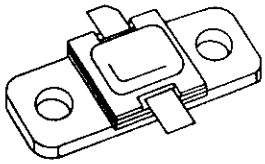
SGS-THOMSON MICROELECTRONICS

AM81214-030

RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- RUGGEDIZED VSWR ∞: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	BRANDING
AM81214-030	81214-30

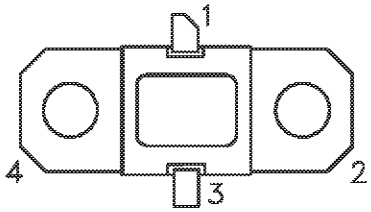
DESCRIPTION

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 ∞: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
2. Base
3. Emitter
4. Base

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100°C$)	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

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 10mA	I_E = 0mA	55	—	—	V
BV_{EBO}	I_E = 1mA	I_C = 0mA	3.5	—	—	V
BV_{CER}	IC = 20mA	R_{BE} = 10Ω	55	—	—	V
I_{CES}	V_{BE} = 0V	V_{CE} = 28V	—	—	5	mA
h_{FE}	V_{CE} = 5V	I_C = 1A	15	—	150	—

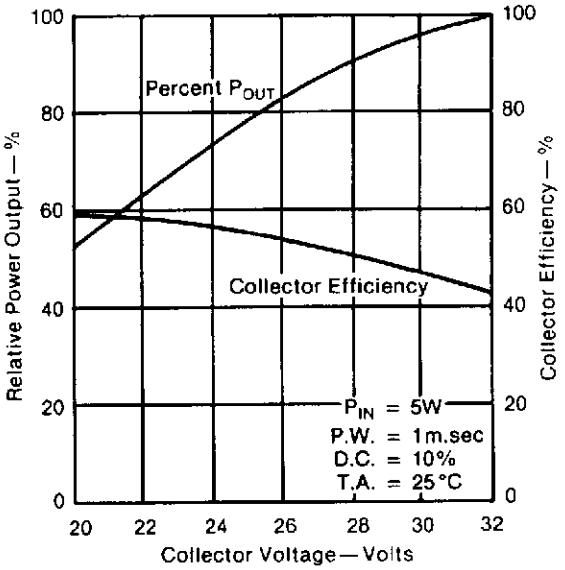
DYNAMIC

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

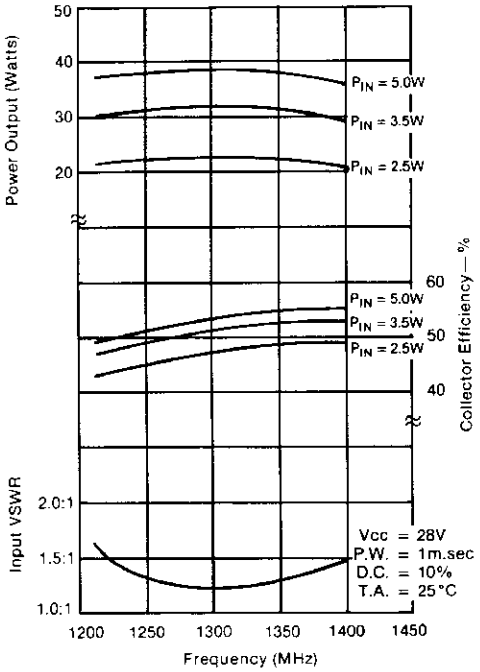
Note: Pulse Width = 1000µS
Duty Cycle = 10%

