



TCS800

800 Watts, 50 Volts, Pulsed
Avionics 1030 MHz

GENERAL DESCRIPTION

The TCS800 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1030 MHz, with the pulse width and duty required for TCAS applications. The device has gold thin-film metallization and diffused ballasting for proven highest MTTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @25°C¹ 1944 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) 50 A

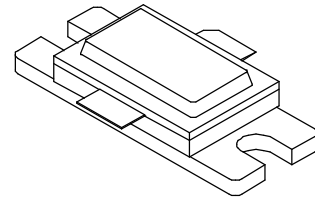
Maximum Temperatures

Storage Temperature -65 to +200 °C

Operating Junction Temperature +230 °C

CASE OUTLINE

55SM Style 1



ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{out}	Power Out	F = 1030 MHz	800			W
P _{in}	Power Input	V _{CC} = 50 Volts			126	W
P _g	Power Gain	PW = 32 µsec	8.0	9.0		dB
η _c	Collector Efficiency	DF = 1%		45		%
R _L	Input Return Loss			-12		dB
Pd	Pulse Droop			0.5		dB
VSWR	Load Mismatch Tolerance	F = 1030 MHz			4:1	

FUNCTIONAL CHARACTERISTICS @ 25°C

BV _{ebo} *	Emitter to Base Breakdown	I _e = 70 mA	3.5			V
BV _{ces}	Collector to Emitter Breakdown	I _c = 100 mA	65			V
h _{FE} *	DC – Current Gain	V _{ce} = 5V, I _c = 5A	20			
θ _{jc} ¹	Thermal Resistance				0.09	°C/W

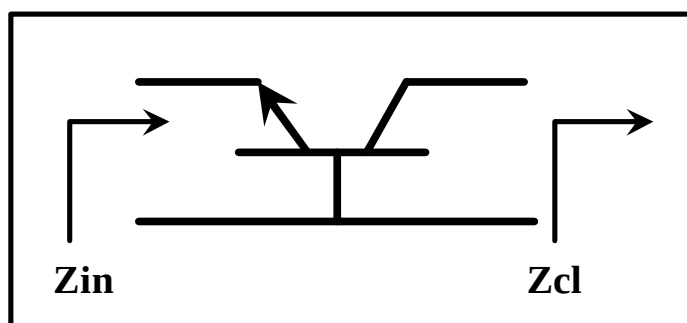
NOTE 1: At rated output power and pulse conditions.

