

MS2441

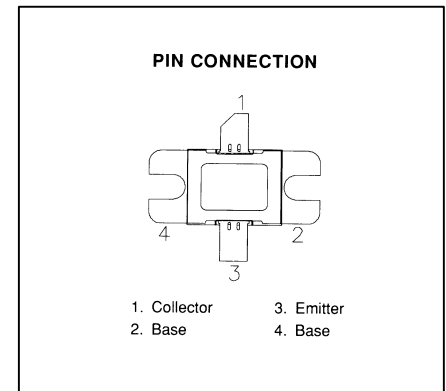
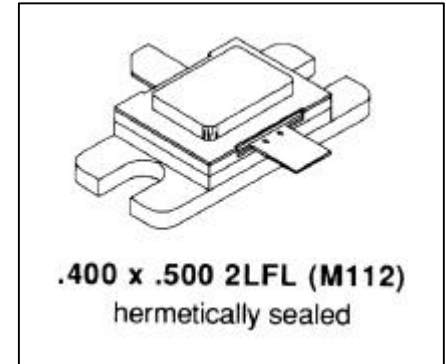
RF & MICROWAVE TRANSISTORS L-BAND AVIONICS APPLICATIONS

Features

- DESIGNED FOR HIGH POWER PULSED IFF AND DME APPLICATIONS
- 400 W (min.) DME 1025 – 1150 MHz
- 1025 – 1150 MHz
- 50 VOLTS
- $P_{OUT} = 400$ WATTS
- $G_P = 6.5$ dB MINIMUM
- 20:1 VSWR CAPABILITY
- INPUT/OUTPUT MATCHING
- COMMON BASE CONFIGURATION

DESCRIPTION:

The MS2441 is a silicon NPN power transistor designed for high peak power and low duty cycles applications such as DME and IFF. The MS2441 utilizes internal input/output impedance matching, resulting in improved broadband performance and a low thermal resistance.



ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CES}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	22	A
P_{DISS}	Power Dissipation	1458	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	-65 to +150	°C

Thermal Data

$R_{TH(J-C)}$	Junction-case Thermal Resistance	0.12	°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 = 25mA	I_E = 0mA	65	---	---	V
BV_{CES}	I_C = 50mA	V_{BE} = 0mA	65	---	---	V
BV_{EBO}	I_E = 10mA	I_C = 0mA	3.5	---	---	V
I_{CES}	V_{CE} = 50V	I_E = 0mA	---	---	25	mA
h_{FE}	V_{CE} = 5V	I_C = .25A	5	---	200	---

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1025 – 1150MHz	P_{IN} = 90W	V_{CC} = 50V	400	---	---	W
G_P	f = 1025 - 1150MHz	P_{IN} = 90W	V_{CC} = 50V	6.5	---	---	dB

Conditions: **Pulse Width = 10μS Duty Cycle = 1%**

**This device is suitable for use under other pulse width/duty cycle conditions.
Please contact the factory for specific applications assistance.**

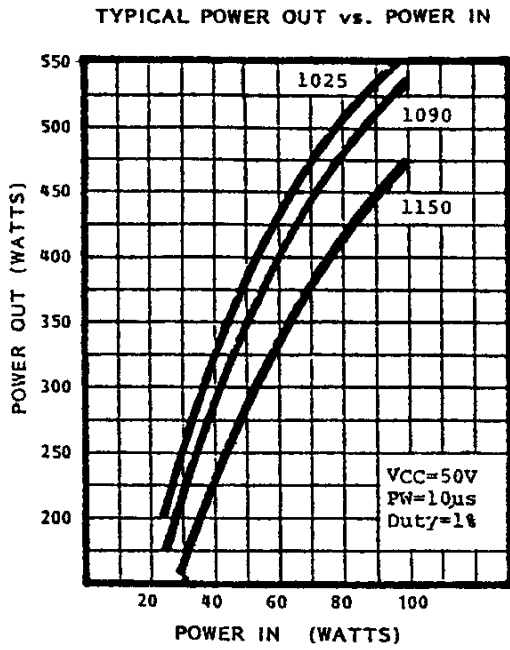
IMPEDANCE DATA:

