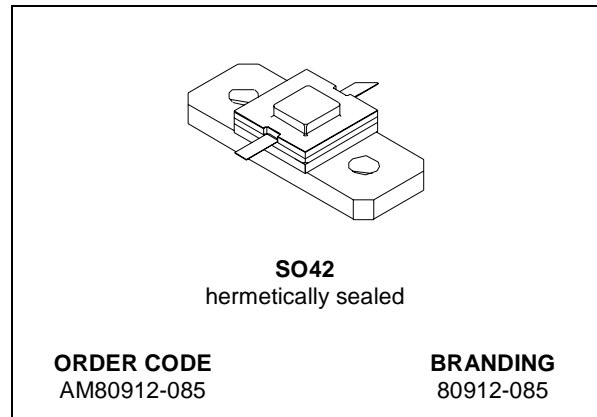




AM80912-085

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

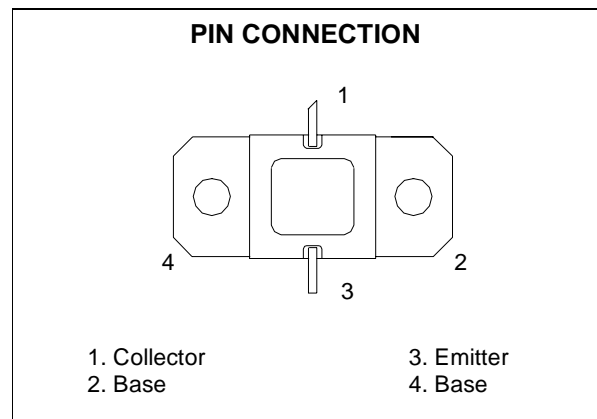
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 80 \text{ W MIN. WITH } 7.27 \text{ dB GAIN}$



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 internal input/output impedance matching.



ABSOLUTE MAXIMUM RATINGS ($T_{CASE} = 25 \text{ }^\circ\text{C}$)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100 \text{ }^\circ\text{C}$)	300	W
I_c	Device Current*	8.0	A
V_{CC}	Collector-Supply Voltage*	40	V
T_j	Junction Temperature (Pulsed RF Operation)	250	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 to +200	$^\circ\text{C}$

THERMAL DATA

$R_{th(j-c)}$	Junction -Case Thermal Resistance*	0.75	$^\circ\text{C/W}$
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* Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATION ($T_{CASE} = 25\text{ }^{\circ}\text{C}$)

STATIC

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	$I_C = 25\text{mA}$ $I_E = 0\text{mA}$	55			V
BV_{EBO}	$I_C = 0\text{mA}$ $I_E = 10\text{mA}$	3.5			V
BV_{CER}	$I_C = 25\text{mA}$ $R_{BE} = 10\Omega$	55			V
I_{CES}	$V_{BE} = 0\text{V}$ $V_{CE} = 35\text{V}$			20	mA
h_{FE}	$V_{CE} = 5\text{V}$ $I_C = 3\text{A}$	20		200	

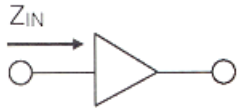
DYNAMIC

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P_{OUT}	$f = 960 - 1215\text{MHz}$ $P_{IN} = 15\text{ W}$ $V_{CC} = 35\text{V}$	80			W
G_P	$f = 960 - 1215\text{MHz}$ $P_{IN} = 15\text{ W}$ $V_{CC} = 35\text{V}$	7.27			dB
η_C	$f = 960 - 1215\text{MHz}$ $P_{IN} = 15\text{ W}$ $V_{CC} = 35\text{V}$	35			%

