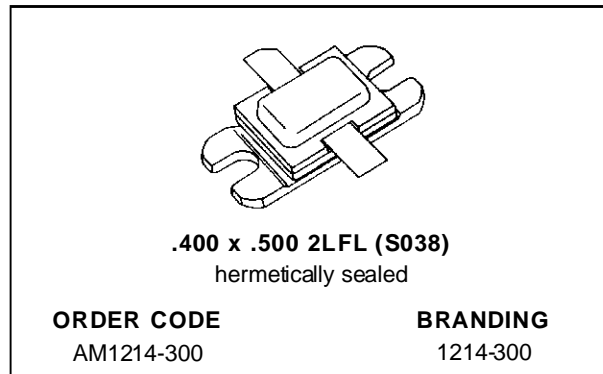


RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

- 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 W MIN. WITH 6.3 dB GAIN

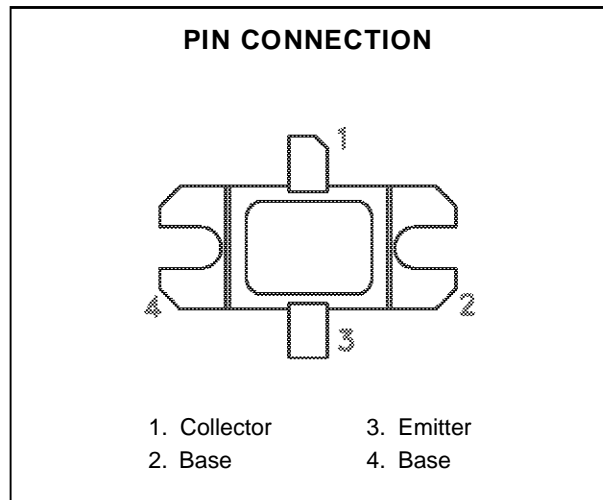


DESCRIPTION

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.



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

| Symbol | Parameter | Value | Unit |
|-------------------|---|--------------|------|
| P _{DISS} | Power Dissipation* (T _C ≤ 100°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 | °C |
| T _{STG} | Storage Temperature | - 65 to +200 | °C |

THERMAL DATA

| | | | |
|----------------------|-----------------------------------|------|------|
| R _{TH(j-c)} | Junction-Case Thermal Resistance* | 0.24 | °C/W |
|----------------------|-----------------------------------|------|------|

