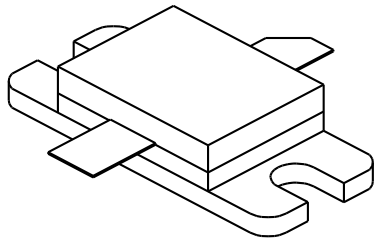


TPR 500A

500 Watts, 50 Volts, Pulsed
Avionics 1030 - 1090 MHz

<p>GENERAL DESCRIPTION</p> <p>The TPR 500A is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1030-1090 MHz. The device has gold thin-film metallization and diffused ballasting for proven highest MTTF. The transistor includes input prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.</p>	<p>CASE OUTLINE 55KT, STYLE 1</p> 
<p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation @ 25°C² 1750 Watts</p> <p>Maximum Voltage and Current</p> <p>BVces Collector to Base Voltage 55 Volts BVebo Emitter to Base Voltage 3.5 Volts Ic Collector Current 40 Amps</p> <p>Maximum Temperatures</p> <p>Storage Temperature - 65 to + 200°C Operating Junction Temperature + 200°C</p>	

ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Out	F = 1090 MHz	500			Watts
Pin	Power Input	Vcc = 50 Volts			150	Watts
Pg	Power Gain	PW = 10 μsec	5.2			dB
η_c	Collector Efficiency	DF = 1%		35		%
VSWR	Load Mismatch Tolerance	F = 1090 MHz			10:1	

BVebo	Emitter to Base Breakdown	Ie = 30 mA	3.5			Volts
BVces	Collector to Emitter Breakdown	Ic = 30 mA	55			Volts
hFE	DC - Current Gain	Ic = 500 mA, Vce = 5 V	10			
θ_{jc^2}	Thermal Resistance				0.1	°C/W

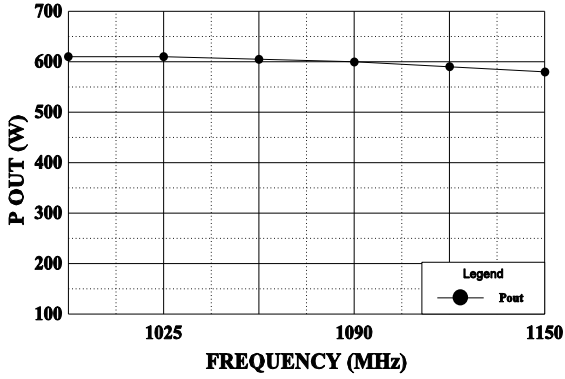
Note 1: At rated output power and pulse conditions
 Note 2: At rated pulse conditions

Initial Issue June, 1994

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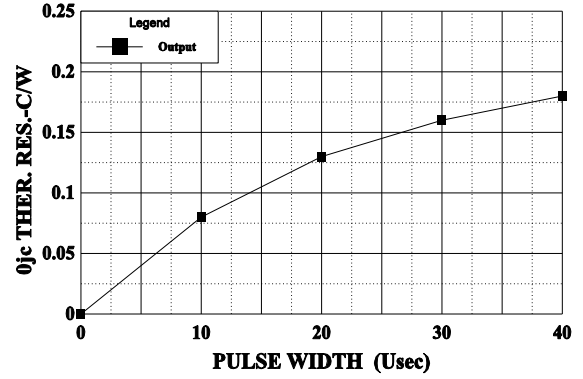
POWER OUPUT VS FREQUENCY

