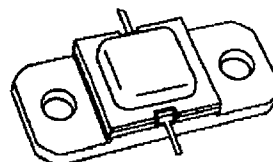


RF & MICROWAVE TRANSISTORS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 90 \text{ W MIN. WITH } 7.8 \text{ dB GAIN}$



.400 x .400 2NLFL (S042)
hermetically sealed

ORDER CODE
AM1416-100

BRANDING
1416-100

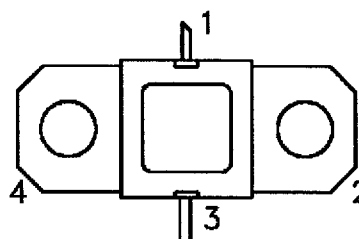
DESCRIPTION

The AM1416-100 device is a high power silicon bipolar NPN transistor specifically designed for L-Band radar pulsed output and driver applications.

The 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 AM1416-100 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.

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* ($T_C \leq 125^{\circ}\text{C}$)	390	W
I_C	Device Current*	8.5	A
V_{CC}	Collector-Supply Voltage*	50	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*	0.32	$^{\circ}\text{C/W}$
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*Applies only to rated RF amplifier operation

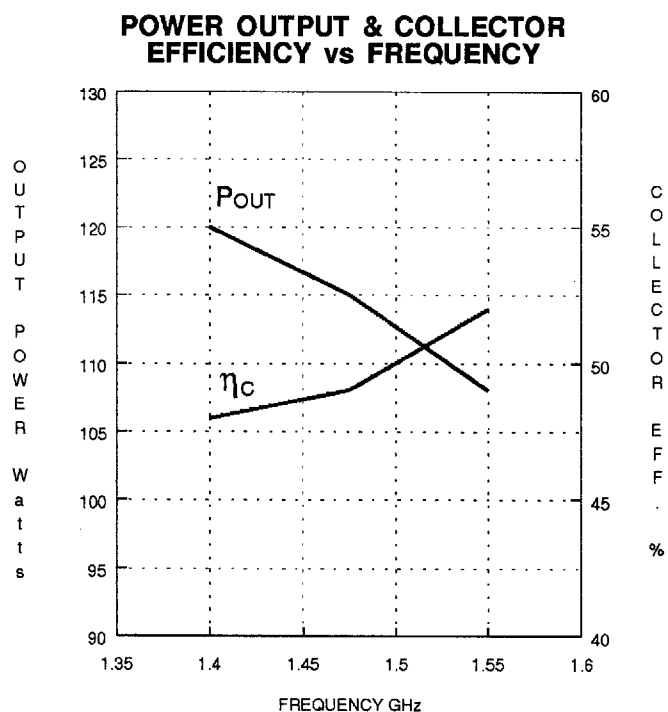
ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 60\text{mA}$	$I_{\text{E}} = 0\text{mA}$	60	—	—	V
BV_{EBO}	$I_{\text{E}} = 3\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
BV_{CES}	$I_{\text{C}} = 60\text{mA}$	$V_{\text{BE}} = 0\text{V}$	60	—	—	V
I_{CES}	$V_{\text{BE}} = 0\text{V}$	$V_{\text{CE}} = 45\text{V}$	—	—	10	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 1\text{A}$	15	—	—	—

