

RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

PRELIMINARY DATA

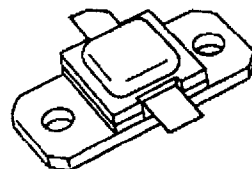
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 180 \text{ W MIN. WITH } 6.5 \text{ dB GAIN}$

DESCRIPTION

The AM1416-200 device is a high power silicon bipolar NPN transistor specifically designed for L-Band radar pulsed output and driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles, and temperatures and can withstand a 3:1 output VSWR with a +1 dB input overdrive. Low RF thermal resistance, refractory/gold metallization, and automatic wire bonding techniques ensure high reliability and product consistency (including phase characteristics).

The AM1416-200 is supplied in the hermetic metal/ceramic package with internal input/output impedance matching circuitry, and is intended for military and other high reliability applications.



.400 X .400 2LFL (S036)

hermetically sealed

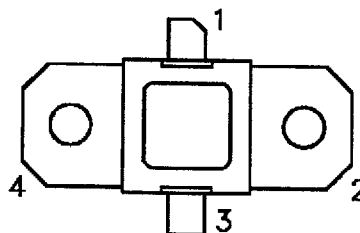
ORDER CODE

AM1416-200

BRANDING

1416-200

PIN CONNECTION



1. Collector

2. Base

3. Emitter

4. Base

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 125^{\circ}\text{C}$)	625	W
I_C	Device Current*	12	A
V_{CC}	Collector-Supply Voltage*	55	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*	0.2	$^{\circ}\text{C/W}$
---------------	-----------------------------------	-----	----------------------

*Applies only to rated RF amplifier operation

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

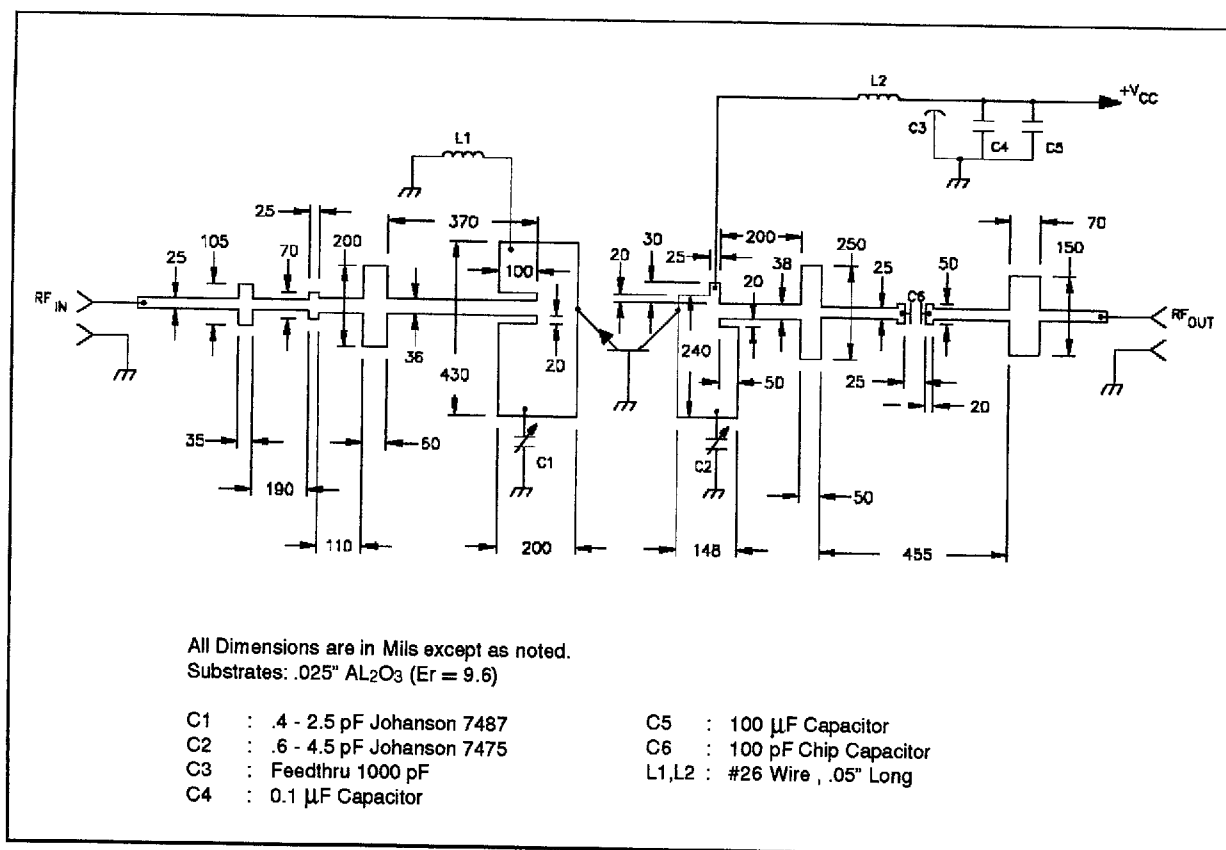
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 25\text{ mA}$ $I_E = 0\text{ mA}$	65	—	—	V
BV_{EBO}	$I_E = 10\text{ mA}$ $I_C = 0\text{ mA}$	3.5	—	—	V
BV_{CER}	$I_C = 25\text{ mA}$ $R_{BE} = 10\ \Omega$	65	—	—	V
I_{CES}	$V_{BE} = 0\text{ V}$ $V_{CE} = 50\text{ V}$	—	—	15	mA
h_{FE}	$V_{CE} = 5\text{ V}$ $I_C = 2.5\text{ A}$	10	—	—	—