Vcc = 50 V, Pin = 150 W



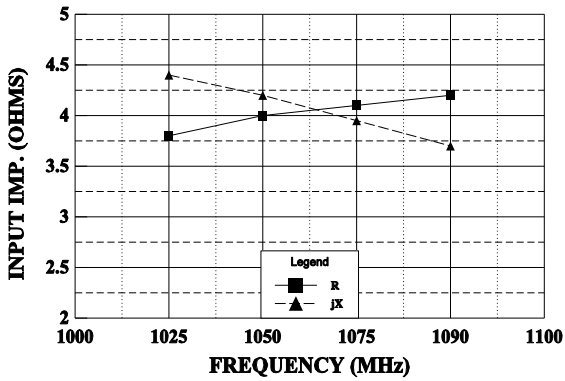
THERMAL RESISTANCE VS PULSE WIDTH

Vcc = 50 V, Tf = 30 C



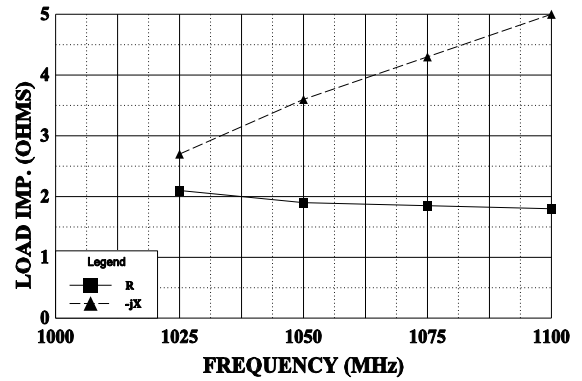
SERIES INPUT IMPEDANCE VS FREQUENCY

Vcc = 50 V, Po = 500 W



SERIES LOAD IMPEDANCE VS FREQUENCY

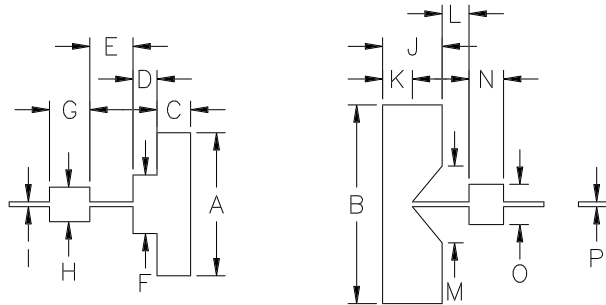
Vcc = 50 V, Po = 500 W



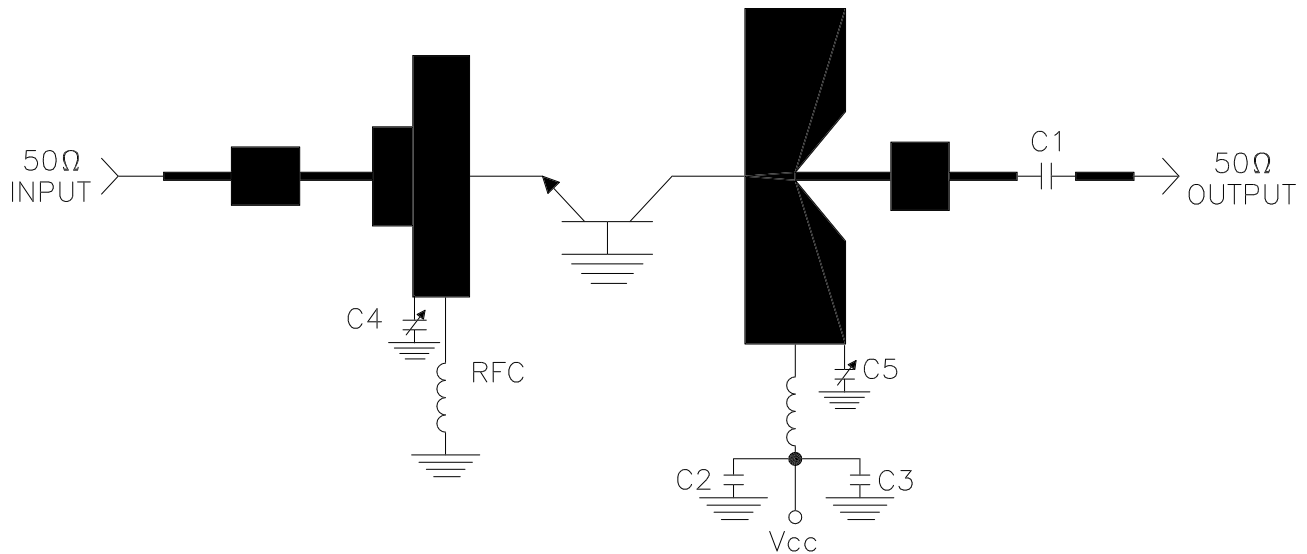
REVISIONS

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



1030/1090 MHz TEST AMPLIFIER



— = Microstrip line on E10, t=0.025"
 C1, C2 = 82PF chip capacitor
 C3 = 500 MFD @ 75V capacitor
 C4,C5 = Johanson,.6-6 pf



CAGE OPJR2	DWG NO.	TPR 500A	REV A
	SCALE	1/1	SHEET