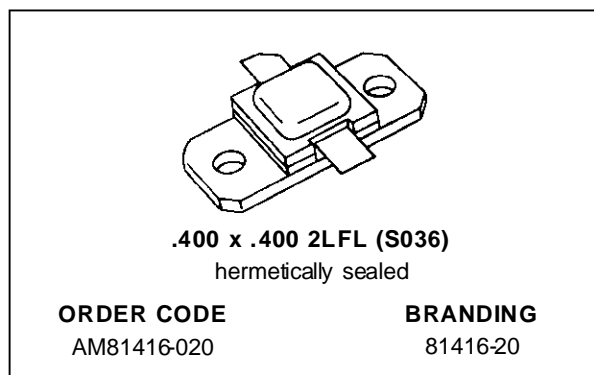


RF & MICROWAVE TRANSISTORS COMMUNICATIONS APPLICATIONS

- 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

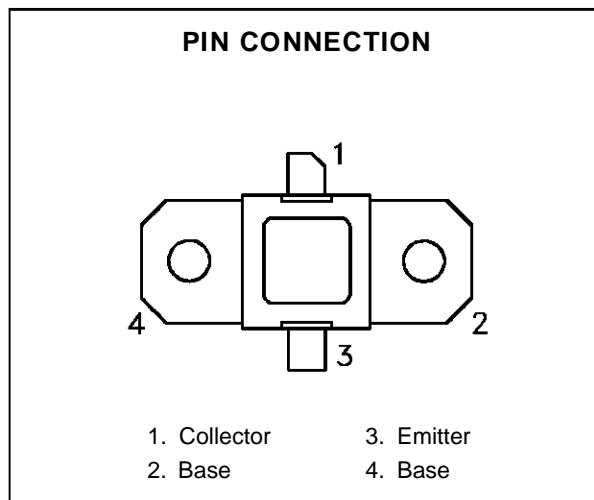


DESCRIPTION

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 ≤ 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
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*Applies only to rated RF amplifier operation

AM81416-020

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

STATIC

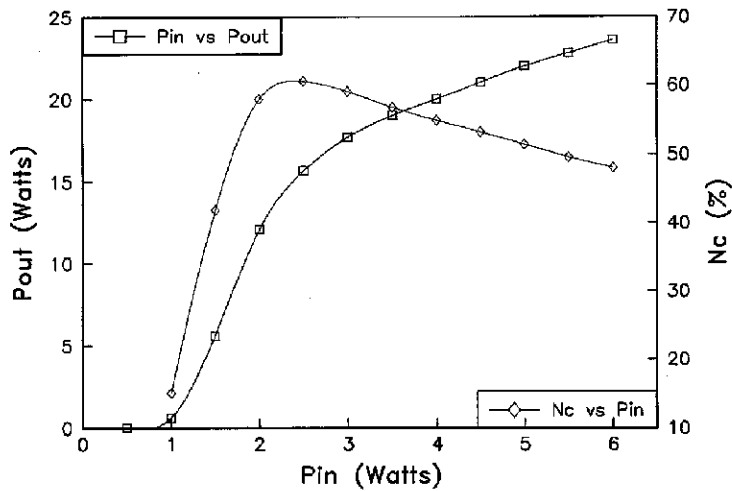
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{CBO}	I _C = 5mA	I _E = 0mA	45	—	—	V
BV _{EBO}	I _E = 1mA	I _C = 0mA	3.0	—	—	V
I _{CBO}	V _{CB} = 20V		—	—	2.0	mA
h _{FE}	V _{CE} = 5V	I _C = 2A	15	—	150	—

