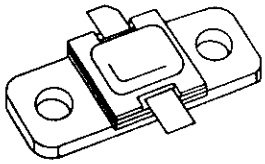
SGS-THOMSON MICROELECTRONICS

AM80912-015

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

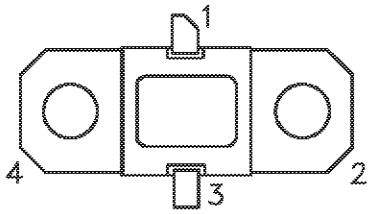
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- ∞:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT MATCHING
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 15 W MIN. WITH 8.1 dB GAIN
- BANDWIDTH 255 MHz



.310 x .310 2LFL (S064)
hermetically sealed

ORDER CODE	BRANDING
AM80912-015	80912-15

PIN CONNECTION



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

DESCRIPTION

The AM80912-015 is designed for specialized avionics applications, including JTIDS, where power is provided under pulse formats utilizing short pulse widths and high burst or overall duty cycles.

The AM80912-015 is housed in the unique IMPAC™ Hermetic Metal/Ceramic package with

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation*($T_C \leq 100°C$)	50	W
I_C	Device Current*	1.8	A
V_{CC}	Collector-Supply Voltage*	32	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*	3.0	°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	I_E = 0mA	55	—	—	V
BV_{EBO}	I_E = 1mA	I_C = 0mA	3.5	—	—	V
BV_{CER}	IC = 10mA	R_{BE} = 10Ω	55	—	—	V
I_{CES}	V_{BE} = 0V	V_{CE} = 28V	—	—	2.0	mA
h_{FE}	V_{CE} = 5V	I_C = 500mA	15	—	150	—

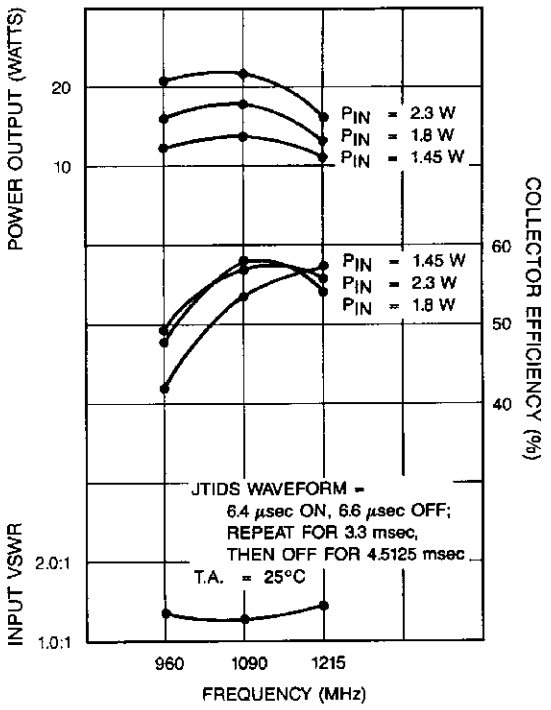
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960 — 1215MHz	P_{IN} = 2.3W	V_{CC} = 28V	15	17	—	W
η_c	f = 960 — 1215MHz	P_{IN} = 2.3W	V_{CC} = 28V	45	49	—	%
G_P	f = 960 — 1215MHz	P_{IN} = 2.3W	V_{CC} = 28V	8.1	8.9	—	dB

