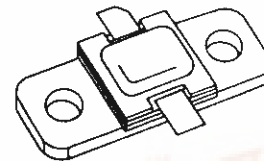




AM81214-030

RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- RUGGEDIZED VSWR $\infty:1$
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 26\text{ W MIN. WITH } 7.2\text{ dB GAIN}$



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

ORDER CODE
AM81214-030

BRANDING
81214-30

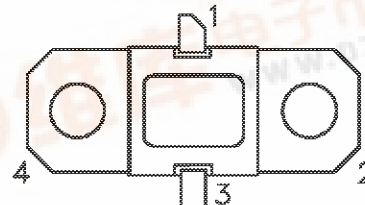
DESCRIPTION

The AM81214-030 device is a high power transistor specifically designed for L-Band Radar pulsed driver applications.

The device is capable of operation over a wide range of pulse widths, duty cycles and temperatures and is capable of withstanding $\infty:1$ output VSWR at rated RF conditions. Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The AM81214-030 is supplied in the IMPAC™ 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°C)

| Symbol | Parameter | Value | Unit |
|-------------------|---|--------------|------|
| P _{DISS} | Power Dissipation* (T _C ≤ 100°C) | 63 | W |
| I _C | Device Current* | 2.75 | 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* | 2.4 | °C/W |
|----------------------|-----------------------------------|-----|------|

* Applies only to rated RF amplifier operation

AM81214-030

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

STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|-------------------|------------------------------|------------------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| BV_{CBO} | $I_{\text{C}} = 10\text{mA}$ | $I_{\text{E}} = 0\text{mA}$ | 55 | — | — | V |
| BV_{EBO} | $I_{\text{E}} = 1\text{mA}$ | $I_{\text{C}} = 0\text{mA}$ | 3.5 | — | — | V |
| BV_{CER} | $I_{\text{C}} = 20\text{mA}$ | $R_{\text{BE}} = 10\Omega$ | 55 | — | — | V |
| I_{CES} | $V_{\text{BE}} = 0\text{V}$ | $V_{\text{CE}} = 28\text{V}$ | — | — | 5 | mA |
| h_{FE} | $V_{\text{CE}} = 5\text{V}$ | $I_{\text{C}} = 1\text{A}$ | 15 | — | 150 | — |

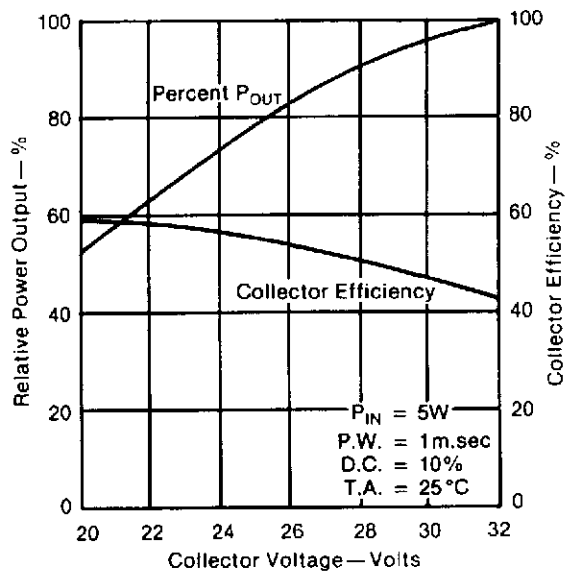
DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|-------------------|--------------------------------------|----------------------------------|------------------------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P_{IN} | $f = 1215 \text{ — } 1400\text{MHz}$ | $P_{\text{IN}} = 5\text{W Peak}$ | $V_{\text{CC}} = 28\text{V}$ | 26 | 36 | — | W |
| η_{c} | $f = 1215 \text{ — } 1400\text{MHz}$ | $P_{\text{IN}} = 5\text{W Peak}$ | $V_{\text{CC}} = 28\text{V}$ | 45 | 49 | — | % |
| G_{P} | $f = 1215 \text{ — } 1400\text{MHz}$ | $P_{\text{IN}} = 5\text{W Peak}$ | $V_{\text{CC}} = 28\text{V}$ | 7.2 | 8.5 | — | dB |

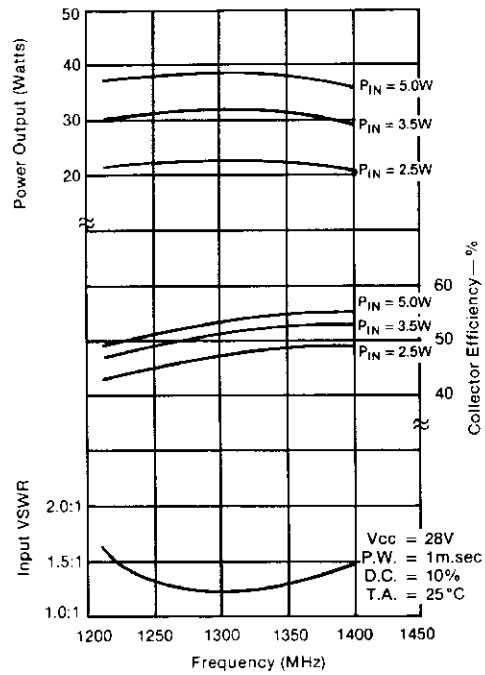
Note: Pulse Width = $1000\mu\text{S}$
Duty Cycle = 10%