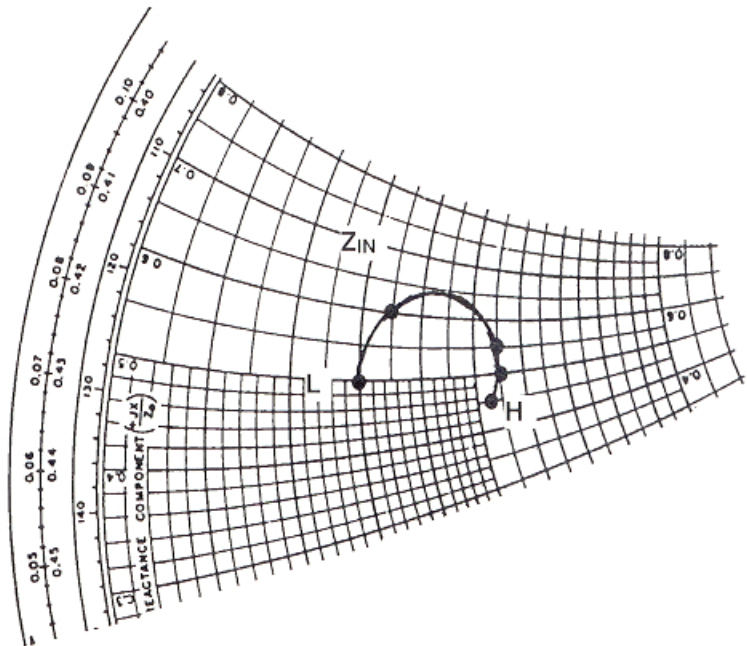
Note: Pulse format: 6.4 μs on 6.6 μs off, repeat for 3.3 ms, then off for 4.5125 ms
Duty Cycle: Burst 49.2%, overall 20.8%

IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE



$P_{IN} = 15\text{ W}$
 $V_{CC} = 35\text{ V}$
 Normalized to 20 ohms

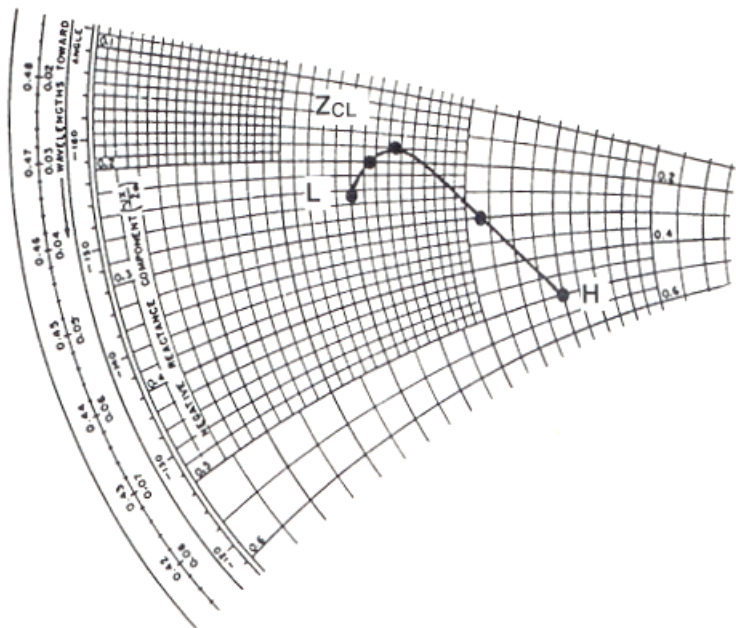


FREQ.	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
L = 960 MHz	$3.0 + j 5.0$	$7.0 - j 5.0$
• = 1025 MHz	$3.5 + j 6.0$	$5.3 - j 3.0$
M = 1090 MHz	$5.5 + j 5.5$	$3.7 - j 1.8$
• = 1150 MHz	$5.5 + j 5.0$	$3.3 - j 2.0$
H = 1215 MHz	$5.3 + j 4.5$	$3.0 - j 2.5$

