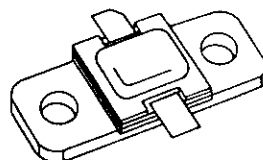


## RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

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



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

**ORDER CODE**

AM81214-030

**BRANDING**

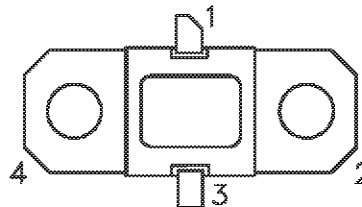
81214-30

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

Symbol	Parameter	Value	Unit
$P_{DISS}$	Power Dissipation* ( $T_C \leq 100^{\circ}\text{C}$ )	63	W
$I_C$	Device Current*	2.75	A
$V_{CC}$	Collector-Supply Voltage*	32	V
$T_J$	Junction Temperature (Pulsed RF Operation)	250	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	- 65 to +200	$^{\circ}\text{C}$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	2.4	$^{\circ}\text{C/W}$
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\*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.	
$BV_{CBO}$	$I_C = 10\text{mA}$	$I_E = 0\text{mA}$	55	—	—	V
$BV_{EBO}$	$I_E = 1\text{mA}$	$I_C = 0\text{mA}$	3.5	—	—	V
$BV_{CER}$	$I_C = 20\text{mA}$	$R_{BE} = 10\Omega$	55	—	—	V
$I_{CES}$	$V_{BE} = 0\text{V}$	$V_{CE} = 28\text{V}$	—	—	5	mA
$h_{FE}$	$V_{CE} = 5\text{V}$	$I_C = 1\text{A}$	15	—	150	—

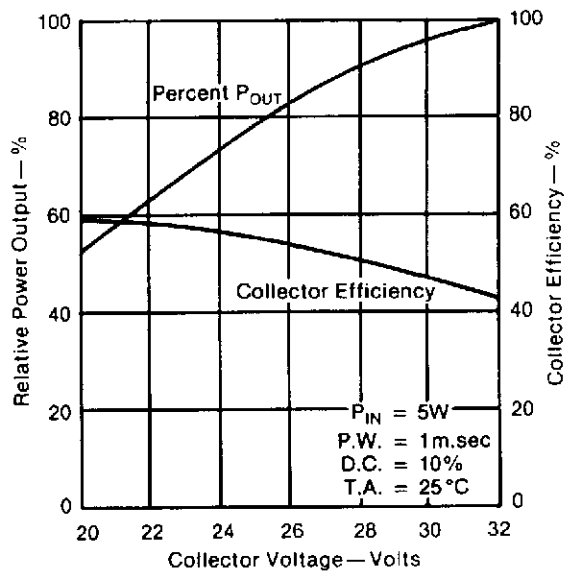
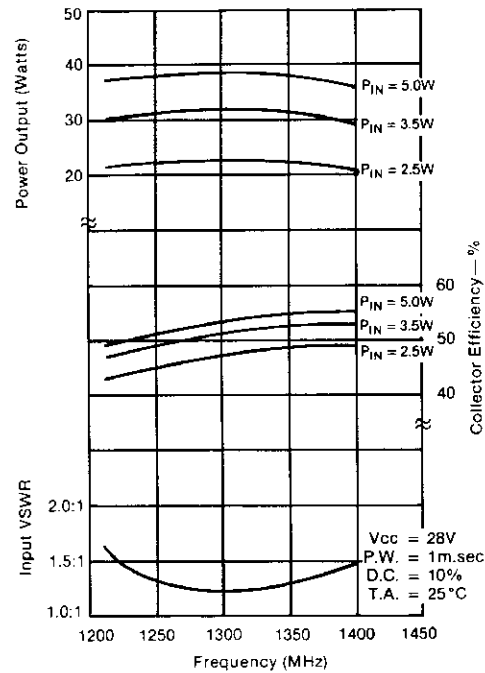
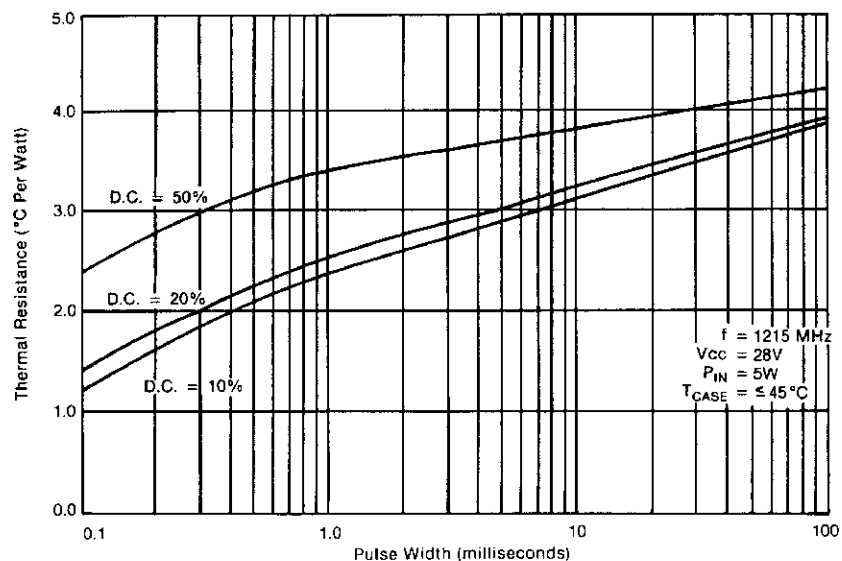
**DYNAMIC**

