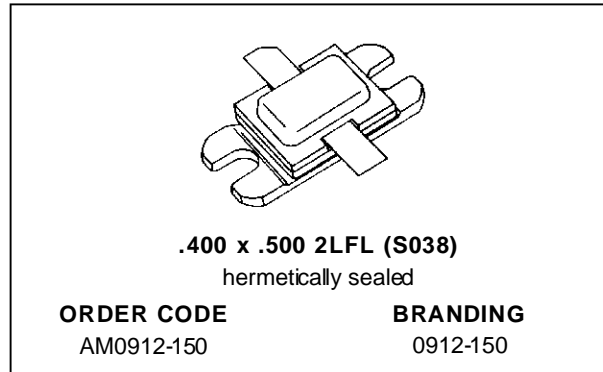


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

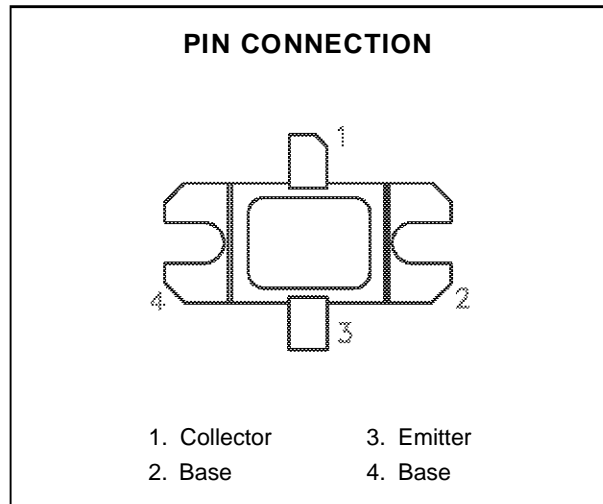
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 150 W MIN. WITH 7.5 dB GAIN
- BANDWIDTH = 255MHz



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 ≤ 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
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*Applies only to rated RF amplifier operation

AM0912-150

ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

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

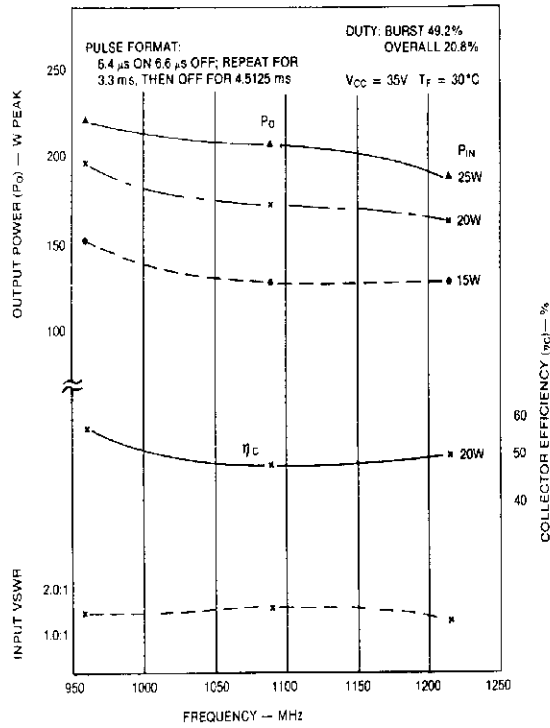
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 960 \text{ — } 1215\text{MHz}$ $P_{\text{IN}} = 26.7\text{W}$ $V_{\text{CC}} = 35\text{V}$	150	—	—	W
η_{c}	$f = 960 \text{ — } 1215\text{MHz}$ $P_{\text{IN}} = 26.7\text{W}$ $V_{\text{CC}} = 35\text{V}$	45	—	—	%
G_{P}	$f = 960 \text{ — } 1215\text{MHz}$ $P_{\text{IN}} = 26.7\text{W}$ $V_{\text{CC}} = 35\text{V}$	7.5	—	—	dB

