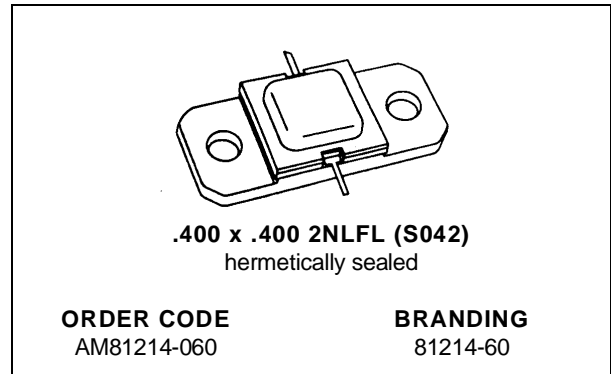


RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- RUGGEDIZED VSWR $\infty:1$
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 55$ W MIN. WITH 6.6 dB GAIN

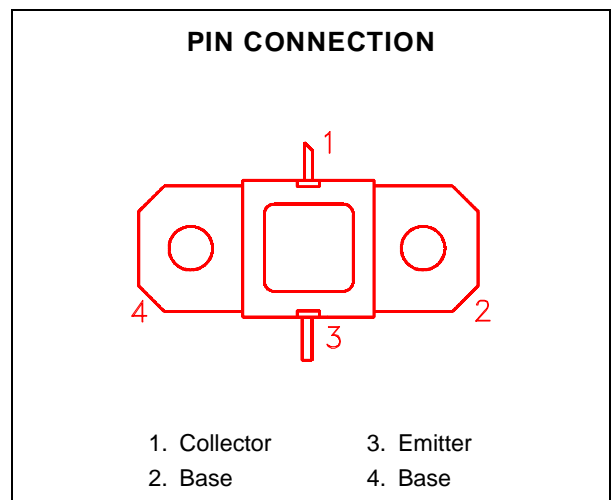


DESCRIPTION

The AM81214-060 device is a high power transistor specifically designed for L-Band radar pulsed output and 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 AM81214-060 is supplied in the AMPAC™ Hermetic Metal/Ceramic package with internal Input/Output matching structures.



ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100^{\circ}C$)	107	W
I_C	Device Current*	5.0	A
V_{CC}	Collector-Supply Voltage*	32	V
T_J	Junction Temperature (Pulsed RF Operation)	250	$^{\circ}C$
T_{STG}	Storage Temperature	- 65 to +200	$^{\circ}C$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	1.4	$^{\circ}C/W$
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*Applies only to rated RF amplifier operation

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

STATIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
BV _{CBO}	I _C = 20mA	I _E = 0mA	55	—	—	V	
BV _{EBO}	I _E = 2mA	I _C = 0mA	3.5	—	—	V	
BV _{CER}	I _C = 40mA	R _{BE} = 10Ω	55	—	—	V	
I _{CES}	V _{BE} = 0V	V _{CE} = 28V	—	—	10	mA	
h _{FE}	V _{CE} = 5V	I _C = 2A	15	—	150	—	

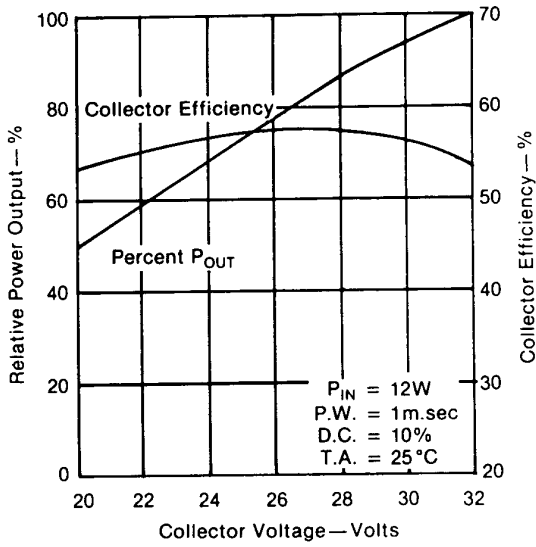
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 1215 — 1400MHz	P _{IN} = 12W	V _{CC} = 28V	55	63	—	W
η _C	f = 1215 — 1400MHz	P _{IN} = 12W	V _{CC} = 28V	50	57	—	%
G _P	f = 1215 — 1400MHz	P _{IN} = 12W	V _{CC} = 28V	6.6	7.2	—	dB

