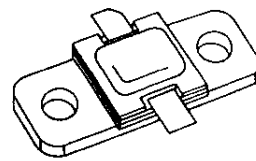


## RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P<sub>OUT</sub> = 5.5 W MIN. WITH 10 dB GAIN



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

**ORDER CODE**

AM81214-6

**BRANDING**

81214-6

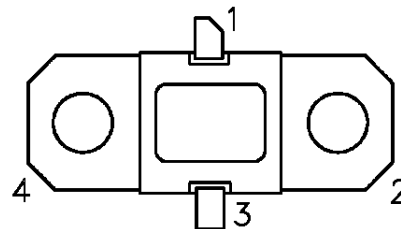
### DESCRIPTION

The AM81214-006 device is a high power Class C transistor specifically designed for L-Band Radar pulsed driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles, and temperatures 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.

AM81214-006 is supplied in the grounded IMPACT™ Hermetic Metal/Ceramic package with internal input/output matching structures.

### PIN CONNECTION



1. Collector

2. Base

3. Emitter

4. Base

### ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)

| Symbol            | Parameter                                   | Value        | Unit |
|-------------------|---|--------------|------|
| P <sub>DISS</sub> | Power Dissipation* (T <sub>C</sub> ≤ 100°C) | 16.7         | W    |
| I <sub>C</sub>    | Device Current*                             | 0.82         | A    |
| V <sub>CC</sub>   | Collector-Supply Voltage*                   | 32           | V    |
| T <sub>J</sub>    | Junction Temperature (Pulsed RF Operation)  | 250          | °C   |
| T <sub>STG</sub>  | Storage Temperature                         | - 65 to +200 | °C   |

### THERMAL DATA

|                      |                                   |     |      |
|----------------------|-----------------------------------|-----|------|
| R <sub>TH(j-c)</sub> | Junction-Case Thermal Resistance* | 9.0 | °C/W |
|----------------------|-----------------------------------|-----|------|

\*Applies only to rated RF amplifier operation

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

## STATIC

| Symbol            | Test Conditions               |                                 | Value |      |      | Unit          |
|-------------------|-------------------------------|---------------------------------|-------|------|------|---------------|
|                   |                               |                                 | Min.  | Typ. | Max. |               |
| $BV_{\text{CBO}}$ | $I_{\text{C}} = 1 \text{ mA}$ | $I_{\text{E}} = 0 \text{ mA}$   | 48    | —    | —    | V             |
| $BV_{\text{CER}}$ | $I_{\text{C}} = 5 \text{ mA}$ | $R_{\text{BE}} = 10\Omega$      | 48    | —    | —    | V             |
| $BV_{\text{EBO}}$ | $I_{\text{E}} = 1 \text{ mA}$ | $I_{\text{C}} = 0 \text{ mA}$   | 3.5   | —    | —    | V             |
| $I_{\text{CES}}$  | $V_{\text{BE}} = 0 \text{ V}$ | $V_{\text{CE}} = 28 \text{ V}$  | —     | —    | 500  | $\mu\text{A}$ |
| $h_{\text{FE}}$   | $V_{\text{CE}} = 5 \text{ V}$ | $I_{\text{C}} = 500 \text{ mA}$ | 15    | —    | 300  | —             |

