

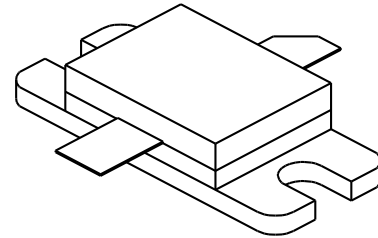
# DME 500

500 Watts, 50 Volts, Pulsed  
Avionics 1025 - 1150 MHz

## GENERAL DESCRIPTION

The DME 500 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1025-1150 MHz. The device has gold thin-film metallization for proven highest MTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

## CASE OUTLINE 55KT, STYLE 1



## ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C<sup>2</sup> 1700 Watts

### Maximum Voltage and Current

BVces Collector to Base Voltage 55 Volts  
BVebo Emitter to Base Voltage 3.5 Volts  
Ic Collector Current 40 Amps

### Maximum Temperatures

Storage Temperature - 65 to + 200°C  
Operating Junction Temperature + 200°C

## ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P <sub>out</sub>	Power Out	F = 1025-1150 MHz	500			Watts
P <sub>in</sub>	Power Input	V <sub>cc</sub> = 50 Volts			125	Watts
P <sub>g</sub>	Power Gain	PW = 10 μsec	6.0	6.5		dB
η <sub>c</sub>	Collector Efficiency	DF = 1%		35		%
VSWR	Load Mismatch Tolerance	F = 1090 MHz			10:1	

BVebo	Emitter to Base Breakdown	I <sub>e</sub> = 30 mA	3.5			Volts
BVces	Collector to Emitter Breakdown	I <sub>c</sub> = 40 mA	55			Volts
h <sub>FE</sub>	DC - Current Gain	I <sub>c</sub> = 500 mA, V <sub>ce</sub> = 5 V	10		100	
θ <sub>jc</sub> <sup>2</sup>	Thermal Resistance				0.1	°C/W

Note 1: At rated output power and pulse conditions  
2: At rated pulse conditions

Initial Issue June, 1994

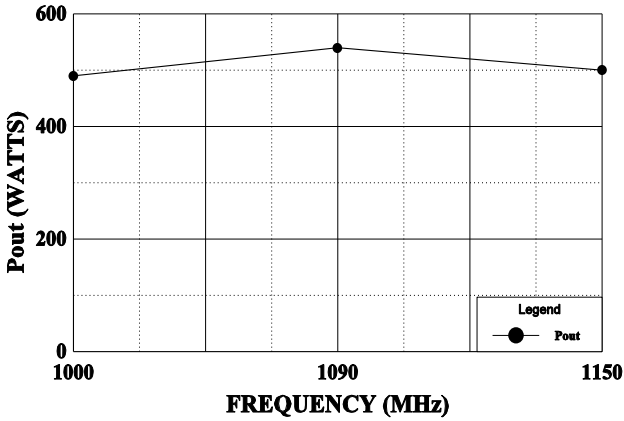
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RF·MICROWAVE SILICON POWER TRANSISTORS

