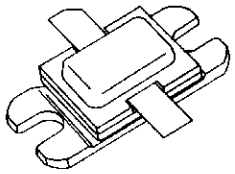
SGS-THOMSON MICROELECTRONICS

AM0912-150

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

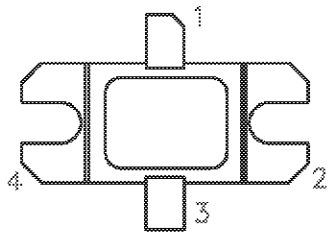
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 150 W MIN. WITH 7.5 dB GAIN
- BANDWIDTH = 255MHz



.400 x .500 2LFL (S038)
hermetically sealed

ORDER CODE	BRANDING
AM0912-150	0912-150

PIN CONNECTION



1. Collector
2. Base
3. Emitter
4. Base

DESCRIPTION

The AM0912-150 is designed for specialized avionics applications including Mode-S, TCAS and JTIDS, where power is provided under pulse formats utilizing short pulse widths and high burst or overall duty cycles.

The AM0912-150 is housed in the unique BIG-PAC™ Hermetic Metal/Ceramic package with internal Input/Output matching structures.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100°C$)	300	W
I_C	Device Current*	16.5	A
V_{CC}	Collector-Supply Voltage*	35	V
T_J	Junction Temperature (Pulsed RF Operation)	250	°C
T_{STG}	Storage Temperature	– 65 to +200	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	0.57	°C/W

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 60mA	I_E = 0mA	55	65	—	V
BV_{EBO}	I_E = 10mA	I_C = 0mA	3.5	—	—	V
BV_{CES}	IC = 100mA		55	—	—	V
I_{CES}	V_{CE} = 35V		—	—	25	mA
h_{FE}	V_{CE} = 5V	I_C = 5A	20	—	—	—

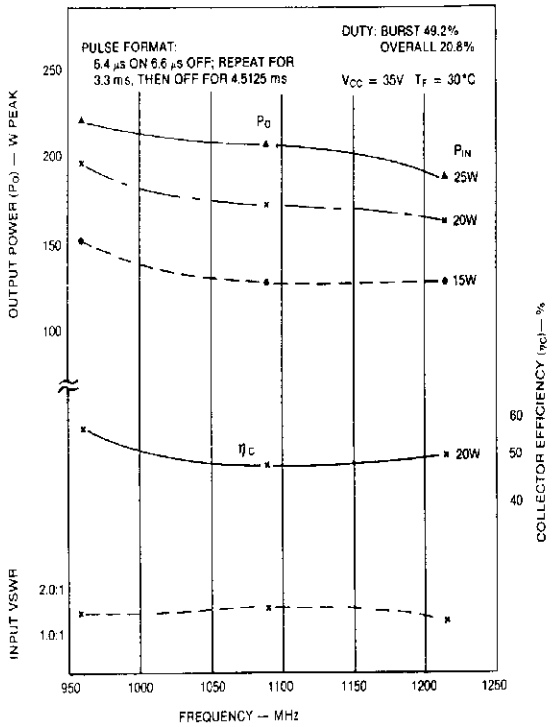
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960 — 1215MHz	P_{IN} = 26.7W	V_{CC} = 35V	150	—	—	W
η_c	f = 960 — 1215MHz	P_{IN} = 26.7W	V_{CC} = 35V	45	—	—	%
G_P	f = 960 — 1215MHz	P_{IN} = 26.7W	V_{CC} = 35V	7.5	—	—	dB

