

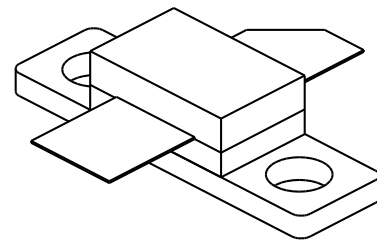
TPR 500

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

GENERAL DESCRIPTION

The TPR 500 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 for proven highest MTF. The transistor includes input prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE 55CX, STYLE 1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C² 1750 Watts

Maximum Voltage and Current

BVces Collector to Base Voltage 60 Volts
BVebo Emitter to Base Voltage 4.0 Volts
Ic Collector Current 40 Amps

Maximum Temperatures

Storage Temperature - 65 to + 150°C
Operating Junction Temperature + 200°C

ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	F = 1090 MHz	500			Watts
P_{in}	Power Input	V _{cc} = 50 Volts			150	Watts
P_g	Power Gain	PW = 10 μsec	5.2	6.0		dB
η_c	Collector Efficiency	DF = 1%		35		%
VSWR	Load Mismatch Tolerance	F = 1090 MHz			10:1	

BVebo	Emitter to Base Breakdown	I _e = 30 mA	3.5			Volts
BVces	Collector to Emitter Breakdown	I _c = 30 mA	55			Volts
h_{FE}	DC - Current Gain	I _c = 500mA, V _{ce} = 5 V	10			
θ_{jc}²	Thermal Resistance				0.1	°C/W

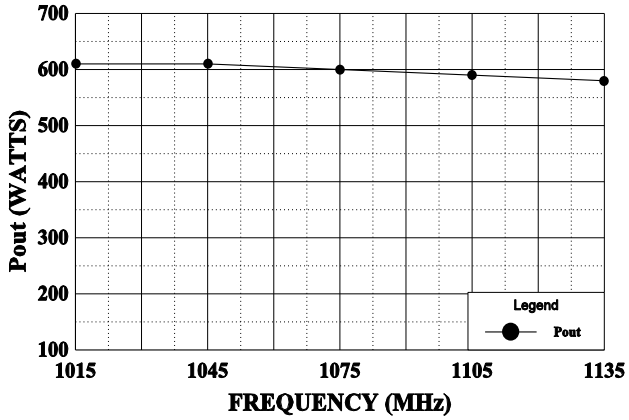
Note 1: At rated output power and pulse conditions
2: At rated pulse conditions

Initial Issue June 1, 1994

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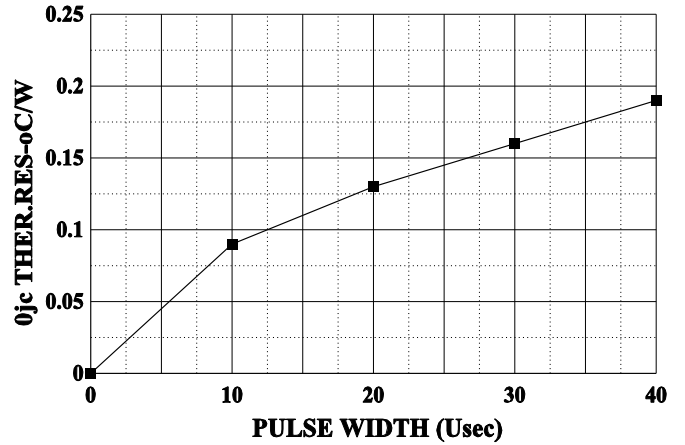
POWER OUTPUT vs FREQUENCY