**POWER OUTPUT**

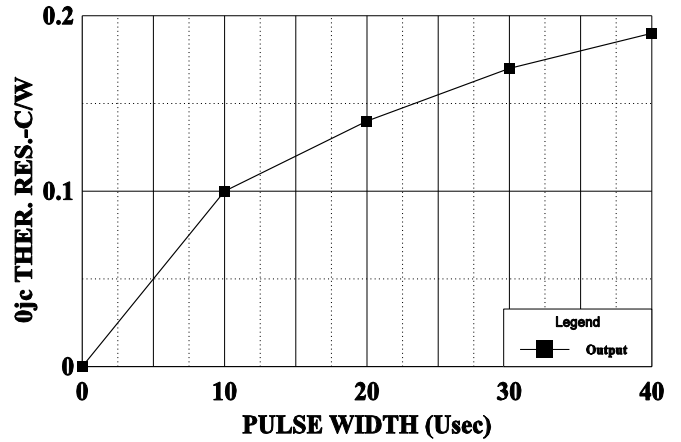
Vcc = 50 V, Pin = 125 W Peak



**DME 500**

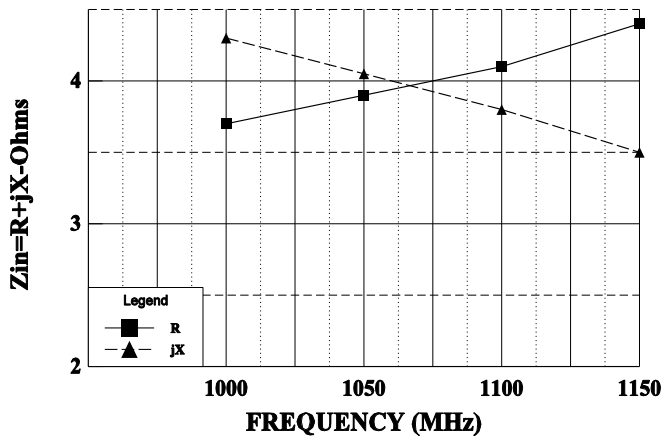
**THERMAL RESISTANCE vs PULSE WIDTH**

Vcc = 50 V, Tf = 30 C



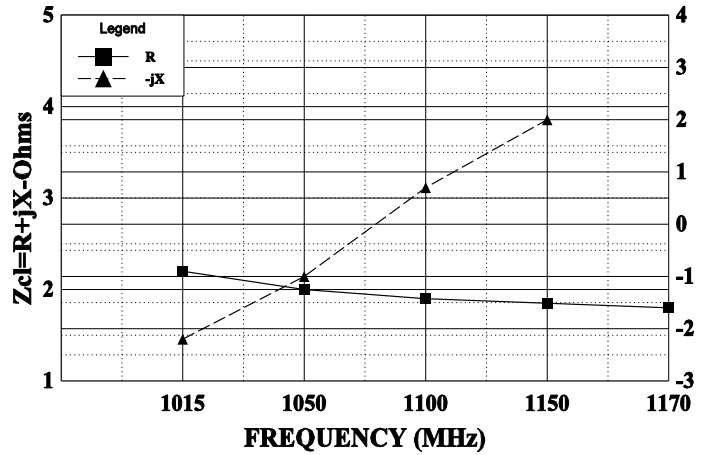
**SERIES INPUT IMPEDANCE vs FREQUENCY**

Vcc = 50 V, Po = 250 W



**SERIES LOAD IMPEDANCE vs FREQUENCY**

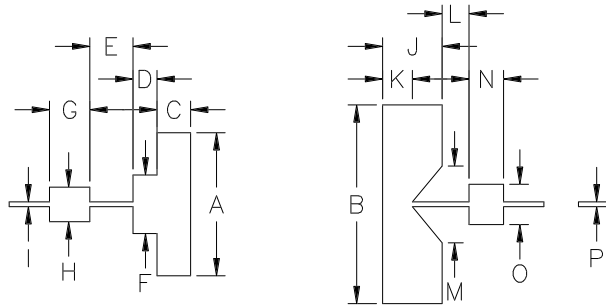
Vcc = 50 V, Po = 500 W



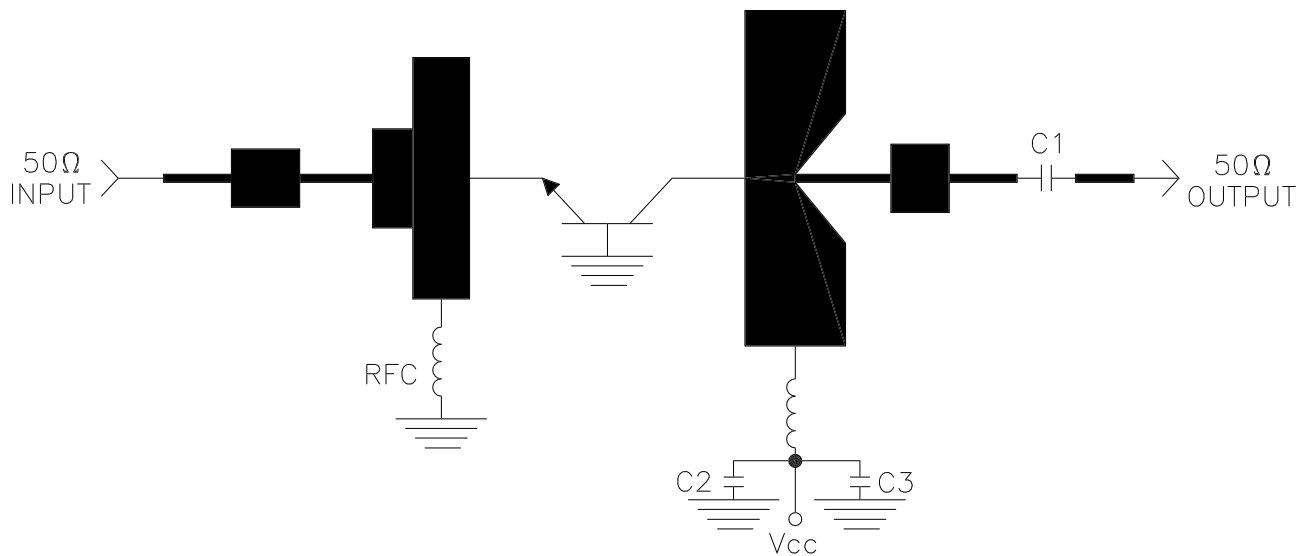
REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
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DIM	INCHES
A	.745
B	1.035
C	.175
D	.125
E	.225
F	.305
G	.210
H	.180
I	.025
J	.310
K	.155
L	.140
M	.400
N	.180
O	.210
P	.025



1025/1150 MHz TEST AMPLIFIER



— = Microstrip line on E10, t=0.025"  
 C1, C2 = 82PF chip capacitor  
 C3 = 500μ Fdc @ 75V capacitor