GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

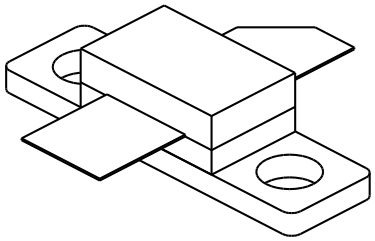
0912-25

25 Watts, 50 Volts, Pulsed
Avionics 960 - 1215 MHz

GENERAL DESCRIPTION

The 0912-25 is a COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 960-1215 MHz. The device has gold thin-film metallization for proven highest MTTF. The transistor includes input prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE
55CX, STYLE 1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25ºC[2]	125 Watts
Maximum Voltage and Current	
BVces Collector to Base Voltage	60 Volts
BVebo Emitter to Base Voltage	4.0 Volts
Ic Collector Current	2.5 Amps
Maximum Temperatures	
Storage Temperature	- 65 to + 150ºC
Operating Junction Temperature	+ 200ºC

ELECTRICAL CHARACTERISTICS @ 25 ^{O}C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Out	F = 960-1215 MHz	25			Watts
Pin	Power Input	Vcc = 50 Volts			3.5	Watts
Pg	Power Gain	PW = 10 μsec	8.5	10		dB
η_c	Collector Efficiency	DF = 1 %		45		%
VSWR	Load Mismatch Tolerance	F = 1090 MHz			10:1	

BVebo	Emitter to Base Breakdown	Ie = 25 mA	4.0			Volts
BVces	Collector to Emitter Breakdown	Ic = 75 mA	55			Volts
Cob	Capacitance Collector to Base	Vcb = 50 Volts		14	17	pF
$\mathbf{h_{FE}}$	DC - Current Gain	Ic =300 mA, Vce =5 V	10			
$\theta\mathbf{jc}^{2}$	Thermal Resistance				1.4	ºC/W

Note 1: At rated output power and pulse conditions.
2: At rated pulse conditions

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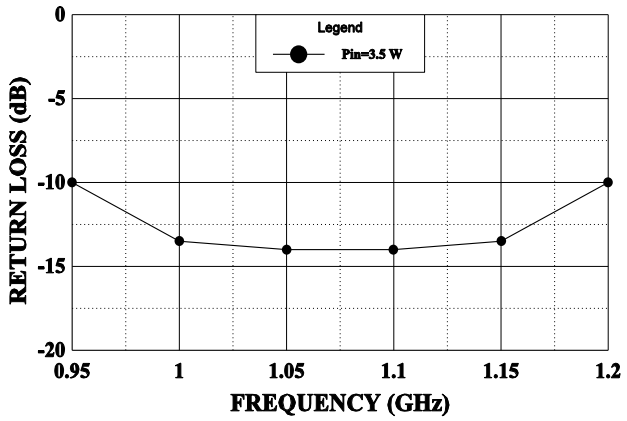
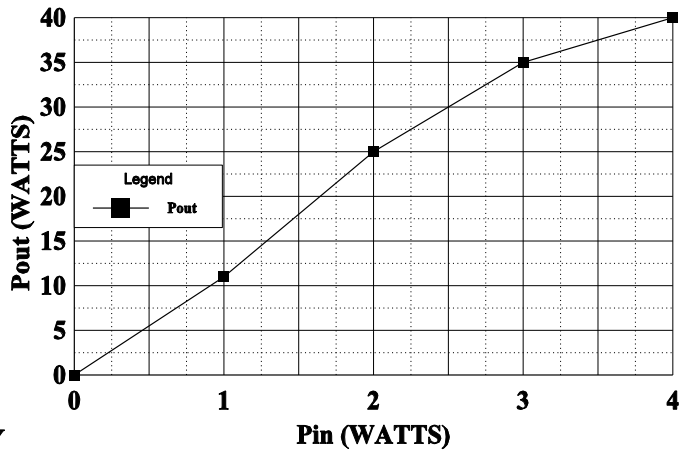
WIDEBOARD CIRCUIT INPUT RETURN LOSS

