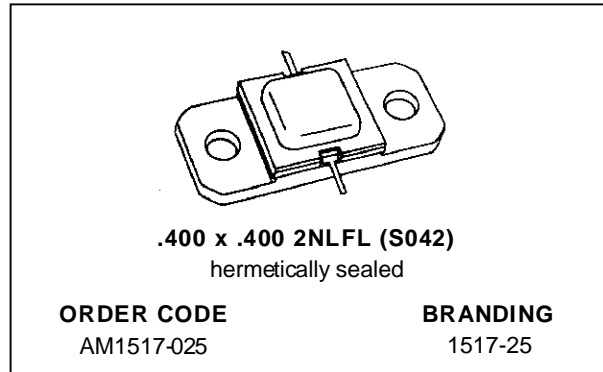


RF & MICROWAVE TRANSISTORS SATELLITE COMMUNICATIONS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- ∞:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 25 W MIN. WITH 8.5 dB GAIN

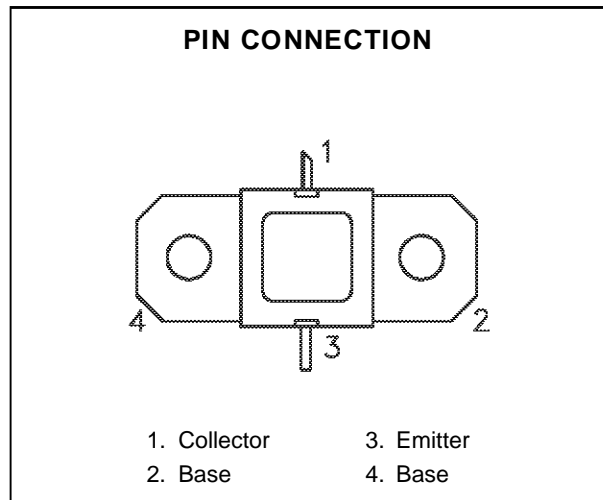


DESCRIPTION

The AM1517-025 power transistor is designed specifically for Satellite communications applications in the 1.5 – 1.7 GHz frequency range.

The device is capable of withstanding any mismatch load condition at any phase angle (VSWR ∞:1) under full rated conditions. The unit is an overlay, emitter site ballasted, geometry utilizing a Refractory/Gold metallization system.

The AM1517-025 is supplied in the AMPAC™ Hermetic/Ceramic package with internal Input/Output matching structures.



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

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 100°C)	45	W
I _C	Device Current*	2.5	A
V _{CC}	Collector-Supply Voltage*	30	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*	3.3	°C/W
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*Applies only to rated RF amplifier operation

AM1517-025

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 8\text{mA}$	$I_{\text{E}} = 0\text{mA}$	45	—	—	V
BV_{EBO}	$I_{\text{E}} = 8\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.0	—	—	V
I_{CBO}	$V_{\text{CB}} = 28\text{V}$		—	—	2	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 1.6\text{A}$	15	—	150	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1.5 \text{ — } 1.7\text{GHz}$	$P_{\text{IN}} = 3.5\text{W}$	$V_{\text{CC}} = 28\text{V}$	25	—	—	W
η_{c}	$f = 1.5 \text{ — } 1.7\text{GHz}$	$P_{\text{IN}} = 3.5\text{W}$	$V_{\text{CC}} = 28\text{V}$	55	58	—	%
G_{p}	$f = 1.5 \text{ — } 1.7\text{GHz}$	$P_{\text{IN}} = 3.5\text{W}$	$V_{\text{CC}} = 28\text{V}$	8.5	—	—	dB

Note: AM1517 series vary P_{IN} to achieve P_{OUT} ; performance guaranteed in 50 MHz increments.

Alpha-Suffix added to AM1517 P/N designates band segment.

