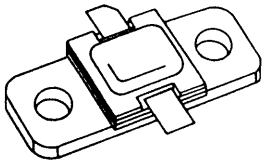
SGS-THOMSON MICROELECTRONICS

AM81214-006

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} = 5.5 W MIN. WITH 10 dB GAIN



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

ORDER CODE	BRANDING
AM81214-6	81214-6

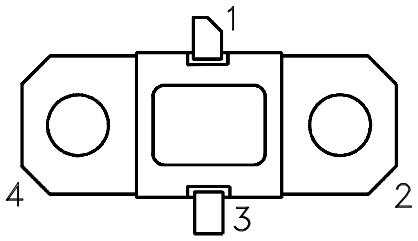
DESCRIPTION

The AM81214-006 device is a high power Class C transistor specifically designed for L-Band Radar pulsed 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.

AM81214-006 is supplied in the grounded IMPAC™ Hermetic Metal/Ceramic package with internal input/output matching structures.

PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100°C$)	16.7	W
I_C	Device Current*	0.82	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*	9.0	°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 = 1 mA	I_E = 0 mA	48	—	—	V
BV_{CER}	I_C = 5 mA	R_{BE} = 10Ω	48	—	—	V
BV_{EBO}	I_E = 1 mA	I_C = 0 mA	3.5	—	—	V
I_{CES}	V_{BE} = 0 V	V_{CE} = 28 V	—	—	500	μA
h_{FE}	V_{CE} = 5 V	I_C = 500 mA	15	—	300	—

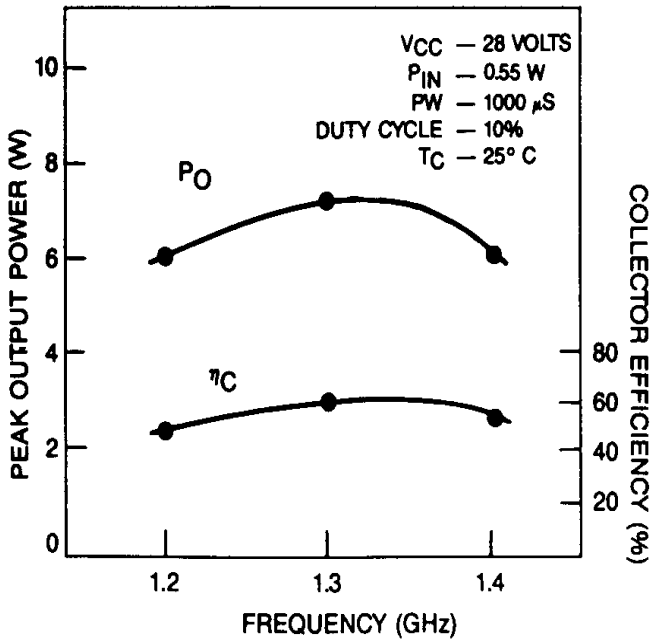
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1.2 — 1.4 GHz	P_{IN} = 0.5 W	V_{CC} = 28 V	—	5.5	6.2	W
η_C	f = 1.2 — 1.4 GHz	P_{IN} = 0.5 W	V_{CC} = 28 V	47	52	—	%
G_P	f = 1.2 — 1.4 GHz	P_{IN} = 0.5 W	V_{CC} = 28 V	10	10.5	—	dB

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

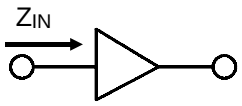
TYPICAL PERFORMANCE

TYPICAL BROADBAND PERFORMANCE

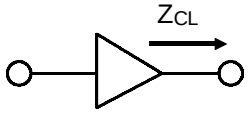


IMPEDANCE DATA

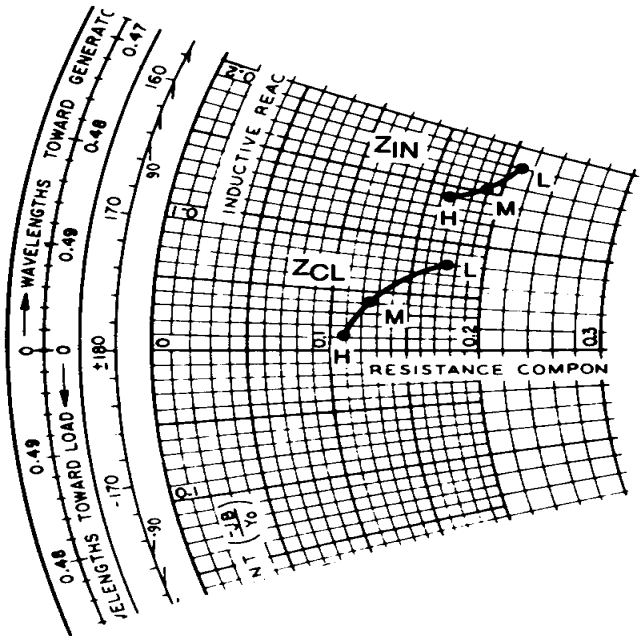
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

