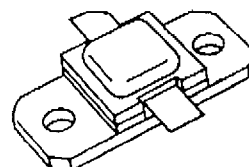


RF & MICROWAVE TRANSISTORS COMMUNICATIONS APPLICATIONS

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



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

ORDER CODE
AM81416-020

BRANDING
81416-20

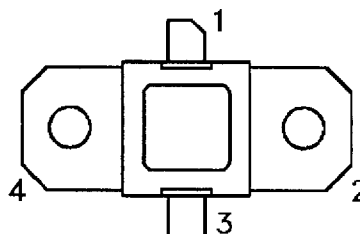
DESCRIPTION

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-

PIN CONNECTION



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

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

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

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	3.0	$^{\circ}\text{C/W}$
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*Applies only to rated RF amplifier operation

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

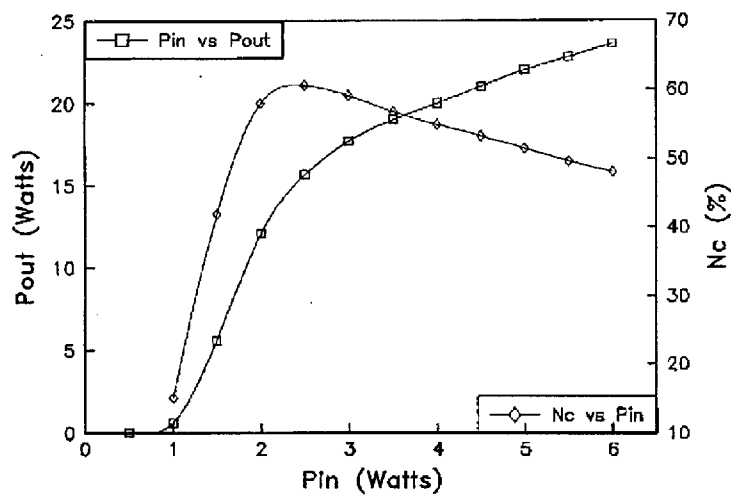
STATIC

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

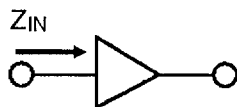
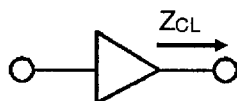
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 1400 - 1600\text{MHz}$ $P_{\text{IN}} = 4.0\text{W}$ $V_{\text{CC}} = 20\text{V}$	17.6	—	—	W
η_{c}	$f = 1400 - 1600\text{MHz}$ $P_{\text{IN}} = 4.0\text{W}$ $V_{\text{CC}} = 20\text{V}$	45	—	—	%
G_{p}	$f = 1400 - 1600\text{MHz}$ $P_{\text{IN}} = 4.0\text{W}$ $V_{\text{CC}} = 20\text{V}$	6.4	—	—	dB

TYPICAL PERFORMANCE

POWER OUTPUT & COLLECTOR
EFFICIENCY vs POWER INPUT

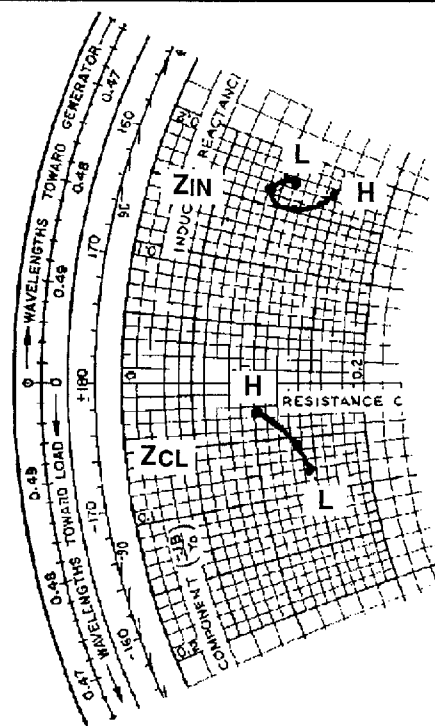
IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

