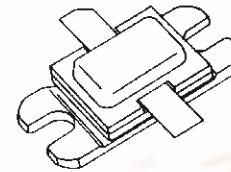




AM1214-300

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
- $P_{OUT} = 270 \text{ W MIN. WITH } 6.3 \text{ dB GAIN}$



.400 x .500 2LFL (S038)
hermetically sealed

ORDER CODE
AM1214-300

BRANDING
1214-300

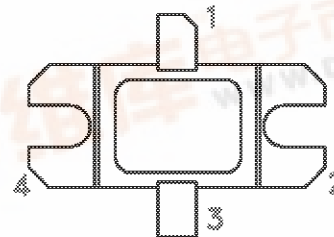
DESCRIPTION

The AM1214-300 device is a high power transistor specifically designed for L-Band radar pulsed output and driver applications.

This device is designed for operation under moderate pulse width and duty cycle pulse conditions 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.

The AM1214-300 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 ($T_{case} = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100^{\circ}\text{C}$)	730	W
I_C	Device Current*	18.75	A
V_{CC}	Collector-Supply Voltage*	55	V
T_J	Junction Temperature (Pulsed RF Operation)	250	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +200	$^{\circ}\text{C}$

THERMAL DATA

$R_{\theta(j-c)}$	Junction-Case Thermal Resistance*	0.24	$^{\circ}\text{C/W}$
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*Applies only to rated RF amplifier operation

AM1214-300

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

STATIC

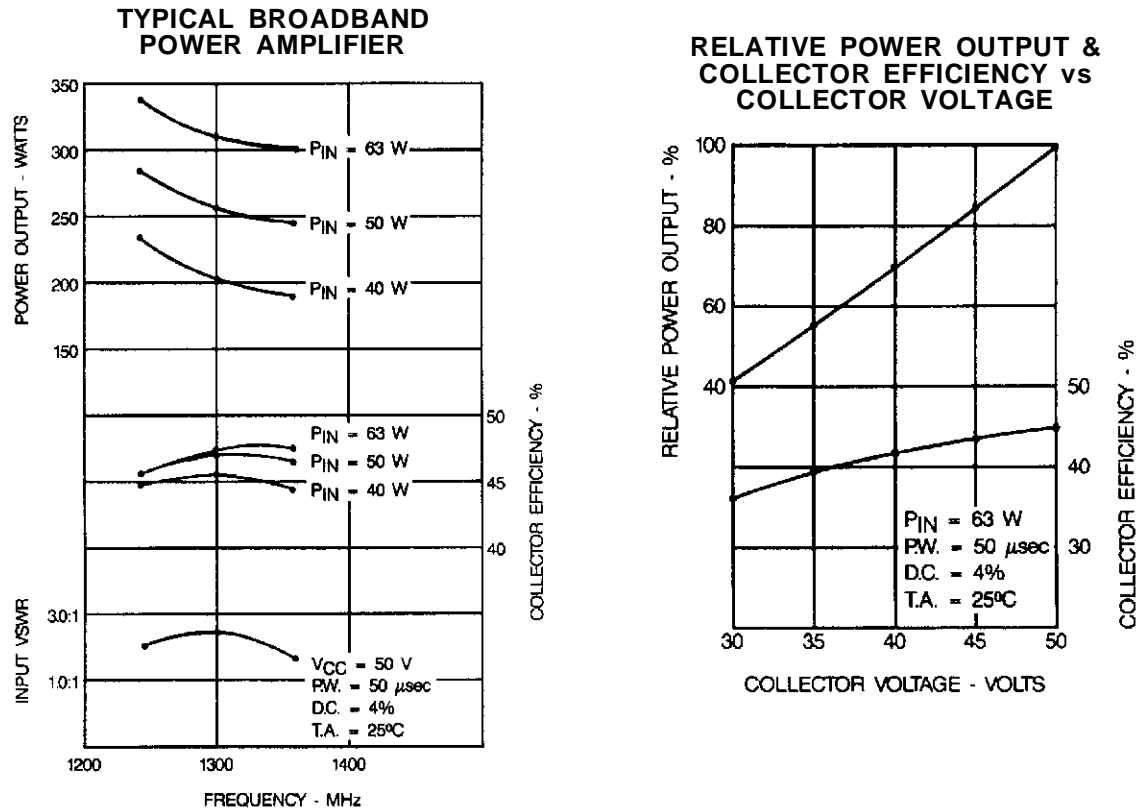
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 50\text{mA}$ $I_{\text{E}} = 0\text{mA}$	65	—	—	V
BV_{EBO}	$I_{\text{E}} = 15\text{mA}$ $I_{\text{C}} = 0\text{mA}$	3.0	—	—	V
BV_{CES}	$I_{\text{C}} = 50\text{mA}$	65	—	—	V
I_{CES}	$V_{\text{CE}} = 50\text{V}$	—	—	30	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$ $I_{\text{C}} = 5\text{A}$	10	—	—	—

