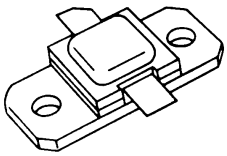
SGS-THOMSON MICROELECTRONICS

AM80912-030

RF & MICROWAVE TRANSISTORS SPECIALITY AVIONICS/JTIDS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 15:1 VSWR CAPABILITY
- LOW RF THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 30 W MIN. WITH 7.8 dB GAIN



.400 x .400 2LFL (S036)
hermetically sealed

ORDER CODE	BRANDING
AM80912-030	80912-30

DESCRIPTION

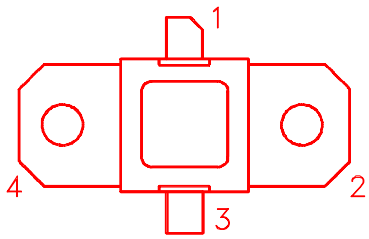
The AM80912-030 device is a high power Class C transistor specifically designed for JTIDS pulsed output and driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles and temperatures and is capable of withstanding 15:1 output VSWR at rated RF conditions.

Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The AM80912-030 is supplied in the hermetic metal/ceramic package with internal input matching structures.

PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 85°C$)	75	W
I_C	Collector Current*	3.5	A
V_{CC}	Collector-Supply Voltage*	40	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	2.2	°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 = 10mA		55	—	—	V
BV_{EBO}	I_E = 1mA		3.5	—	—	V
BV_{CER}	I_C = 20mA	R_{BE} = 10Ω	55	—	—	V
I_{CES}	V_{CE} = 35V		—	—	5.0	mA
h_{FE}	V_{CE} = 5V	I_C = 1.0A	15	—	150	—

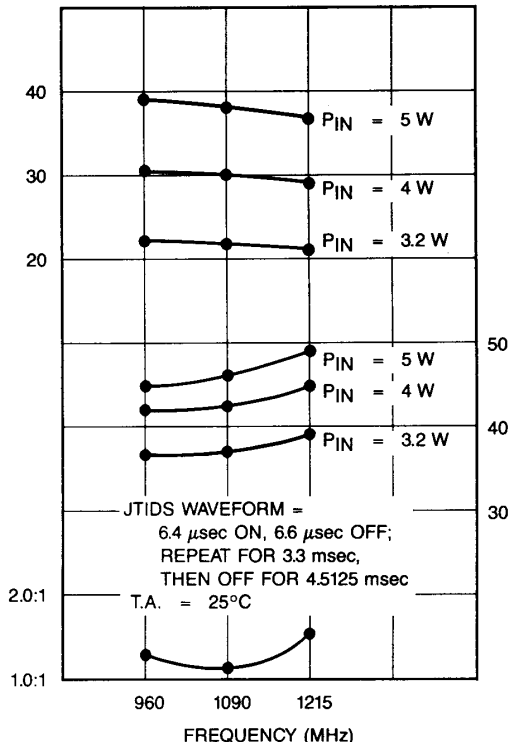
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960 — 1215MHz	P_{IN} = 5.0W	V_{CC} = +35V	30	36	—	W
η_C	f = 960 — 1215MHz	P_{IN} = 5.0W	V_{CC} = +35V	40	45	—	%
G_P	f = 960 — 1215MHz	P_{IN} = 5.0W	V_{CC} = +35V	7.8	8.6	—	dB

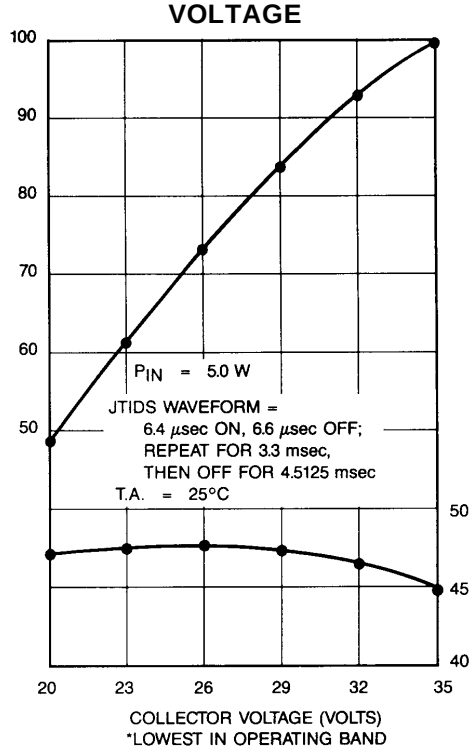
Note: Pulse format: 6.4 µs on 6.6 µs off, repeat for 3.3 ms, then off for 4.5125 ms.
Duty Cycle: Burst 49.2%, overall 20.8%

