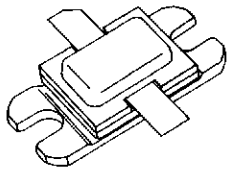
SGS-THOMSON MICROELECTRONICS

AM1214-325

RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

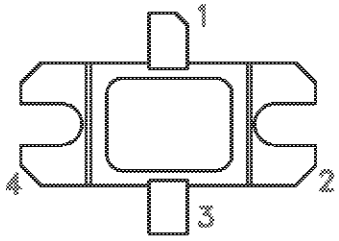
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 325 W MIN. WITH 6.4 dB GAIN



.400 x .500 2LFL (S038)
hermetically sealed

ORDER CODE	BRANDING
AM1214-325	1214-325

PIN CONNECTION



1. Collector
2. Base
3. Emitter
4. Base

DESCRIPTION

The AM1214-325 device is a high power transistor specifically designed for L-Band radar pulsed output and driver applications.

This device is designed for operation under moderate pulse width and duty cycle pulse conditions and is capable of withstanding 5:1 VSWR at rated RF conditions. Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The AM1214-325 is supplied in the BIGPAC™ Hermetic Metal/Ceramic package with internal Input/Output matching structures.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100°C$)	1250	W
I_C	Device Current*	25	A
V_{CC}	Collector-Supply Voltage*	45	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*	0.10	°C/W

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 50mA	I_E = 0mA	65	—	—	V
BV_{EBO}	I_E = 15mA	I_C = 0mA	3.0	—	—	V
BV_{CES}	IC = 50mA		65	—	—	V
I_{CES}	V_{CE} = 50V		—	—	30	mA
h_{FE}	V_{CE} = 5V	I_C = 5A	10	—	—	—

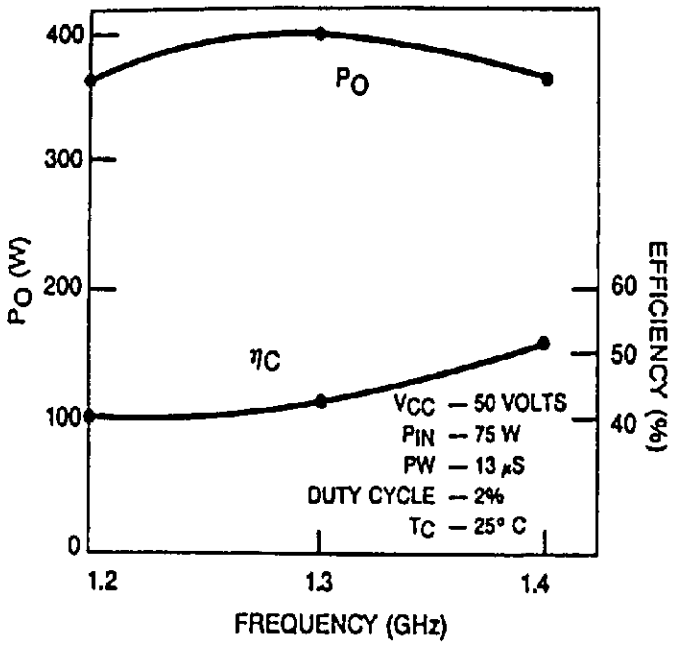
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1200 — 1400MHz	P_{IN} = 75W	V_{CC} = 45V	325	360	—	W
ηc	f = 1200 — 1400MHz	P_{IN} = 75W	V_{CC} = 45V	38	45	—	%
G_P	f = 1200 — 1400MHz	P_{IN} = 75W	V_{CC} = 45V	6.4	6.8	—	dB

Note: Pulse Width = 13µSec
Duty Cycle = 2%

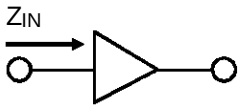
TYPICAL PERFORMANCE

POWER OUTPUT & EFFICIENCY vs FREQUENCY

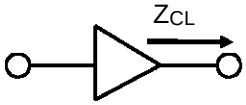


IMPEDANCE DATA

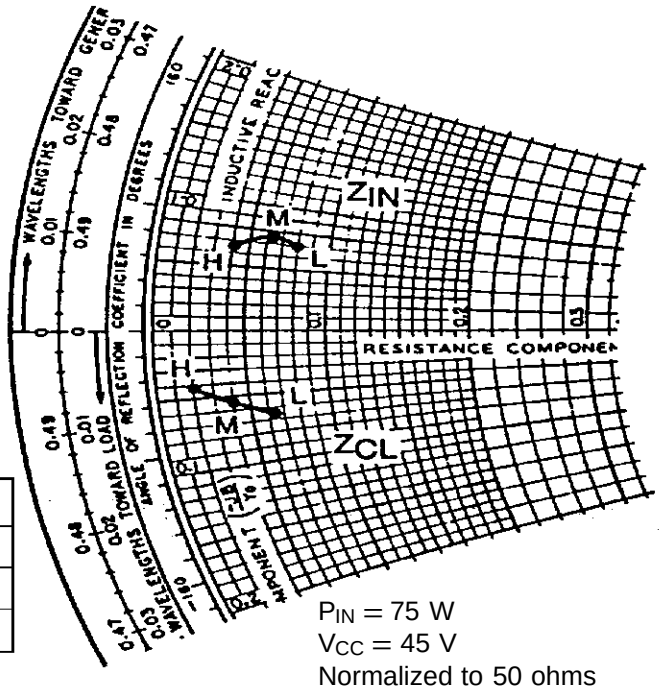
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