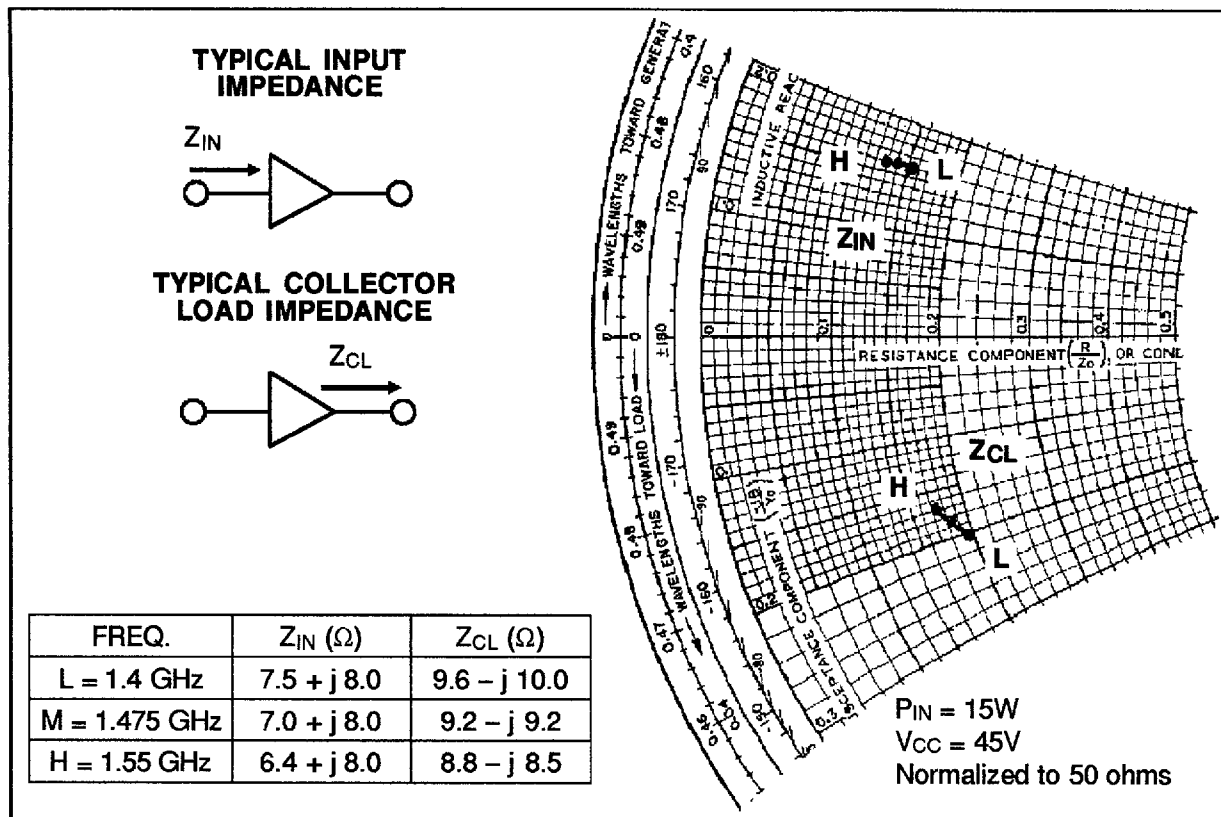
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1400 - 1550\text{MHz}$	$P_{\text{IN}} = 15\text{W}$	$V_{\text{CC}} = 45\text{V}$	90	—	—	W
η_{c}	$f = 1400 - 1550\text{MHz}$	$P_{\text{IN}} = 15\text{W}$	$V_{\text{CC}} = 45\text{V}$	40	—	—	%
G_{P}	$f = 1400 - 1550\text{MHz}$	$P_{\text{IN}} = 15\text{W}$	$V_{\text{CC}} = 45\text{V}$	7.8	—	—	dB