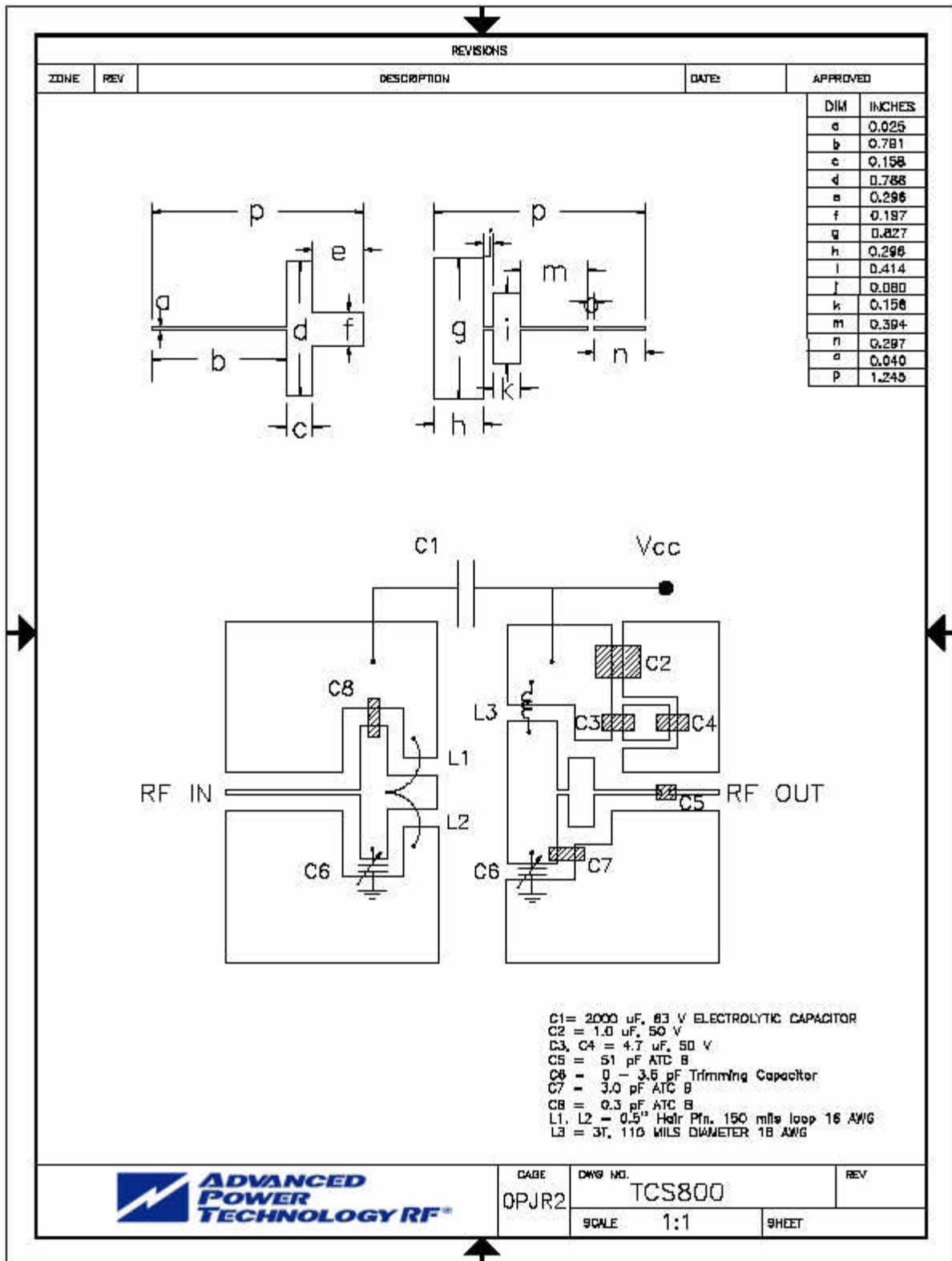
*: Not measurable due to internal EB returns

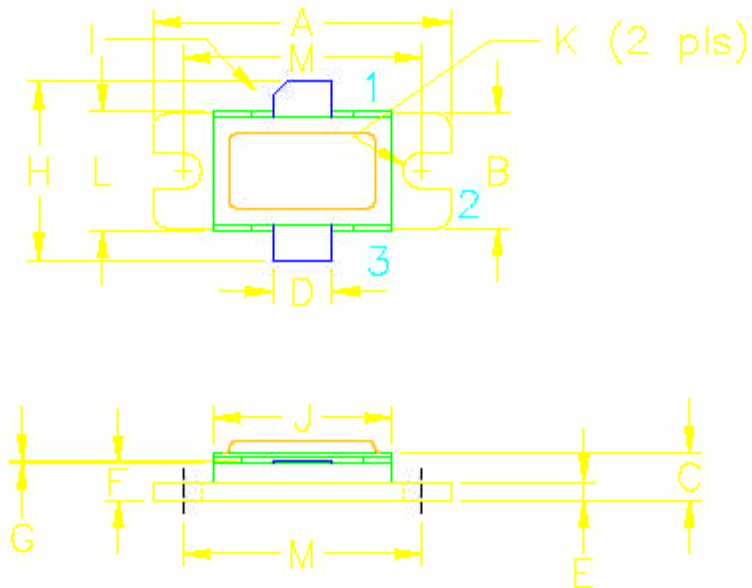
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Freq (MHz)	Z_{in}	Z_{cl}
1030	1.63+j1.59	0.47-j1.14







DIM	MILLIMETER	TOL	INCHES	TOL
A	25.40	.25	1.000	.010
B	9.78	.25	.385	.010
C	4.87	.19	.192	.007
D	5.08	.13	.200	.005
E	1.53	.13	.060	.005
F	3.18	.13	.125	.005
G	0.08	+.06/- .00	.003	+.002/- .000
H	19.05	0.51	.750	.020
I	45°	5°	45°	5°
J	15.24	.25	.600	.010
K	3.05 DIA	.13	.120 DIA	.005
L	10.15	.13	.400	.005
M	20.32	.25	.800	.010

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

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