TYPICAL PERFORMANCE

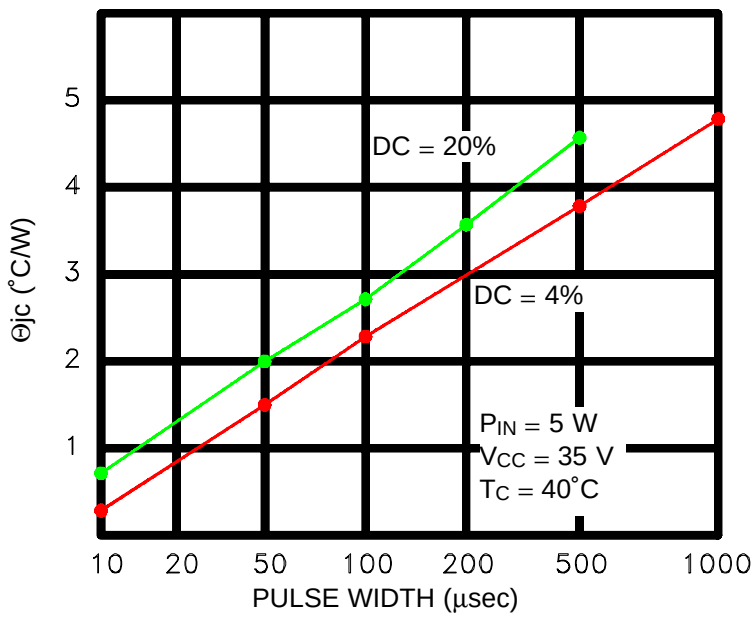
TYPICAL BROADBAND POWER AMPLIFIER



TYPICAL RELATIVE POWER OUTPUT & COLLECTOR EFFICIENCY* vs COLLECTOR VOLTAGE

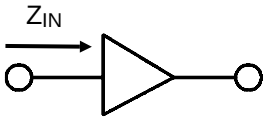


MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH & DUTY CYCLE

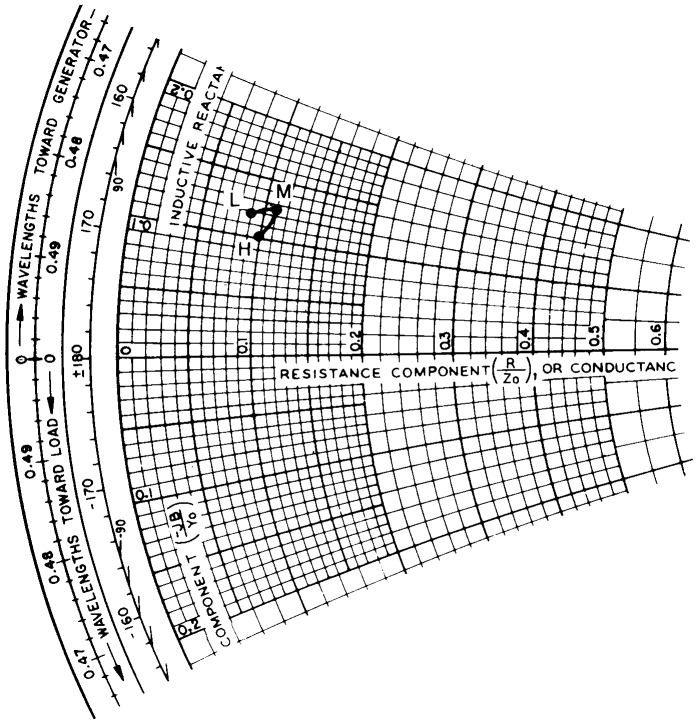


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

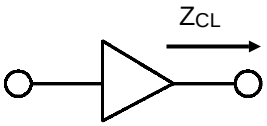


P_{IN} = 5W
V_{CC} = +35V
Z_O* = 50Ω