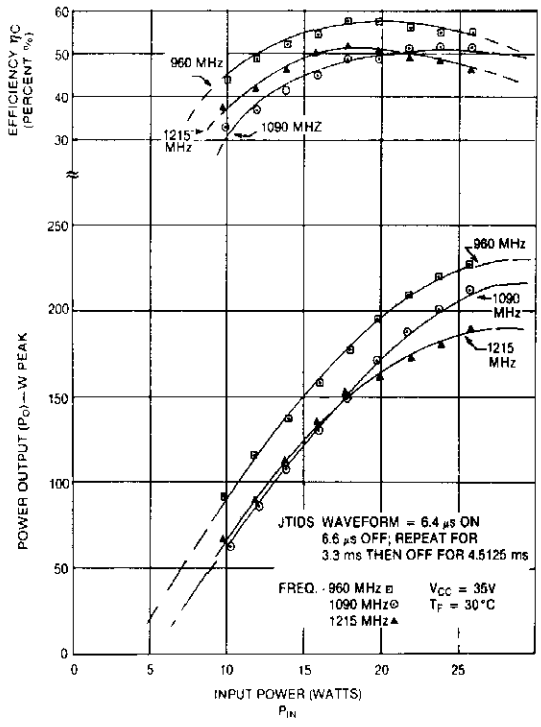
Note: Pulse Format: 6.4 µS on 6.6 µS off; repeat for 3.3 ms, then off for 4.5125 ms
Duty Cycle: Burst 49.2% overall 20.8%