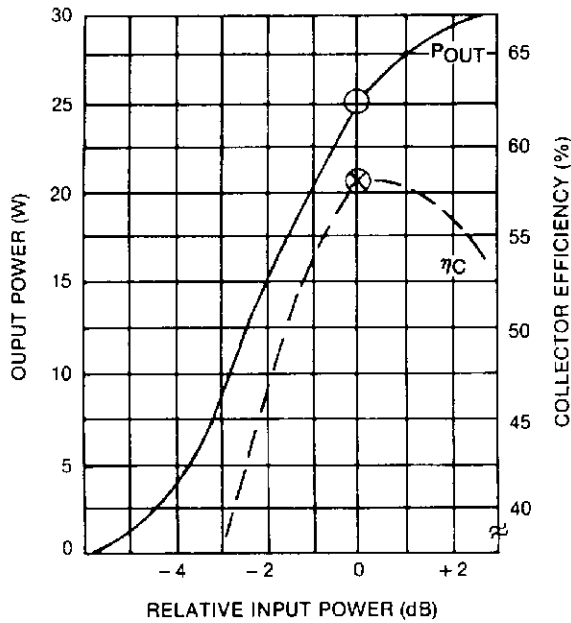
A -1500 - 1550 MHz

M -1620 - 1660 MHz

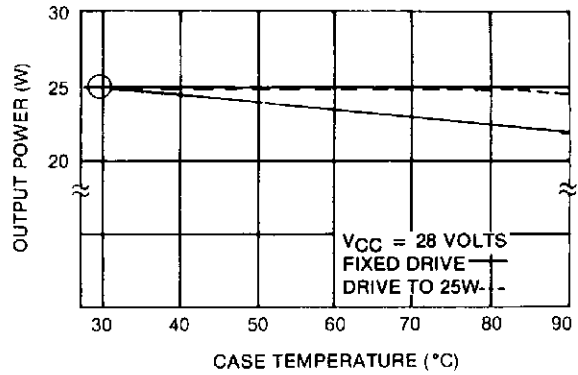
S -1625 - 1675 MHz

TYPICAL PERFORMANCE

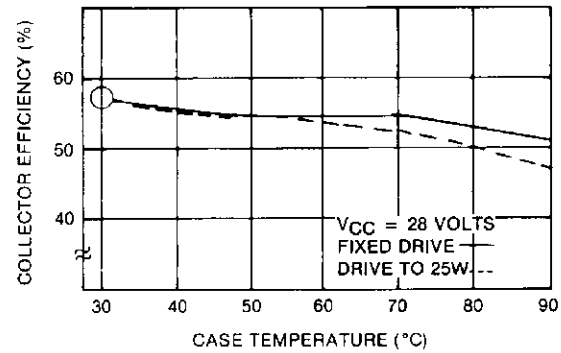
POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT