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

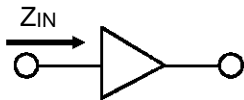
Note: Pulse Width =  $1000\mu\text{S}$ 

Duty Cycle = 10%

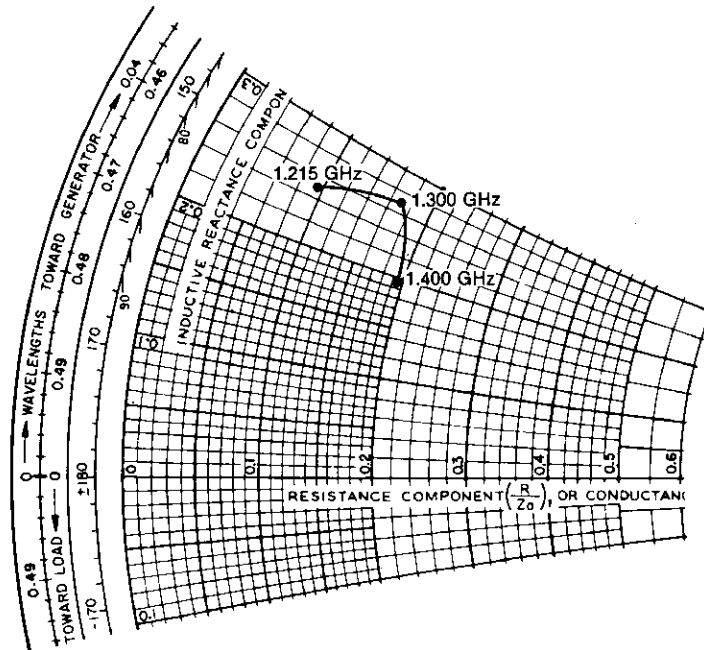
## TYPICAL PERFORMANCE

RELATIVE POWER OUTPUT &  
COLLECTOR EFFICIENCY vs  
COLLECTOR VOLTAGETYPICAL BROADBAND  
POWER AMPLIFIERMAXIMUM THERMAL RESISTANCE  
vs PULSE WIDTH

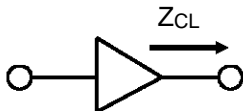
## IMPEDANCE DATA

TYPICAL INPUT  
IMPEDANCE

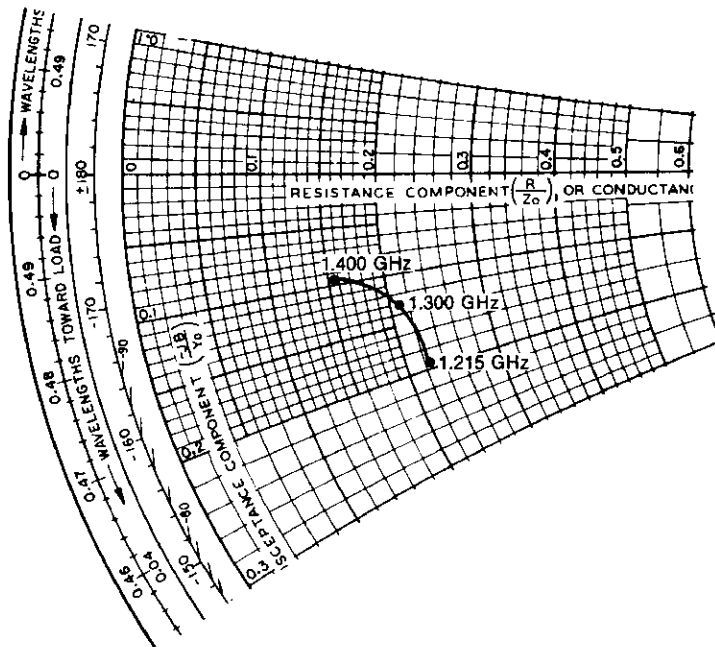
$P_{IN} = 5.0 \text{ W}$   
 $V_{CC} = 28 \text{ V}$   
 $Z_0 = 50 \text{ Ohms}$



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

$P_{IN} = 5.0 \text{ W}$   
 $V_{CC} = 28 \text{ V}$   
 $Z_0 = 50 \text{ Ohms}$





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