TYPICAL PERFORMANCE

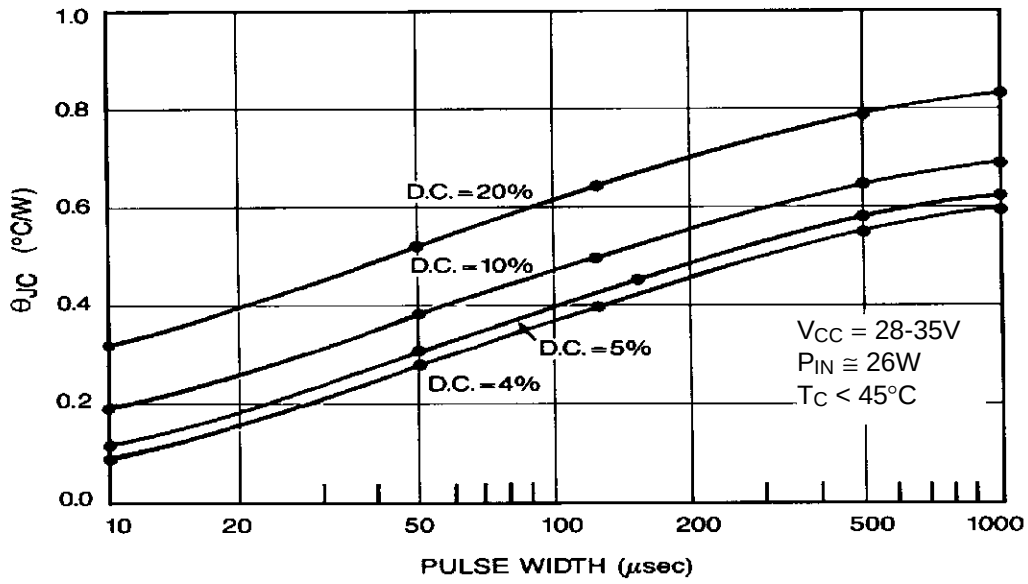
TYPICAL POWER INPUT, POWER OUTPUT & COLLECTOR EFFICIENCY vs FREQUENCY



POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT

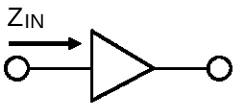


MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH & DUTY CYCLE

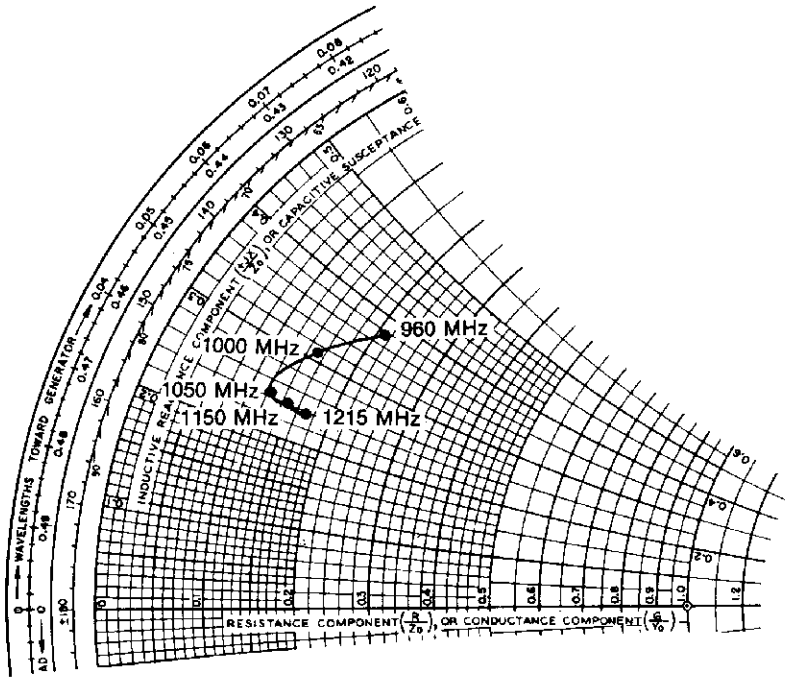


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

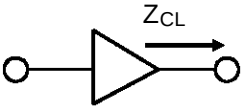


P_{IN} = 26.7 W
V_{CC} = 35 V
Z_O* = 10 ohms

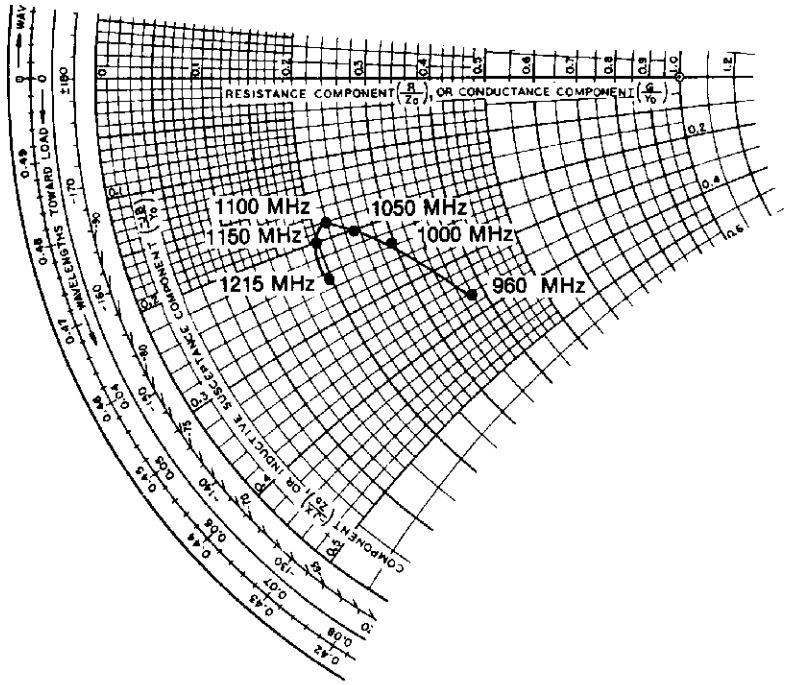


FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 960 MHz	2.1 + j 3.8	3.8 – j 3.6
• = 1000 MHz	1.5 + j 3.1	3.0 – j 2.4
M = 1050 MHz	1.2 + j 2.5	2.5 – j 2.0
• = 1150 MHz	1.5 + j 2.4	2.0 – j 2.0
H = 1215 MHz	1.7 + j 2.4	2.0 – j 2.5