DYNAMIC

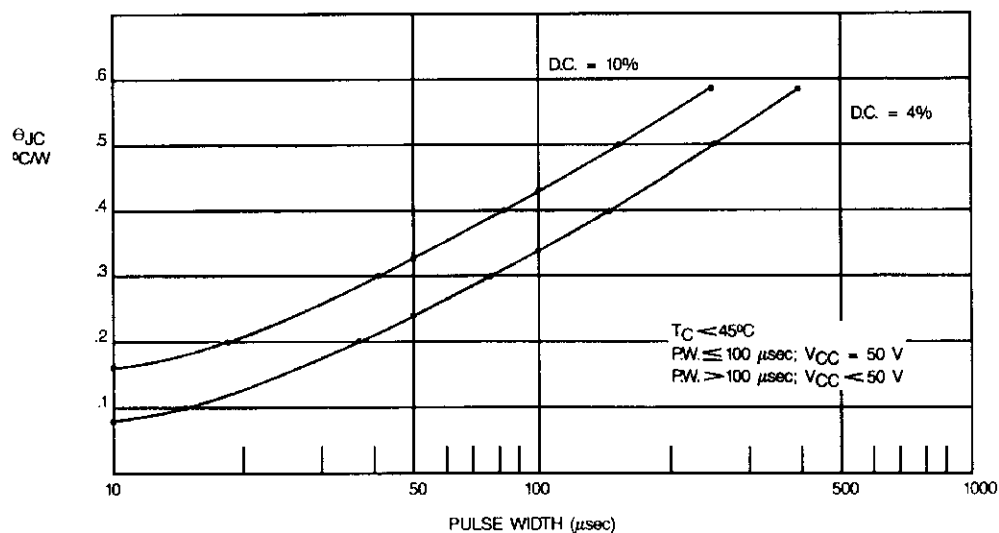
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 1235 \text{ — } 1365\text{MHz}$ $P_{\text{IN}} = 63\text{W}$ $V_{\text{CC}} = 50\text{V}$	270	300	—	W
η_{c}	$f = 1235 \text{ — } 1365\text{MHz}$ $P_{\text{IN}} = 63\text{W}$ $V_{\text{CC}} = 50\text{V}$	40	45	—	%
G_{P}	$f = 1235 \text{ — } 1365\text{MHz}$ $P_{\text{IN}} = 63\text{W}$ $V_{\text{CC}} = 50\text{V}$	6.3	6.8	—	dB

