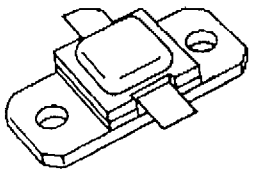
SGS-THOMSON MICROELECTRONICS

AM81416-020

RF & MICROWAVE TRANSISTORS COMMUNICATIONS APPLICATIONS

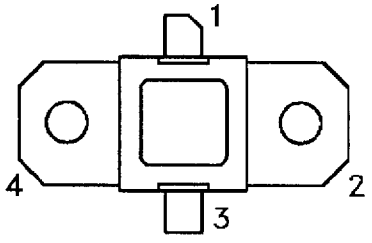
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 17.6 W MIN. WITH 6.4 dB GAIN



.400 x .400 2LFL (S036)
hermetically sealed

ORDER CODE	BRANDING
AM81416-020	81416-20

PIN CONNECTION



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

DESCRIPTION

The AM81416-020 is a common base, silicon NPN bipolar device optimized for Class C, CW operation in the 1400 - 1600 MHz frequency range.

AM81416-020 utilizes a rugged, emitter-ballasted die geometry to achieve high gain and efficiency and is suitable for driver or output stages in Class C power amplifiers.

The AM81416-020 is provided in the industry-standard AMPAC™ metal/ceramic, hermetic pack-

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 50°C$)	50	W
I_C	Device Current*	2.8	A
V_{CC}	Collector-Supply Voltage*	22	V
T_J	Junction Temperature	200	°C
T_{STG}	Storage Temperature	– 65 to +200	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	3.0	°C/W

*Applies only to rated RF amplifier operation

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

STATIC

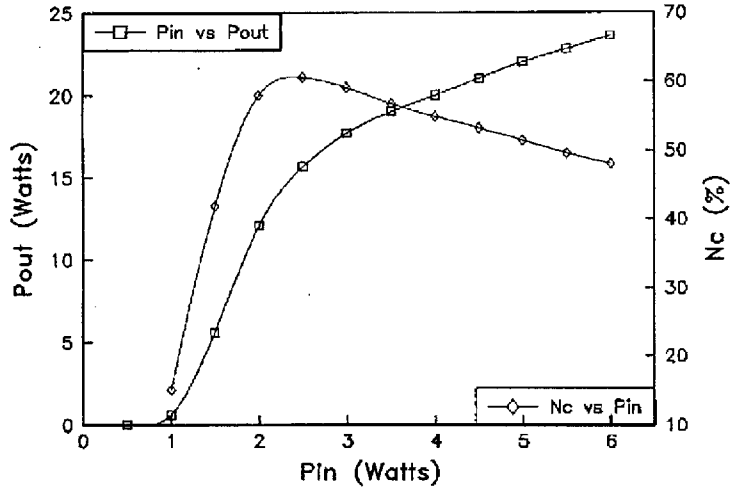
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 5mA	I_E = 0mA	45	—	—	V
BV_{EBO}	I_E = 1mA	I_C = 0mA	3.0	—	—	V
I_{CBO}	V_{CB} = 20V		—	—	2.0	mA
h_{FE}	V_{CE} = 5V	I_C = 2A	15	—	150	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1400 — 1600MHz	P_{IN} = 4.0W	V_{CC} = 20V	17.6	—	—	W
η_C	f = 1400 — 1600MHz	P_{IN} = 4.0W	V_{CC} = 20V	45	—	—	%
G_P	f = 1400 — 1600MHz	P_{IN} = 4.0W	V_{CC} = 20V	6.4	—	—	dB

