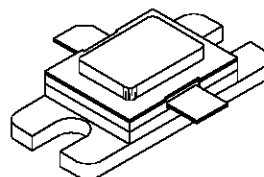


RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

PRELIMINARY DATA

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 200$ W MIN. WITH 7.0 dB GAIN



.400 x .500 2LFL (M205)
hermetically sealed

ORDER CODE

AM1214-200

BRANDING

1214-200

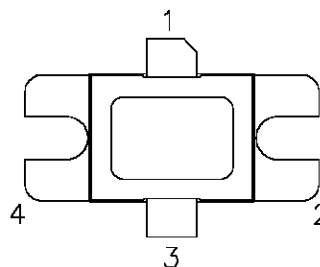
DESCRIPTION

The AM1214-200 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 will tolerate severe mismatch and over-drive conditions. Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

AM1214-200 is supplied in the BIGPAC™ hermetic metal/ceramic package with internal input/output matching structures.

PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100^{\circ}C$)	575	W
I_C	Device Current*	16	A
V_{CC}	Collector-Supply Voltage*	40	V
T_J	Junction Temperature (Pulsed RF Operation)	250	$^{\circ}C$
T_{STG}	Storage Temperature	- 65 to +200	$^{\circ}C$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	0.26	$^{\circ}C/W$
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*Applies only to rated RF amplifier operation

AM1214-200

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

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 50mA$ $I_E = 0mA$	70	—	—	V
BV_{EBO}	$I_E = 30mA$ $I_C = 0mA$	3.0	—	—	V
BV_{CES}	$I_C = 50mA$ $V_{BE} = 0V$	70	—	—	V
I_{CES}	$V_{BE} = 0V$ $V_{CE} = 40V$	—	—	30	mA
h_{FE}	$V_{CE} = 5V$ $I_C = 500mA$	10	—	—	—

DYNAMIC

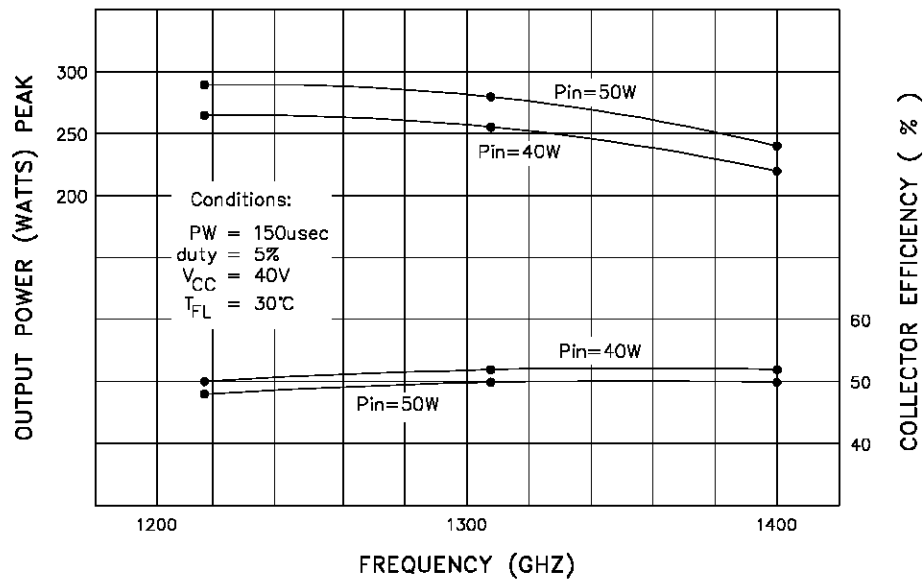
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 1215 - 1400MHz$ $P_{IN} = 40W$ $V_{CC} = 40V$	200	—	—	W
η_c	$f = 1215 - 1400MHz$ $P_{IN} = 40W$ $V_{CC} = 40V$	45	—	—	%
G_p	$f = 1215 - 1400MHz$ $P_{IN} = 40W$ $V_{CC} = 40V$	7.0	—	—	dB

Note: Pulse Width = 150 μ Sec

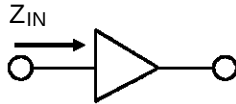
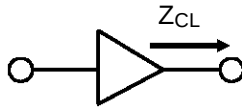
Duty Cycle = 5%

TYPICAL PERFORMANCE

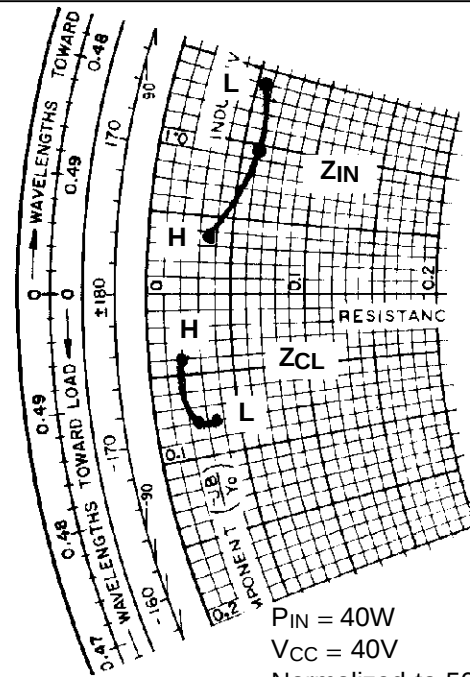
POWER OUTPUT & COLLECTOR EFFICIENCY vs FREQUENCY