FREQ	Z _{IN} (Ω)	Z _{CL} (Ω)
1020 MHz	2.89 + j4.1	1.38 – j3.2
1090 MHz	2.32 + j3.4	1.33 – j2.8
1150 MHz	1.99 + j2.8	1.26 – j2.5

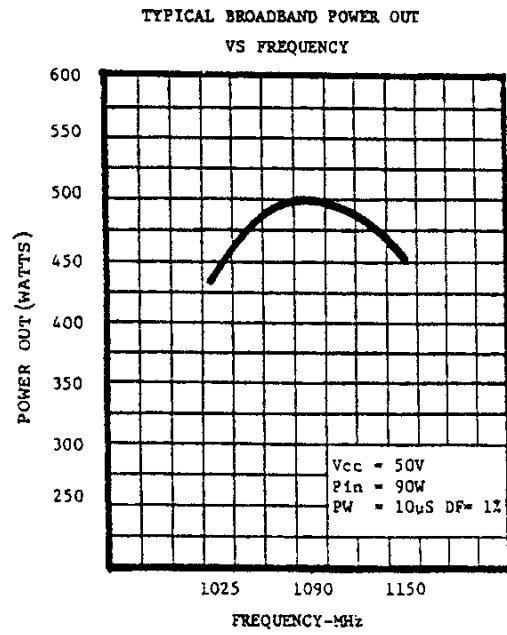
P_{IN} = 90 W
V_{CE} = 50 V

TYPICAL PERFORMANCE

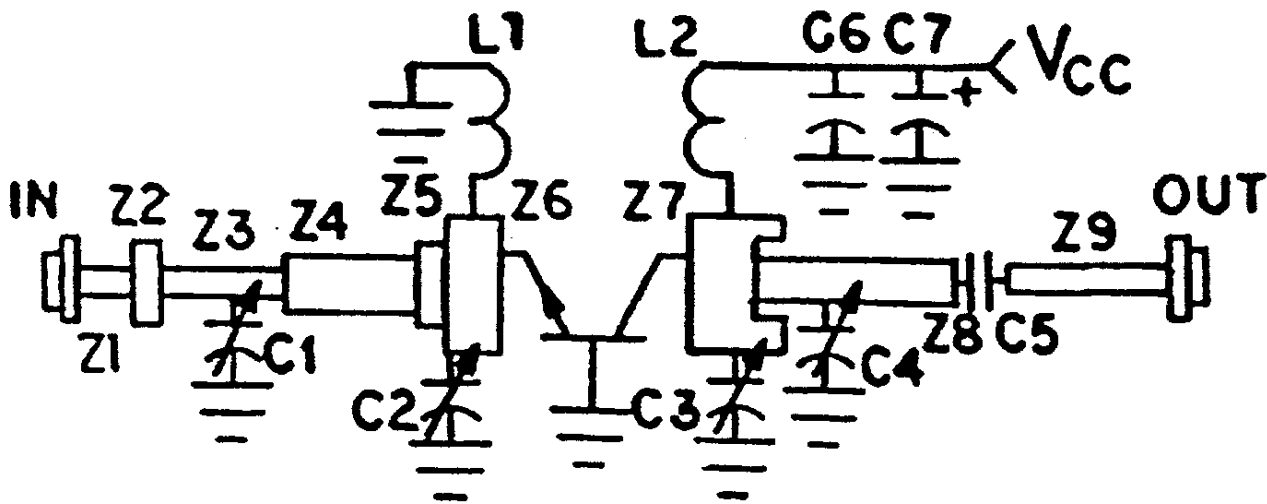
POWER OUTPUT vs POWER INPUT



POWER OUTPUT vs FREQUENCY



TEST CIRCUIT



All Dimensions in Inches Unless Otherwise specified

C1 : 0.4 - 2.5pF Johanson Gigatrim
 C2, C3,
 C4 : 0.6 - 4.5pF Johanson Gigatrim
 C5 : 82pF Chip Capacitor, .055 Sq.

