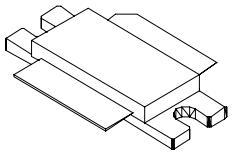
TCS1200

1200 Watts, 53 Volts
Pulsed Avionics at 1030 MHz

GENERAL DESCRIPTION

The TCS1200 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems at 1030 MHz, with the pulse width and duty required for TCAS applications. The device has gold thin-film metalization and emitter ballasting for proven highest MTTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE
55TU-1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C[1]	2095	W

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces})	65	V
Emitter to Base Voltage (BV_{ebo})	3.5	V
Collector Current (I_c)	60	A

Maximum Temperatures

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

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out	Pulse Width = 32µs	1200			W
P_g	Power Gain	Duty Factor = 2%	10.2			dB
η_c	Collector Efficiency	F = 1030 MHz, V_{cc} = 53 Volts	45			%
R_L	Return Loss	Pin = 115 Watts	-10			dB
Tr	Rise Time				100	ns
Pd	Pulse Droop				0.5	dB
VSWR	Load Mismatch Tolerance[1]		2.5:1			

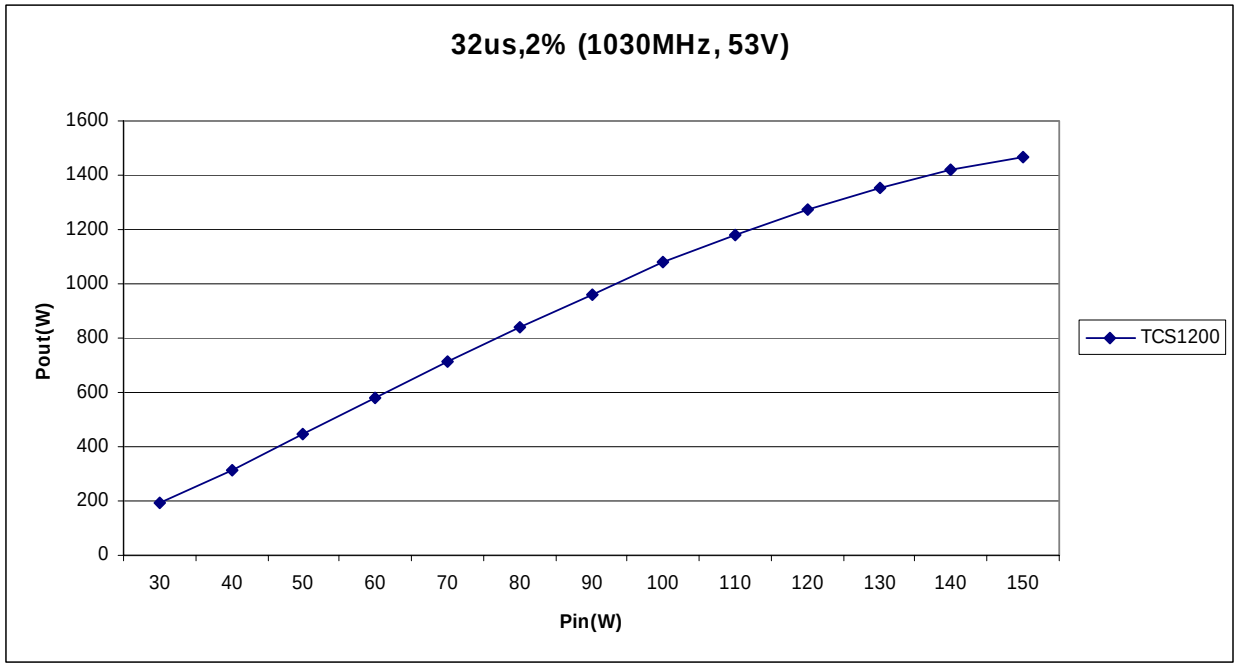
FUNCTIONAL CHARACTERISTICS @ 25°C

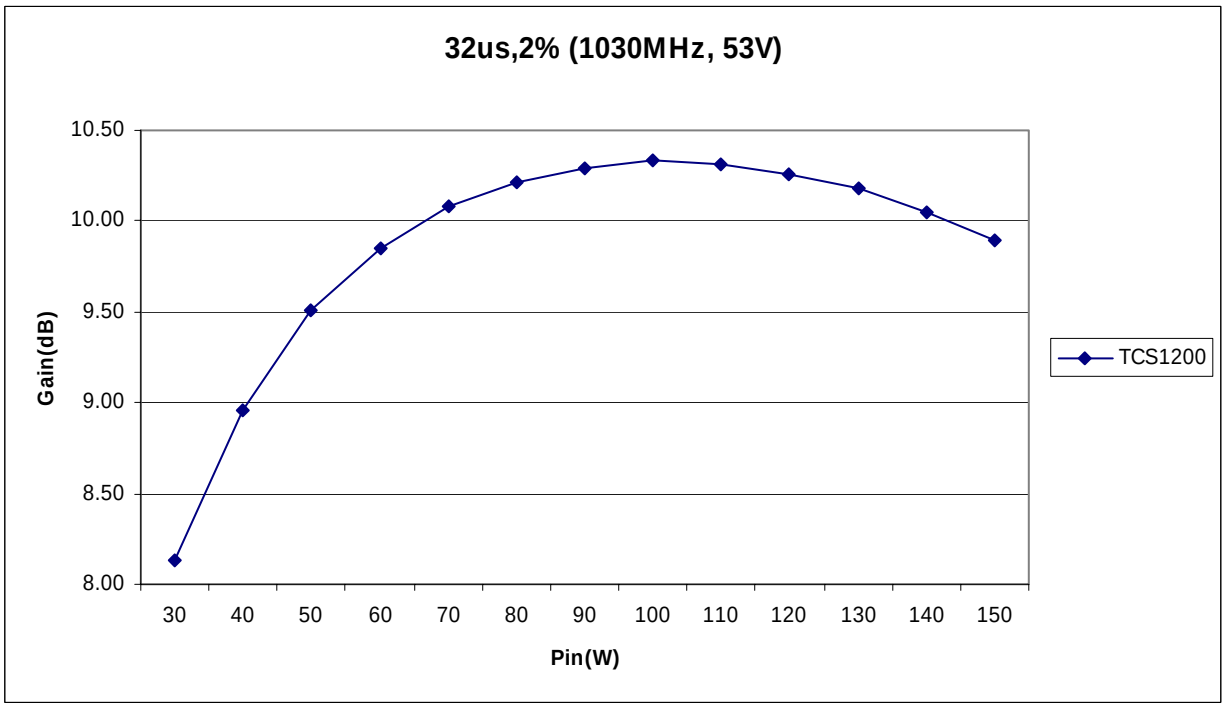
BV_{ebo}	Emitter to Base Breakdown	Ie = 40 mA	3.5			V
BV_{ces}	Collector to Emitter Breakdown	Ic = 100 mA	65			V
h_{FE}	DC – Current Gain	Vce = 5V, Ic = 1A	20			
θjc[1]	Thermal Resistance				0.012	°C/W