Pin = 3.5 Watt Pk, Vcc = 50 Volts



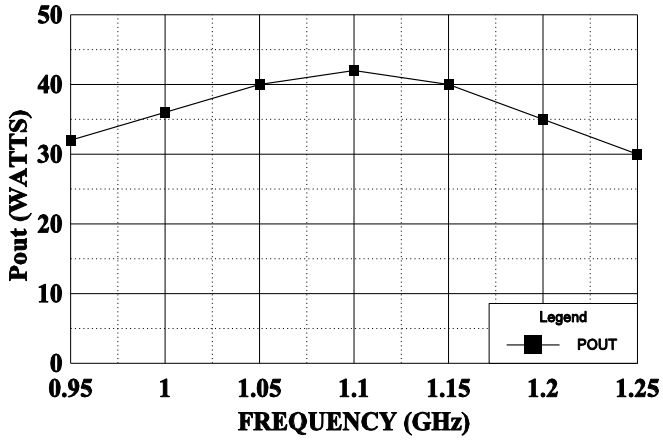
POWER OUTPUT vs POWER INPUT

Vcc = 50V, Frequency 1090 MHz



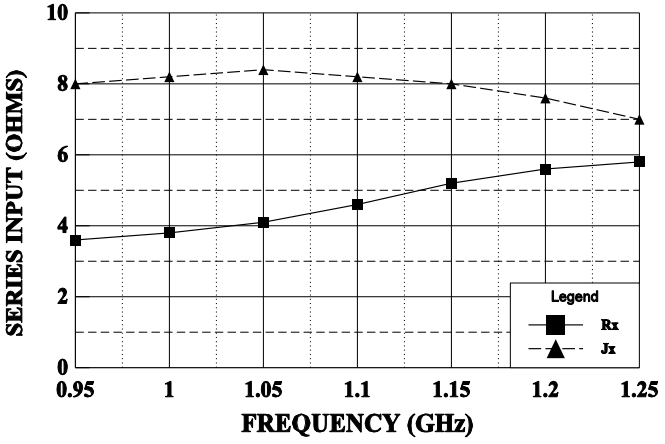
Pout VS FREQUENCY

Vcc=50V, Pin = 3.5 W



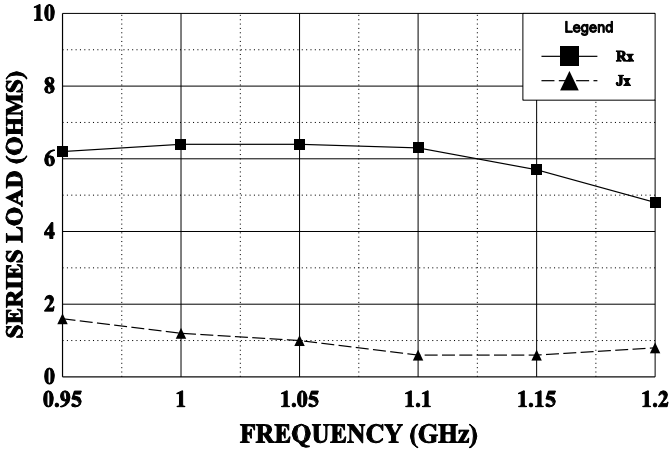
SERIES INPUT IMPEDANCE vs FREQUENCY

Vcc = 50 V, Pin = 1 W



SERIES LOAD IMPEDANCEvs FREQUENCY

Vcc = 50 V, Pin = 3.5W



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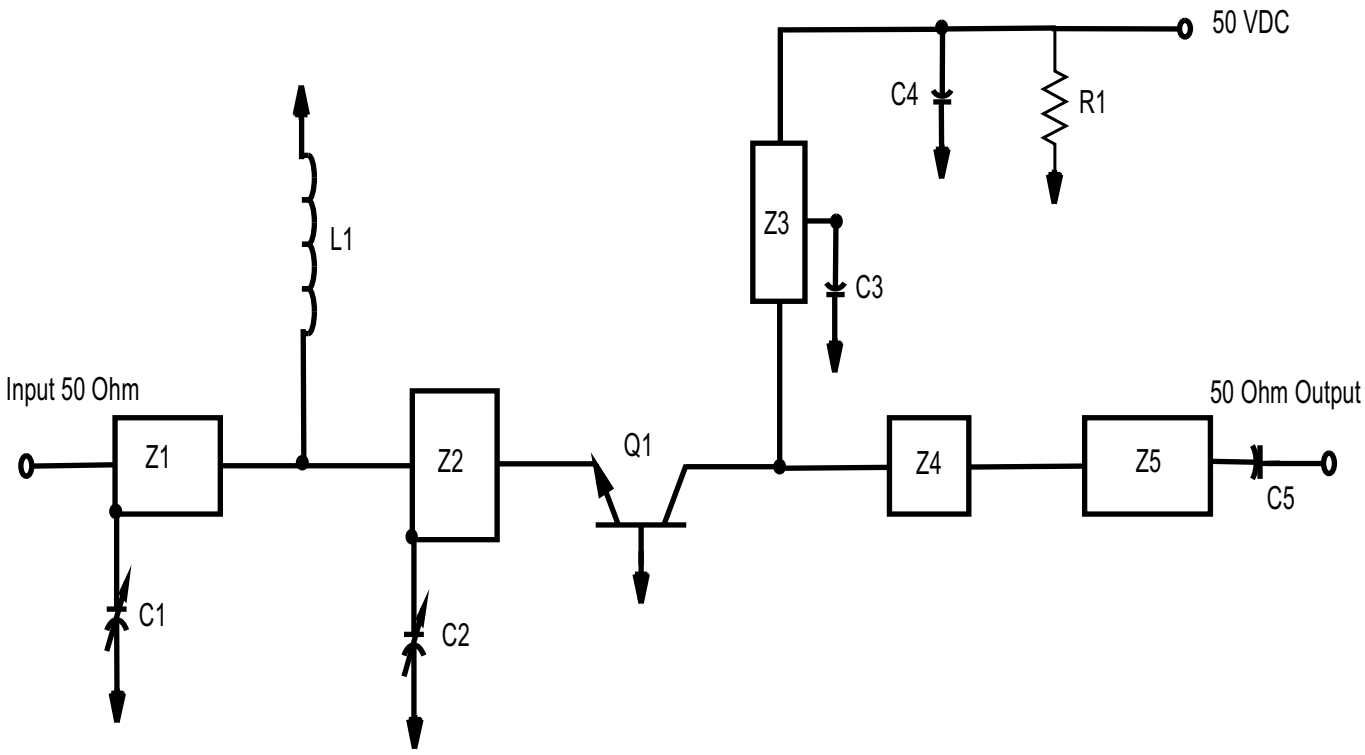

PC Board Material .010" Dielectric Teflon Fiberglass

Z1=50 , .112 , .27"w X .834"L
Z2=9 , .116 , .22"w X .811"L
Z3=50 , .7 , .27"w X 1.2"L
Move along Z3 for best tuning
Z4=10 , .04 , .2"w X .28"L
Z5=18.3 , .25 , .1"w X .18"L

C1, C2=Capacitor, .35-3.5 pF piston trimmer
C3, C5=Capacitor, 47 pF "B" (100mil) ATC
C4= Capacitor, 50 mf 75V electrolytic
L1=Inductor, #18 wire 1 1/2 turns 1/4" diameter
Q1=GHz 0912-25

August 1996