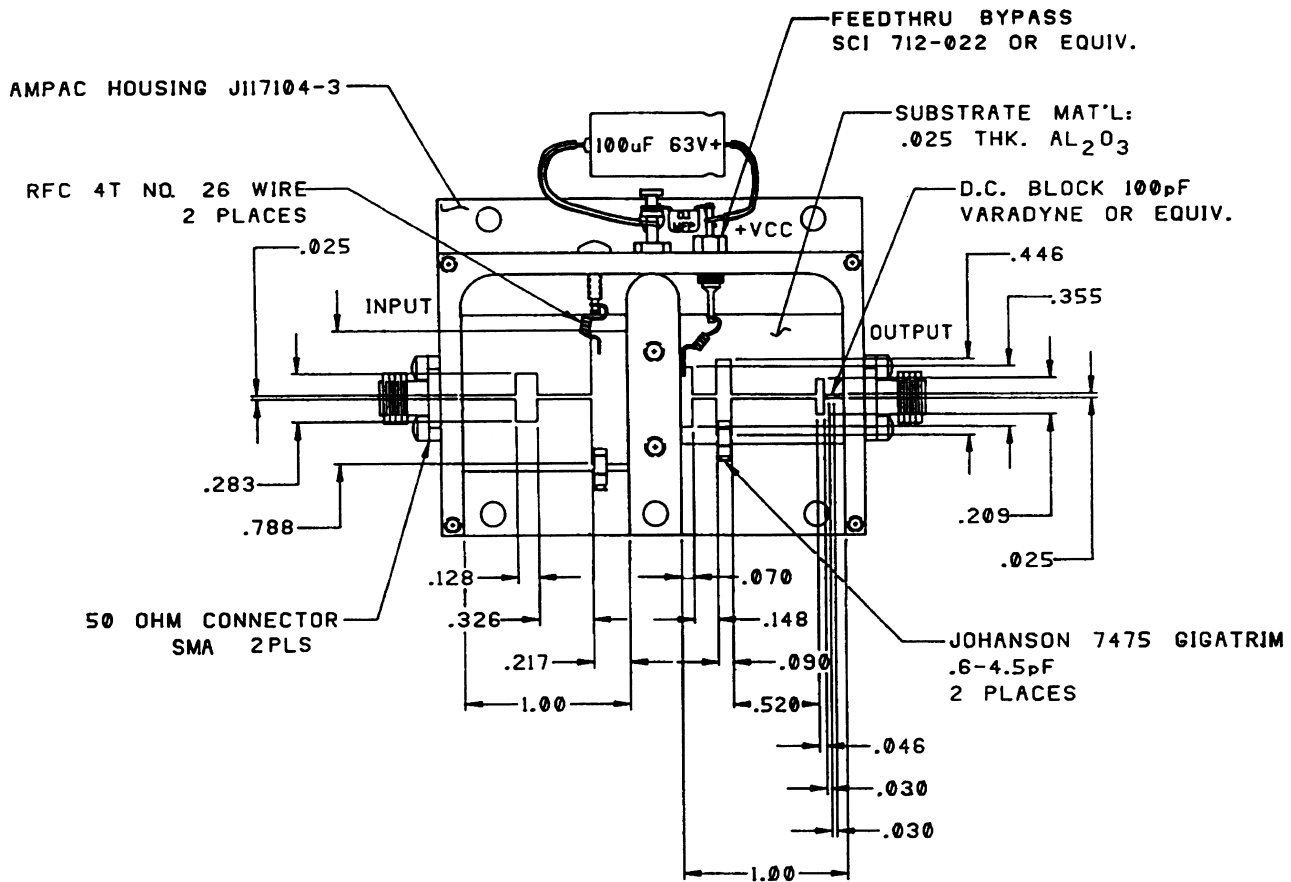
**TYPICAL RELATIVE POWER
OUTPUT & COLLECTOR
EFFICIENCY* vs COLLECTOR
VOLTAGE**



**MAXIMUM THERMAL RESISTANCE vs PULSE
WIDTH & DUTY CYCLE**

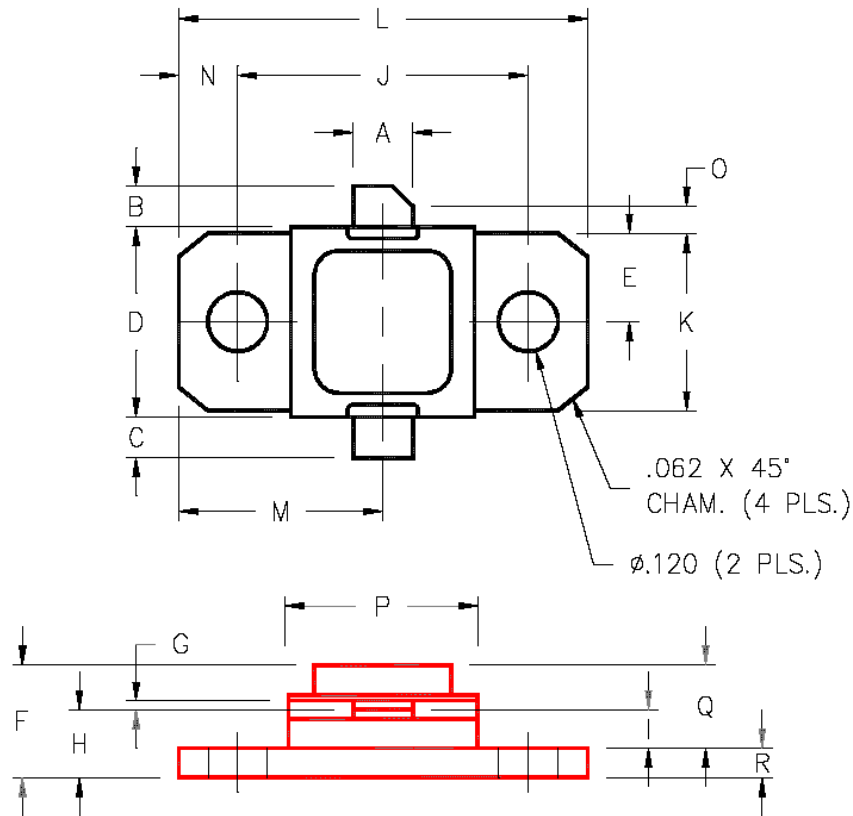


TEST CIRCUIT



PACKAGE MECHANICAL DATA

PACKAGE STYLE M214



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.140/3,56		J	.650/16,51	
B	.110/2,80		K	.386/9,80	
C	.110/2,80		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	.050/1,27	
G	.003/0,08	.006/0,15	P	.405/10,29	
H	.118/3,00	.131/3,33	Q	.170/4,32	
I	.063/1,60		R	.062/1,58	