TYPICAL PERFORMANCE

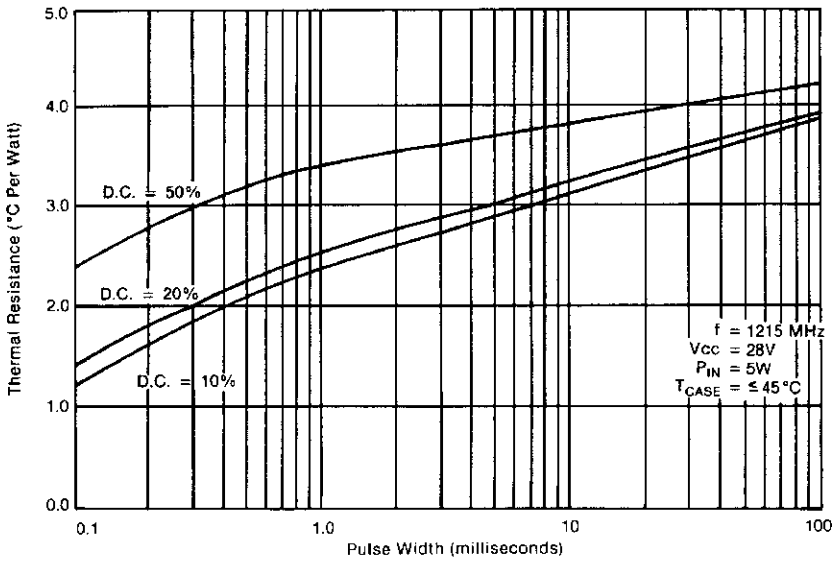
RELATIVE POWER OUTPUT & COLLECTOR EFFICIENCY vs COLLECTOR VOLTAGE



TYPICAL BROADBAND POWER AMPLIFIER

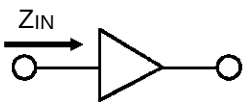


MAXIMUM THERMAL RESISTANCE vs PULSE WIDTH

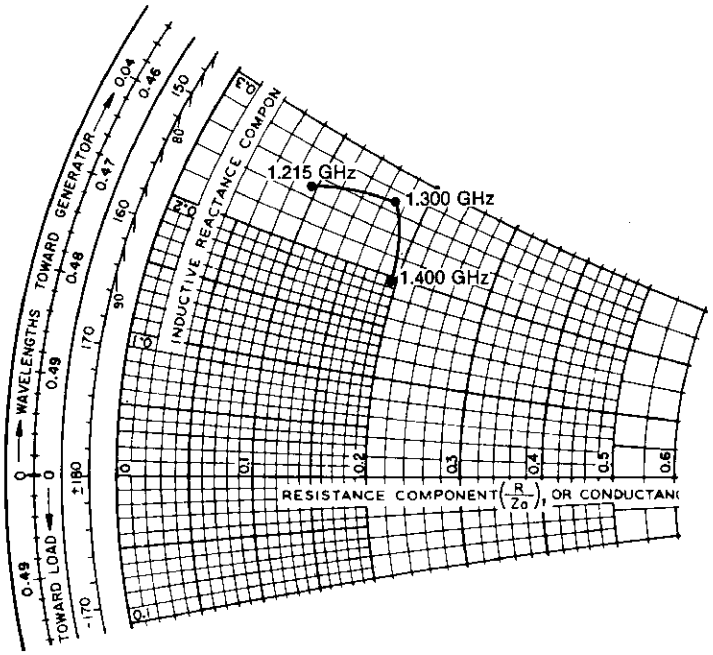


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

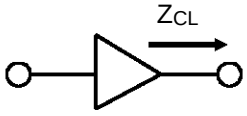


P_{IN} = 5.0 W
V_{CC} = 28 V
Z_O = 50 Ohms

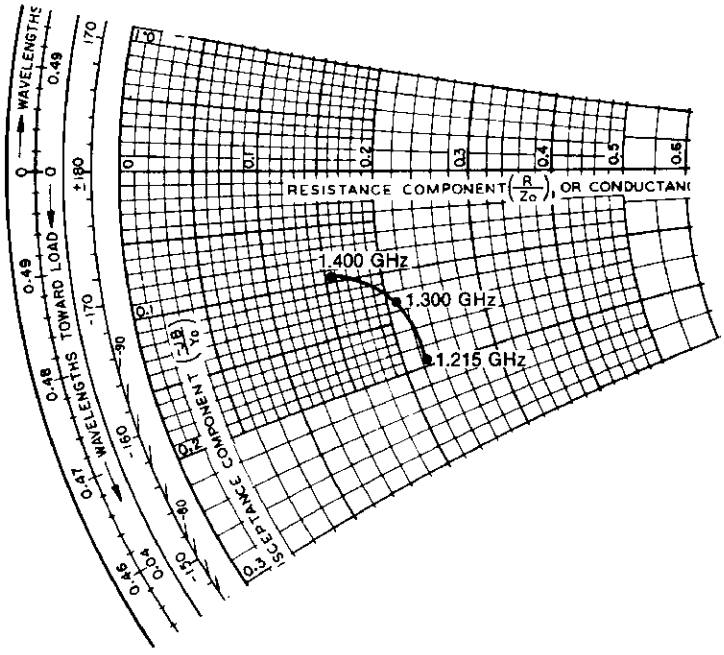


FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 1.215 GHz	4.5 + j 12.5	11.0 – j 10.0
M = 1.300 GHz	8.5 + j 13.5	10.5 – j 6.5
H = 1.400 GHz	9.5 + j 10.0	8.0 – j 5.0