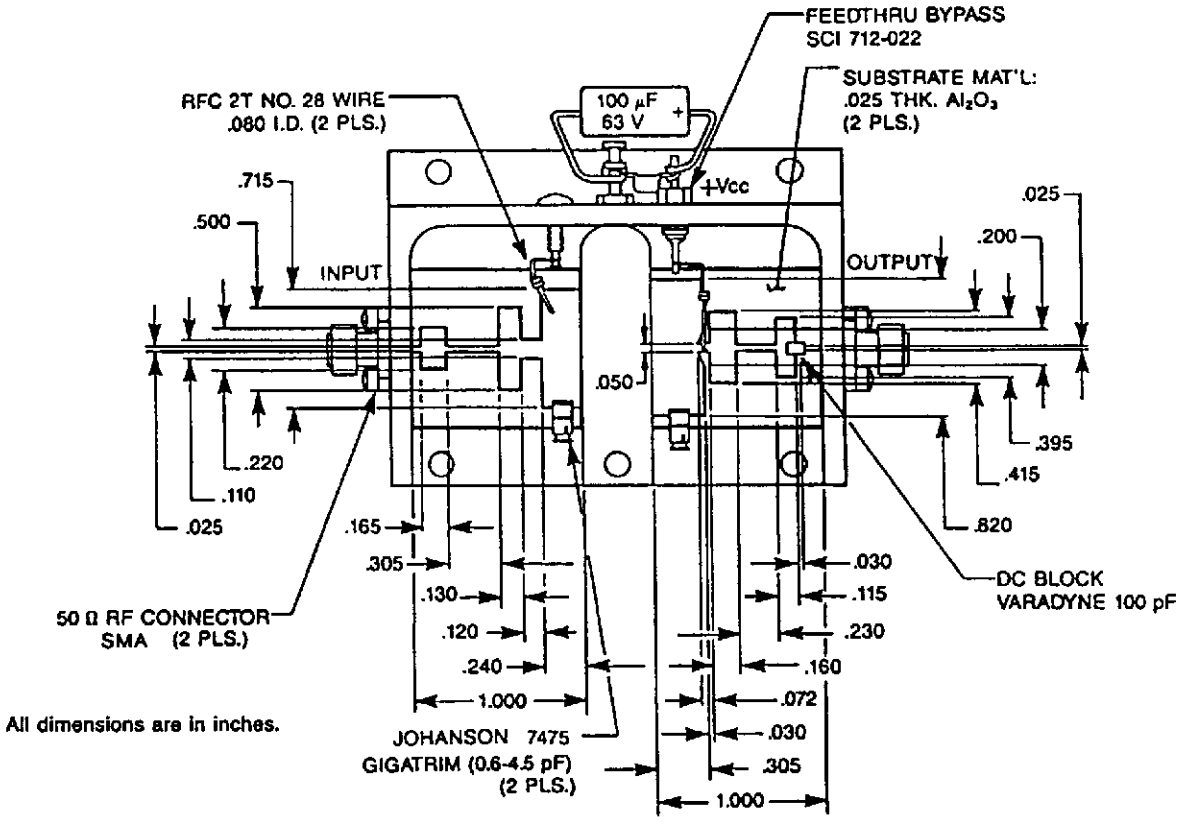


FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 1.2 GHz	4.0 + j 3.5	3.0 – j 3.0
M = 1.3 GHz	3.0 + j 4.0	2.0 – j 2.5
H = 1.4 GHz	2.0 + j 3.5	1.0 – j 2.0



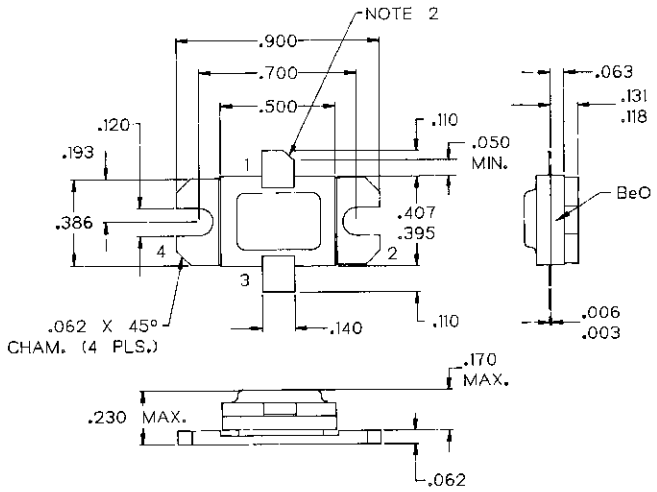
P_{IN} = 75 W
V_{CC} = 45 V
Normalized to 50 ohms

TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135066F



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