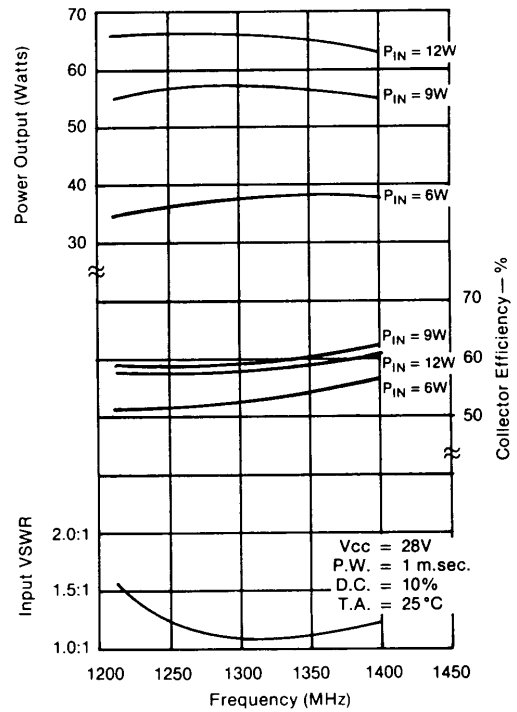
Note: Pulse Width = 1000μS
Duty Cycle = 10%