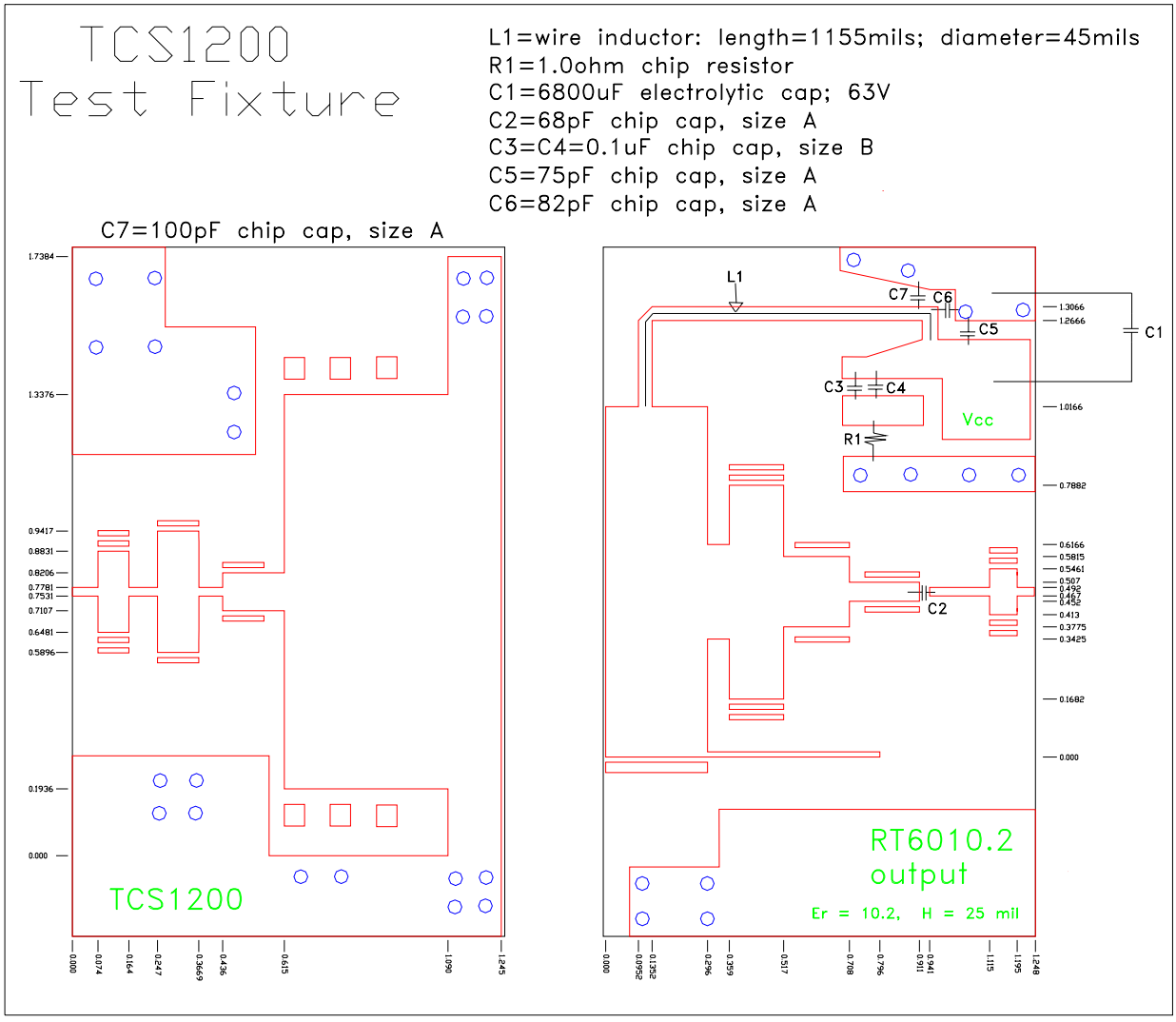
Rev B April, 2009

NOTES: 1. At rated output power and pulse conditions

2. See plots below for Mode S data at 50V as well as the standard 32us,2% data at 53V

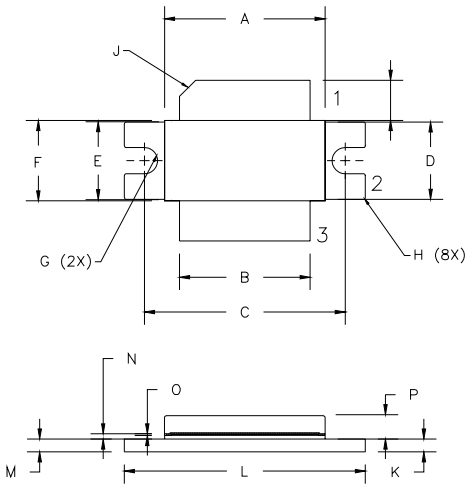






Dimensions in inches

REVISIONS				
ZONE	REV	DESCRIPTION	DATE: 8/20/01	APPROVED



DIM	MILLIMETER	±TOL	INCHES	±TOL
A	20.32	±0.25	.800	±.010
B	16.51	±0.25	.650	±.010
C	25.40	±0.25	1.000	±.010
D	9.78	±0.25	.385	±.010
E	9.86		.388	
F	10.16	±0.25	.400	±.010
G	3.30 DIA		.130 DIA	
H	0.25 RAD		.010 RAD	
I	5.28	±0.51	.208	±.020
J	45°	.0015°	45°	.0015°
K	1.63		.064	
L	30.48	±0.25	1.200	±.010
M	2.13	±0.13	.084	±.005
N	0.46	±0.03	.018	±.001
O	0.20	±0.03	.008	±.001
P	2.95	±0.03	.116	±.001

PIN 1 = COLLECTOR
2 = BASE
3 = EMITTER

Microsemi	CAGE 0PJR2	DWG NO. 55TU−1	REV A