

# 0912-45

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

#### **GENERAL DESCRIPTION**

The 0912-45 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 capacity. Low thermal resistance package reduces junction temperature, extends life.

### **ABSOLUTE MAXIMUM RATINGS**

Maximum Power Dissipation @ 25°C<sup>2</sup> 225 Watts

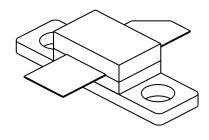
**Maximum Voltage and Current** 

BVces Collector to Base Voltage 60 Volts
BVebo Emitter to Base Voltage 4.0 Volts
Ic Collector Current 4.5 Amps

**Maximum Temperatures** 

Storage Temperature  $- 65 \text{ to} + 150^{\circ}\text{C}$  Operating Junction Temperature  $+ 200^{\circ}\text{C}$ 

# CASE OUTLINE 55CX, STYLE 1



# **ELECTRICAL CHARACTERISTICS** @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout Pin Pg <sup>2</sup> η <sub>c</sub> VSWR <sup>2</sup>	Power Out Power Input Power Gain Collector Efficiency Load Mismatch Tolerance	F = 960-1215 MHz Vcc = 50 Volts PW = 10 µsec DF = 1% F = 1090 MHz	45 8.0	9.0 45	7.0	Watts Watts dB %

BVebo	Emitter to Base Breakdown	Ie = 25  mA	4.0			Volts
BVces	Collector to Emitter Breakdown	Ic = 75  mA	60			Volts
Cob	Capacitance Collector to Base	Vcb = 50V		20		pF
$\mathbf{h}_{\mathbf{FE}}$	DC - Current Gain	Ic = 300  mA, Vce = 5  V	10			
$\frac{\mathbf{h}_{\mathrm{FE}}}{\theta \mathbf{j} \mathbf{c}^2}$	Thermal Resistance				0.8	°C/W

Note 1: At rated output power and pulse conditions

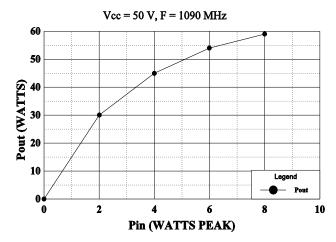
2: At rated pulse conditions

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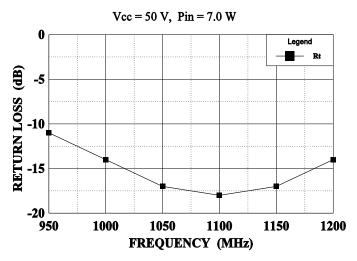
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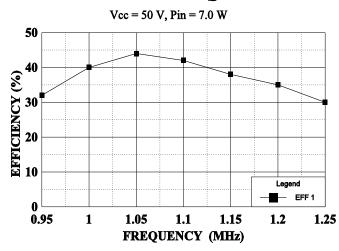
#### **POWER OUTPUT vs POWER INPUT**



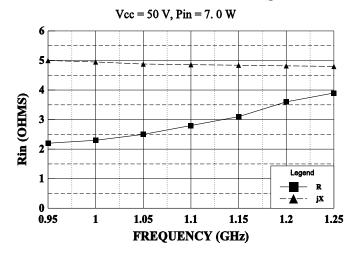
#### WIDEBAND CIRCUIT INPUT RETURN LOSS



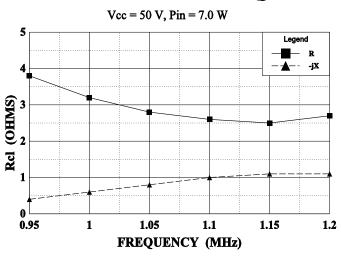
### **EFFICIENCY** vs **FREQUENCY**



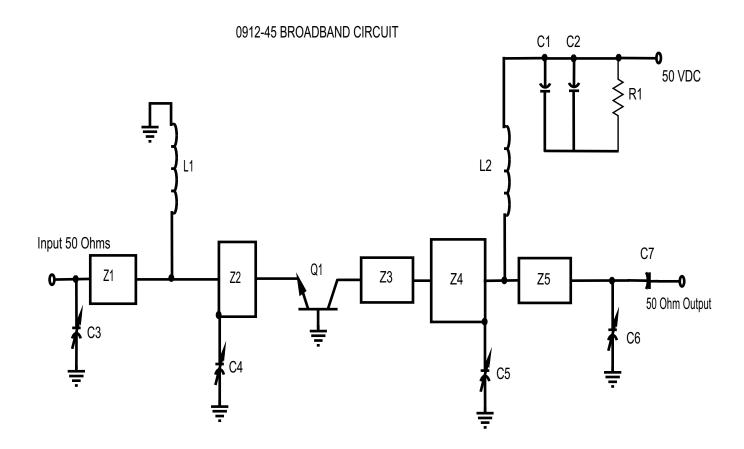
#### SERIES INPUT IMPEDANCE vs FREQUENCY



#### SERIES LOAD IMPEDANCE vs FREQUENCY







# PC Board Material .010" Dielectric Teflon Fiberglass

Z1=50 , .08 , = .027"w X .59"L Z2=2.7	C1=Capacitor 100 pF "B" (100mil) ATC C2=Capacitor 68mfd, 75V Electrolytic C3, C4, C5, C6= Capacitor .35-3.5pF Piston Trimmer C4=Capacitor 47pF "B" (100mil) ATC R1= Resistor, 15WK 1/4W
Z5=50 , .075 , =.027"w X .56"L	Q1=GHz Transistor 0912-45
L1= Inductor #14 wire, 0.7" long L2= Inductor #18 wire, 1.5" long	All electrical lengths taken at 1.09 GHz

All electrical lengths taken at 1.09 GHz