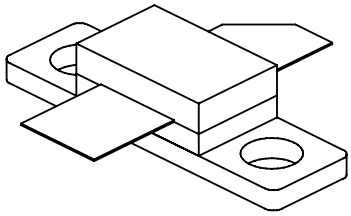
TPR400A

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 MTTF. 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[2]	875 Watts
Maximum Voltage and Current	
BVces Collector to Base Voltage	55 Volts
BVebo Emitter to Base Voltage	4.0 Volts
Ic Collector Current	30 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
Pout	Power Out	F = 1030 &1090 MHz	400			Watts
Pin	Power Input	Vcc = 50 Volts			45	Watts
Pg	Power Gain	PW = 10 µsec	9.5			dB
η_c	Collector Efficiency	DF = 1%		50		%
VSWR	Load Mismatch Tolerance				5:1	

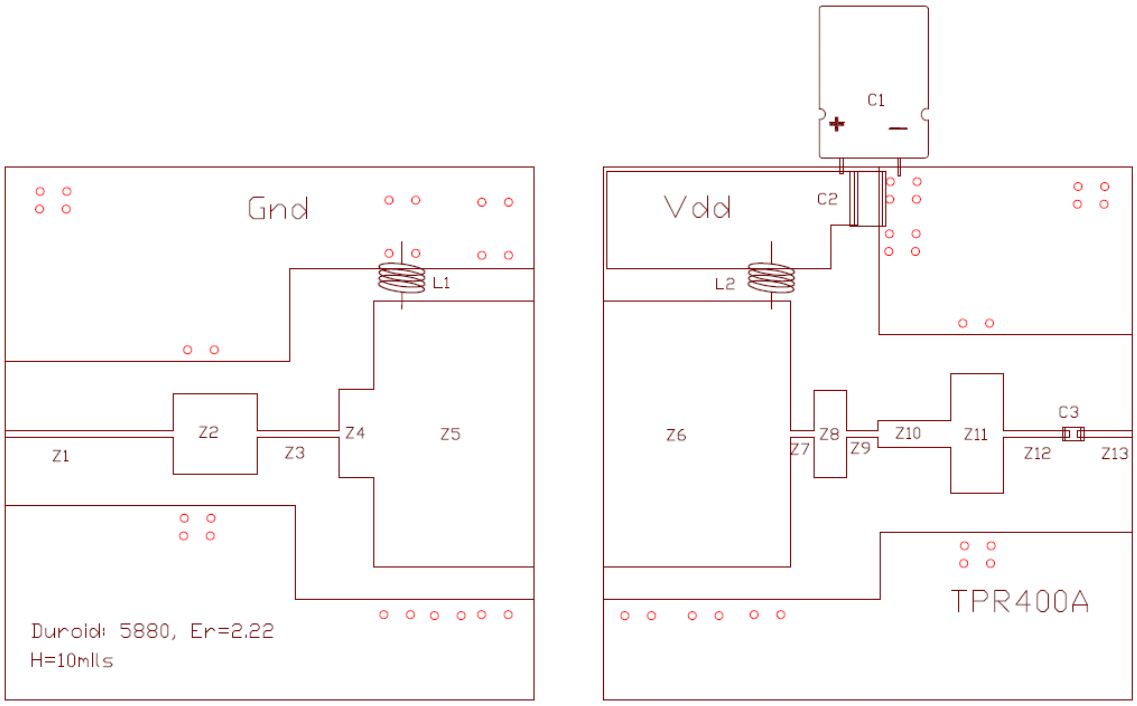
BVebo	Emitter to Base Breakdown	Ie = 20 mA	4.0			Volts
BVces	Collector to Emitter Breakdown	Ic = 25 mA	55			Volts
h_{FE}	DC - Current Gain	Ic = 2.5 A, Vce = 5 V	10		100	
θjc[1]	Thermal Resistance				.2	°C/W

Note 1: At rated output power and pulse conditions

Rev B – November 2009

TPR400A

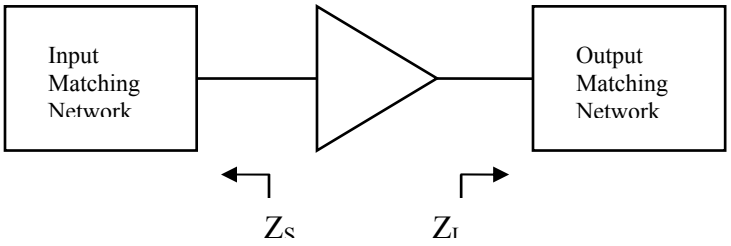
Circuit Information



TPR400A Test Circuit Component Designations and Values

Part	Description	Part	Description
C1	1000 uF Electrolytic Capcitor	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)	$Z_S(\Omega)$	$Z_L(\Omega)$
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: 10µs, 1% Long Term Duty Factor

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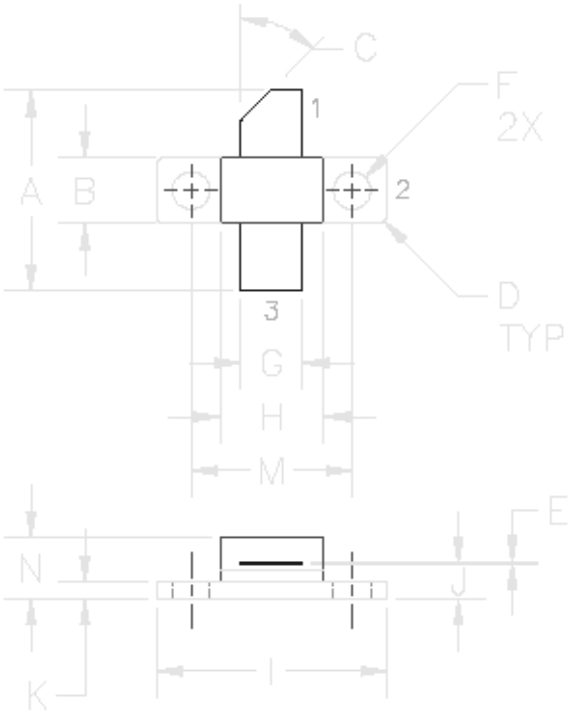
TPR400A

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



DIM	MILLIMETER	±TOL	INCHES	±TOL
A	17.78	.76	.700	.030
B	5.84	.13	.230	.005
C	45°	5°	45°	5°
D	1.02X45°	5°	.040X45°	5°
E	.13	.02	.005	.001
F	3.30 DIA	.13	.130 DIA	.005
G	5.46	.13	.215	.005
H	9.14	.13	.360	.005
I	20.32	.13	.800	.005
J	3.17	.25	.125	.010
K	1.52	.13	.060	.005
M	14.27	.13	.562	.005
N	5.46	REF	.215	REF

STYLE 1:
PIN1 = COLLECTOR
2 = BASE
3 =EMITTER

STYLE 2:
PIN1 = COLLECTOR
2 = EMITTER
3 = BASE

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CAGE	DWG NO.	REV
0PJR2	55CX	B
SCALE 2/1	SHEET	