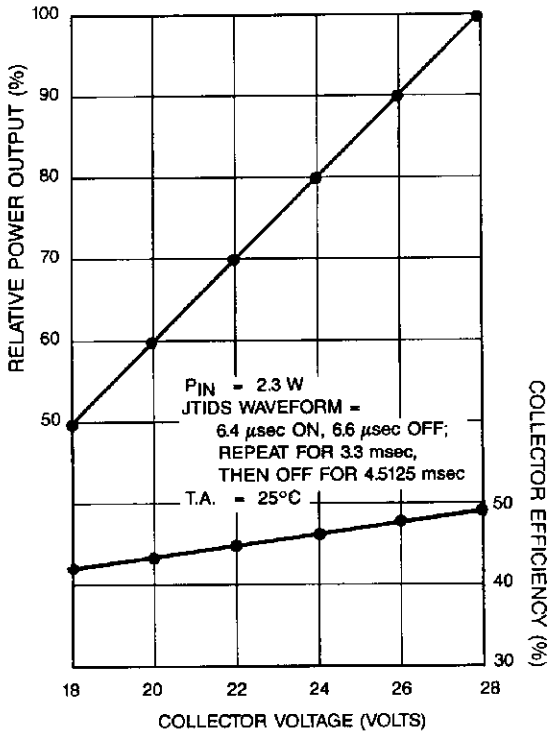
Note: Pulse format: 6.4 µS on 6.6 µS off, repeat for 3.3 ms, then off for 4.5125 ms.
Duty Cycle: Burst 49.2%, overall 20.8%