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 1400 - 1550\text{ MHz}$ $P_{IN} = 40\text{ W}$ $V_{CC} = 50\text{ V}$	180	—	—	W
η_c	$f = 1400 - 1550\text{ MHz}$ $P_{IN} = 40\text{ W}$ $V_{CC} = 50\text{ V}$	40	—	—	%
P_G	$f = 1400 - 1550\text{ MHz}$ $P_{IN} = 40\text{ W}$ $V_{CC} = 50\text{ V}$	6.5	—	—	dB

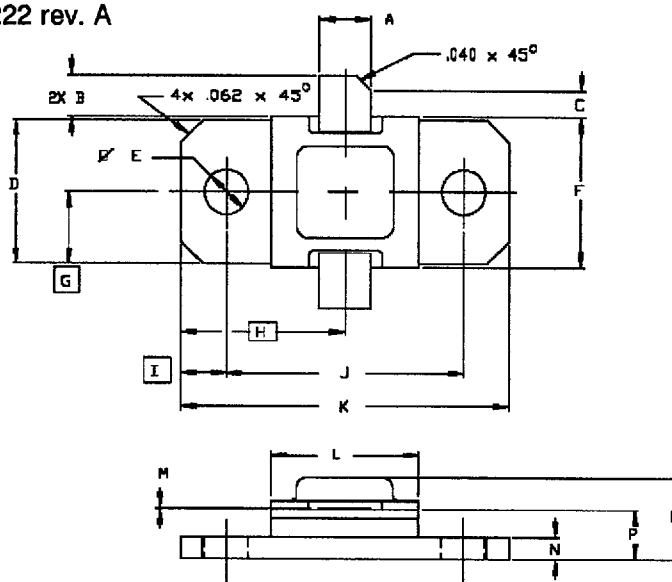
Note: Pulse Width = $10\mu\text{Sec}$

Duty Cycle = 10%

TEST CIRCUIT

PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0222 rev. A



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.135/3,43	.145/3,68
B	.100/2,54	.120/3,05
C	.050/1,27	
D	.376/9,55	.396/10,06
E	.110/2,79	.130/3,30
F	.395/10,03	.407/10,34
G	.193/4,90	
H	.450/11,43	
I	.125/3,18	
J	.640/16,26	.660/16,76

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.890/22,61	.910/23,11
L	.395/10,03	.415/10,54
M	.003/0,08	.005/0,15
N	.052/1,32	.072/1,83
P	.118/3,00	.131/3,33
R		.230/5,84

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

©1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.