



0912-7

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

<p>GENERAL DESCRIPTION The 0912-7 is a COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 960-1215 MHz. The transistor includes input prematch for broadband capability. The device has gold thin-film metallization for proven highest MTTF. Low thermal resistance package reduces junction temperature, extends life.</p>	<p style="text-align: center;">CASE OUTLINE 55CX, STYLE 1</p>
<p>ABSOLUTE MAXIMUM RATINGS Maximum Power Dissipation @ 25°C² 50 Watts</p> <p>Maximum Voltage and Current BVces Collector to Emitter Voltage 60 Volts BVebo Emitter to Base Voltage 4.0 Volts Ic Collector Current 1.0 Amps</p> <p>Maximum Temperatures Storage Temperature - 65 to + 150 °C Operating Junction Temperature + 200°C</p>	

ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Out	F = 960-1215 MHz	7			Watts
Pin	Power Input	Vcc = 50 Volts			1	Watts
Pg	Power Gain	PW = 10 μsec	8.5			d B
η _c	Collector Efficiency (1090 MHz)	DF = 1%		40		%
VSWR	Load Mismatch Tolerance	F = 1090 MHz			10:1	

BVebo	Emitter to Base Breakdown	Ie = 10 mA	4			Volts
BVces	Collector to Emitter Breakdown	Ic = 20 mA	60			Volts
Cob	Capacitance Collector to Base	Vcb = 50 V		6.5	8	pF
h_{FE}	DC - Current Gain	Ic = 100 mA, Vcc = 5V	10		120	
θjc²	Thermal Resistance				3.5	°C/W

Note1: At Rated Power Output and pulse conditions.

2: At rated pulse conditions

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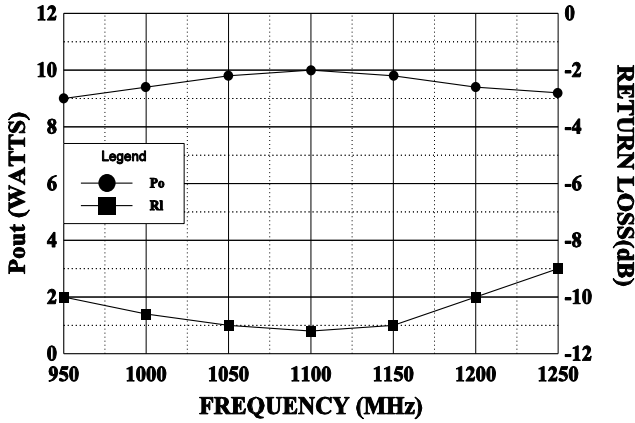


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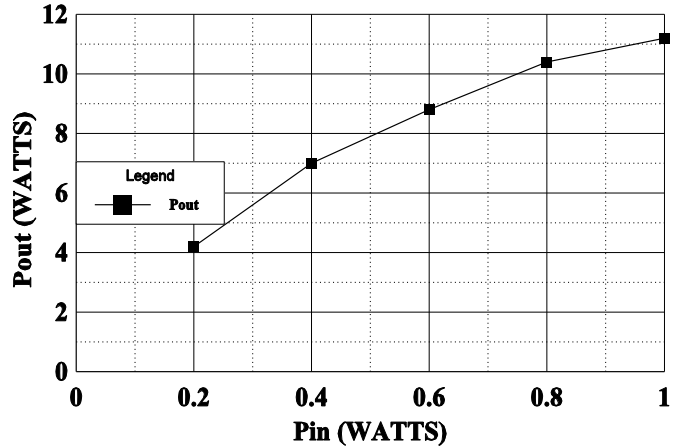
BROADBAND Pout & RETURN LOSS