TYPICAL PERFORMANCE

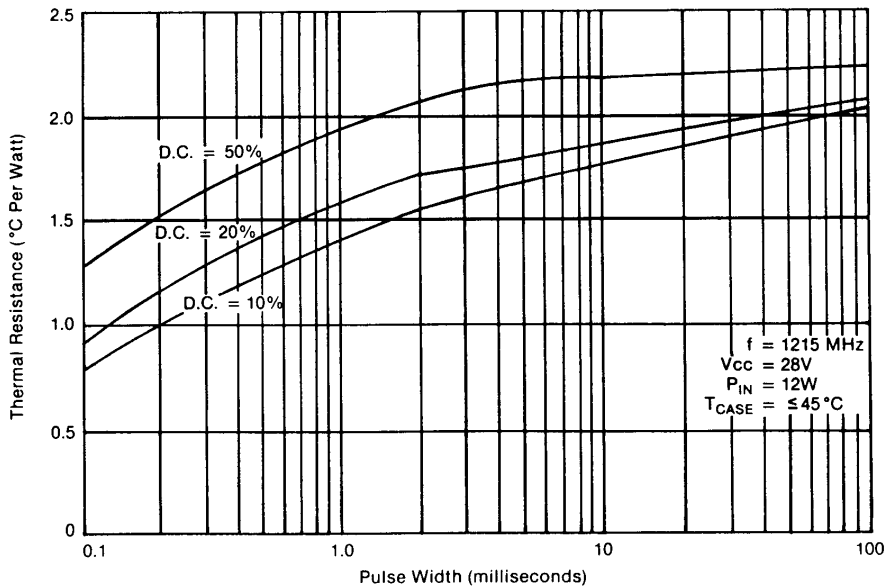
RELATIVE POWER OUTPUT & COLLECTOR EFFICIENCY vs COLLECTOR VOLTAGE



TYPICAL BROADBAND POWER AMPLIFIER

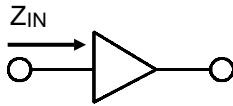


MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH

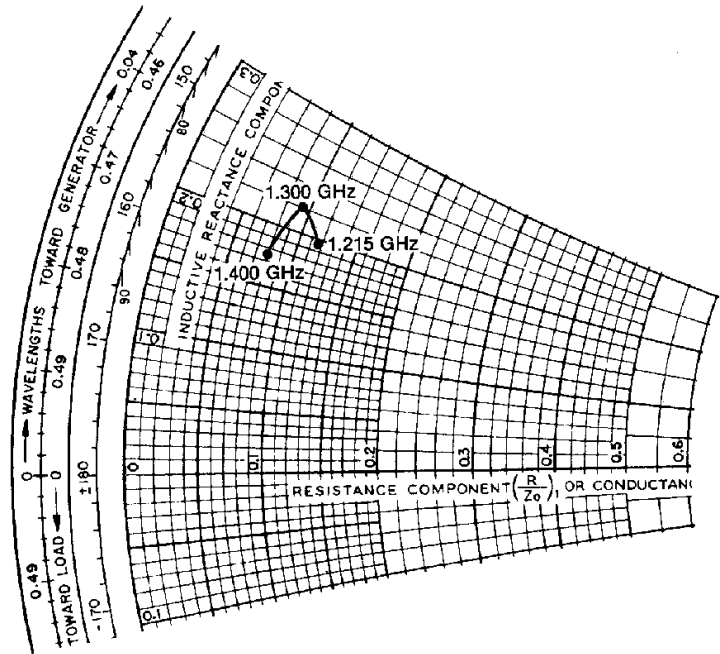


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

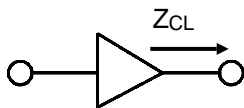


$P_{IN} = 12.0\text{ W}$
 $V_{CC} = 28\text{ V}$
 $Z_0 = 50\text{ ohms}$

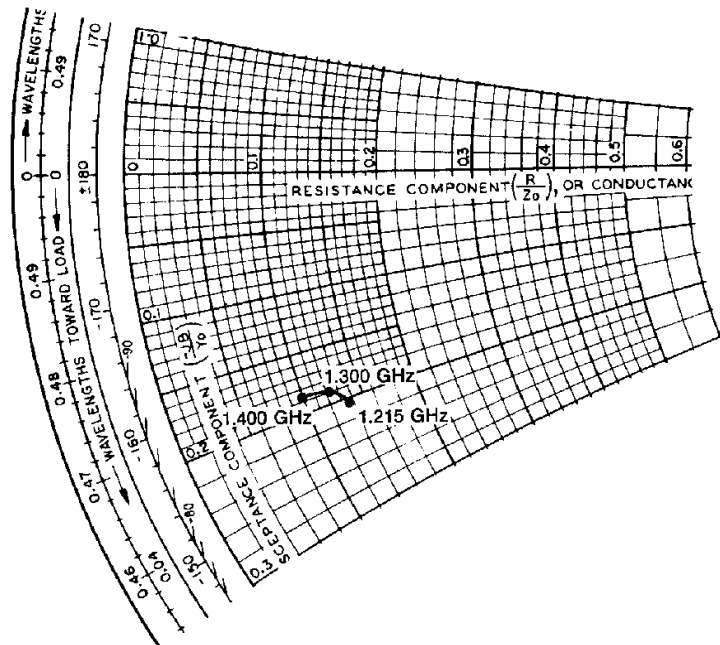


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1.2 GHz	$6.0 + j 10.0$	$7.0 - j 10.0$
M = 1.3 GHz	$4.5 + j 11.0$	$6.0 - j 9.5$
H = 1.4 GHz	$4.0 + j 9.0$	$5.0 - j 9.0$