*Applies only to rated RF amplifier operation

AM1214-300

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

STATIC

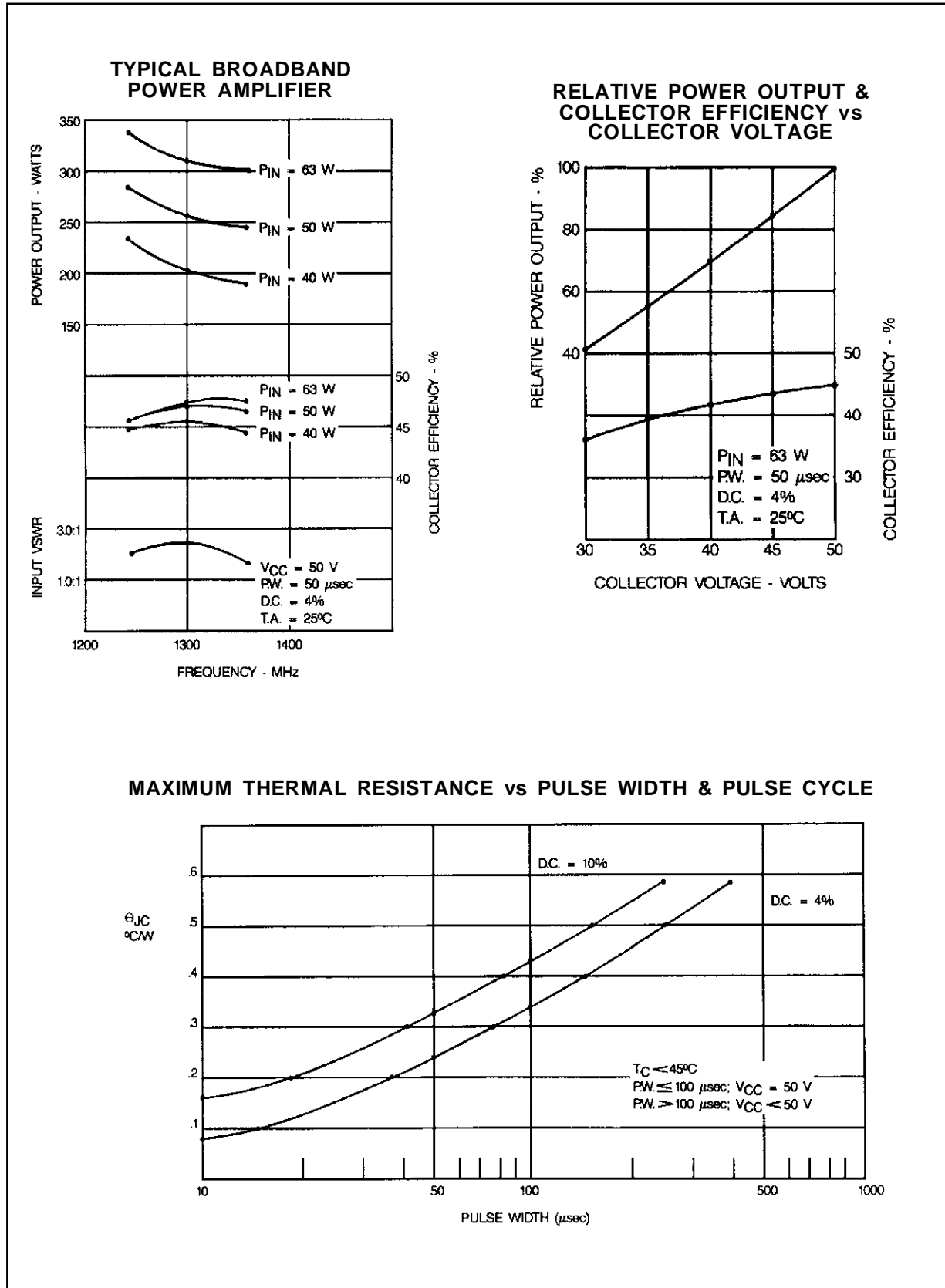
| Symbol | Test Conditions | Value | | | Unit |
|-------------------|--|-------|------|------|------|
| | | Min. | Typ. | Max. | |
| BV_{CBO} | $I_{\text{C}} = 50\text{mA}$ $I_{\text{E}} = 0\text{mA}$ | 65 | — | — | V |
| BV_{EBO} | $I_{\text{E}} = 15\text{mA}$ $I_{\text{C}} = 0\text{mA}$ | 3.0 | — | — | 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 |

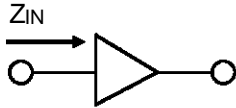
Note: Pulse Width = $50\mu\text{Sec}$
Duty Cycle = 4%