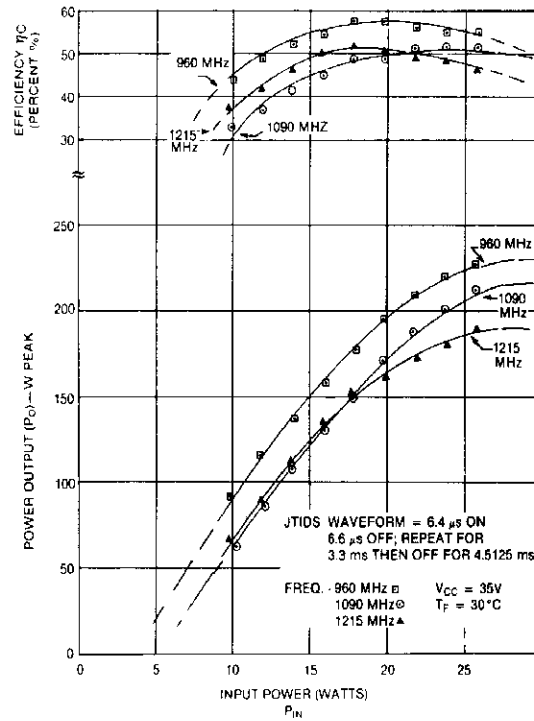
Note: Pulse Format: 6.4 μS on 6.6 μS off; repeat for 3.3 ms, then off for 4.5125 ms
Duty Cycle: Burst 49.2% overall 20.8%