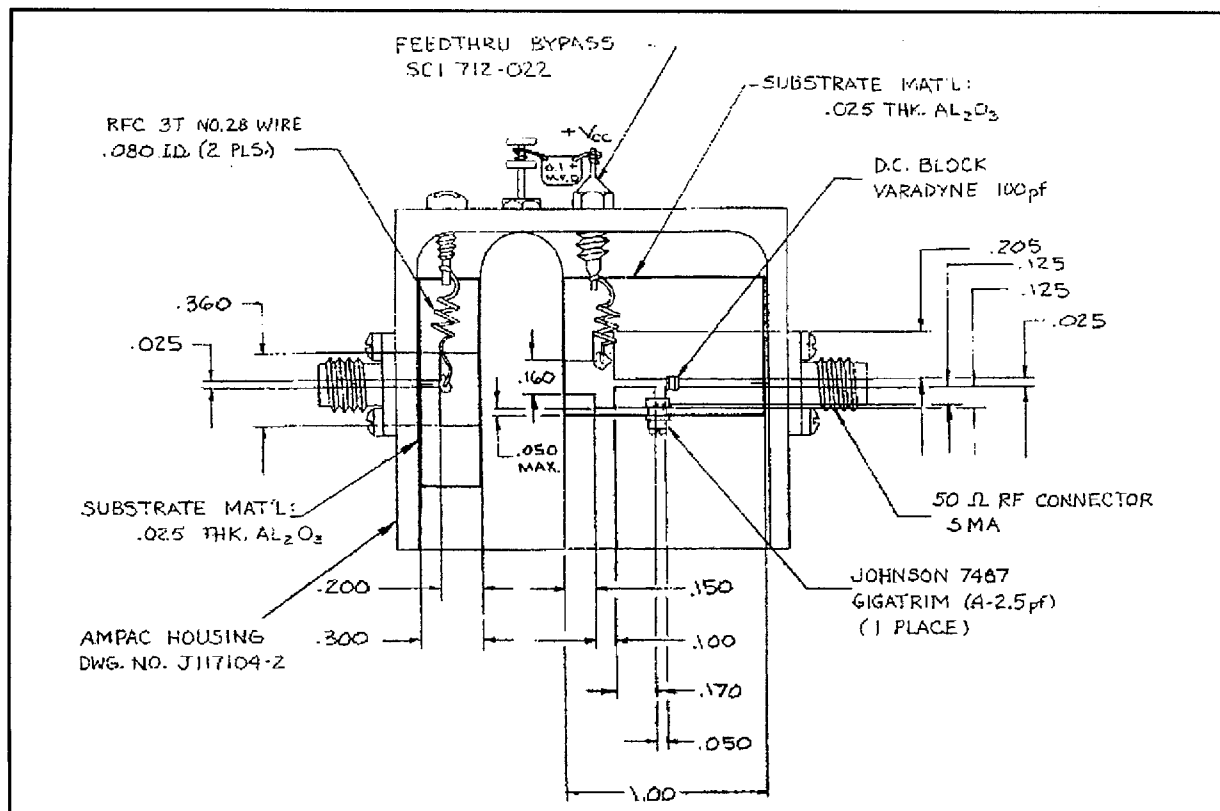
FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1.4 GHz	$5.5 + j 8.8$	$7.0 - j 4.0$
M = 1.5 GHz	$4.6 + j 8.3$	$6.8 - j 2.8$
H = 1.6 GHz	$7.4 + j 8.9$	$5.1 - j 1.3$

 $P_{IN} = 4.0W$
 $V_{CC} = 20V$

Normalized to 50 ohms

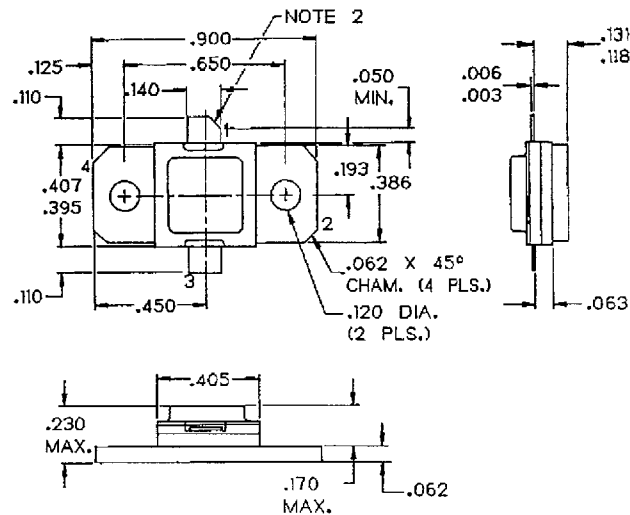


TEST CIRCUIT



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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