DME 500

500 WATTS - 50 VOLTS 1025/1150 MHz

AVIONICS

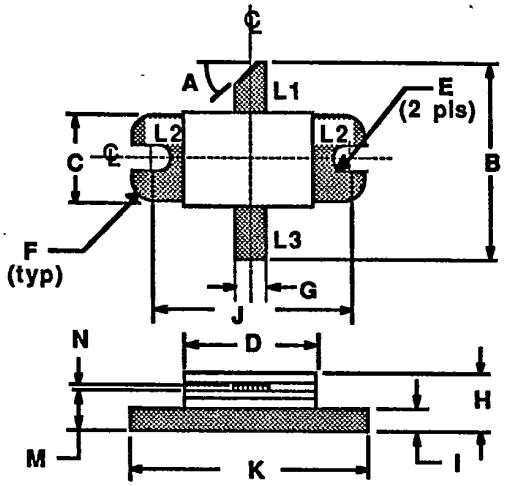
GENERAL DESCRIPTION

All devices utilize the most advanced design and process technologies. These features provide the most consistent and reliable chip and package combination designed, built and tested specifically for use in airborne DME.

* Gold thin-film metallization -- proven highest Mean Time to Failure.
* Surface passivation -- eliminates contamination and extends life.
* Eutectic die attach -- reduces junction temperature and extends MTTF.
* Gold controlled-loop wire bonding -- consistent RF performance.
* Low thermal-resistance packages -- reduce junction temperature and extend life.

ABSOLUTE MAXIMUM RATINGS

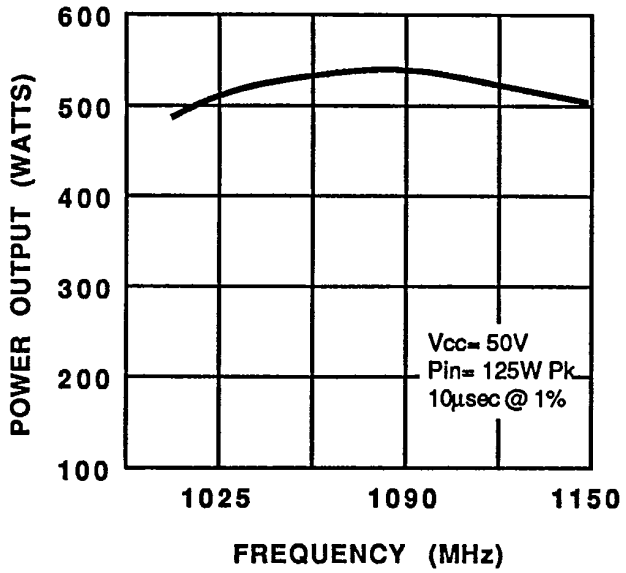
Maximum Power Dissipation @ 25 °C Case Temperature		1700 W
Maximum Voltage and Current		
BVces	Collector to Emitter Voltage	55 V
BVebo	Emitter to Base Voltage	3.5 V
Ic	Collector Current	40 A
Maximum Temperatures		
Storage Temperature		-65 to +200 °C
Operating JunctionTemperature		+200 °C



L1:C
L2:B
L3:E

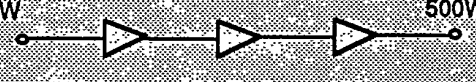
DIM	Millimeter	TOL	Inches	TOL
A	45 °	5°	45°	5°
B	20.32	.76	.800	.030
C	9.78	.13	.385	.005
D	12.70	.13	.500	.005
E	1.52 R	.13	.060 R	.005
F	1.52 R	.13	.060 R	.005
G	3.81	.13	.150	.005
H	5.21	REF	.205	REF
I	1.52	.13	.060	.005
J	17.78	.13	.700	.005
K	22.86	.13	.900	.005
M	3.05	.13	.120	.010
N	0.13	.02	.005	.001

(TYPICAL) POWER OUTPUT



TYPICAL AMPLIFIER LINE UP

Vcc= 50Volts
Frequency Range=1025-1150 MHz



0912-25 DME150 DME500

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REV A AUG 1987
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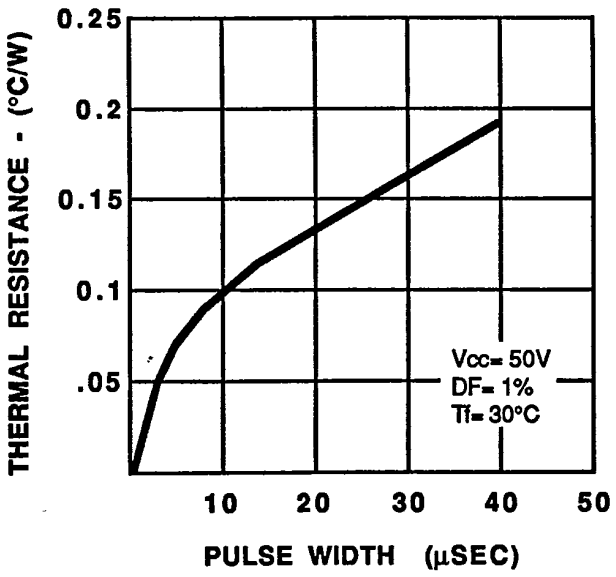
DME 500-2

ELECTRICAL CHARACTERISTICS[1]