TYPICAL PERFORMANCE

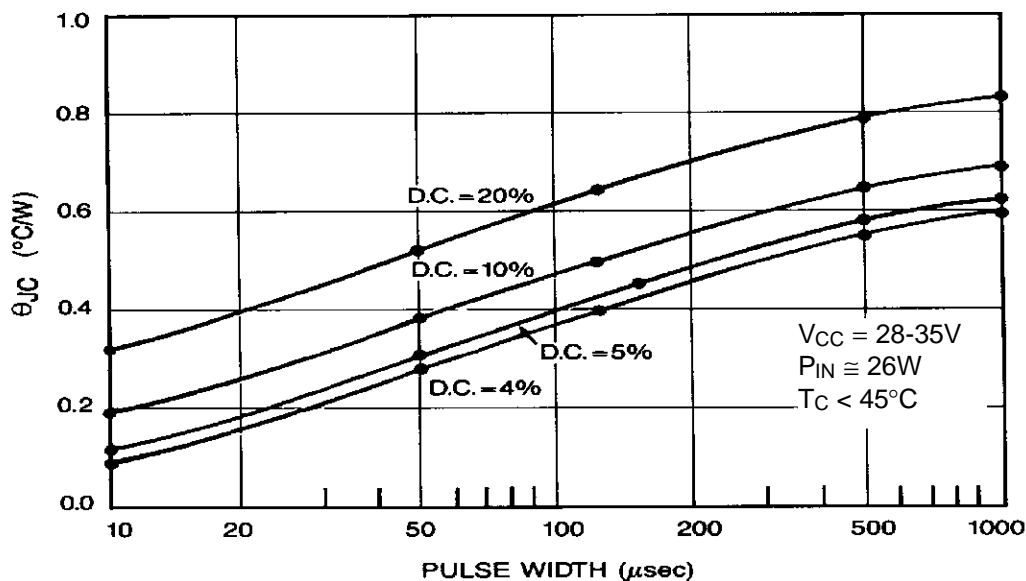
TYPICAL POWER INPUT, POWER OUTPUT & COLLECTOR EFFICIENCY vs FREQUENCY



POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT

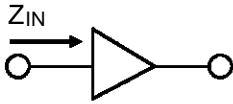


MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH & DUTY CYCLE

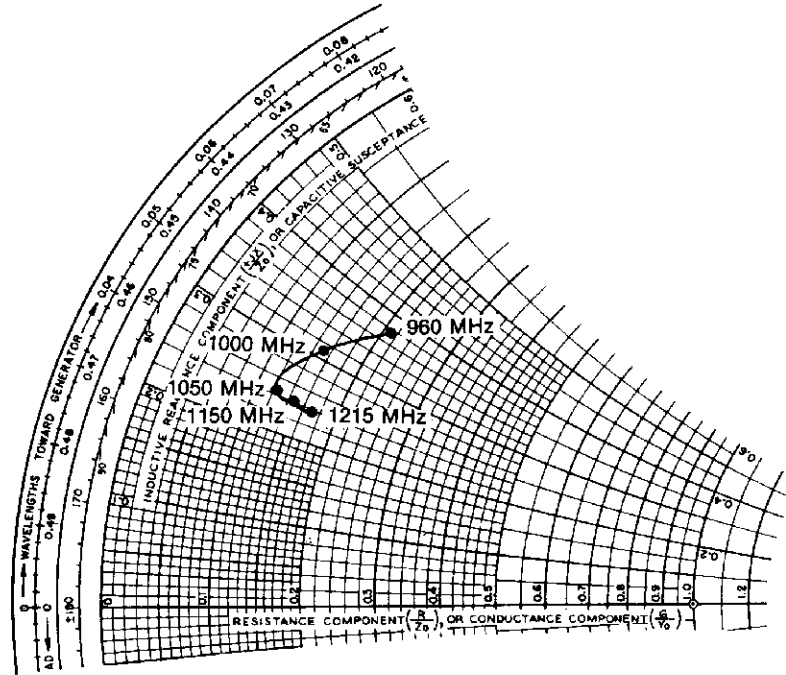


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

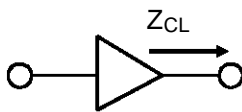


$P_{IN} = 26.7 \text{ W}$
 $V_{CC} = 35 \text{ V}$
 $Z_{O^*} = 10 \text{ ohms}$

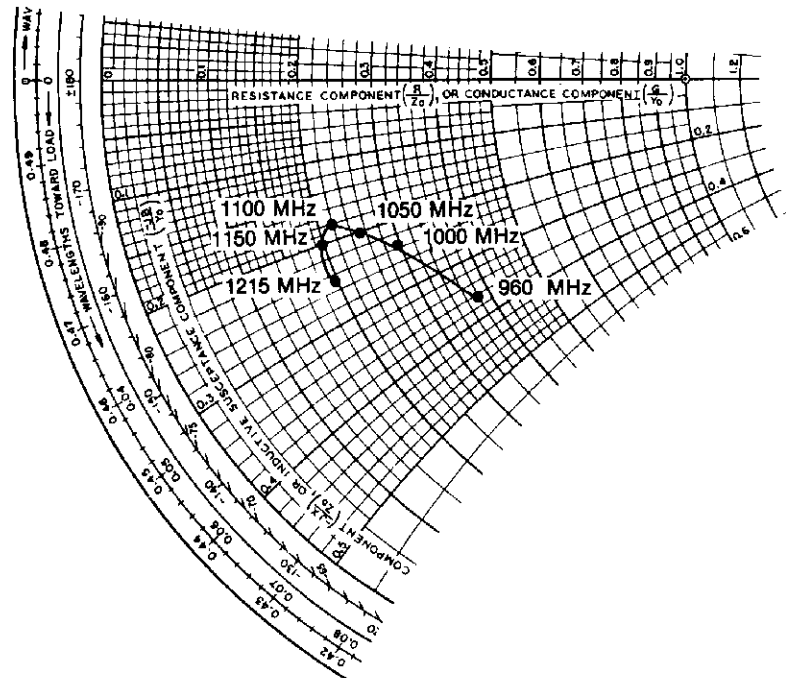


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 960 MHz	$2.1 + j 3.8$	$3.8 - j 3.6$
• = 1000 MHz	$1.5 + j 3.1$	$3.0 - j 2.4$
M = 1050 MHz	$1.2 + j 2.5$	$2.5 - j 2.0$
• = 1150 MHz	$1.5 + j 2.4$	$2.0 - j 2.0$
H = 1215 MHz	$1.7 + j 2.4$	$2.0 - j 2.5$