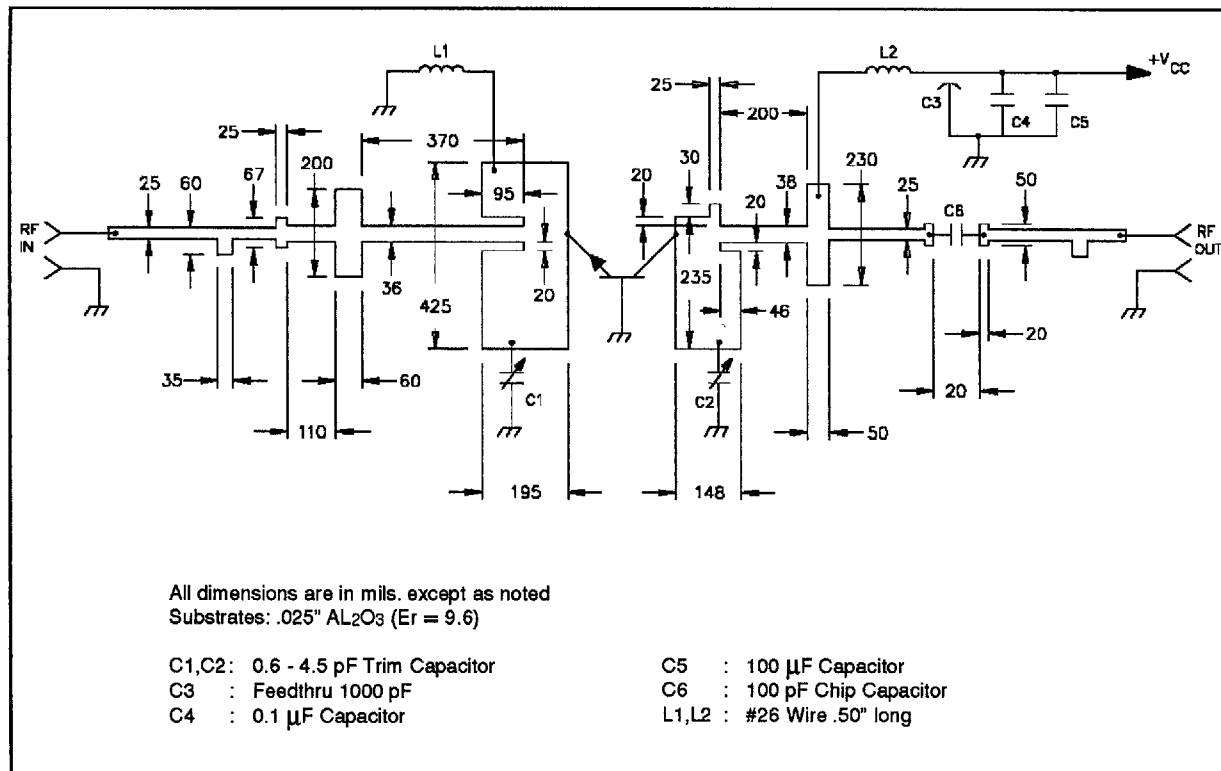
Note: Pulse Width = $10\mu\text{Sec}$
Duty Cycle = 10%

TYPICAL PERFORMANCE

IMPEDANCE DATA

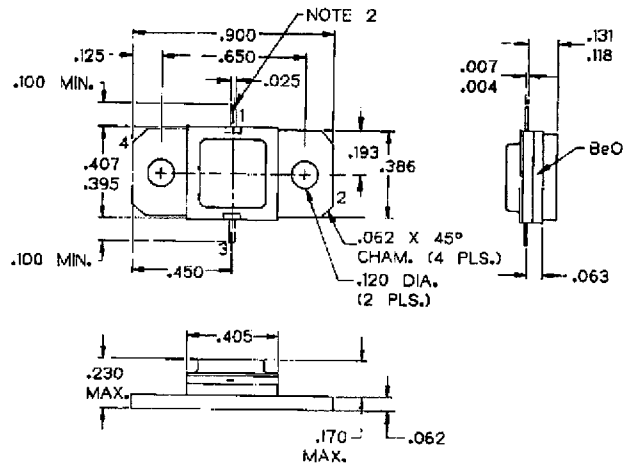


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J113214F



NOTES:

1. ALL TOLERANCE $\pm .010$ EXCEPT WHERE NOTED;
DIMENSIONS IN INCHES.
2. COLLECTOR LEAD SLANT CUT.

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