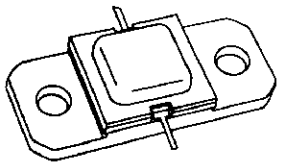
SGS-THOMSON MICROELECTRONICS

AM80912-085

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

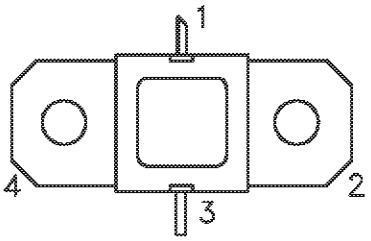
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 85 W MIN. WITH 7.5 dB GAIN



.400 x .400 2NLFL (S042)
hermetically sealed

ORDER CODE	BRANDING
AM80912-085	80912-85

PIN CONNECTION



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

DESCRIPTION

The AM80912-085 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 AM80912-085 is housed in a unique BIG-PAC™ Hermetic Metal/Ceramic package with in-

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*	8.0	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*	0.75	°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 = 25mA	I_E = 0mA	55	—	—	V
BV_{EBO}	I_E = 10mA	I_C = 0mA	3.5	—	—	V
BV_{CER}	IC = 25mA	R_{BE} = 10Ω	55	—	—	V
I_{CES}	V_{BE} = 0V	V_{CE} = 35V	—	—	20	mA
h_{FE}	V_{CE} = 5V	I_C = 2A	20	—	200	—

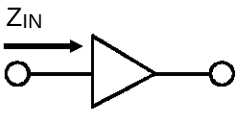
DYNAMIC

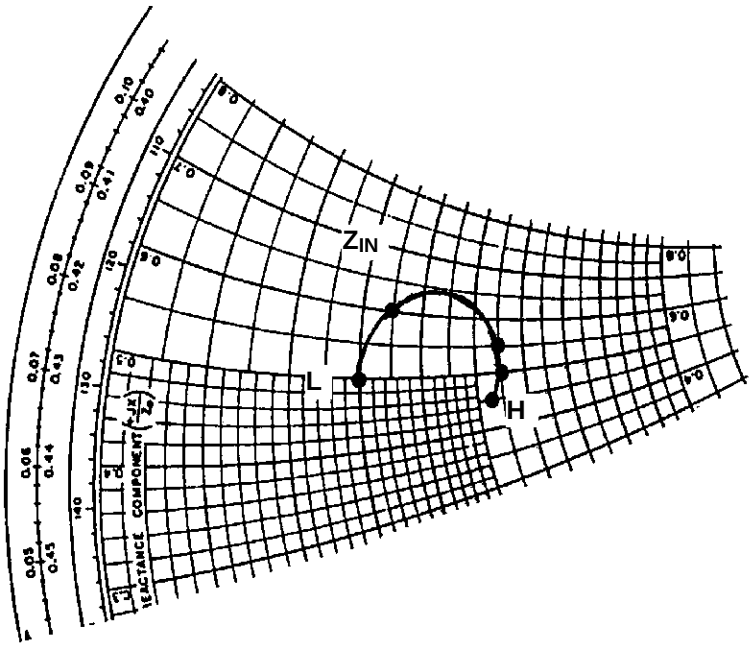
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960 — 1215MHz	P_{IN} = 15W	V_{CC} = 35V	85	—	—	W
ηc	f = 960 — 1215MHz	P_{IN} = 15W	V_{CC} = 35V	40	—	—	%
G_P	f = 960 — 1215MHz	P_{IN} = 15W	V_{CC} = 35V	7.5	—	—	dB