TYPICAL COLLECTOR LOAD IMPEDANCE



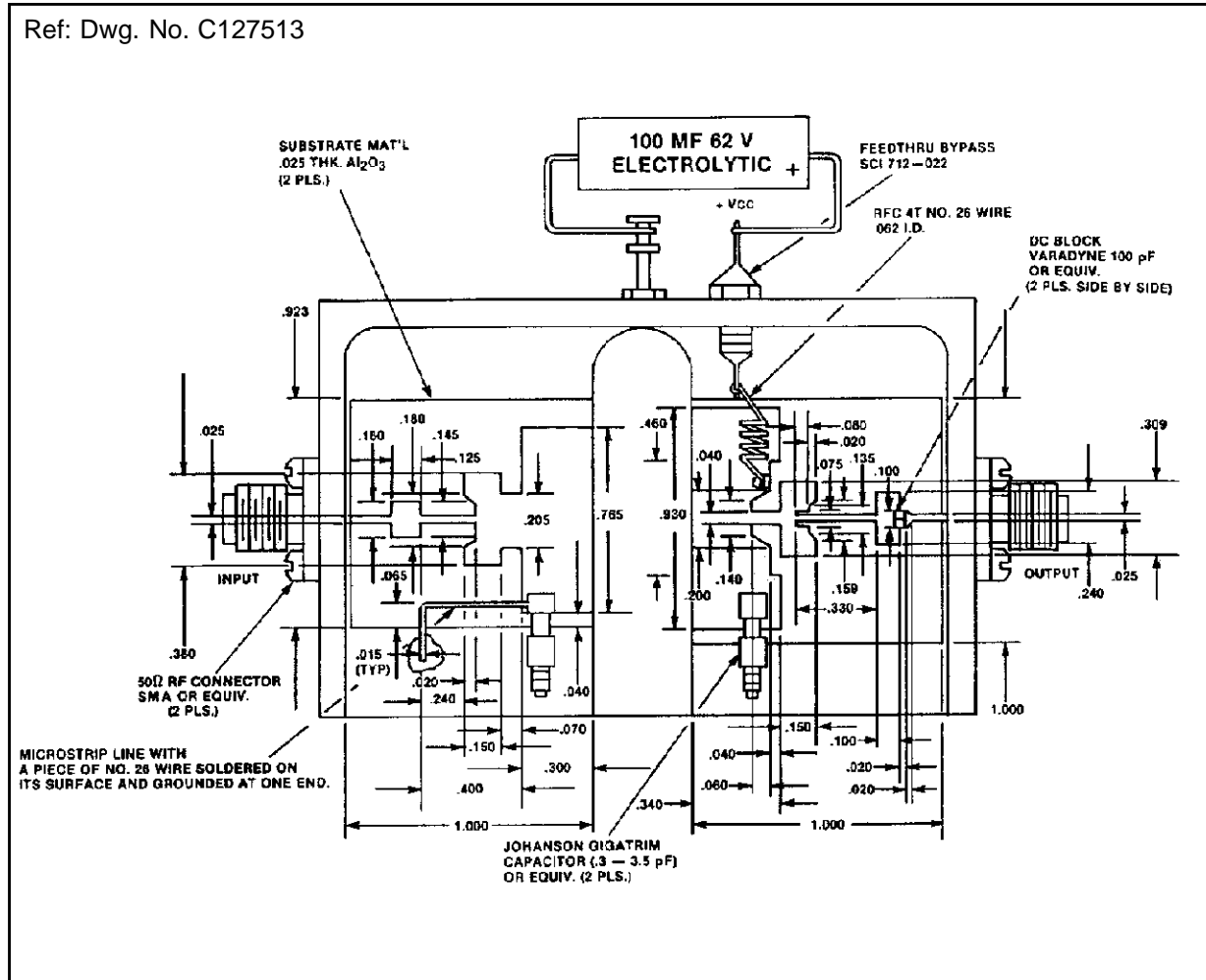
$P_{IN} = 26.7 \text{ W}$
 $V_{CC} = 35 \text{ V}$
 $Z_{O^*} = 10 \text{ ohms}$