TYPICAL PERFORMANCE

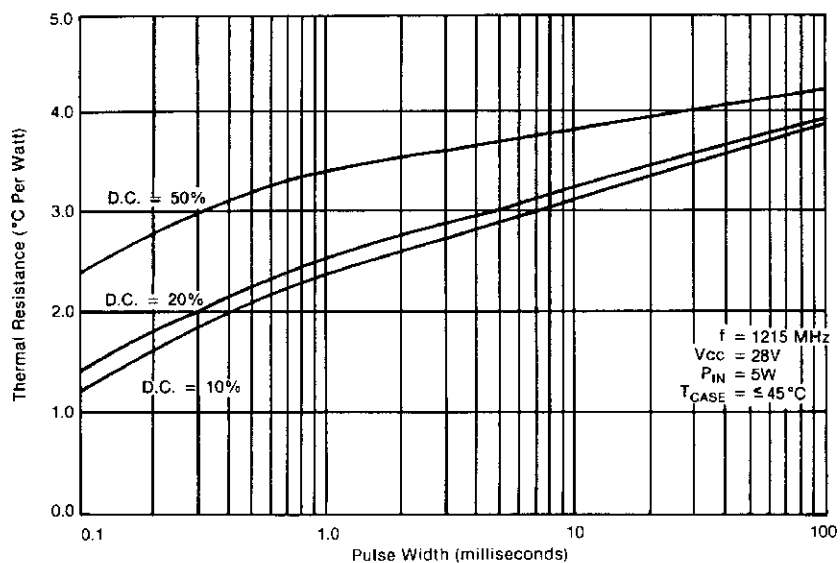
**RELATIVE POWER OUTPUT &
COLLECTOR EFFICIENCY vs
COLLECTOR VOLTAGE**



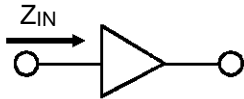
**TYPICAL BROADBAND
POWER AMPLIFIER**



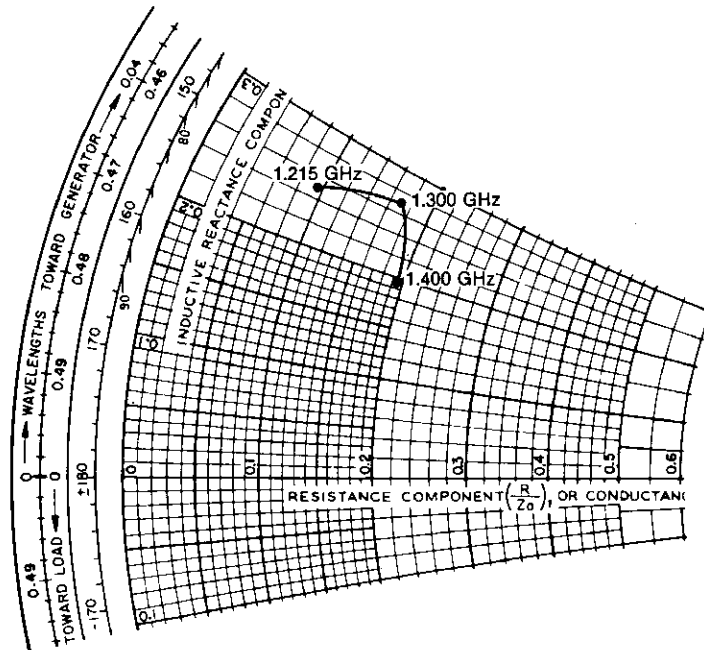
**MAXIMUM THERMAL RESISTANCE
vs PULSE WIDTH**



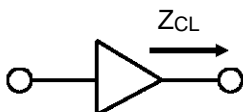
IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCE

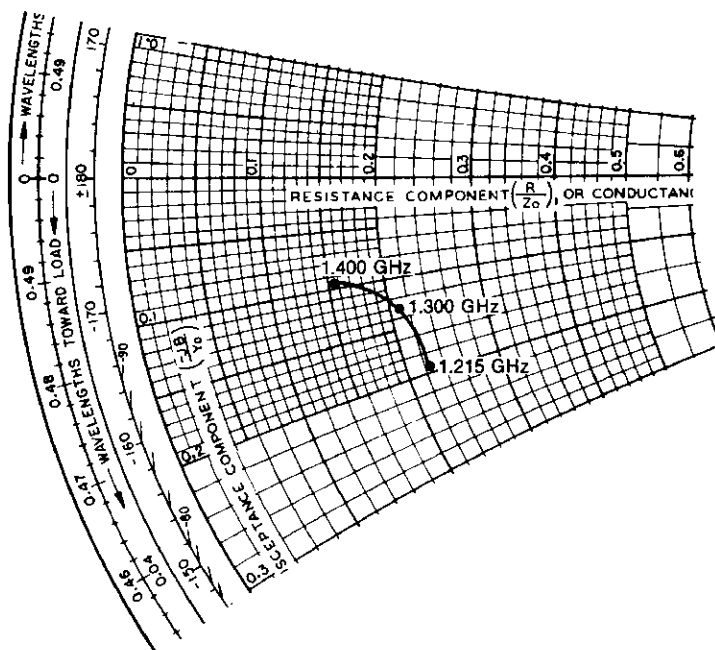
$P_{IN} = 5.0 \text{ W}$
 $V_{CC} = 28 \text{ V}$
 $Z_O = 50 \text{ Ohms}$



| FREQ. | $Z_{IN} (\Omega)$ | $Z_{CL} (\Omega)$ |
|---------------|-------------------|-------------------|
| L = 1.215 GHz | $4.5 + j 12.5$ | $11.0 - j 10.0$ |
| M = 1.300 GHz | $8.5 + j 13.5$ | $10.5 - j 6.5$ |
| H = 1.400 GHz | $9.5 + j 10.0$ | $8.0 - j 5.0$ |

TYPICAL COLLECTOR
LOAD IMPEDANCE

$P_{IN} = 5.0 \text{ W}$
 $V_{CC} = 28 \text{ V}$
 $Z_O = 50 \text{ Ohms}$



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