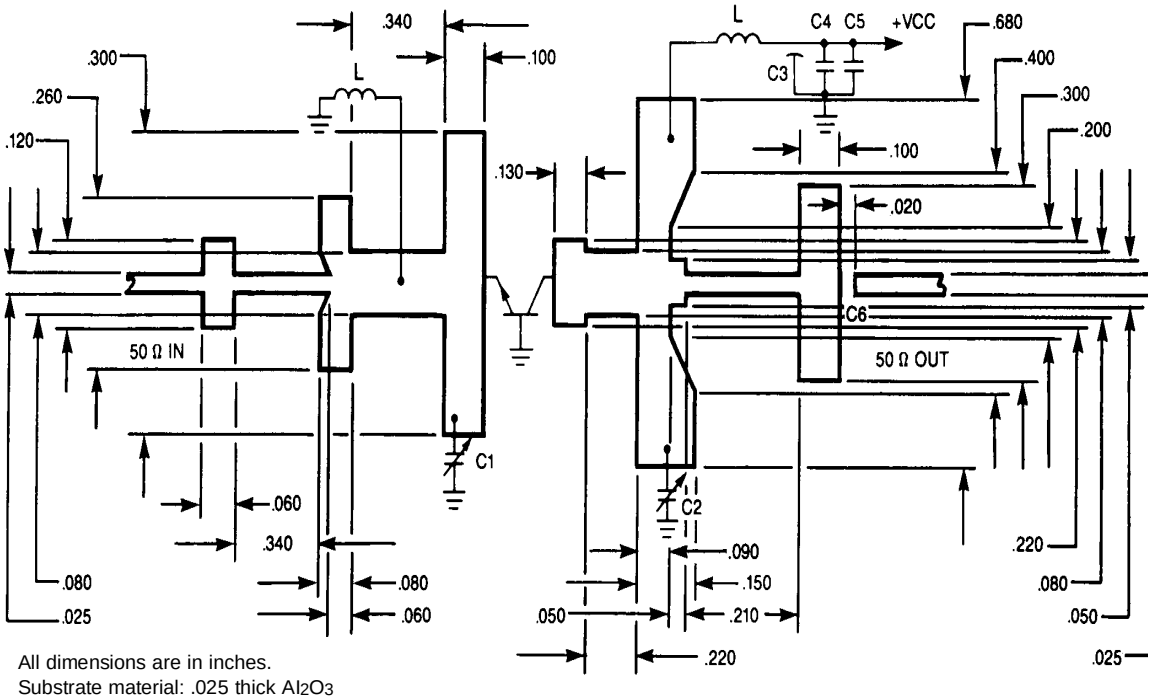


FREQ.	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
L = 1.2 GHz	10.5 + j 9.0	9.0 + j 3.0
M = 1.3 GHz	9.5 + j 8.0	6.5 + j 2.0



P_{IN} = 0.5 W
V_{CC} = 28 V
Normalized to 50 ohms

TEST CIRCUIT

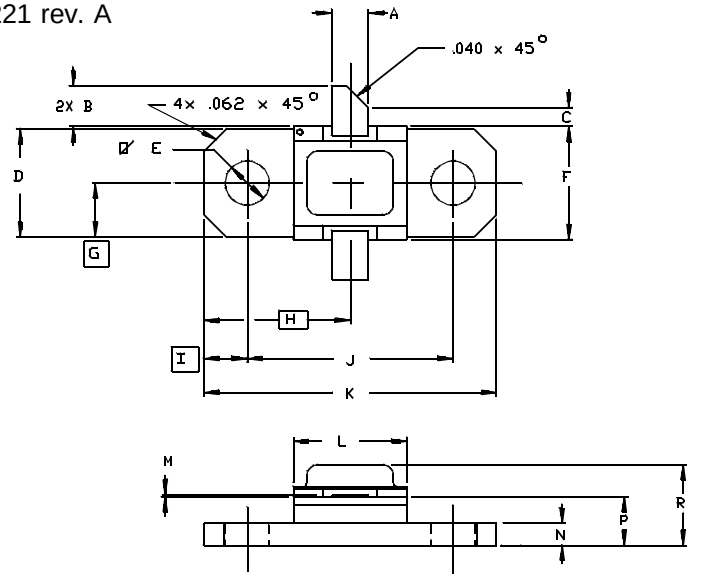


All dimensions are in inches.
Substrate material: .025 thick Al_2O_3

C1 : 0.2—2.5 pF Johanson Gigatrim Capacitor
C2 : 0.2—2.5 pF Johanson Gigatrim Capacitor
C3 : 1500 pF Filtercon Feedthrough
C4 : 0.1 µF, Ceramic Capacitor
C5 : 100 µF, Electrolytic Capacitor
C6 : 100 pF Chip Capacitor
L : No. 26 Wire, 4 Turn .062 I.D.

PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0221 rev. A



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.095/2,41	.105/2,67
B	.100/2,54	.120/3,05
C	.050/1,27	
D	.286/7,26	.306/7,77
E	.110/2,79	.130/3,30
F	.306/7,77	.318/8,08
G	.148/3,76	
H	.400/10,16	
I	.119/3,02	
J	.552/14,02	.572/14,53

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.790/20,07	.810/20,57
L	.300/7,62	.320/8,13
M	.003/0,08	.006/0,15
N	.052/1,32	.072/1,83
P	.118/3,00	.131/3,33
R		.230/5,84