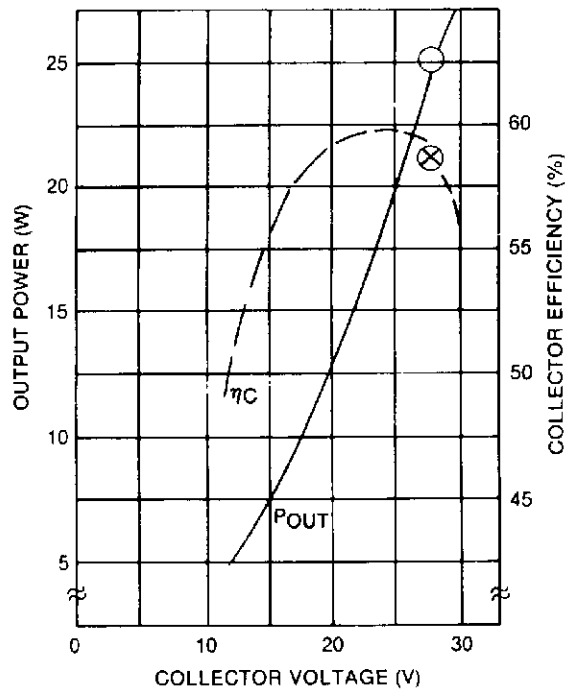
POWER OUTPUT vs TEMPERATURE



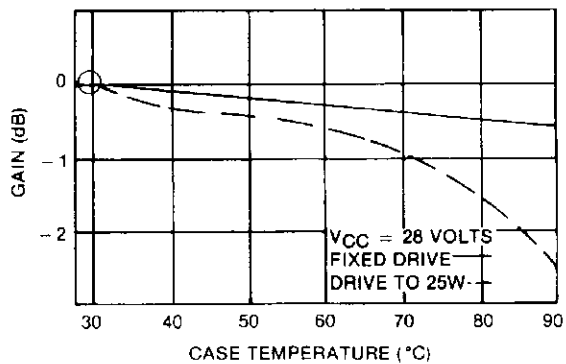
COLLECTOR EFFICIENCY vs TEMPERATURE



POWER OUTPUT & COLLECTOR EFFICIENCY vs COLLECTOR VOLTAGE

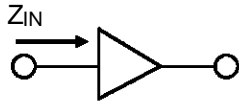


GAIN vs TEMPERATURE

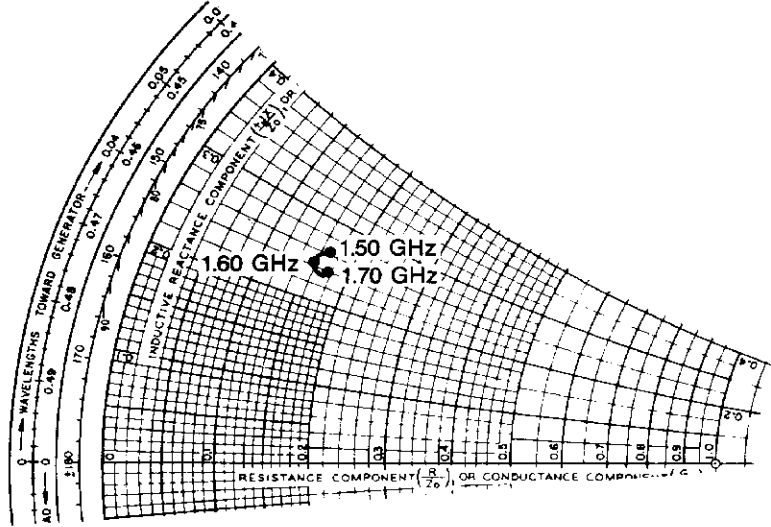


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

