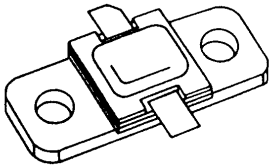
SGS-THOMSON MICROELECTRONICS

AM80912-005

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

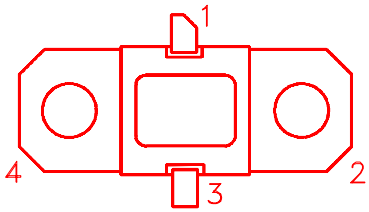
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 6.0 W MIN. WITH 9.3 dB GAIN



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

ORDER CODE	BRANDING
AM80912-005	80912-5

PIN CONNECTION



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

DESCRIPTION

The AM80912-005 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 AM80912-005 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* ($T_C \leq 75°C$)	25	W
I_C	Device Current*	0.9	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*	7.0	°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 = 1mA	I_E = 0mA	48	—	—	V
BV_{EBO}	I_E = 1mA	I_C = 0mA	3.5	—	—	V
BV_{CER}	IC = 5mA	R_{BE} = 10Ω	48	—	—	V
I_{CES}	V_{BE} = 0V	V_{CE} = 28V	—	—	0.5	mA
h_{FE}	V_{CE} = 5V	I_C = 250mA	30	—	300	—

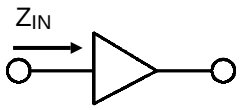
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960 — 1215MHz	P_{IN} = 0.7W	V_{CC} = 28V	6.0	—	—	W
η_c	f = 960 — 1215MHz	P_{IN} = 0.7W	V_{CC} = 28V	45	—	—	%
G_P	f = 960 — 1215MHz	P_{IN} = 0.7W	V_{CC} = 28V	9.3	—	—	dB

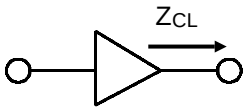
Note: Pulse format: 6.4 µS on 6.6 µS off, repeat for 3.3 ms, then off for 4.5125 ms.
Duty Cycle: Burst 49.2%, overall 20.8%

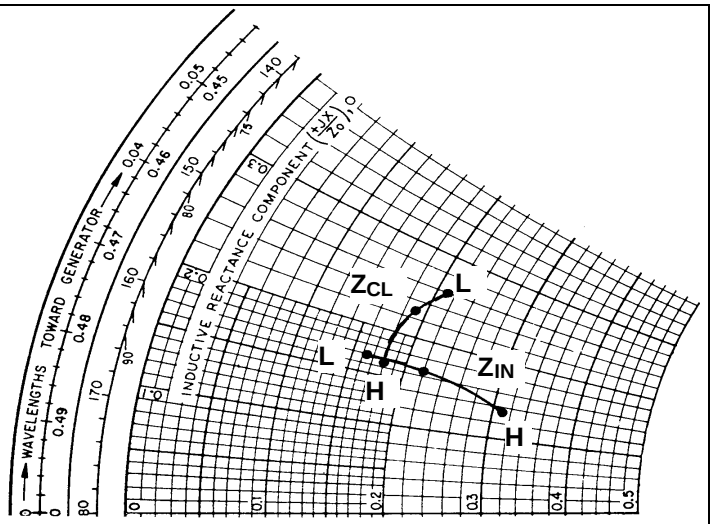
IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

