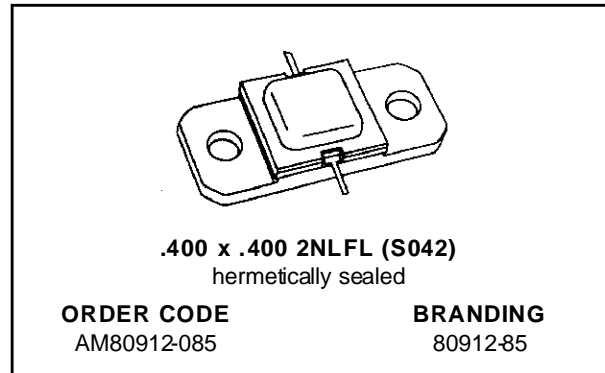


## RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

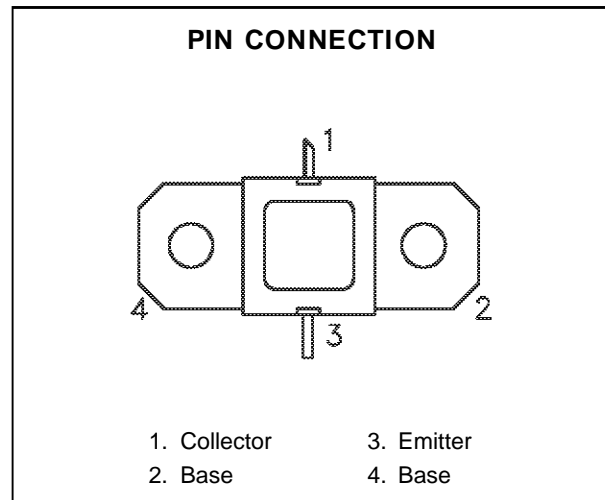
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P<sub>OUT</sub> = 85 W MIN. WITH 7.5 dB GAIN



### 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<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>C</sub> ≤ 100°C)	300	W
I <sub>C</sub>	Device Current*	8.0	A
V <sub>CC</sub>	Collector-Supply Voltage*	40	V
T <sub>J</sub>	Junction Temperature (Pulsed RF Operation)	250	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +200	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance*	0.75	°C/W
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\*Applies only to rated RF amplifier operation

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

## STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 25\text{mA}$	$I_{\text{E}} = 0\text{mA}$	55	—	—	V
$BV_{\text{EBO}}$	$I_{\text{E}} = 10\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
$BV_{\text{CER}}$	$I_{\text{C}} = 25\text{mA}$	$R_{\text{BE}} = 10\Omega$	55	—	—	V
$I_{\text{CES}}$	$V_{\text{BE}} = 0\text{V}$	$V_{\text{CE}} = 35\text{V}$	—	—	20	mA
$h_{\text{FE}}$	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 2\text{A}$	20	—	200	—

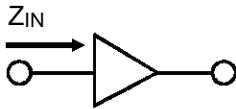
## DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{\text{OUT}}$	$f = 960 - 1215\text{MHz}$	$P_{\text{IN}} = 15\text{W}$	$V_{\text{CC}} = 35\text{V}$	85	—	—	W
$\eta_{\text{c}}$	$f = 960 - 1215\text{MHz}$	$P_{\text{IN}} = 15\text{W}$	$V_{\text{CC}} = 35\text{V}$	40	—	—	%
$G_{\text{P}}$	$f = 960 - 1215\text{MHz}$	$P_{\text{IN}} = 15\text{W}$	$V_{\text{CC}} = 35\text{V}$	7.5	—	—	dB

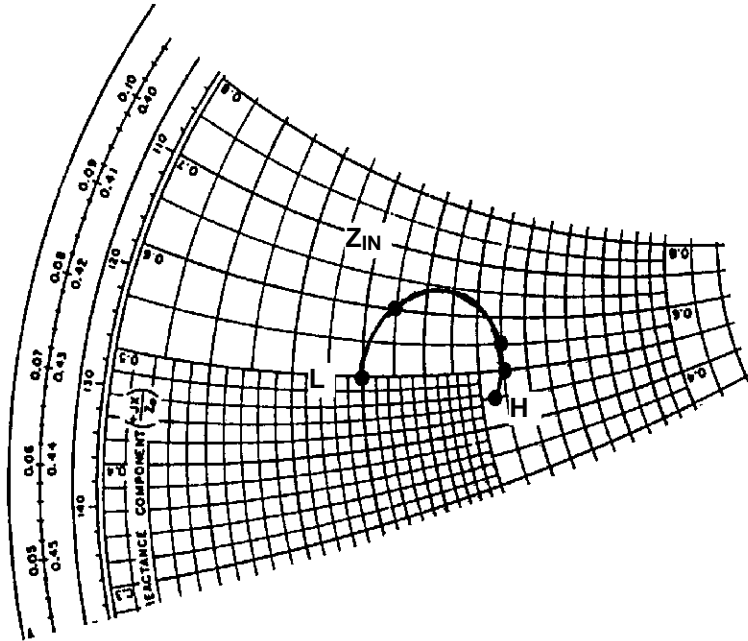
Note: Pulse format: 6.4  $\mu\text{S}$  on 6.6  $\mu\text{S}$  off, repeat for 3.3 ms, then off for 4.5125 ms  
Duty Cycle: Burst 49.2%, overall 20.8%

IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

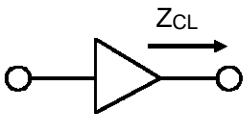


$P_{IN} = 15\text{ W}$   
 $V_{CC} = 35\text{ V}$   
 Normalized to 10 ohms

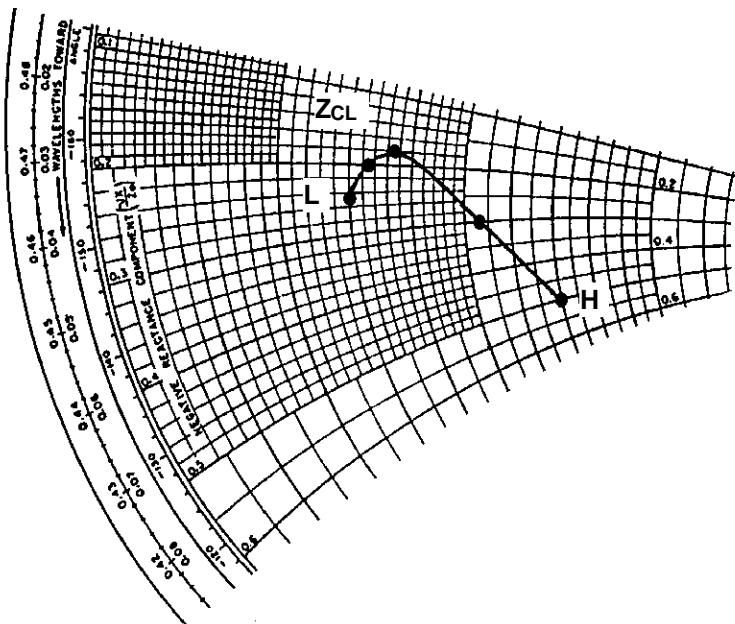


FREQ.	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
L = 960 MHz	$3.0 + j 5.0$	$7.0 - j 5.0$
• = 1025 MHz	$3.5 + j 6.0$	$5.3 - j 3.0$
M = 1090 MHz	$5.5 + j 5.5$	$3.7 - j 1.8$
• = 1150 MHz	$5.5 + j 5.0$	$3.3 - j 2.0$
H = 1215 MHz	$5.3 + j 4.5$	$3.0 - j 2.5$

TYPICAL COLLECTOR LOAD IMPEDANCE

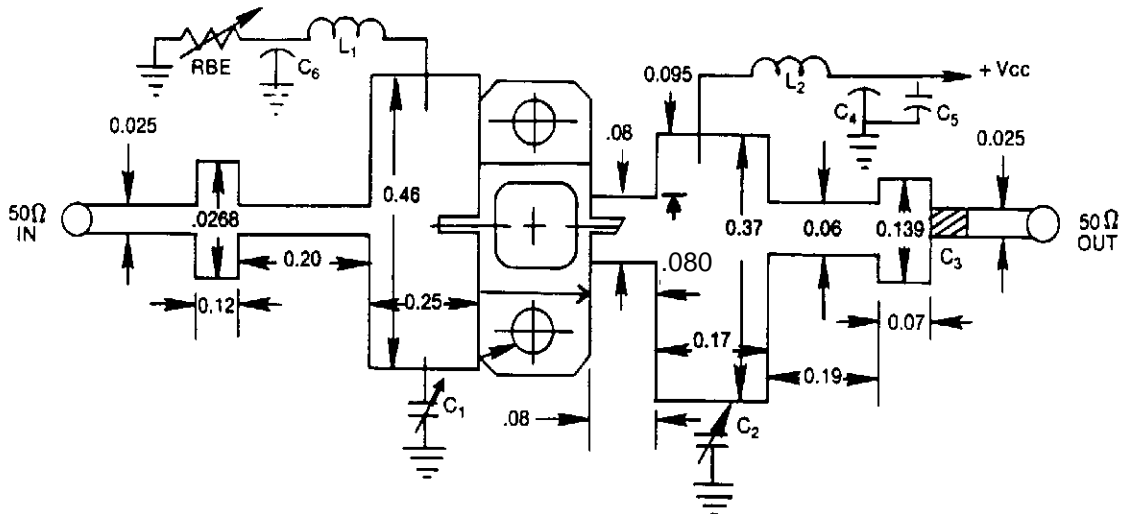


$P_{IN} = 15\text{ W}$   
 $V_{CC} = 35\text{ V}$   
 Normalized to 10 ohms



TEST CIRCUIT

Ref. Dwg. No. J-313119

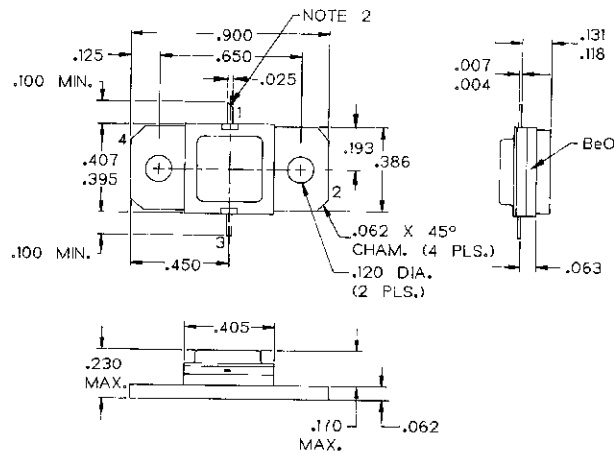


All dimensions are in inches.  
Substrate material: .025 thick Al<sub>2</sub>O<sub>3</sub> (Er = 9.6)

- |   |   |
|---|---|
| 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.

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