

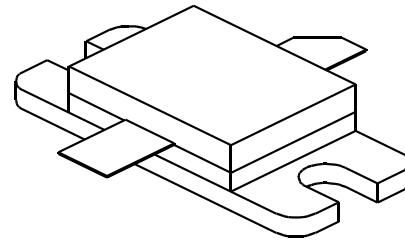
TCS450

450 Watts, 45 Volts, Pulsed
Avionics 1030 MHz

GENERAL DESCRIPTION

The TCS450 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1030-1090 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 prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE 55KT Style 1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C ²	1166 Watts
Maximum Voltage and Current	
BVces Collector to Base Voltage	55 Volts
BVebo Emitter to Base Voltage	3.5 Volts
Ic Collector Current	40 Amps
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
Pout	Power Out	F = 1030 MHz	450			Watts
Pin	Power Input	Vcc = 45 Volts			100	Watts
Pg	Power Gain	PW = 32 μsec	6.2			dB
η_c	Collector Efficiency	DF = 1%		45		%
Pd	Pulse Droop	F = 1030MHz		0.25		dB
VSWR	Load Mismatch Tolerance				6:1	

BVebo¹	Emitter to Base Breakdown	Ie = 30 mA	3.5			Volts
BVces	Collector to Emitter Breakdown	Ic = 30 mA	55			Volts
Cob	Capacitance Collector to Base	Vcb = 50 Volts				pF
h_{FE}^1	DC - Current Gain	Ic = 500 mA, Vce = 5 V	10			
θ_{jc}^2	Thermal Resistance				0.15	°C/W

Note 1: Not measurable due to internal DC Return.

Note 2: At rated pulse conditions

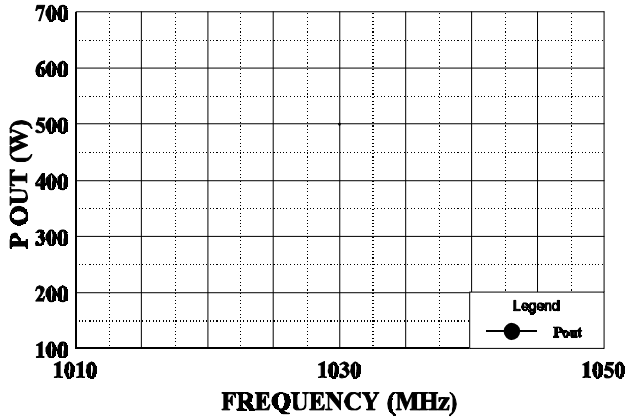
Revision 2, July 7, 1997

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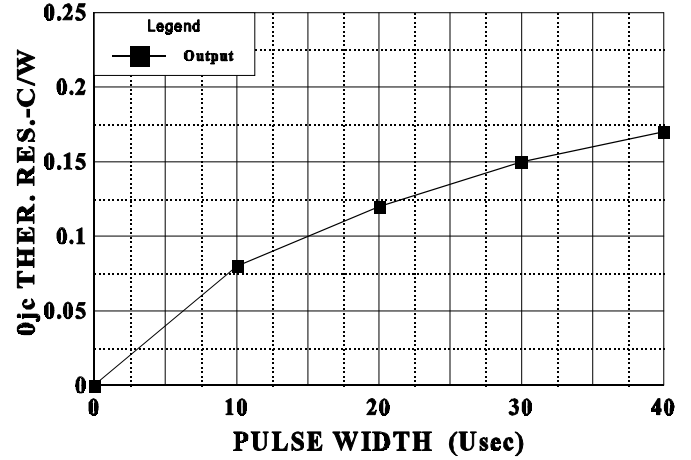
POWER OUTPUT VS FREQUENCY

Vcc = 45 V, Pin = 100 W



THERMAL RESISTANCE VS PULSE WIDTH

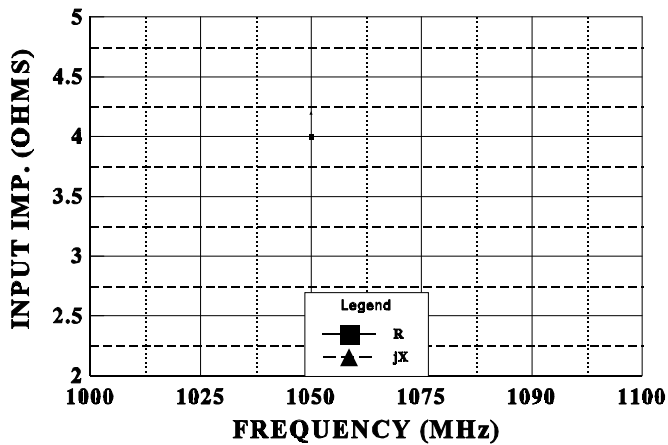
Vcc - 45 V, Tf = 30 C



Following Data is to be provided in the near future.

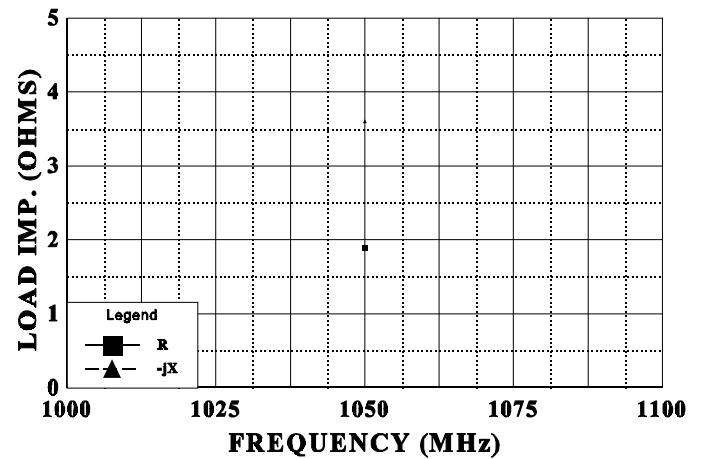
SERIES INPUT IMPEDANCE VS FREQUENCY

Vcc = 45 V, Po = 450 W



SERIES LOAD IMPEDANCE VS FREQUENCY

Vcc = 45 V, Po = 450 W



July 7, 1997

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