IMPEDANCE DATA

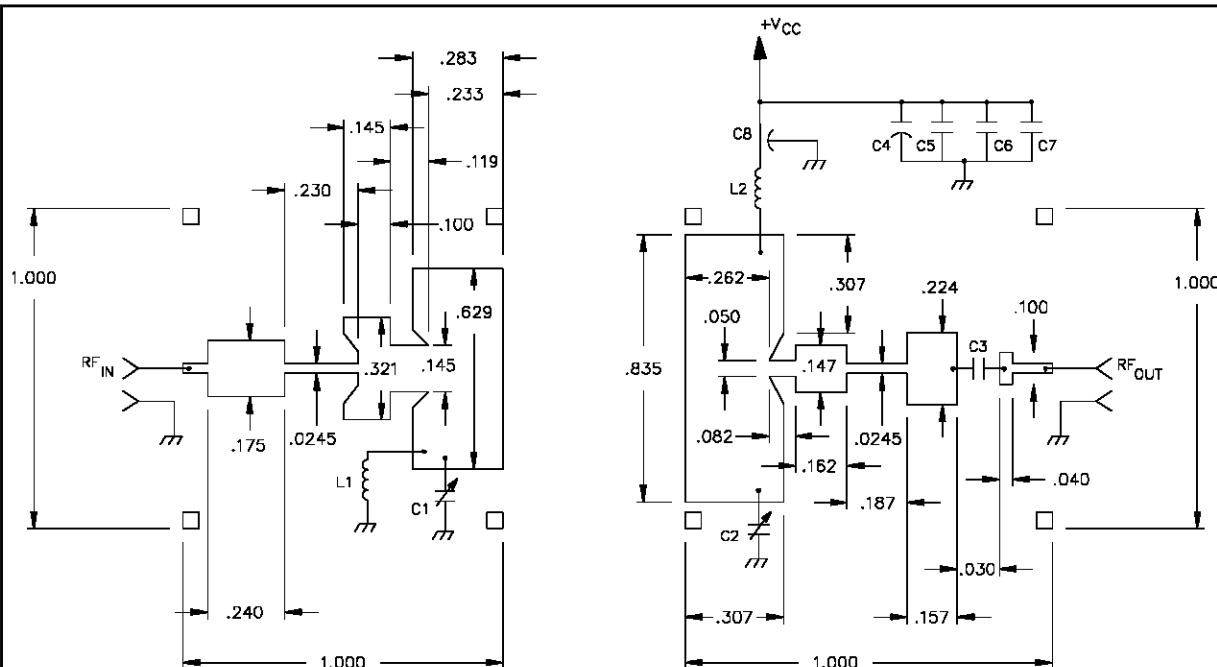
TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1215 MHz	$2.7 + j 7.0$	$1.7 - j 4.0$
M = 1300 MHz	$3.0 + j 4.8$	$1.4 - j 4.0$
H = 1400 MHz	$1.8 + j 1.7$	$1.0 - j 2.0$



$P_{IN} = 40W$
 $V_{CC} = 40V$
 Normalized to 50 ohms

TEST CIRCUIT

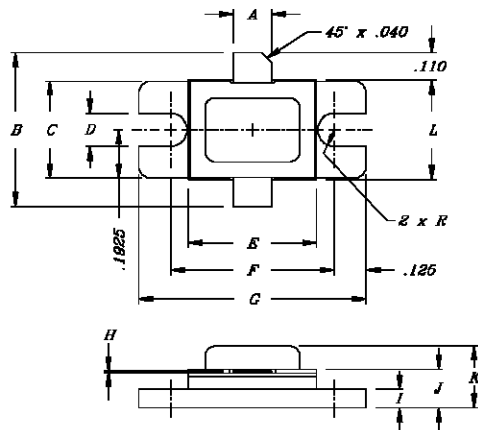


All dimensions are in millimeters.
 Substrate 0.025" Thick Al_2O_3 ($\epsilon_r = 9.8$)

C1, C2: 0.6 - 4.5 pF Johanson 7475 Variable Capacitor
 C3: 100 pF Case B Chip Capacitor
 C4: 100 μF , 63V Electrolytic Capacitor
 C5: 68 pF Case B Chip Capacitor

C6: 620 pF Case B Chip Capacitor
 C7: 0.1 μF Ceramic Capacitor
 C8: Feedthru bypass 1200 pF
 L1: .018" OD Wire - Placement is Critical
 L2: 4 Turn .018" OD Inductor

PACKAGE MECHANICAL DATA



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches / mm	MAXIMUM Inches / mm
A	.145 / 3.68	.155 / 3.93
B	.600 / 15.24	
C	.380 / 9.65	.390 / 9.91
D	.130 / 3.30	
E	.495 / 12.57	.507 / 12.88
F	.640 / 16.25	.655 / 16.64
G	.890 / 22.61	.910 / 23.11
H	.002 / 0.05	.006 / 0.15
I	.055 / 1.40	.065 / 1.65
J	.115 / 2.92	.135 / 3.43
K		.230 / 5.84
L	.395 / 10.03	.407 / 10.34

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