TYPICAL PERFORMANCE

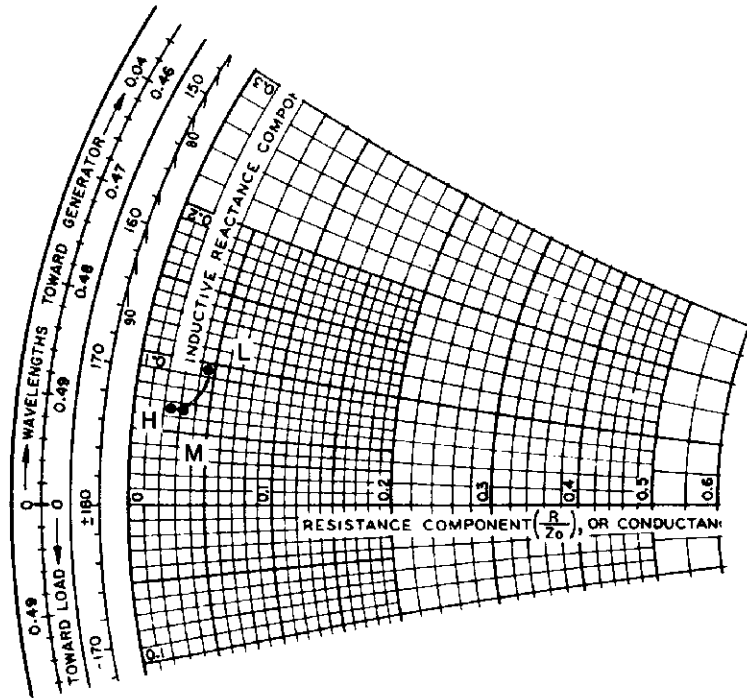


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

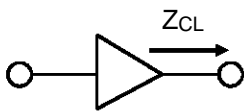


$P_{IN} = 63 \text{ W}$
 $V_{CC} = 50 \text{ V}$
 $Z_0^* = 50 \text{ ohms}$

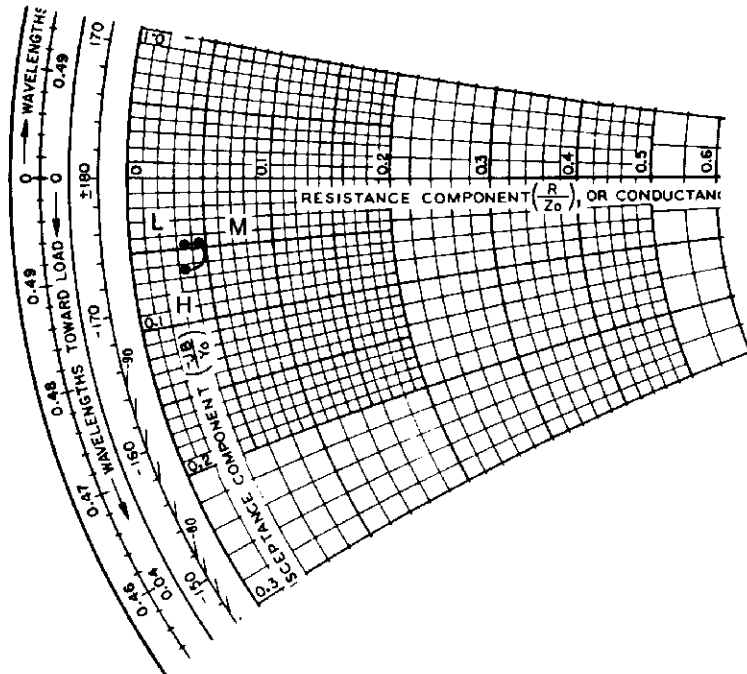


| FREQ. | $Z_{IN} (\Omega)$ | $Z_{CL} (\Omega)$ |
|--------------|-------------------|-------------------|
| L = 1235 MHz | $2.5 + j 5.0$ | $2.0 - j 2.5$ |
| M = 1300 MHz | $1.5 + j 3.5$ | $2.5 - j 2.5$ |
| H = 1365 MHz | $1.0 + j 3.5$ | $2.0 - j 3.0$ |