TYPICAL PERFORMANCE

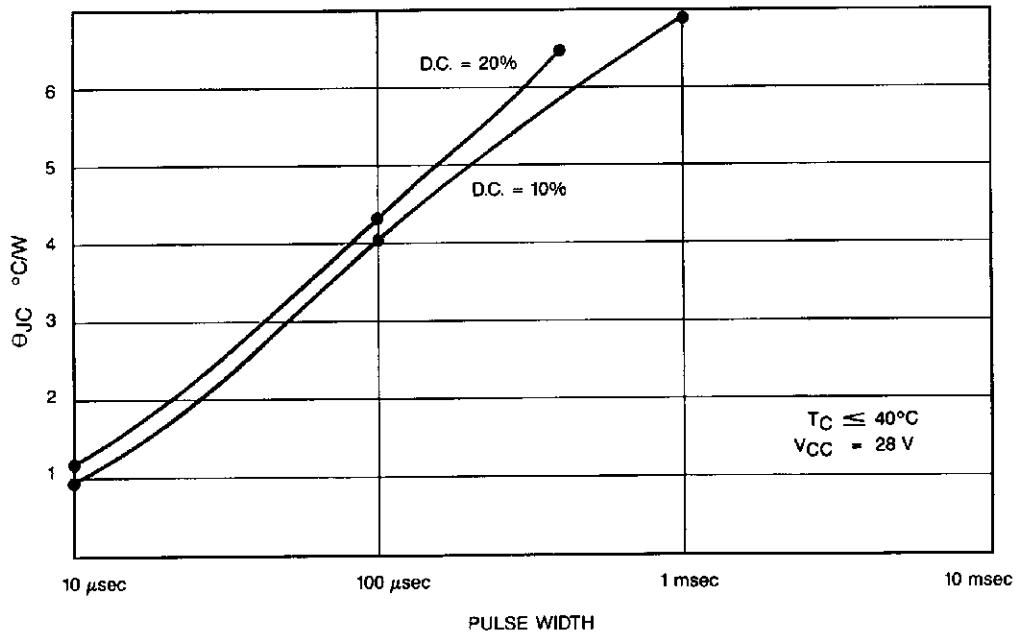
TYPICAL BROADBAND POWER AMPLIFIER



RELATIVE POWER OUTPUT & COLLECTOR EFFICIENCY vs COLLECTOR VOLTAGE

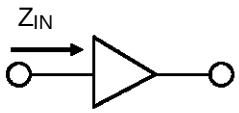


MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH & DUTY CYCLE

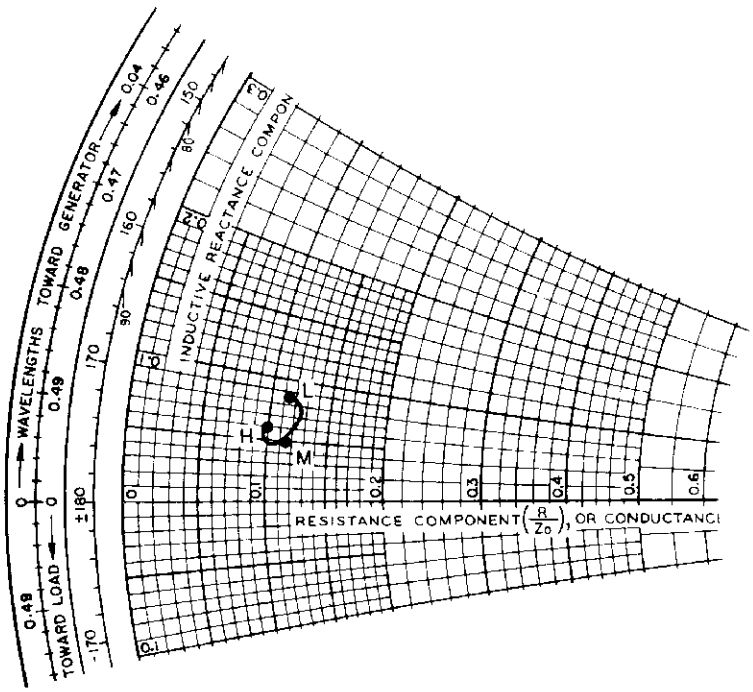


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

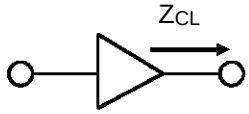


P_{IN} = 2.3 W
V_{CC} = 28 V
Z_O* = 50 ohms



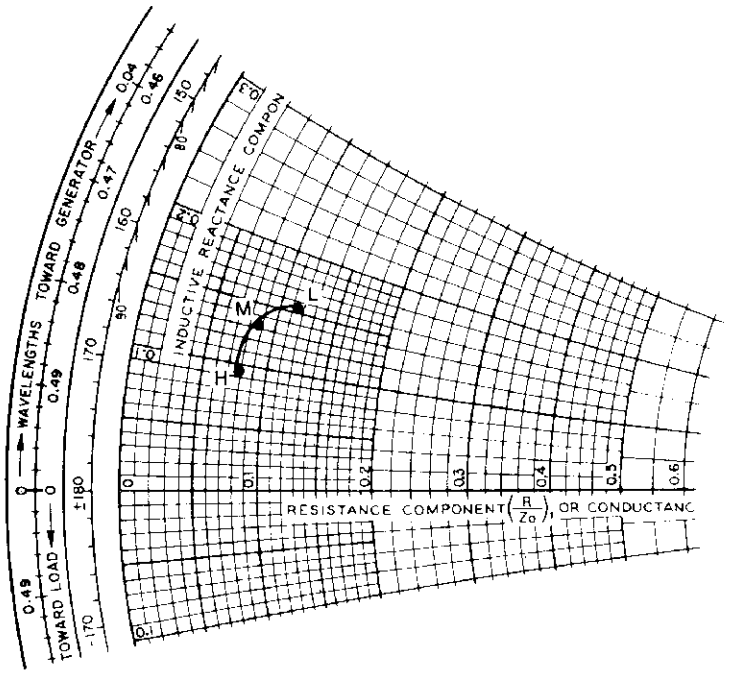
FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 960 MHz	5.7 + j 4.3	5.7 + j 7.7
M = 1090 MHz	5.8 + j 2.5	4.3 + j 6.5
H = 1215 MHz	5.0 + j 3.0	4.0 + j 4.8