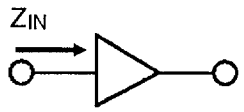
TYPICAL PERFORMANCE

POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT

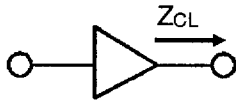


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

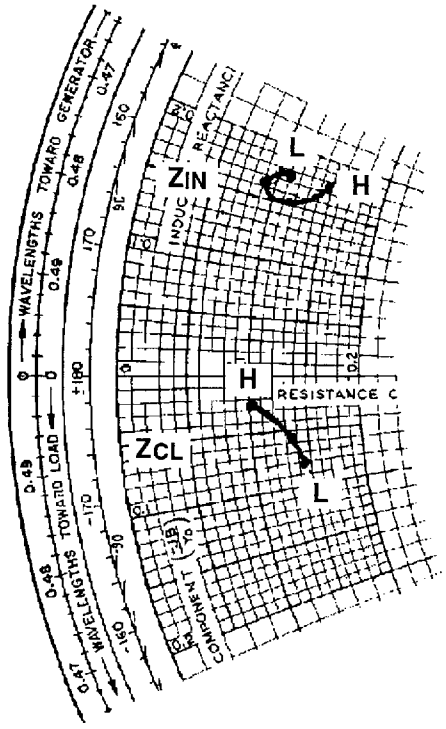


TYPICAL COLLECTOR LOAD IMPEDANCE

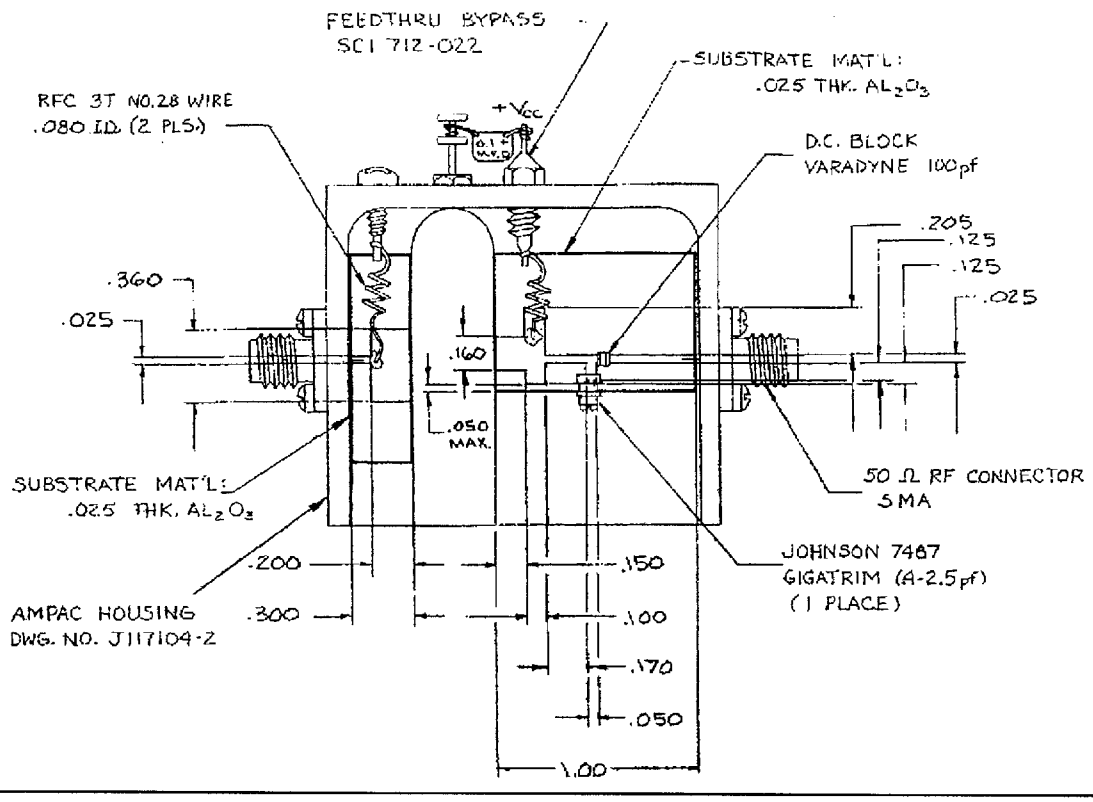


FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 1.4 GHz	5.5 + j 8.8	7.0 – j 4.0
M = 1.5 GHz	4.6 + j 8.3	6.8 – j 2.8
H = 1.6 GHz	7.4 + j 8.9	5.1 – j 1.3

P_{IN} = 4.0W
V_{CC} = 20V
Normalized to 50 ohms

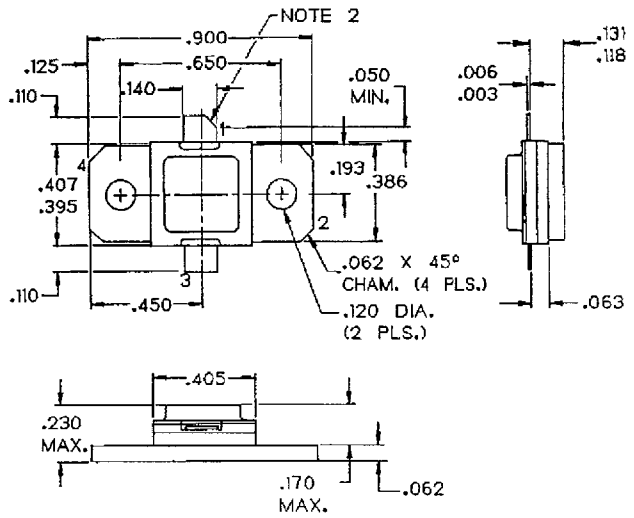


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J133102E



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