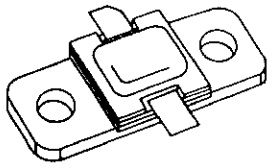
SGS-THOMSON MICROELECTRONICS

AM81214-015

RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

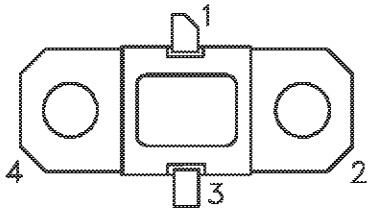
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 14.5 W MIN. WITH 8.6 dB GAIN



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

ORDER CODE	BRANDING
AM 81214-015	81214-15

PIN CONNECTION



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

DESCRIPTION

The AM81214-015 device is a high power Class C transistor specifically designed for L-Band Radar pulsed output and driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles, and temperatures and is capable of withstanding 5:1 output VSWR at rated RF conditions. Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

AM81214-015 is supplied in the grounded IMPAC™ Hermetic Metal/Ceramic package with internal input/output matching structures.

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100°C$)	37.5	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*	4.0	°C/W

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 15mA	I_E = 0mA	48	—	—	V
BV_{EBO}	I_E = 1.5mA	I_C = 0mA	3.5	—	—	V
BV_{CER}	IC = 15mA	R_{BE} = 10Ω	48	—	—	V
I_{CES}	V_{CE} = 28V	V_{BE} = 28V	—	—	1.5	mA
h_{FE}	V_{CE} = 5V	I_C = 1A	30	—	300	—

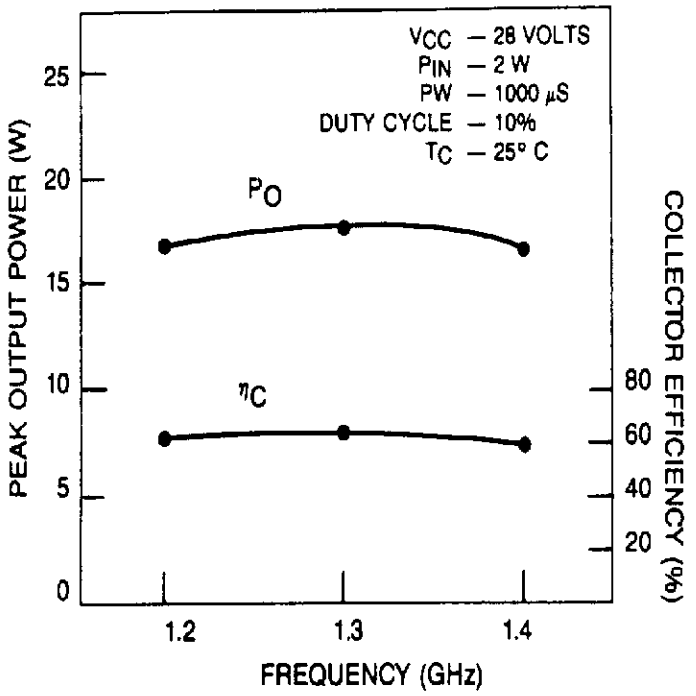
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{IN}	f = 1.2 — 1.4GHz	P_{IN} = 2W Peak	V_{CC} = 28V	14.5	17.0	—	W
η_C	f = 1.2 — 1.4GHz	P_{IN} = 2W Peak	V_{CC} = 28V	48	58	—	%
G_P	f = 1.2 — 1.4GHz	P_{IN} = 2W Peak	V_{CC} = 28V	8.6	9.3	—	dB

Note: Pulse Width = 1000 µS
Duty Cycle = 10%

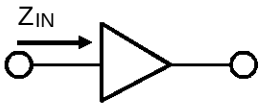
TYPICAL PERFORMANCE

TYPICAL BROADBAND PERFORMANCE

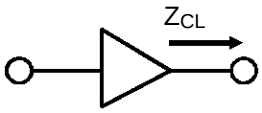


IMPEDANCE DATA

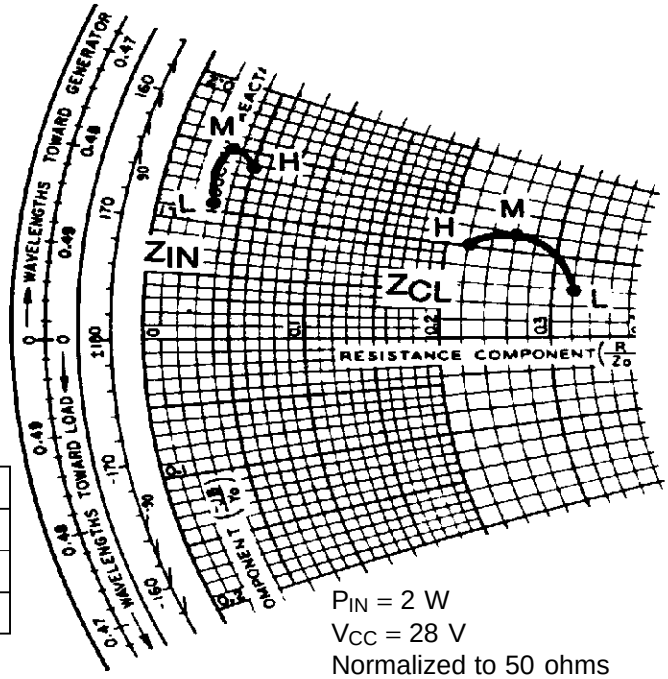
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