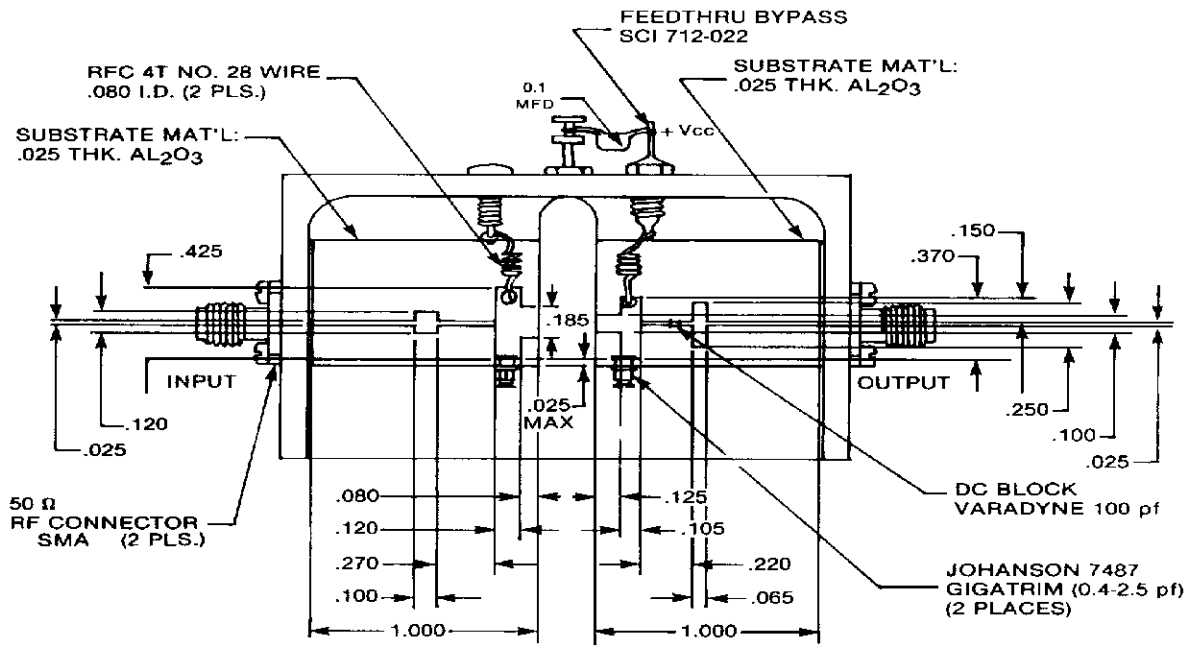
TYPICAL COLLECTOR LOAD IMPEDANCE



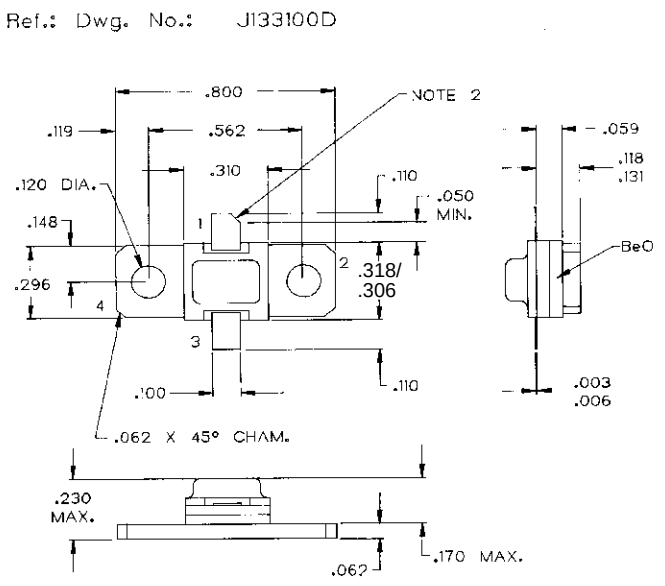
P_{IN} = 5.0 W
V_{CC} = 28 V
Z_O = 50 Ohms



TEST CIRCUIT



PACKAGE MECHANICAL DATA



NOTES:
1. ALL TOLERANCE ± .010 EXCEPT WHERE NOTED; DIMENSIONS IN INCHES.
2. COLLECTOR LEAD CHAMFER 45° NOM. X .040 NOM.