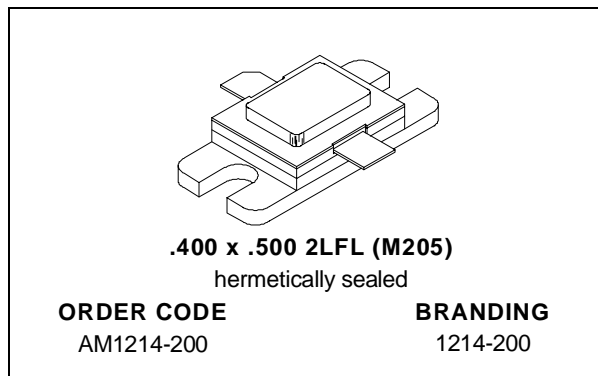


**RF & MICROWAVE TRANSISTORS  
L-BAND RADAR APPLICATIONS**

PRELIMINARY DATA

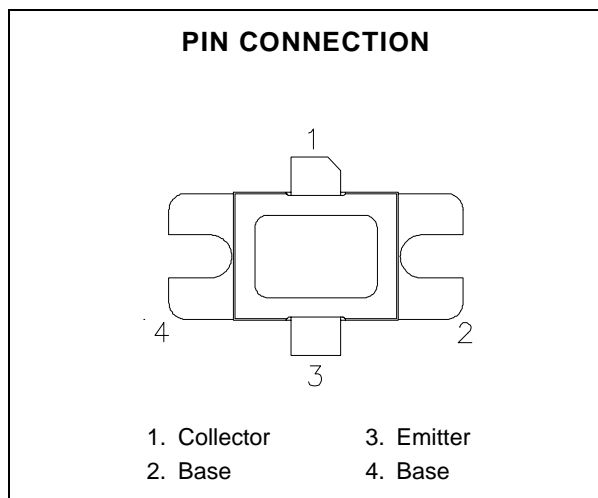
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 200$  W MIN. WITH 7.0 dB GAIN


**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 overdrive 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.


**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<sub>case</sub> = 25°C)

### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 50mA	I <sub>E</sub> = 0mA	70	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 30mA	I <sub>C</sub> = 0mA	3.0	—	—	V
BV <sub>CES</sub>	I <sub>C</sub> = 50mA	V <sub>BE</sub> = 0V	70	—	—	V
I <sub>CES</sub>	V <sub>BE</sub> = 0V	V <sub>CE</sub> = 40V	—	—	30	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 500mA	10	—	—	—

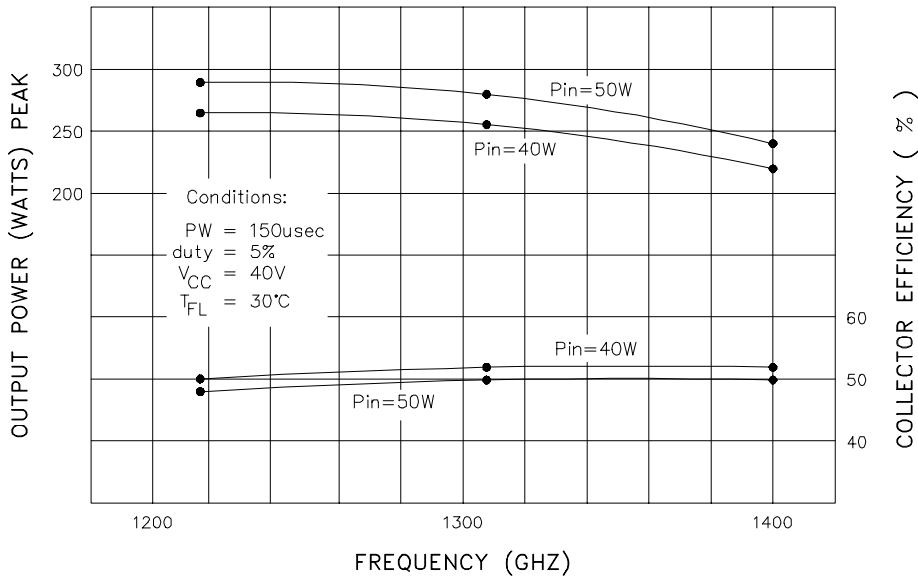
### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 1215 — 1400MHz	P <sub>IN</sub> = 40W	V <sub>CC</sub> = 40V	200	—	—	W
η <sub>C</sub>	f = 1215 — 1400MHz	P <sub>IN</sub> = 40W	V <sub>CC</sub> = 40V	45	—	—	%
G <sub>P</sub>	f = 1215 — 1400MHz	P <sub>IN</sub> = 40W	V <sub>CC</sub> = 40V	7.0	—	—	dB