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

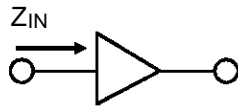
TYPICAL PERFORMANCE

POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT

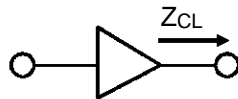


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

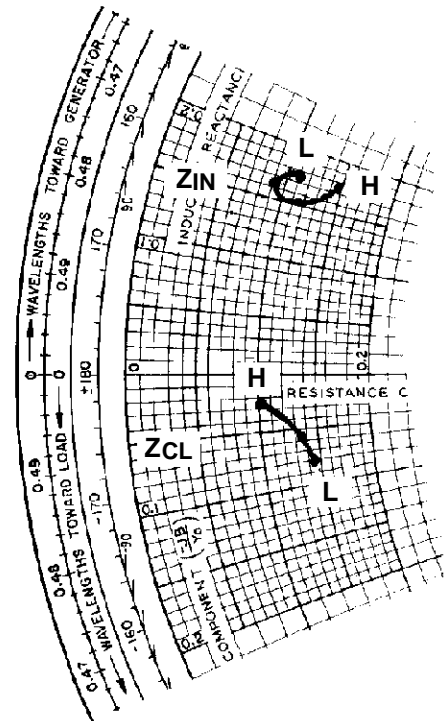


TYPICAL COLLECTOR LOAD IMPEDANCE

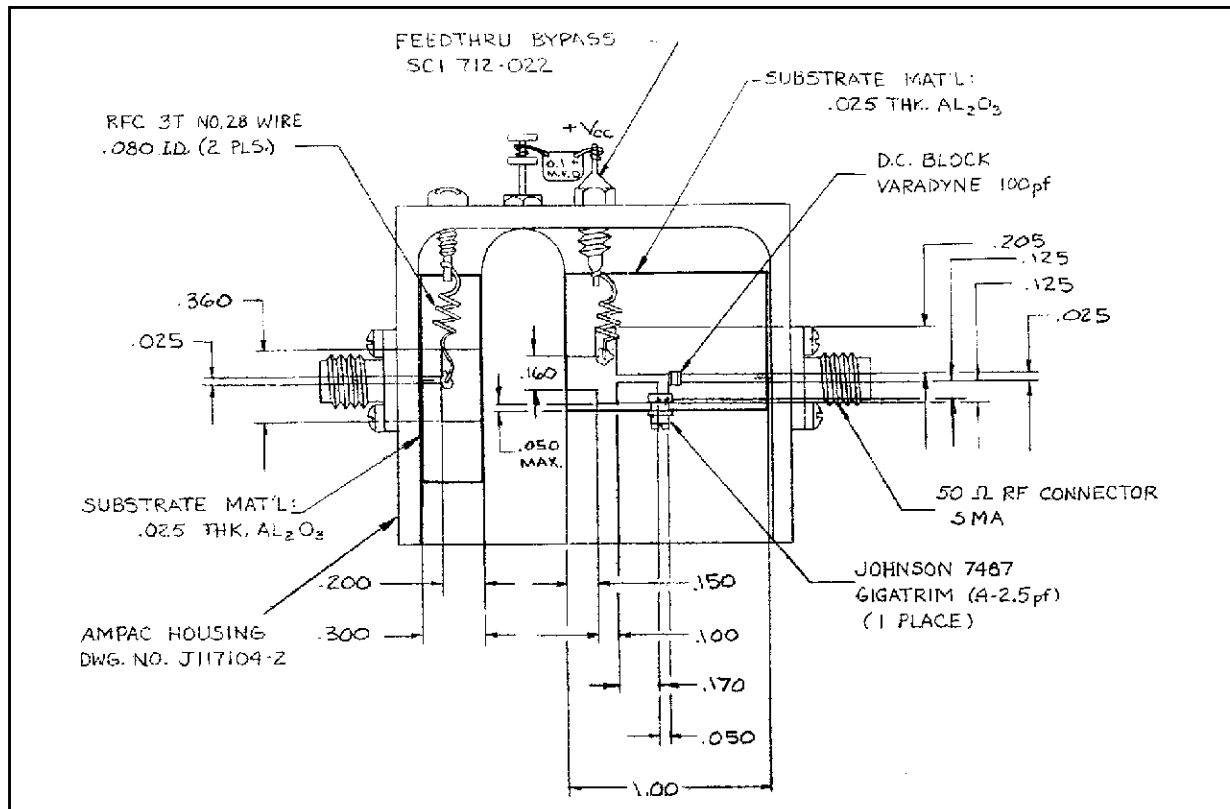


FREQ.	Z _{IN} (Ω)	Z _{CL} (Ω)
L = 1.4 GHz	5.5 + j 8.8	7.0 - j 4.0
M = 1.5 GHz	4.6 + j 8.3	6.8 - j 2.8
H = 1.6 GHz	7.4 + j 8.9	5.1 - j 1.3

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

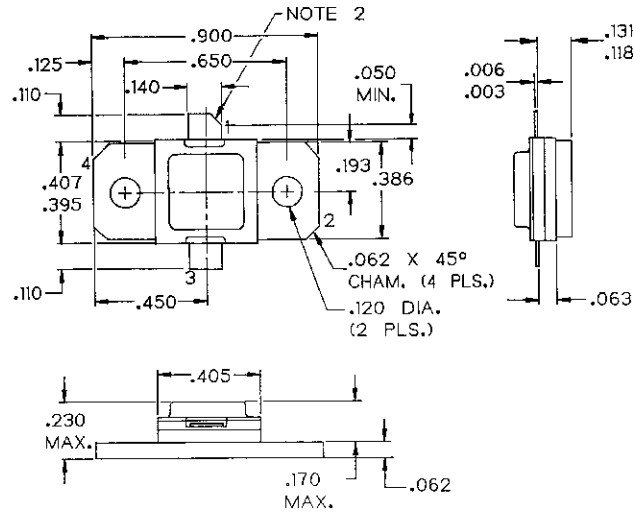


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J133102E



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

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