L1 : Loop, #18 Tinned, .36 Wide x .27 above Circuit
 L2 : 4 3/4 Turns, #24 En., C.W., .075 I.D.

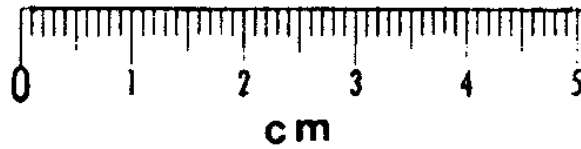
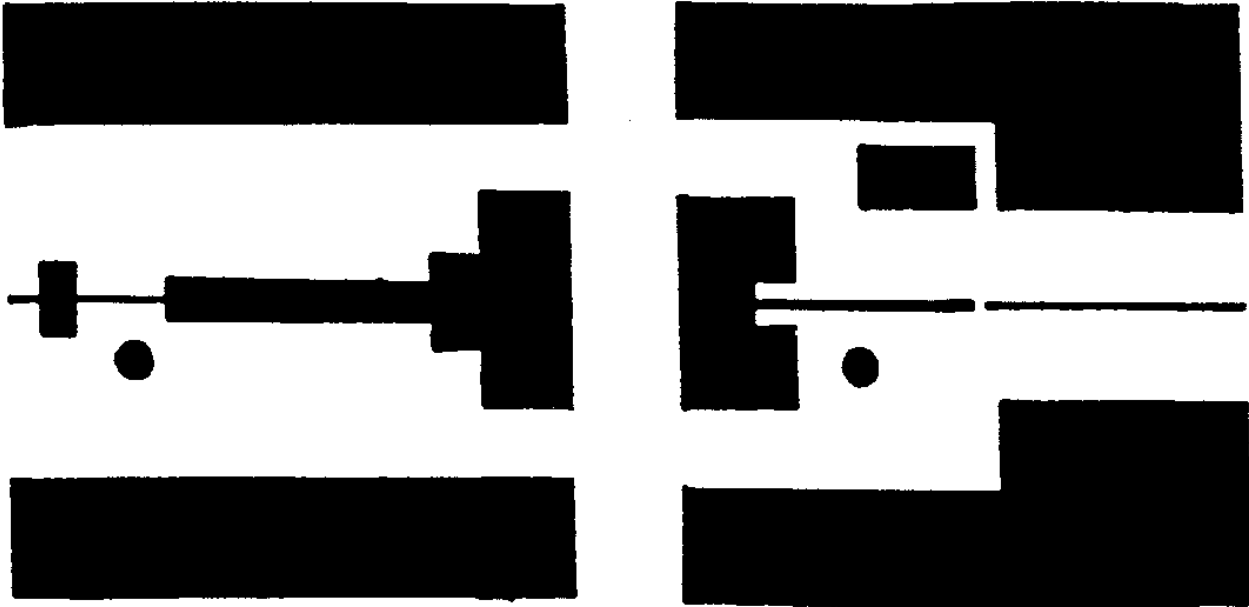
Z1 : 50Ω(.02 Wide)
 Z2 : .250 x .120

Z3 : 50Ω .020 x .330; C1 tapped .15 from Load
 Z4 : .145 x .920
 Z5 : .325 x .180
 Z6 : .730 x .315
 Z7 : .710 x .425 with .140 x .150 cutout
 Z8 : .35 x .780; C4 Tapped .36 from Cen
 Z9 : 50Ω

C1, C4 : Cold End Terminated Through Eyelet.

PC BOARD LAYOUT

3M EPSILAM 10, .032 THK., 10Z.



PACKAGE MECHANICAL DATA