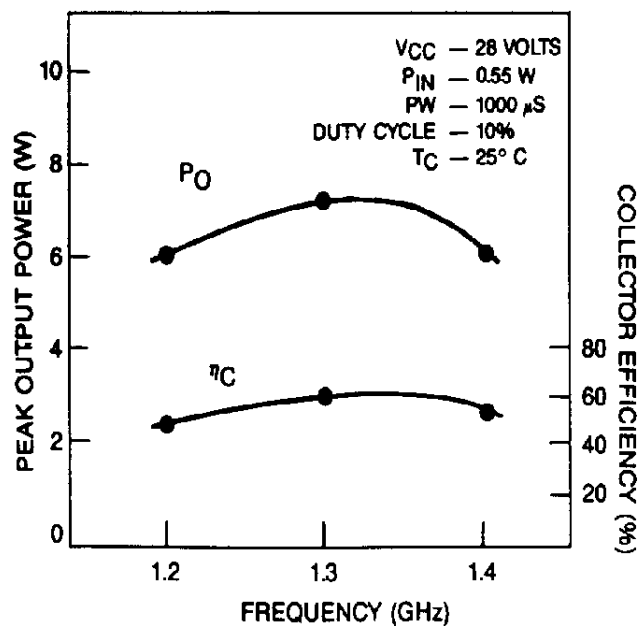
## DYNAMIC

| Symbol            | Test Conditions             |                                 |                                | Value |      |      | Unit |
|-------------------|-----------------------------|---------------------------------|--------------------------------|-------|------|------|------|
|                   |                             |                                 |                                | Min.  | Typ. | Max. |      |
| $P_{\text{OUT}}$  | $f = 1.2 - 1.4 \text{ GHz}$ | $P_{\text{IN}} = 0.5 \text{ W}$ | $V_{\text{CC}} = 28 \text{ V}$ | —     | 5.5  | 6.2  | W    |
| $\eta_{\text{C}}$ | $f = 1.2 - 1.4 \text{ GHz}$ | $P_{\text{IN}} = 0.5 \text{ W}$ | $V_{\text{CC}} = 28 \text{ V}$ | 47    | 52   | —    | %    |
| GP                | $f = 1.2 - 1.4 \text{ GHz}$ | $P_{\text{IN}} = 0.5 \text{ W}$ | $V_{\text{CC}} = 28 \text{ V}$ | 10    | 10.5 | —    | dB   |