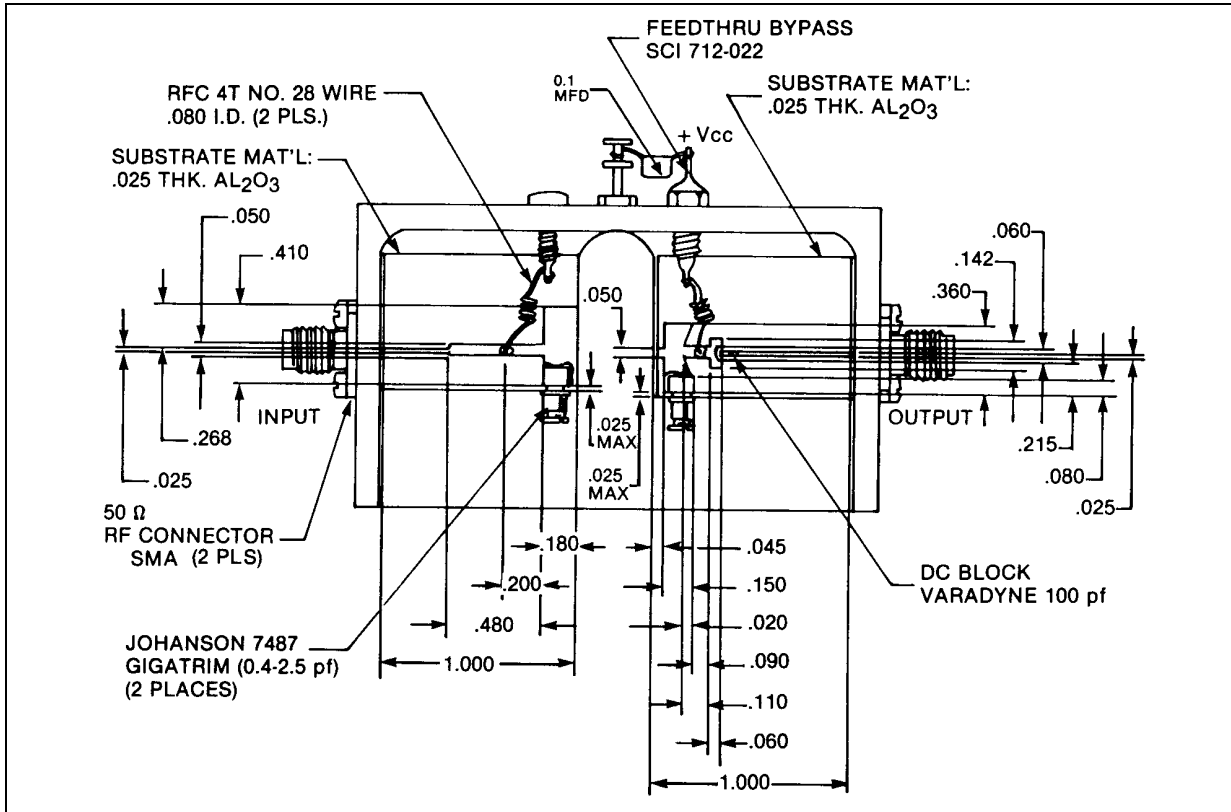
TYPICAL COLLECTOR LOAD IMPEDANCE



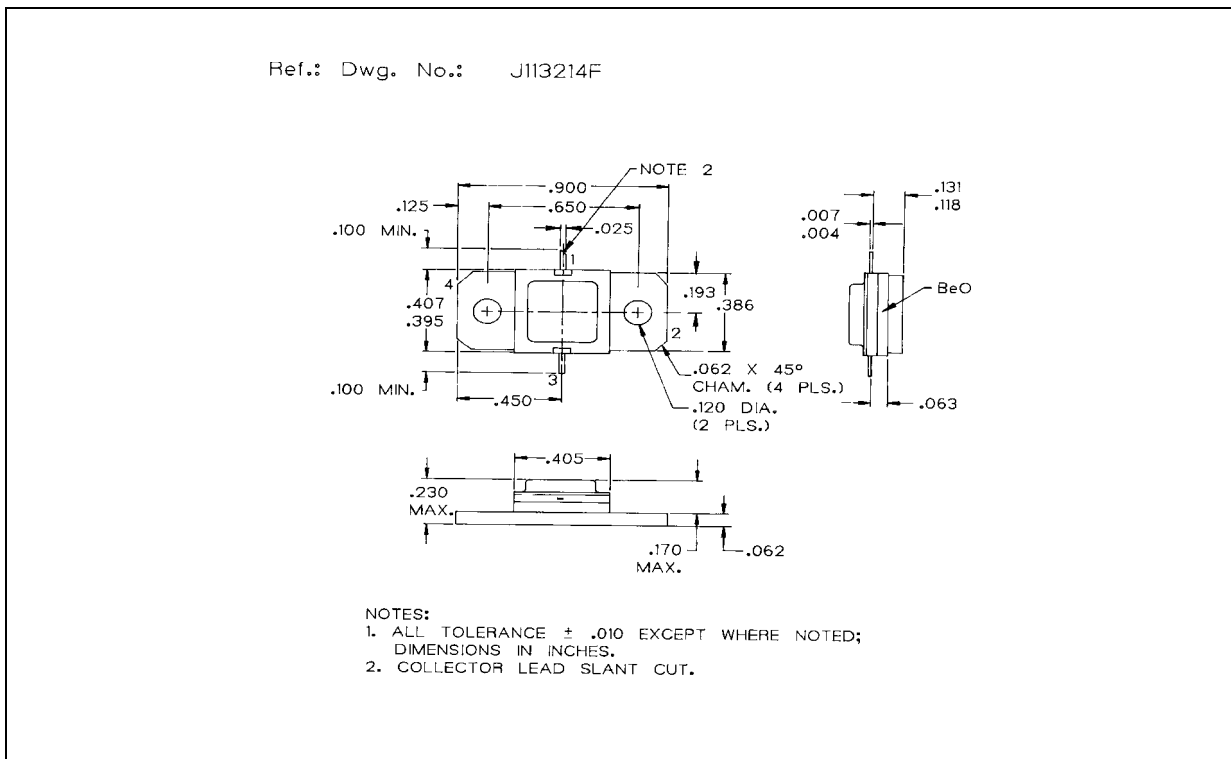
$P_{IN} = 12.0\text{ W}$
 $V_{CC} = 28\text{ V}$
 $Z_0 = 50\text{ ohms}$



TEST CIRCUIT



PACKAGE MECHANICAL DATA



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