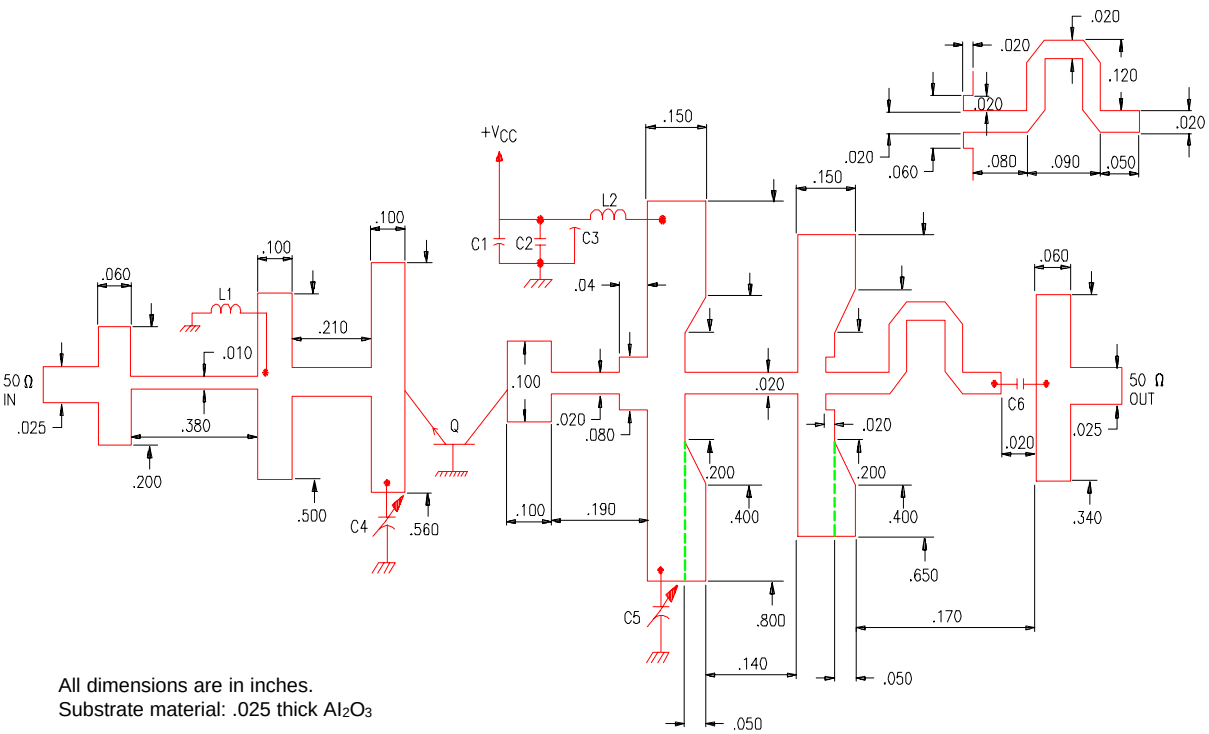




FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 960 MHz	8.2 + j 8.52	10.5 + j 12.9
M = 1090 MHz	11.1 + j 8.34	9.4 + j 11.3
H = 1215 MHz	15.6 + j 6.8	9.0 + j 8.3

P_{IN} = 0.7 W
V_{CC} = 28 V
Normalized to 50 ohms

TEST CIRCUIT

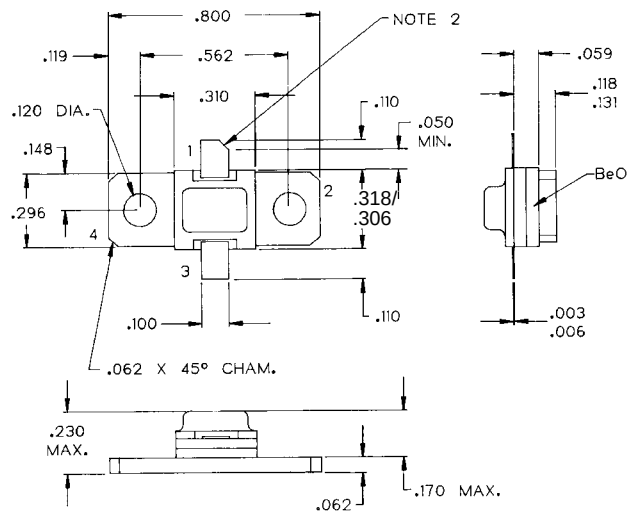


All dimensions are in inches.
Substrate material: .025 thick Al_2O_3

C1 : 100 µF Electrolytic Capacitor, 63V
C2 : .1 µF Ceramic Capacitor
C3 : Feedthrough Bypass SCI 712-022
C4 : .6 — 4.5 pF, 2 pls, Johanson Gigatrim Capacitor
C5 : .6 — 4.5 pF, 2 pls, Johanson Gigatrim Capacitor
C6 : 100 pF Chip Capacitor
L1 : No. 26 Wire, 4 Turn
L2 : No. 26 Wire, 4 Turn

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J133100D



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

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