



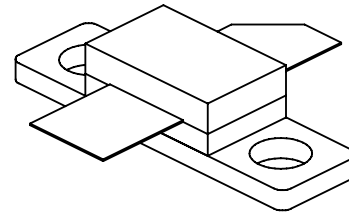
# TPR400A

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

## GENERAL DESCRIPTION

The TPR400A 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. Low thermal resistance packaging reduces the junction temperature and extends device lifetime.

## CASE OUTLINE 55CX, STYLE 1



## ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C <sup>2</sup>	875 Watts
<b>Maximum Voltage and Current</b>	
BVces Collector to Base Voltage	55 Volts
BVebo Emitter to Base Voltage	4.0 Volts
Ic Collector Current	30 Amps
<b>Maximum Temperatures</b>	
Storage Temperature	- 65 to + 150°C
Operating Junction Temperature	+ 200°C

## ELECTRICAL CHARACTERISTICS @ 25 °C

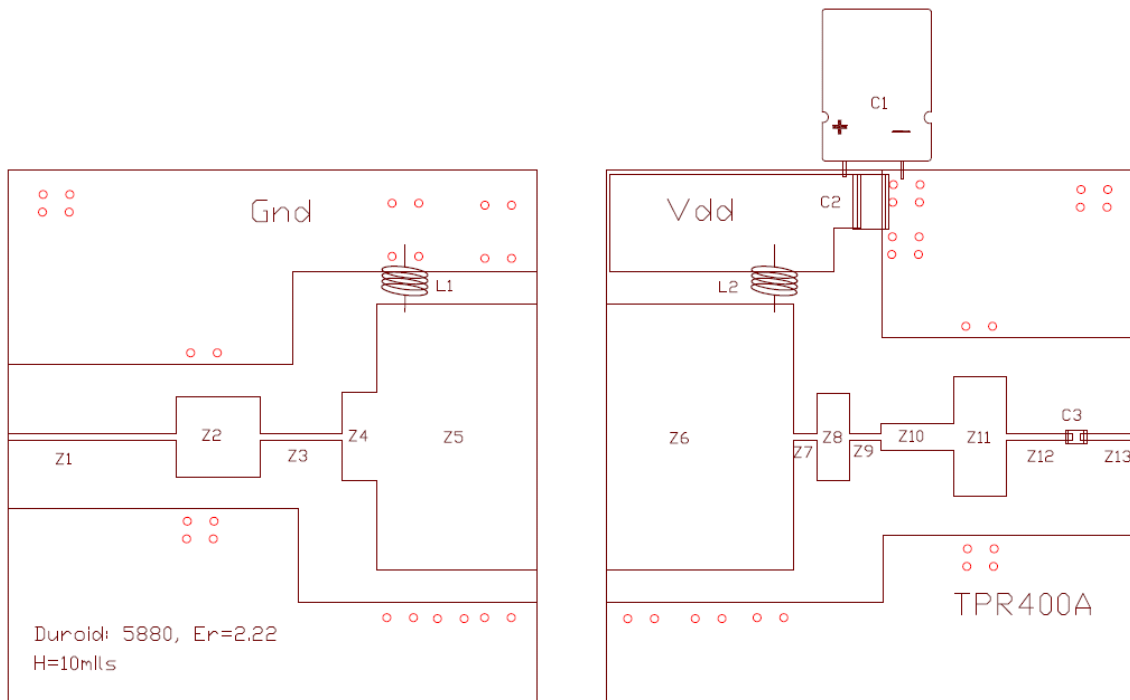
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>P<sub>out</sub></b>	Power Out	F = 1030 & 1090 MHz	400			Watts
<b>P<sub>in</sub></b>	Power Input	V <sub>cc</sub> = 50 Volts			45	Watts
<b>P<sub>g</sub></b>	Power Gain	PW = 10 μsec	9.5			dB
<b>η<sub>c</sub></b>	Collector Efficiency	DF = 1%		50		%
<b>V<sub>SWR</sub></b>	Load Mismatch Tolerance				5:1	

<b>BVebo</b>	Emitter to Base Breakdown	I <sub>e</sub> = 20 mA	4.0			Volts
<b>BVces</b>	Collector to Emitter Breakdown	I <sub>c</sub> = 25 mA	55			Volts
<b>h<sub>FE</sub></b>	DC - Current Gain	I <sub>c</sub> = 2.5 A, V <sub>ce</sub> = 5 V	10		100	
<b>θ<sub>jc</sub><sup>1</sup></b>	Thermal Resistance				.2	°C/W

Note 1: At rated output power and pulse conditions

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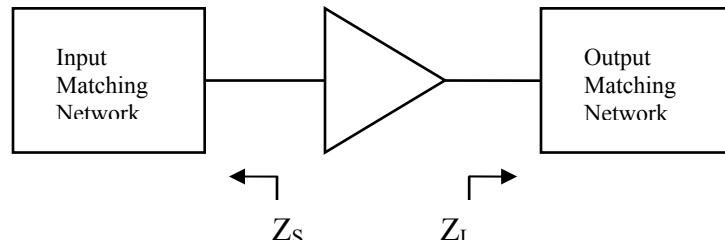
## Circuit Information



TPR400A Test Circuit Component Designations and Values

Part	Description	Part	Description
C1	1000 uF Electrolytic Capacitor	Z6	1000 x 700 mils (W x L)
C2	1 uF Chip Capacitor	Z7	25 x 90 mils (W x L)
C3	33pF Chip Capacitor (ATC 100A)	Z8	325 x 120 mils (W x L)
L1, L2	4 Turns, 20AWG, IDIA 0.1"	Z9	25 x 120 mils (W x L)
Z1	25 x 630 mils (W x L)	Z10	100 x 270 mils (W x L)
Z2	300 x 315 mils (W x L)	Z11	450 x 200 mils (W x L)
Z3	25 x 305 mils (W x L)	Z12	25 x 245 mils (W x L)
Z4	330 x 130 mils (W x L)	Z13	25 x 205 mils (W x L)
Z5	1000 x 600 mils (W x L)	PCB	Duroid 5880; Er2.22, H=10mils

## Device Impedance Information



### Typical Impedance Values

Frequency (MHz)	$Z_s(\Omega)$	$Z_t(\Omega)$
1030	$0.96 - j3.29$	$1.02 - j2.51$
1090	$1.00 - j3.02$	$1.12 - j2.24$

\*  $V_{cc} = 50V$ ,  $P_{in} = 45W$

\* Pulse Format:  $10\mu s$ , 1% Long Term Duty Factor