Pin = 1 Watt Pk, Vcc = 50 Volts



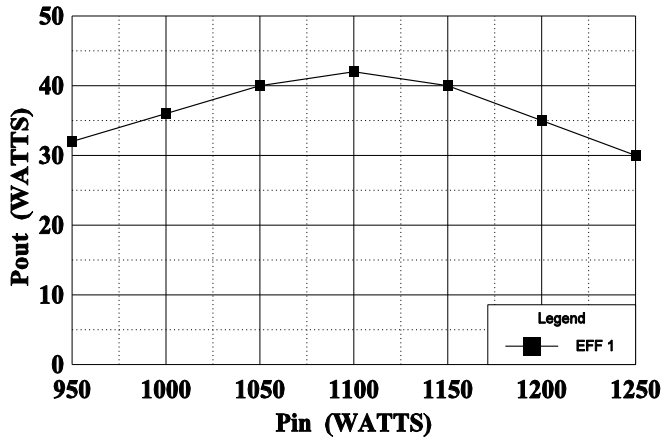
POWER OUTPUT vs POWER INPUT

Vcc = 50V, Frequency 1090 MHz



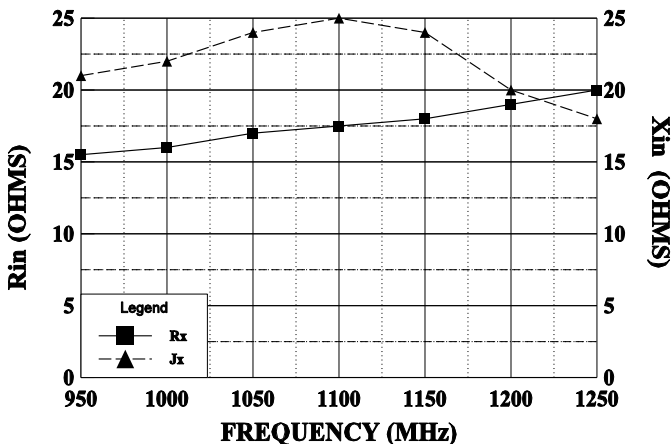
EFFICIENCY vs FREQUENCY

Vcc 50 Volts, Pin = 1 Watt



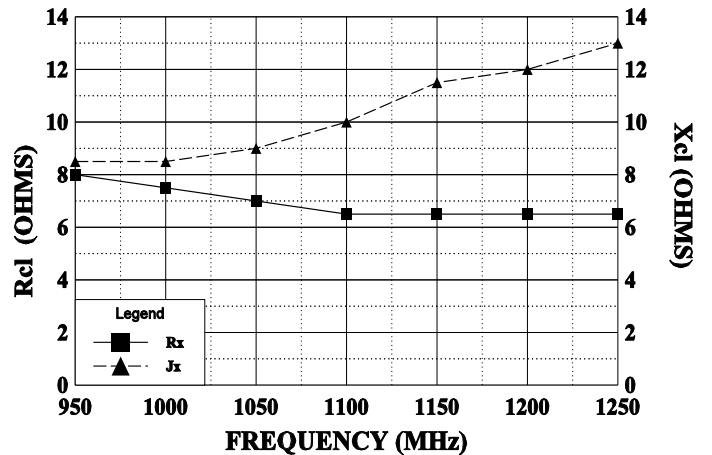
SERIES INPUT IMPEDANCE vs FREQUENCY

Vcc = 50 V, Pin = 1 W

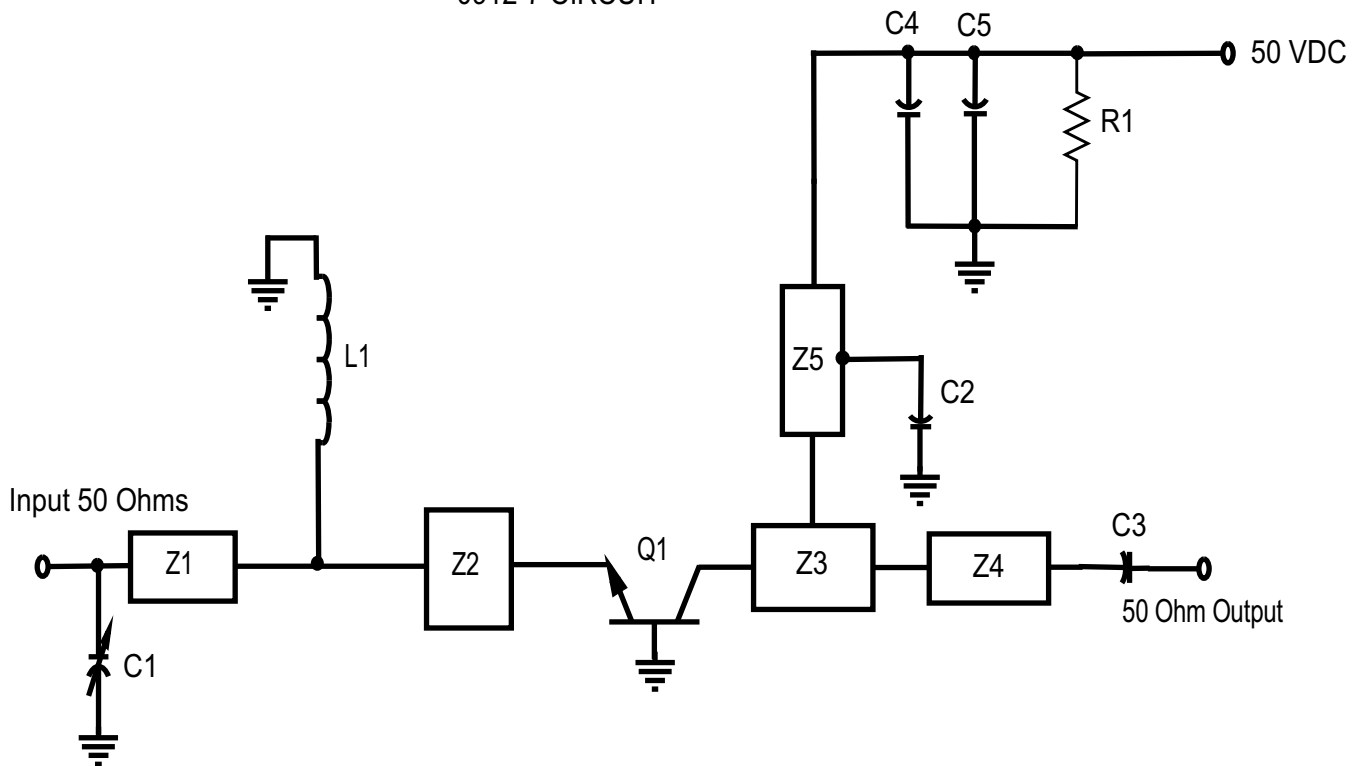


SERIES LOAD IMPEDANCE vs FREQUENCY

Vcc = 50 V, Pin = 1W



0912-7 CIRCUIT



PC Board Material .010" Dielectric Teflon Fiberglass

Z1=50 Ω , .062" w X .45"L
 Z2=5 Ω , .033" w X .23"L
 Z3=10 Ω , .06" w X .40"L
 Z4=50 Ω = .027" w X any convenient length
 Z5=50 Ω , .12" w X .86"L
 C1=Capacitor, .35-3.5pF Piston Trimmer
 C2=Capacitor, 47pF ATC

Note: Slide C2 along Z5 for best tuning
 C3=Capacitor, 47pF ATC
 C4=Capacitor, 100 pF ATC
 C5=Capacitor, 12mfd, 75 VDC, Electrolytic
 L1=Inductor, #18 wire, 1.5" long
 R1=Resistor, 10KW, 1/4W
 Q1=Transistor, GHz 0912-7

All electrical lengths taken at 1.09 GHz