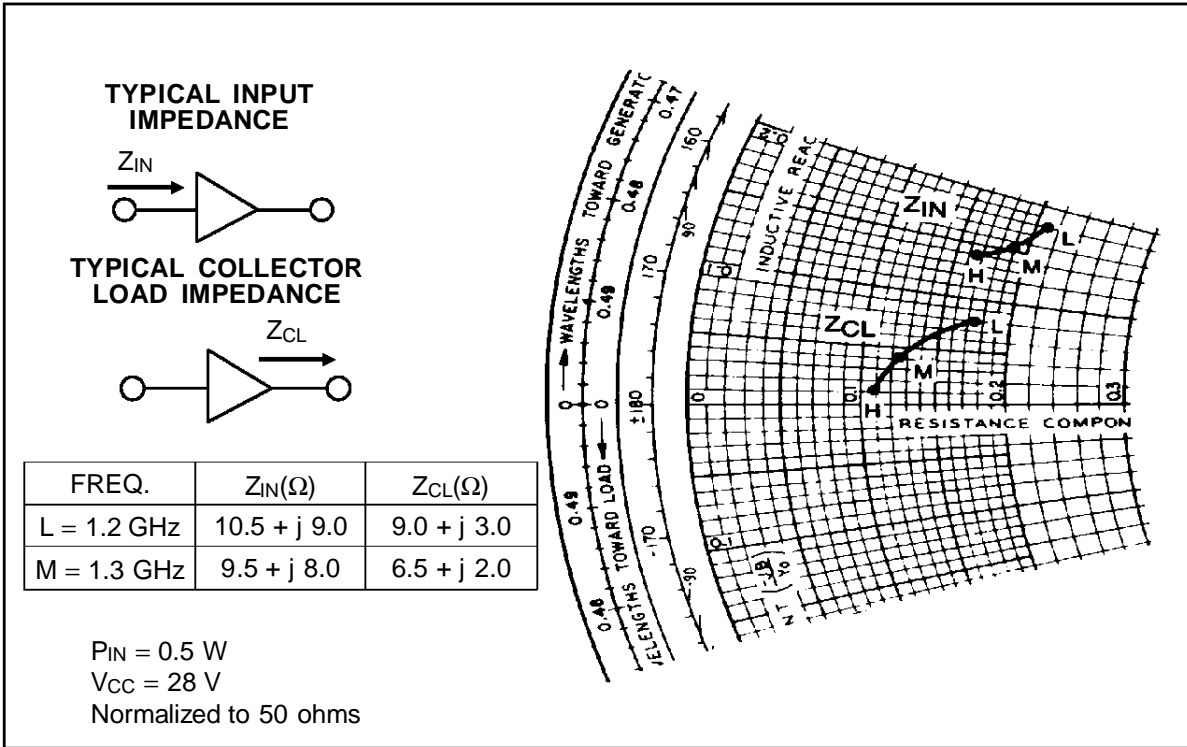
Note: Pulse Width = 1000 $\mu\text{S}$ 

Duty Cycle = 10%

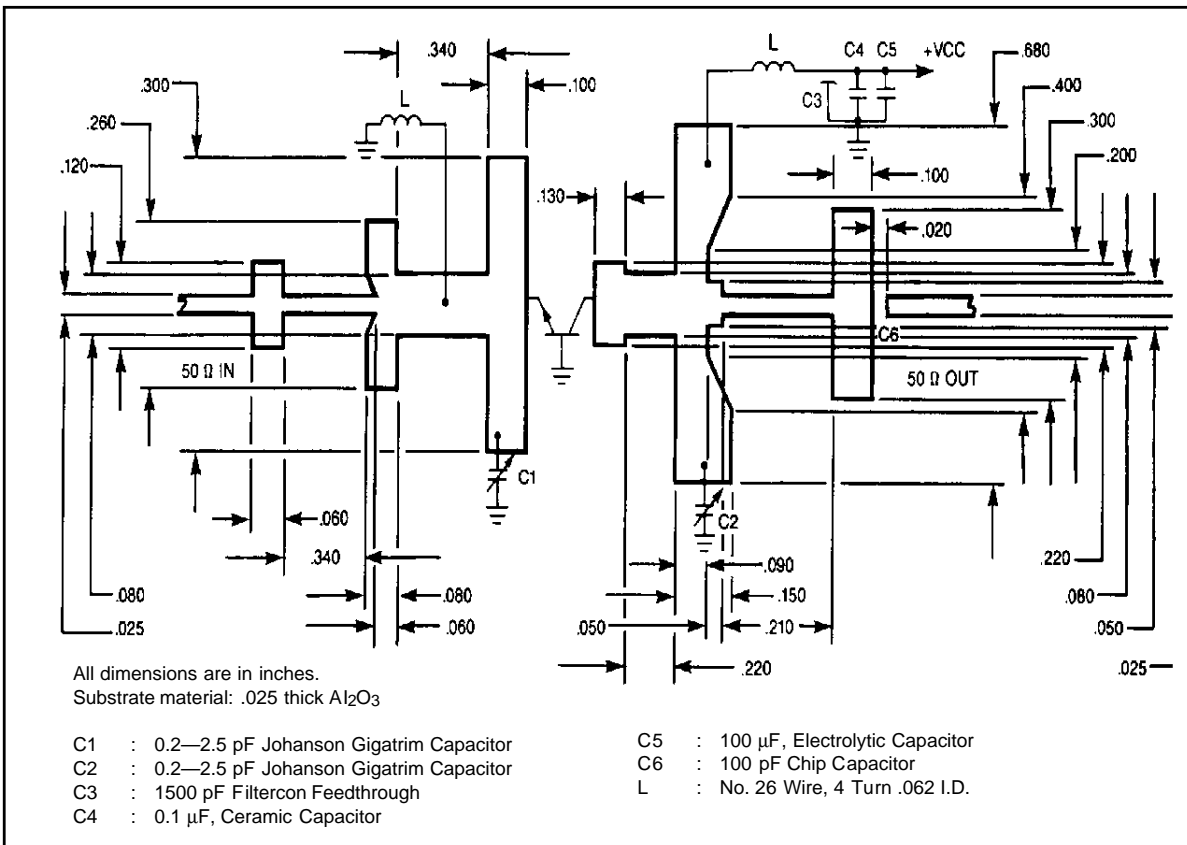
## TYPICAL PERFORMANCE

TYPICAL BROADBAND  
PERFORMANCE

IMPEDANCE DATA

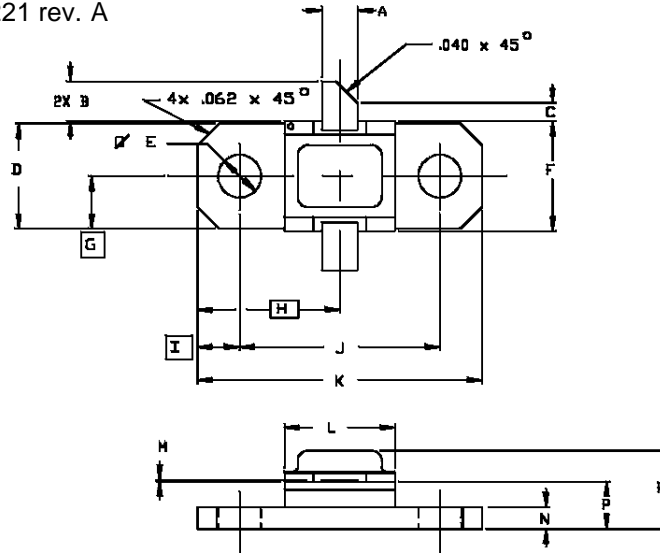


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0221 rev. A



| SGS-THOMSON MICROELECTRONICS |                      | CONT'D               |   |                      |                      |
|------------------------------|----------------------|----------------------|---|----------------------|----------------------|
|                              | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |   | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |
| A                            | .095/2,41            | .105/2,67            | K | .790/20,07           | .810/20,57           |
| B                            | .100/2,54            | .120/3,05            | L | .300/7,62            | .320/8,13            |
| C                            | .050/1,27            |                      | M | .003/0,08            | .006/0,15            |
| D                            | .286/7,26            | .306/7,77            | N | .052/1,32            | .072/1,83            |
| E                            | .110/2,79            | .130/3,30            | P | .118/3,00            | .131/3,33            |
| F                            | .306/7,77            | .318/8,08            | R |                      | .230/5,84            |
| G                            | .148/3,76            |                      |   |                      |                      |
| H                            | .400/10,16           |                      |   |                      |                      |
| I                            | .119/3,02            |                      |   |                      |                      |
| J                            | .352/14,02           | .372/14,53           |   |                      |                      |

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