Note: Pulse Width = $50\mu\text{Sec}$
 Duty Cycle = 4%

TYPICAL PERFORMANCE

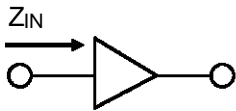


MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH & PULSE CYCLE

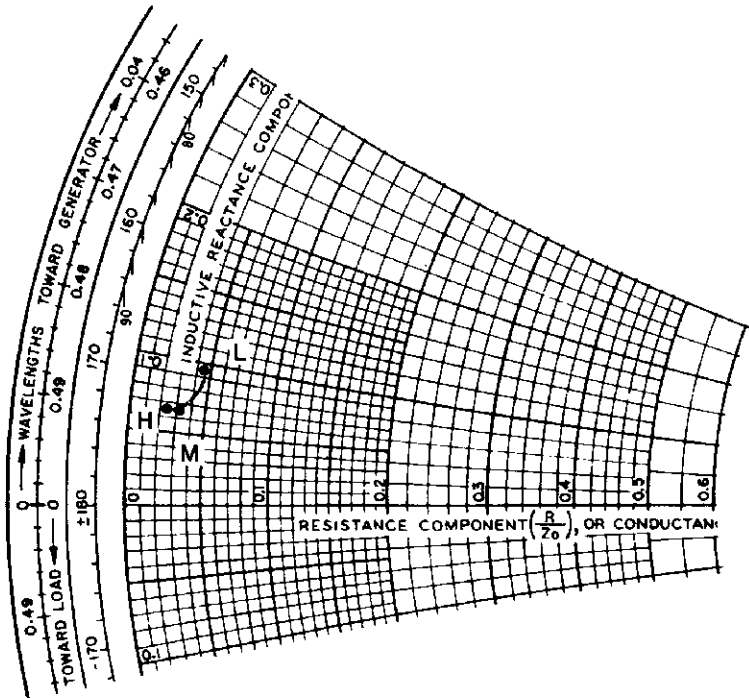


IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCE

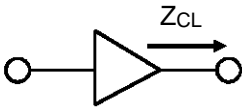


$P_{IN} = 63\text{ W}$
 $V_{CC} = 50\text{ V}$
 $Z_0^* = 50\text{ ohms}$

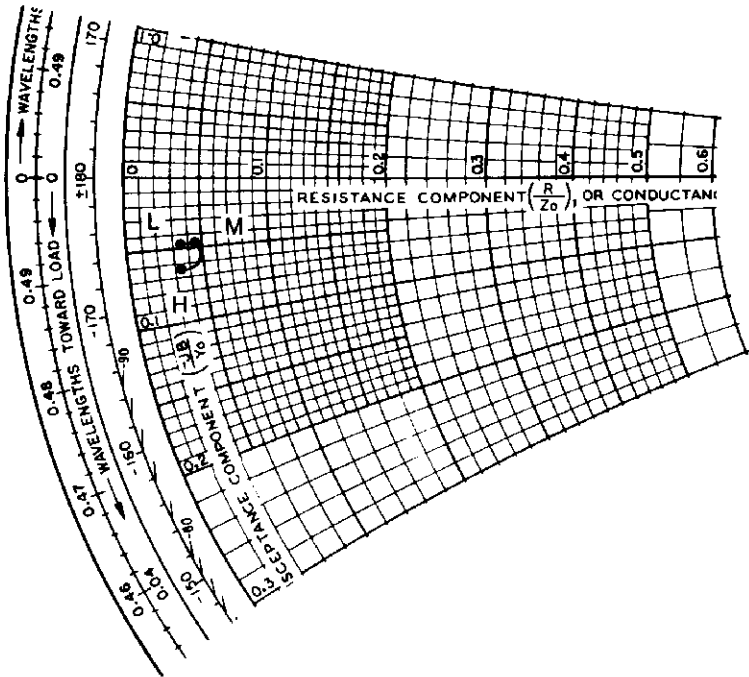


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1235 MHz	$2.5 + j\,5.0$	$2.0 - j\,2.5$
M = 1300 MHz	$1.5 + j\,3.5$	$2.5 - j\,2.5$
H = 1365 MHz	$1.0 + j\,3.5$	$2.0 - j\,3.0$