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Pout	Power Output	f= 1025 to 1150 MHz Vcc= 50V Pulse Width = 10 µsec @ 1%	500			Watts
Pin[2]	Power Input				125	Watts
Pg	Power Gain		6.0			dB
η_c	Collector Efficiency			35		%
VSWR	Load Mismatch Tolerance				10:1	
BVebo	Breakdown Voltage (Emitter to Base)	Ic= 0A, Ie=30mA	3.5			Volts
BVces	Breakdown Voltage (Collector to Emitter)	Vbe= 0A, Ic= 40mA	55			Volts
h_{fe}	DC-Current Gain	Vce= 5V, Ic= 500mA	10		100	
θ_{jc}	Thermal Resistance				0.1	°C/W

Note 1: Tc = +25°C unless otherwise specified
Note 2: Pulse width 10µsec @ 1% duty

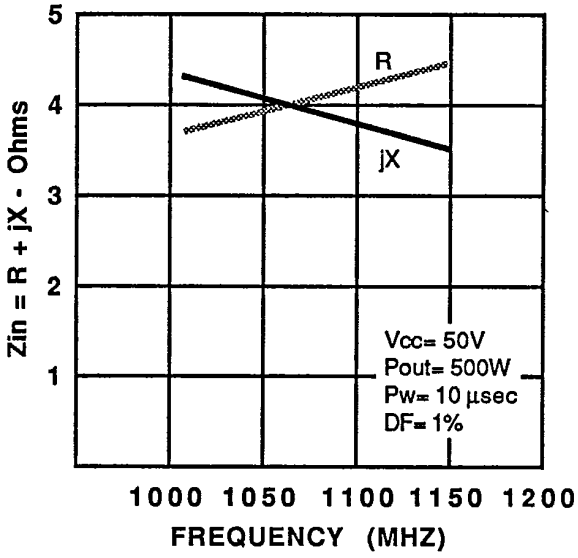
THERMAL RESISTANCE VS PULSE WIDTH



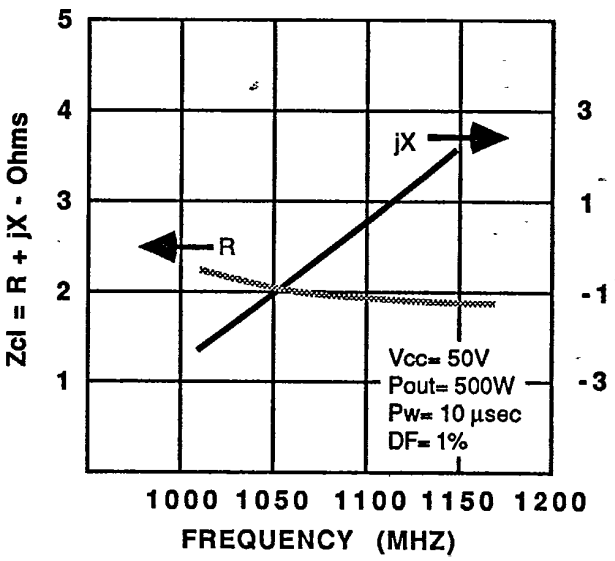
SPECIFICATIONS MAY BE SUBJECT TO CHANGE WITHOUT NOTICE

DME 500-3

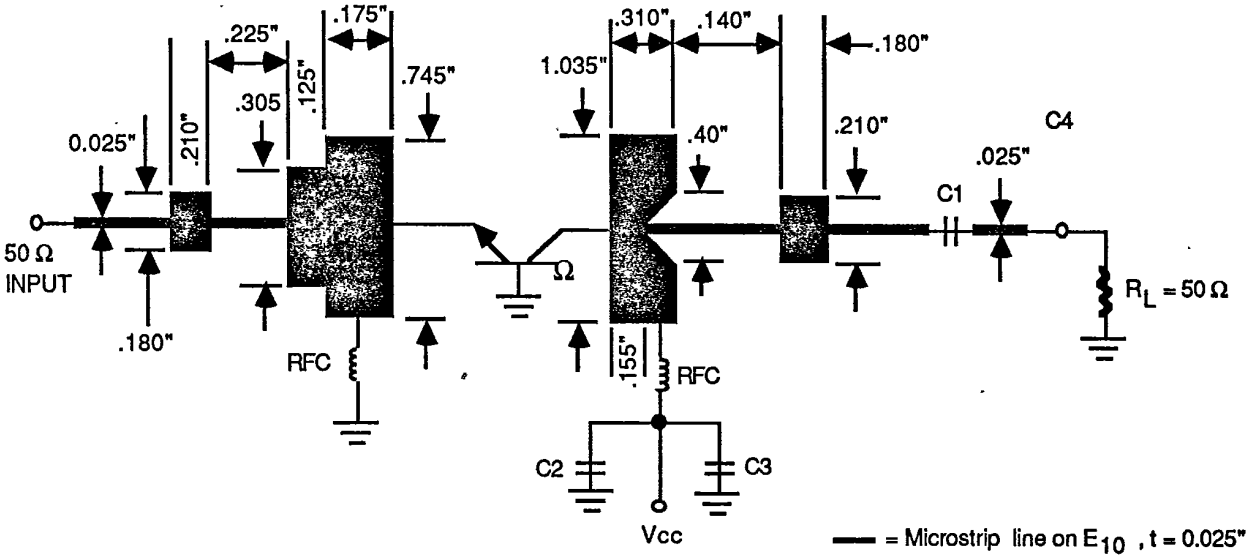
SERIES INPUT IMPEDANCE VS FREQUENCY (TYPICAL)



SERIES LOAD IMPEDANCE VS FREQUENCY (TYPICAL)



1025/1150 MHz TEST AMPLIFIER



— = Microstrip line on E_{10} , t = 0.025"

C1, C2 = 82 PF chip capacitor
C3 = 500µ FDc 75V capacitor