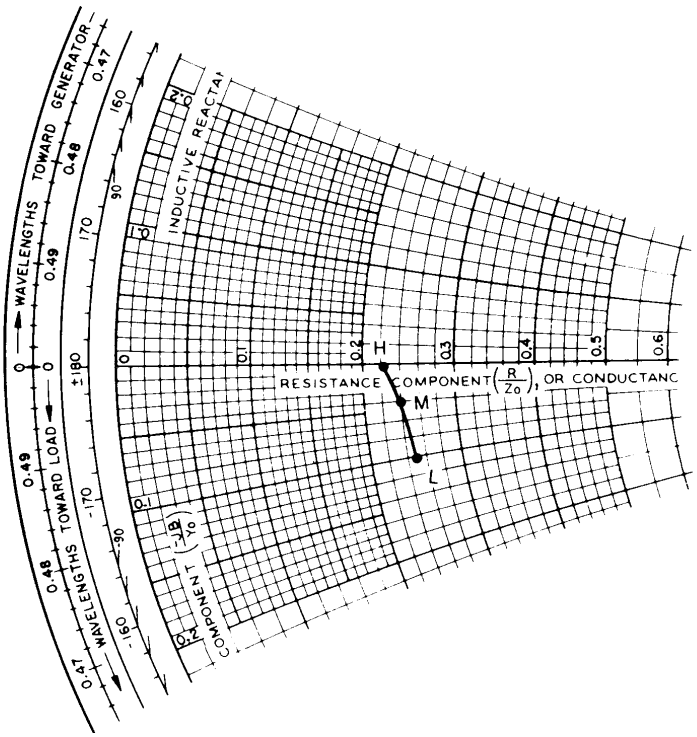


FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 960 MHz	4.5 + j 6.0	11.0 – j 0.5
M = 1090 MHz	5.5 + j 6.3	12.0 – j 2.0
H = 1215 MHz	5.0 + j 5.0	12.5 – j 5.0

TYPICAL COLLECTOR LOAD IMPEDANCE

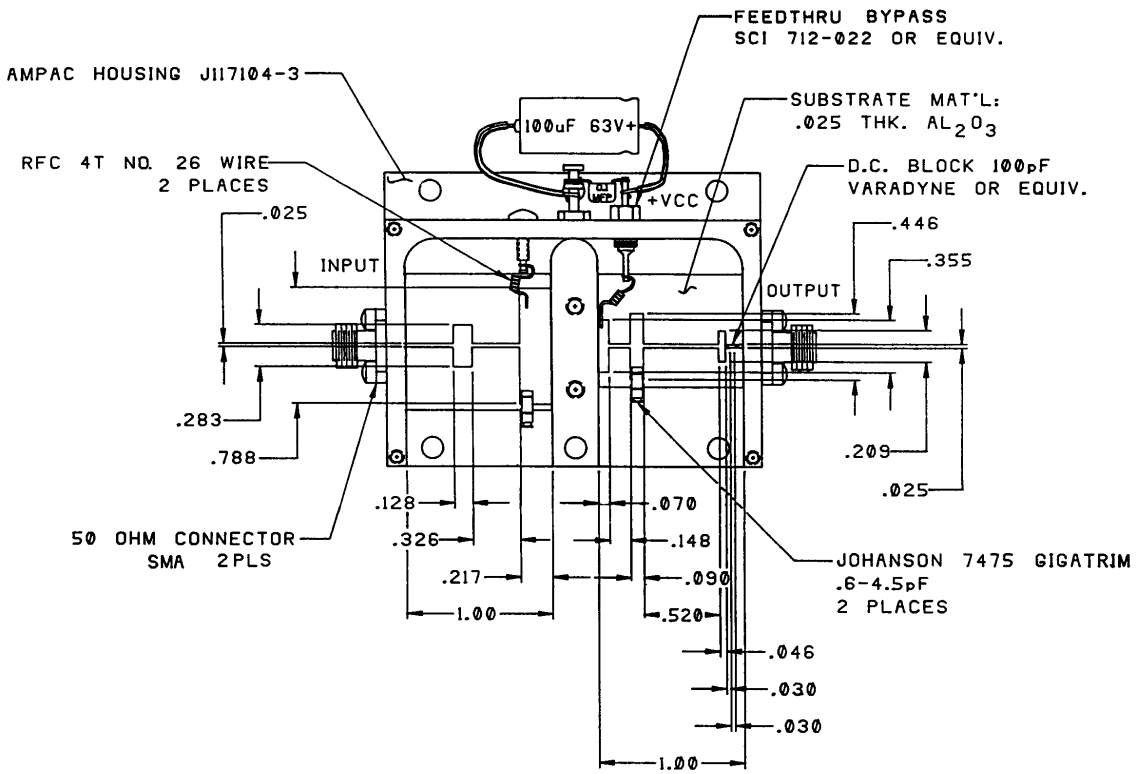


P_{IN} = 5W
V_{CC} = +35V
Z_O* = 50Ω



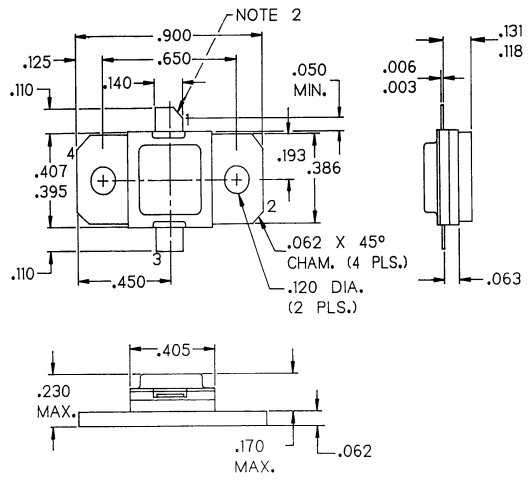
*Normalized Impedance

TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J133102E



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