TYPICAL COLLECTOR LOAD IMPEDANCE



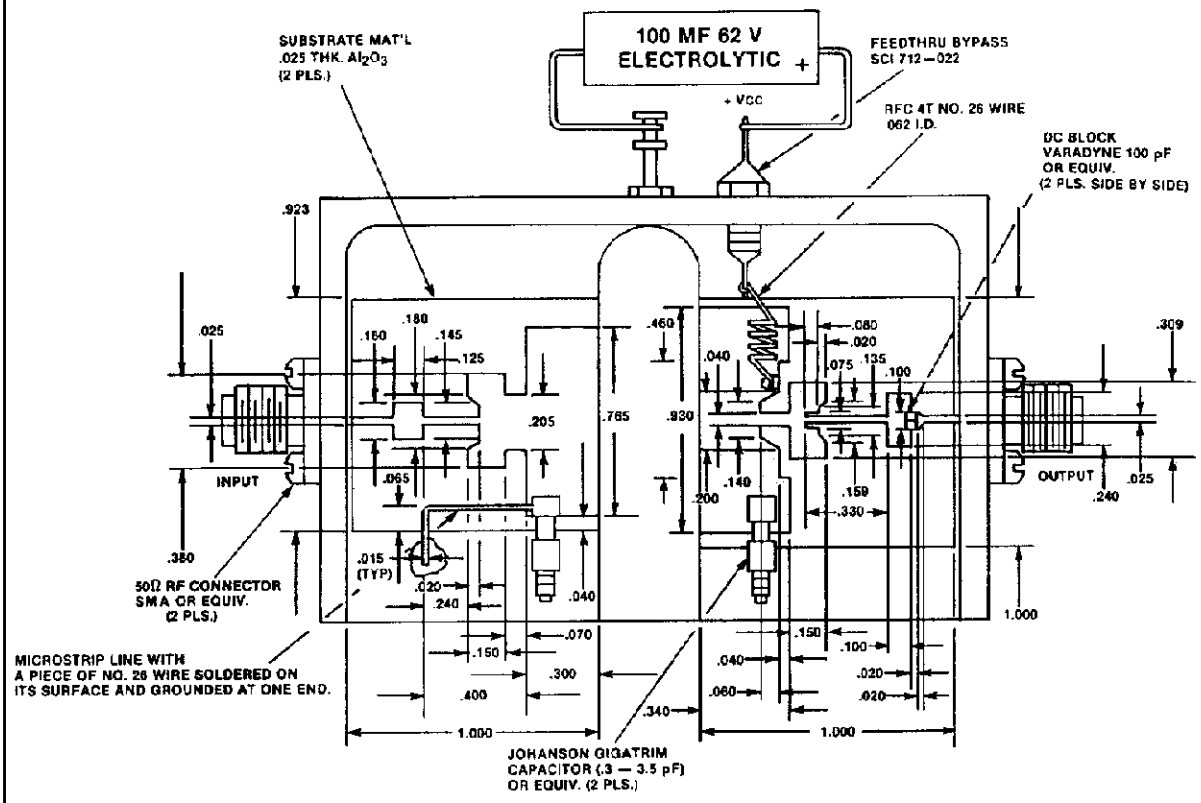
P_{IN} = 26.7 W
V_{CC} = 35 V
Z_O* = 10 ohms



*Normalized Impedance

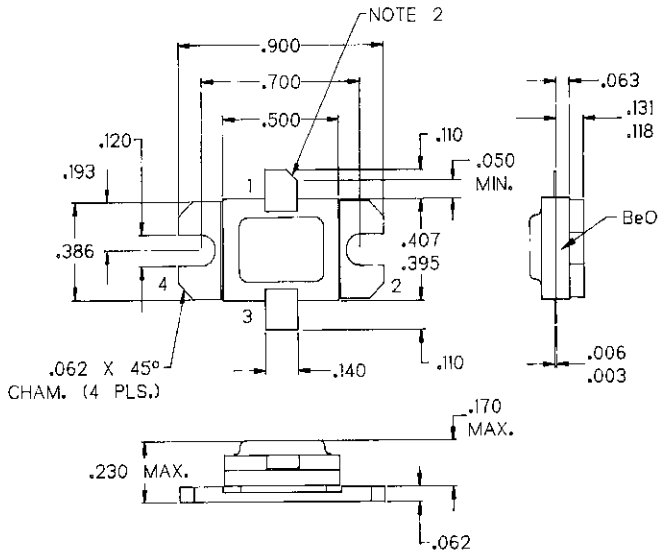
TEST CIRCUIT

Ref: Dwg. No. C127513



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135066F



NOTES:
1. ALL TOLERANCE ± .010 EXCEPT WHERE NOTED; DIMENSIONS IN INCHES.
2. COLLECTOR LEAD CHAMFER 45° NOM. X .040 NOM.