Note: Pulse Width = 150μSec  
Duty Cycle = 5%

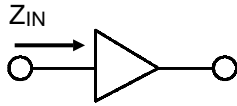
### TYPICAL PERFORMANCE

**POWER OUTPUT & COLLECTOR EFFICIENCY vs FREQUENCY**

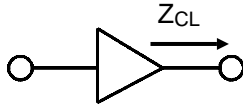


IMPEDANCE DATA

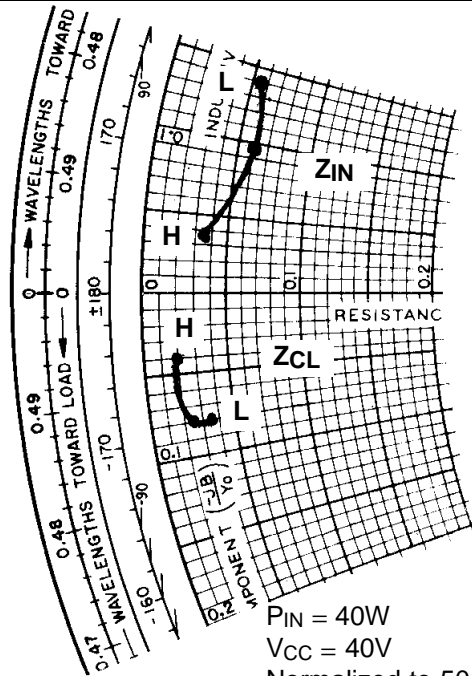
TYPICAL INPUT IMPEDANCE



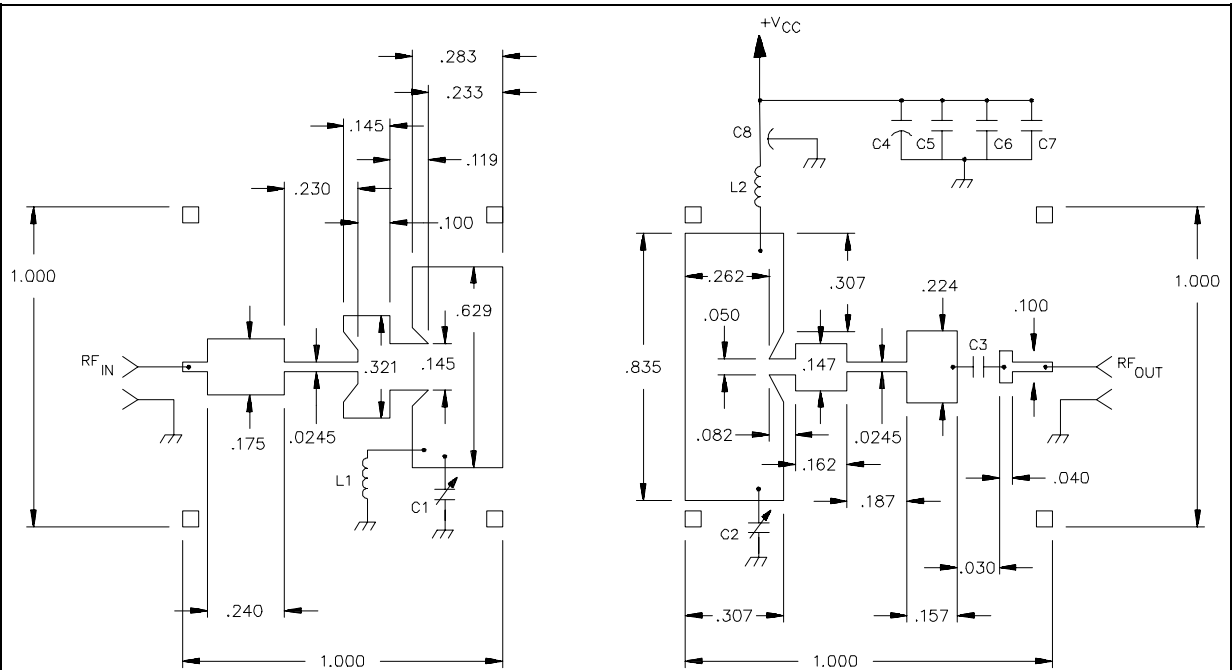
TYPICAL COLLECTOR LOAD IMPEDANCE



FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
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



TEST CIRCUIT

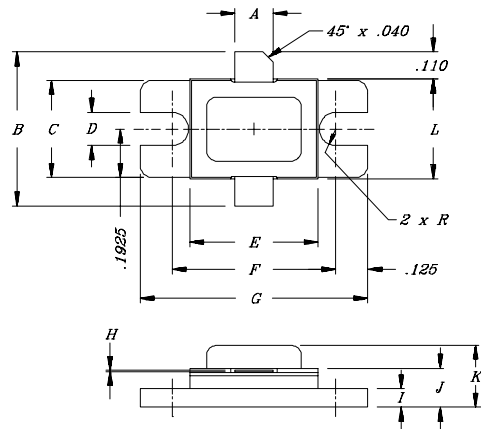


All dimensions are in millimeters.  
Substrate 0.025" Thick AL<sub>2</sub>O<sub>3</sub> (Er = 9.8)

- 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 / 16.26	.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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