TYPICAL COLLECTOR LOAD IMPEDANCE

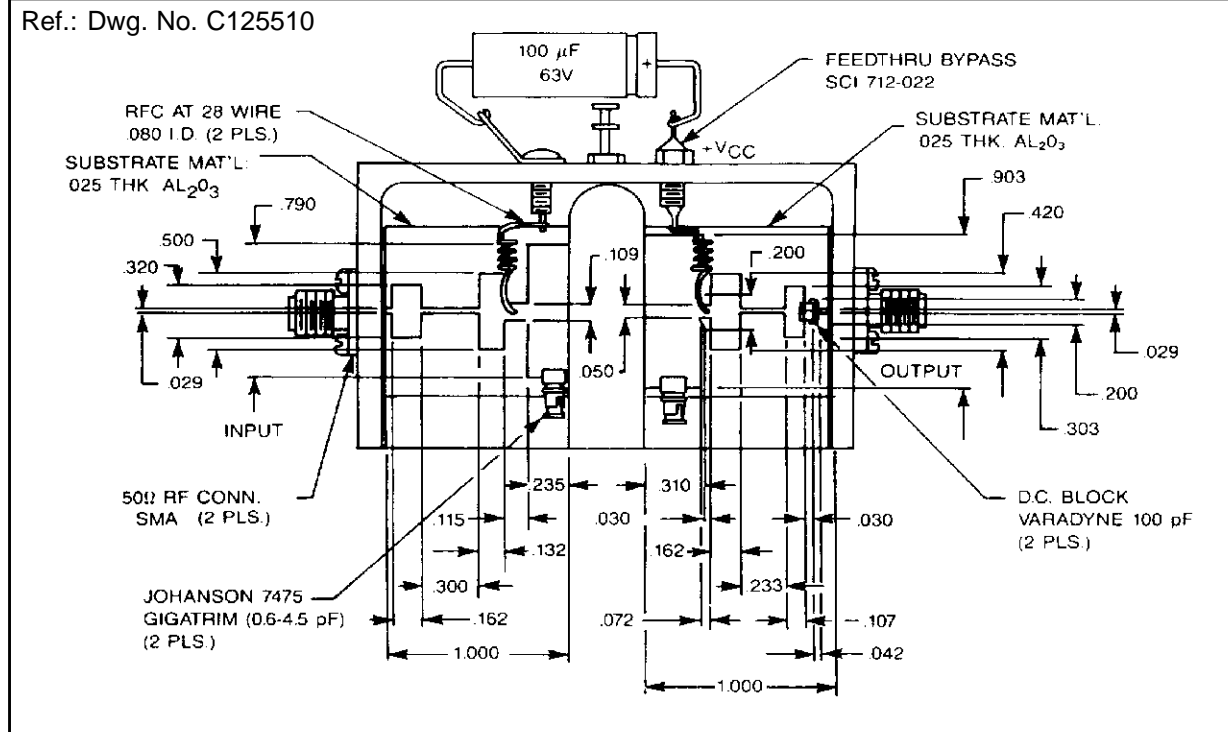


$P_{IN} = 63 \text{ W}$
 $V_{CC} = 50 \text{ V}$
 $Z_0^* = 50 \text{ ohms}$

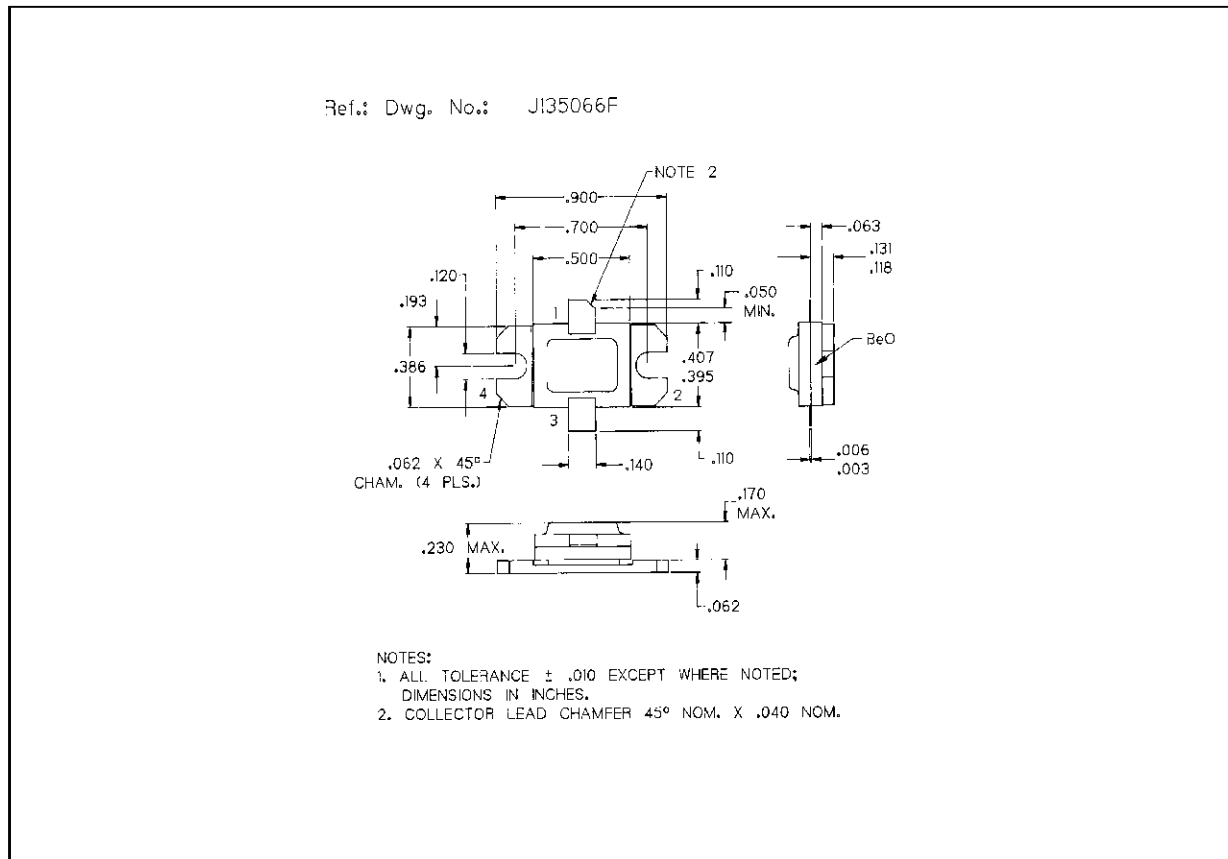


*Normalized Impedance

TEST CIRCUIT



PACKAGE MECHANICAL DATA



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