Vcc = 50 V, Pin = 150 W



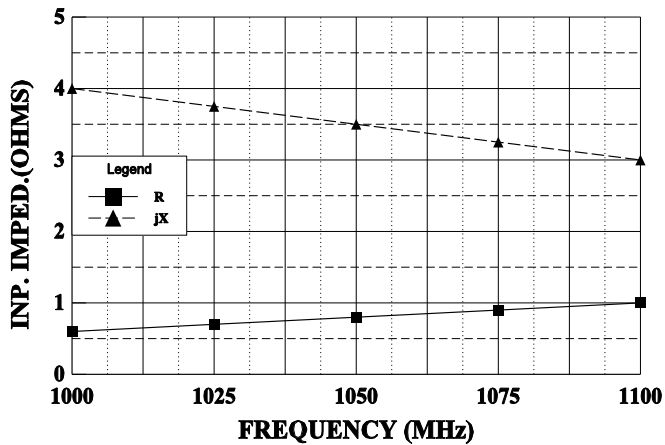
THERMAL RESISTANCE vs PULSE WIDTH

Vcc = 50V, Tf=30 C



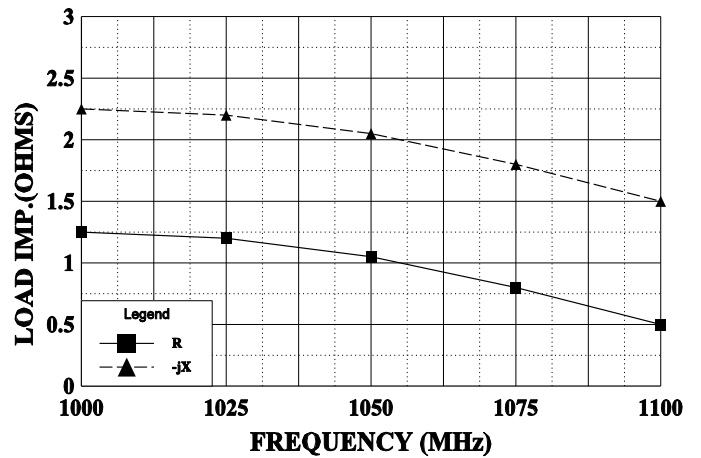
SERIES INPUT IMPEDANCE vs FREQUENCY

Vcc = 50 V, Pout= 500W



SERIES LOAD IMPEDANCE vs FREQUENCY

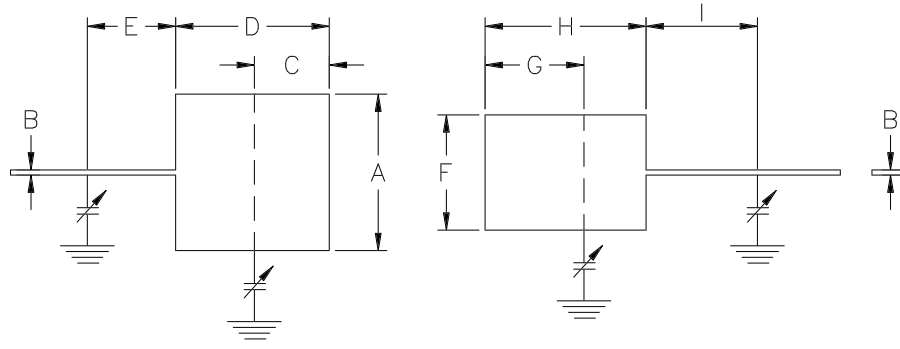
Vcc = 50 V, Pin = 75 W



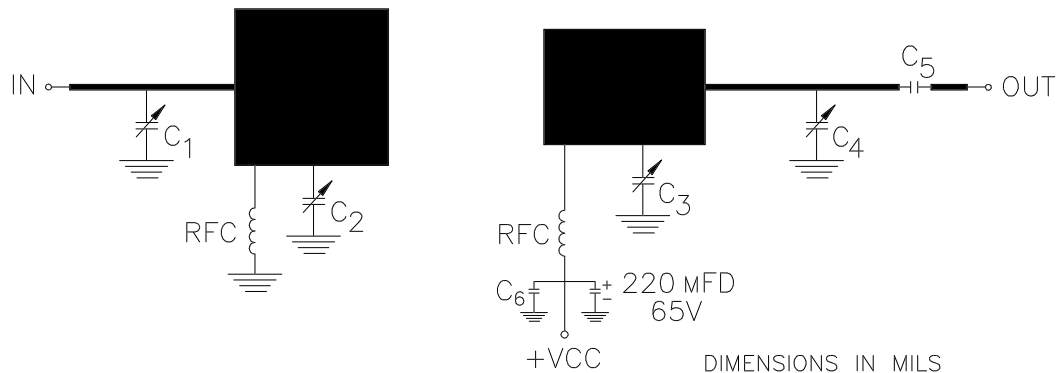
REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
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DIM	INCHES
A	.815
B	.027
C	.390
D	.800
E	.460
F	.600
G	.515
H	.839
I	.580



TPR 500 TEST CIRCUIT



DIMENSIONS IN MILS
 DIELECTRIC = 10MIL TFE Er=2.55
 C₁, C₂, C₄ = 0.3-3.5Pf JOHANSON
 C₃ = .6-6.5 Pf JOHANSON
 C₅, C₆ = 82Pf ATC "A"



CAGE
OPJR2

DWG NO.

TPR 500

REV
A

SCALE

1/1

SHEET