TYPICAL COLLECTOR
LOAD IMPEDANCE



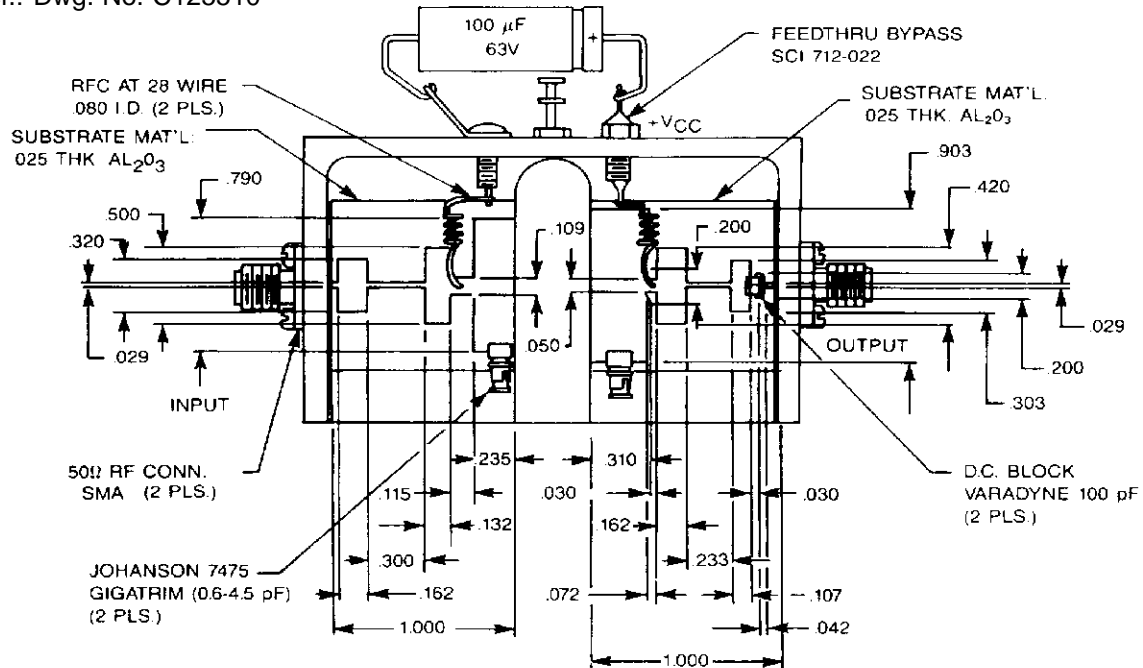
$P_{IN} = 63\text{ W}$
 $V_{CC} = 50\text{ V}$
 $Z_0^* = 50\text{ ohms}$



*Normalized Impedance

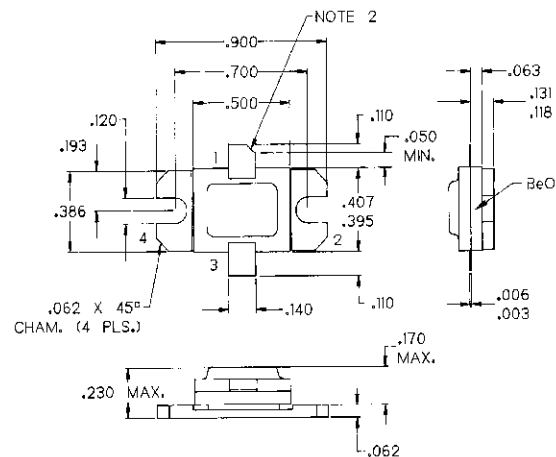
TEST CIRCUIT

Ref.: Dwg. No. C125510



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135066F



NOTES:

1. ALL TOLERANCE $\pm .010$ EXCEPT WHERE NOTED;
DIMENSIONS IN INCHES.
2. COLLECTOR LEAD CHAMFER 45° NOM. X .040 NOM.

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