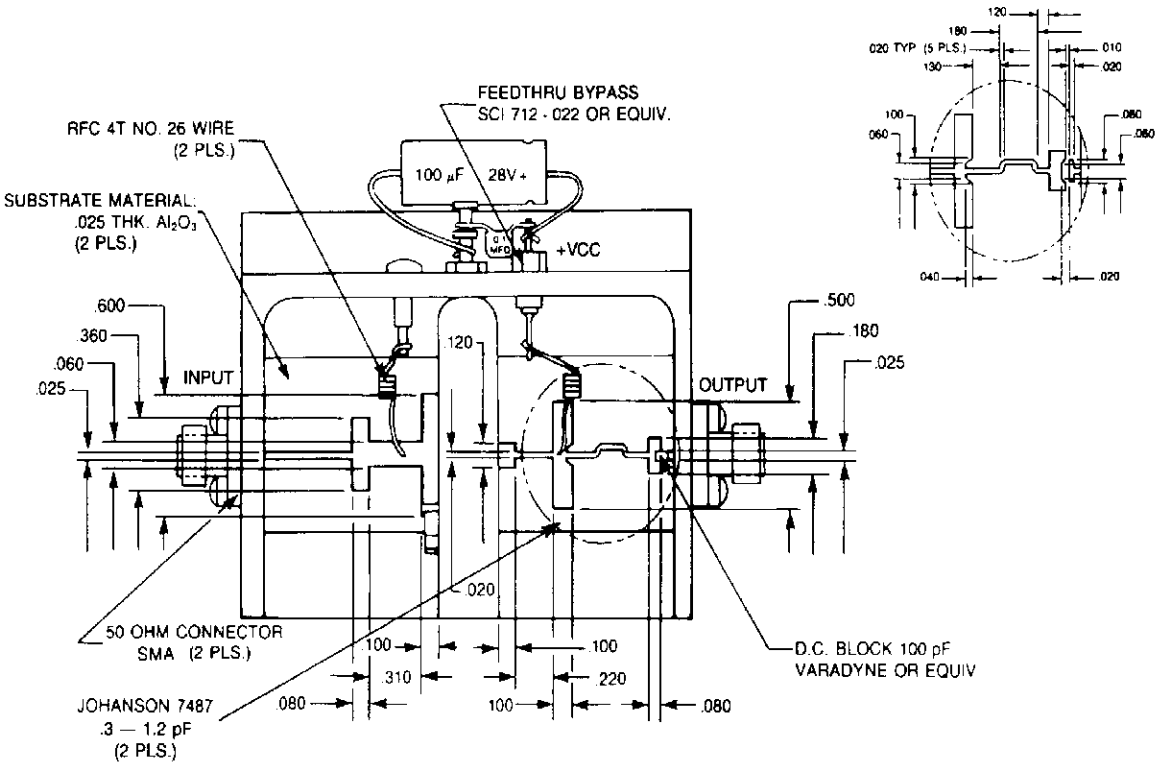


FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 1.2 GHz	3.0 + j 6.5	16 + j 3.0
M = 1.3 GHz	3.5 + j 7.5	13 + j 6.0
H = 1.4 GHz	5.0 + j 7.0	11 + j 5.0



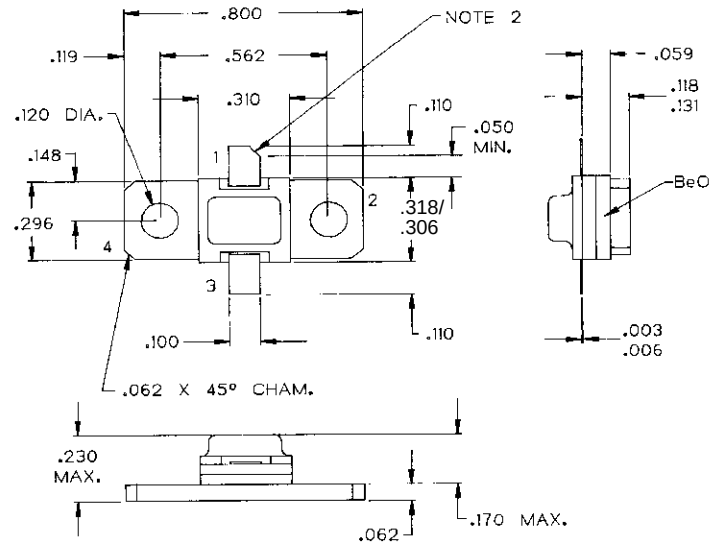
P_{IN} = 2 W
V_{CC} = 28 V
Normalized to 50 ohms

TEST CIRCUIT



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.