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%

IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

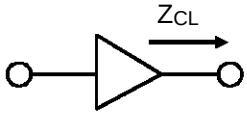


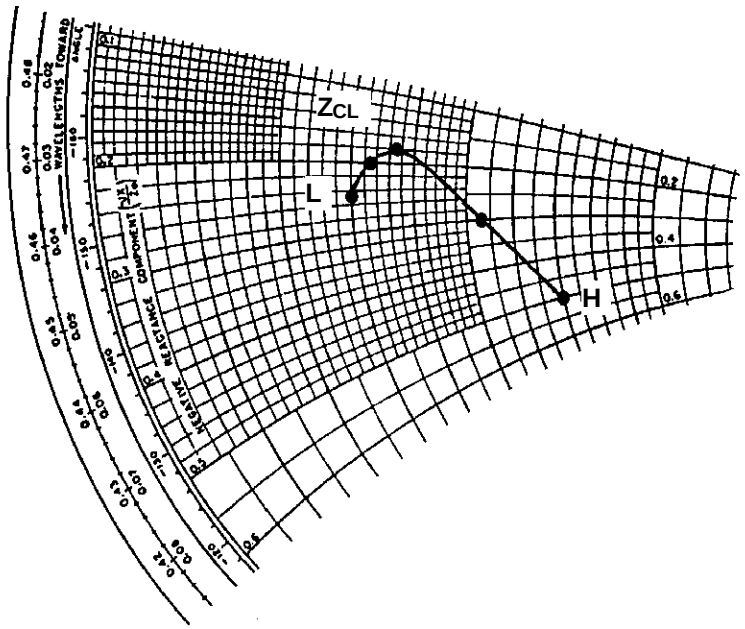


P_{IN} = 15 W
V_{CC} = 35 V
Normalized to 10 ohms

FREQ.	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
L = 960 MHz	3.0 + j 5.0	7.0 – j 5.0
• = 1025 MHz	3.5 + j 6.0	5.3 – j 3.0
M = 1090 MHz	5.5 + j 5.5	3.7 – j 1.8
• = 1150 MHz	5.5 + j 5.0	3.3 – j 2.0
H = 1215 MHz	5.3 + j 4.5	3.0 – j 2.5

TYPICAL COLLECTOR LOAD IMPEDANCE

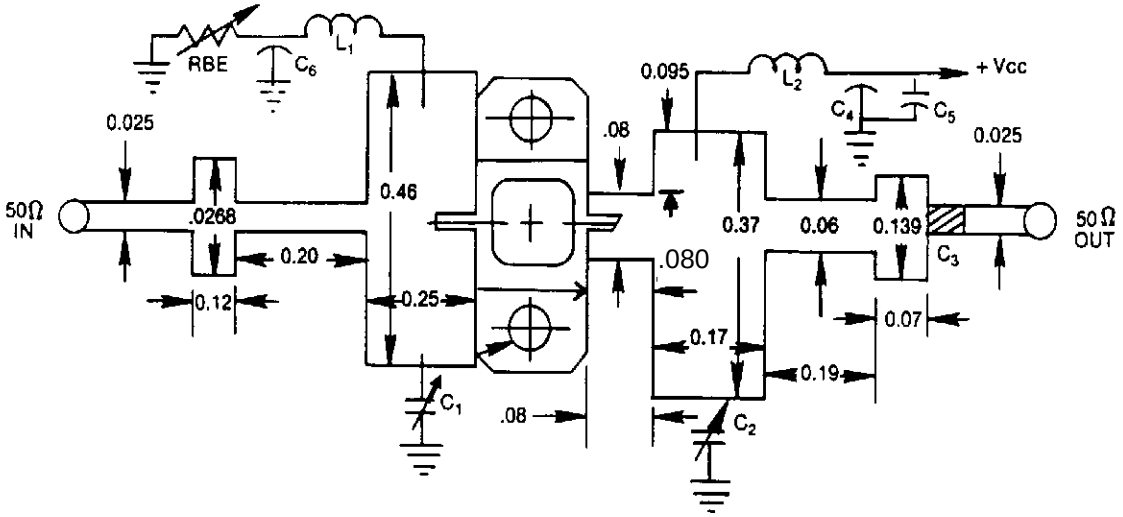




P_{IN} = 15 W
V_{CC} = 35 V
Normalized to 10 ohms

TEST CIRCUIT

Ref. Dwg. No. J-313119

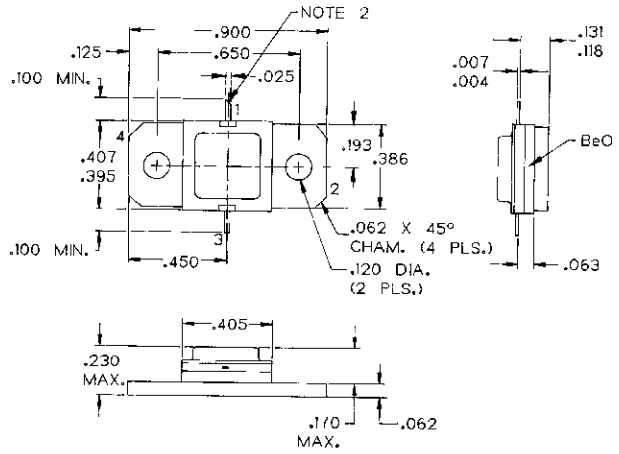


All dimensions are in inches.
Substrate material: .025 thick Al_2O_3 (Er = 9.6)

C1	:	0.3—3.5 pF Variable Johanson Capacitor or Equiv.	C5	:	100 MF, Electrolytic Capacitor, 50V
C2	:	0.3—3.5 pF Variable Johanson Capacitor or Equiv.	C6	:	1500 pF Erie RF Feedthrough, or Equiv.
C3	:	100 pF Chip Capacitor	L1	:	No. 32 Wire, 4 Turns 1/16" I.D.
C4	:	1500 pF Erie RF Feedthrough, or Equiv.	L2	:	No. 32 Wire, 4 Turns 1/16" I.D.

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J113214F



NOTES:
1. ALL TOLERANCE ± .010 EXCEPT WHERE NOTED; DIMENSIONS IN INCHES.
2. COLLECTOR LEAD SLANT CUT.