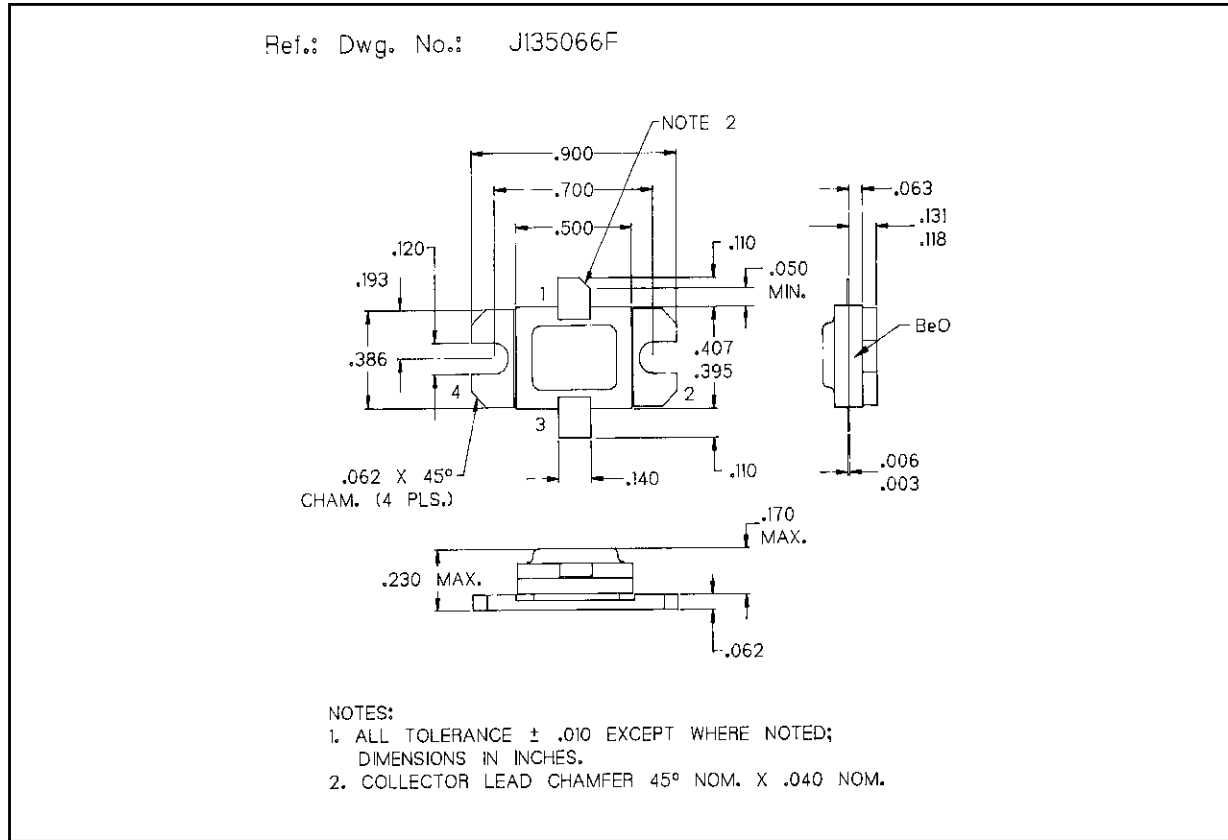
*Normalized Impedance

TEST CIRCUIT

Ref: Dwg. No. C127513



PACKAGE MECHANICAL DATA



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