TYPICAL COLLECTOR LOAD IMPEDANCE



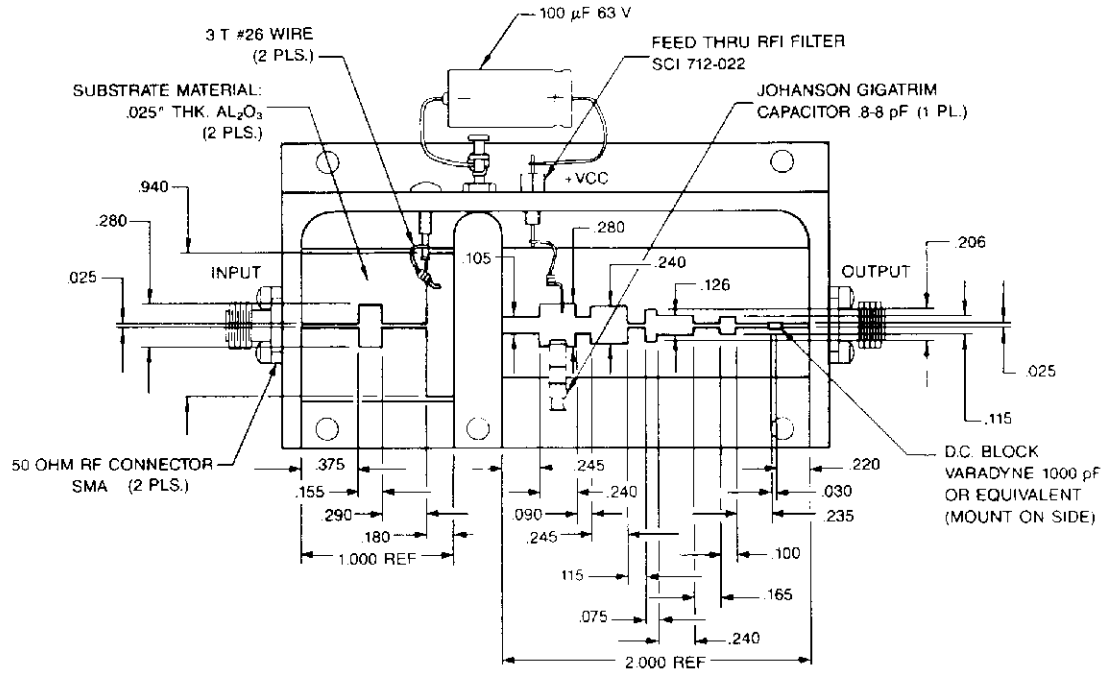
P_{IN} = 2.3 W
V_{CC} = 28 V
Z_O* = 50 ohms

*Normalized Impedance



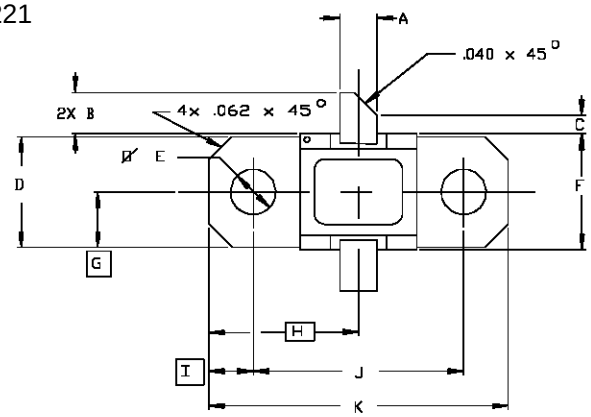
TEST CIRCUIT

Ref.: Dwg. No. 104-000284



PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-221



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.095/2,41	.105/2,67
B	.100/2,54	.120/3,05
C	.050/1,27	
D	.286/7,26	.306/7,77
E	.110/2,79	.130/3,30
F	.306/7,77	.318/8,08
G	.148/3,76	
H	.400/10,16	
I	.119/3,02	
J	.552/14,02	.572/14,53

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.790/20,07	.810/20,57
L	.300/7,62	.320/8,13
M	.003/0,08	.006/0,15
N	.052/1,32	.072/1,83
P	.118/3,00	.131/3,33
R		.230/5,84