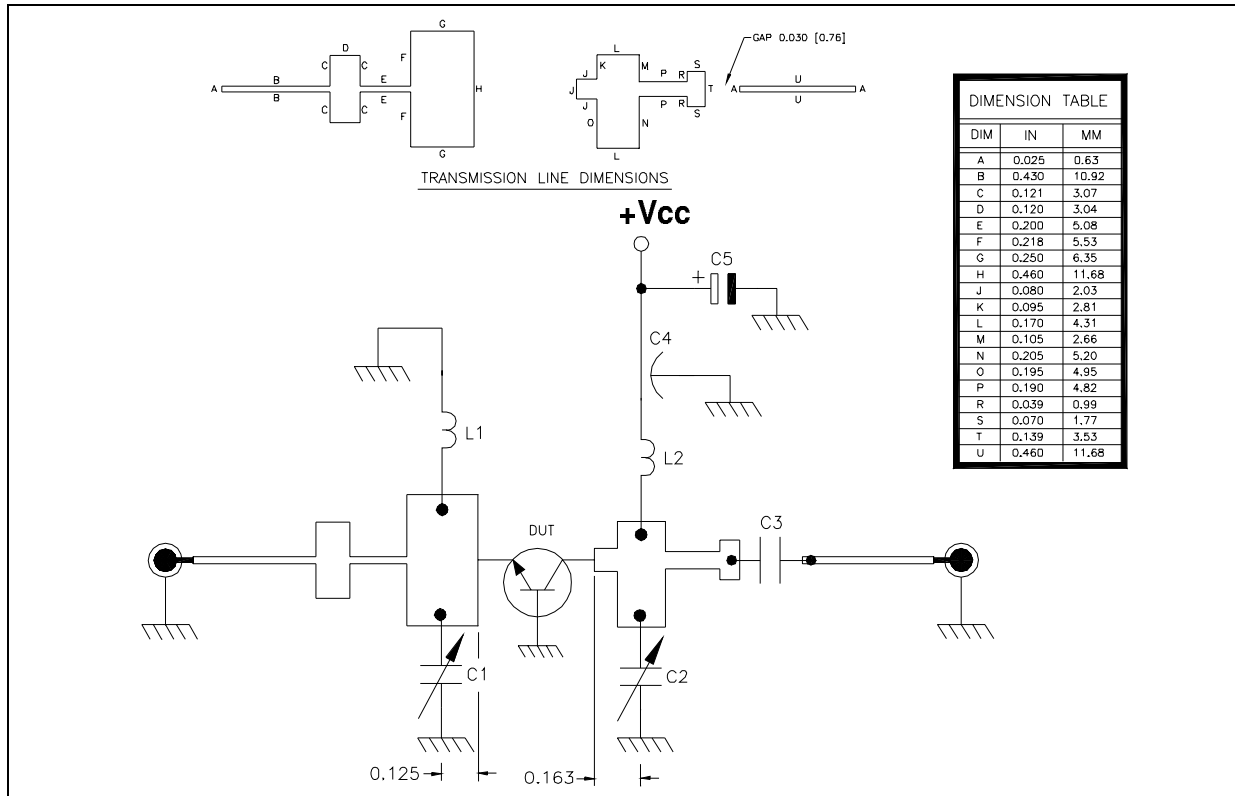
TYPICAL COLLECTOR LOAD IMPEDANCE



$P_{IN} = 15\text{ W}$
 $V_{CC} = 35\text{ V}$
 Normalized to 20 ohms



TEST CIRCUIT SCHEMATIC

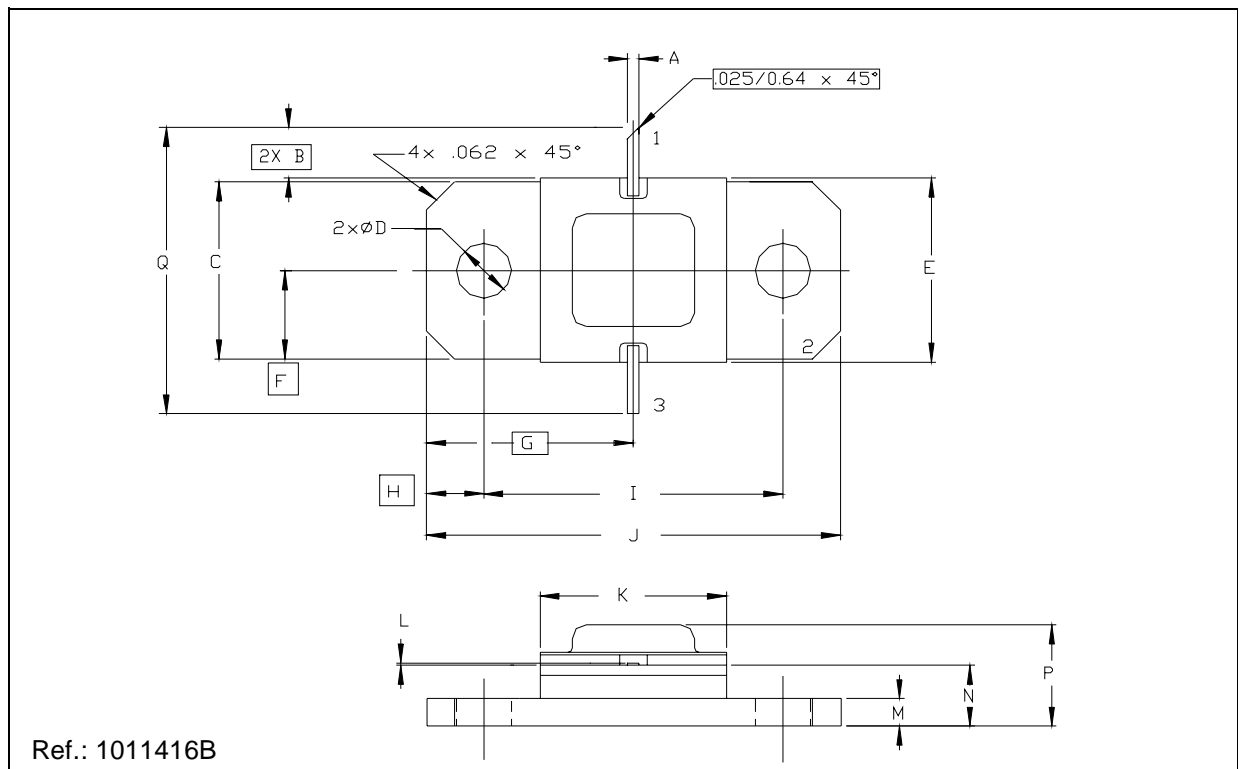


TEST CIRCUIT COMPONENT PART LIST

C1, C2	0.6 - 4.5 pF GIGA-TRIM VARIABLE CAPACITOR
C3	100 pF SURFACE MOUNT CERAMIC CHIP CAPACITOR
C4	1000 pF RESIN SEALED #8-32 THREADED FEEDTHRU CAPACITOR
C5	100 μF / 63 V ALUMINUM ELECTROLYTIC AXIAL LEAD CAPACITOR
L1, L2	INDUCTOR 4 TURNS #26 AWG, ID = 0.0625 [1.58] SOLID TINNED BUS BAR WIRE
PCB	0.025 inch thick Al ₂ O ₃ , εr = 9.6

SO42 (.400 X .400 2/L HERM. W/FLG.) MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	0.51		0.76	0.020		0.030
B		6.35			0.250	
C	9.55		10.06	0.376		0.396
D	2.79		3.30	0.110		0.130
E	10.03		10.34	0.395		0.407
F		4.90			0.193	
G		11.43			0.450	
H		3.18			0.125	
I	16.26		16.76	0.640		0.660
J	22.61		23.11	0.890		0.910
K	10.03		10.54	0.395		0.415
L	0.10		0.18	0.004		0.006
M	1.32		1.83	0.052		0.072
N	2.84		3.35	0.112		0.132
P			5.84			0.230
Q	22.35		23.37	0.880		0.920



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