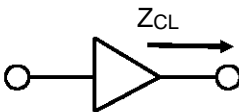


$P_{OUT} = 25\text{ W}$
 $V_{CC} = 28\text{ V}$
 $Z_0 = 50\text{ ohms}$

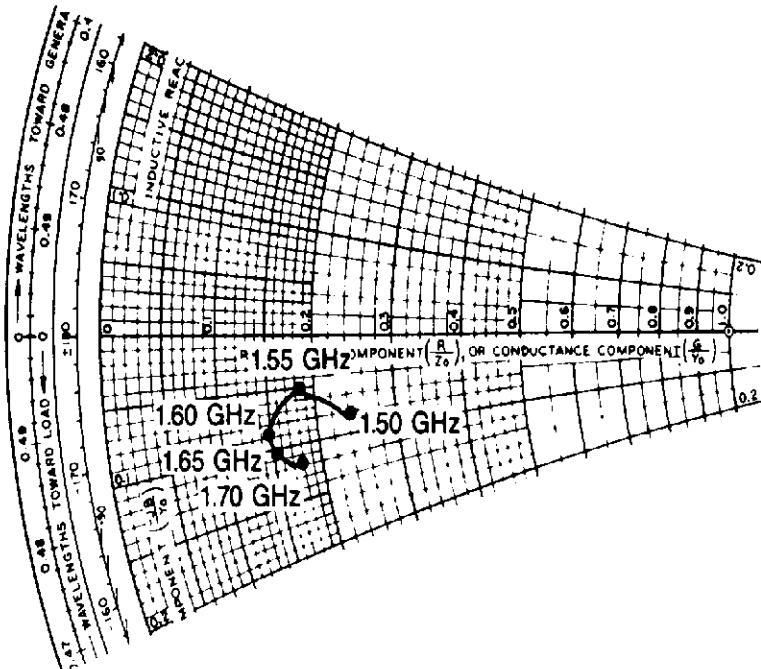


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1.5 GHz	$8.5 + j 13.0$	$12.0 - j 4.0$
M = 1.6 GHz	$8.0 + j 12.5$	$7.5 - j 4.5$
H = 1.7 GHz	$9.0 + j 12.0$	$9.0 - j 6.0$

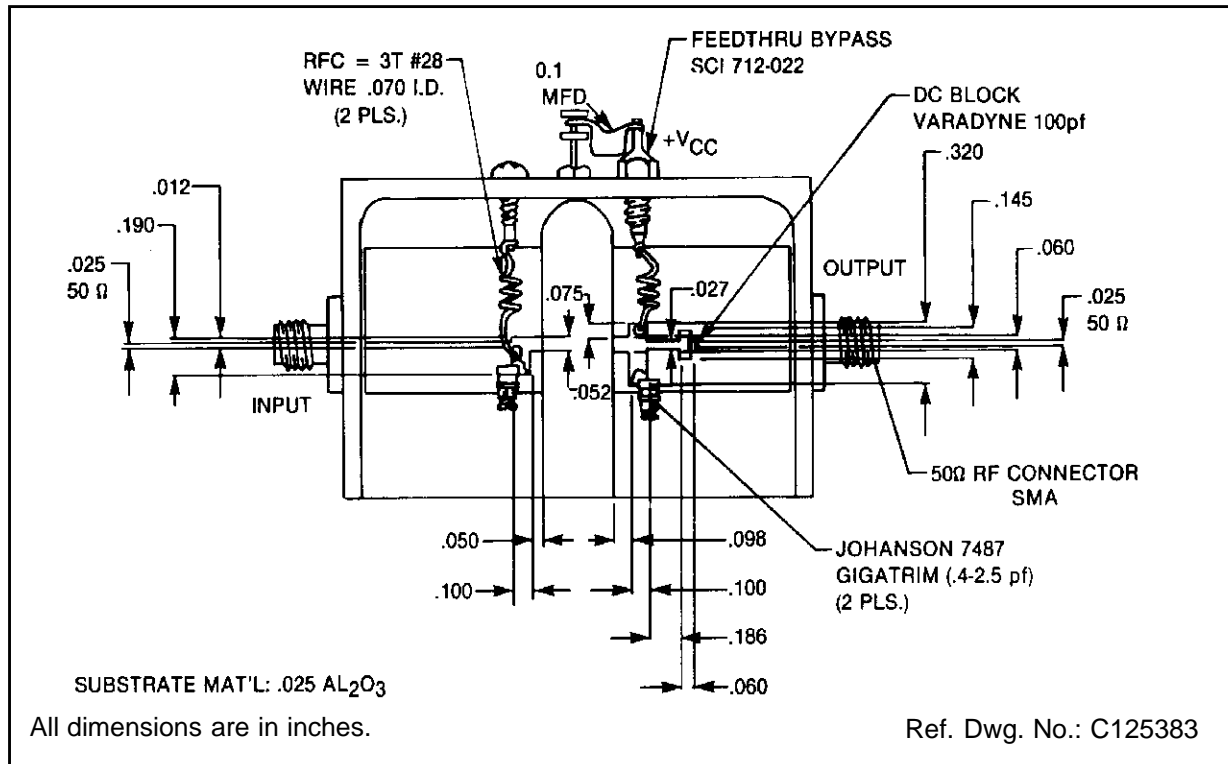
TYPICAL COLLECTOR LOAD IMPEDANCE



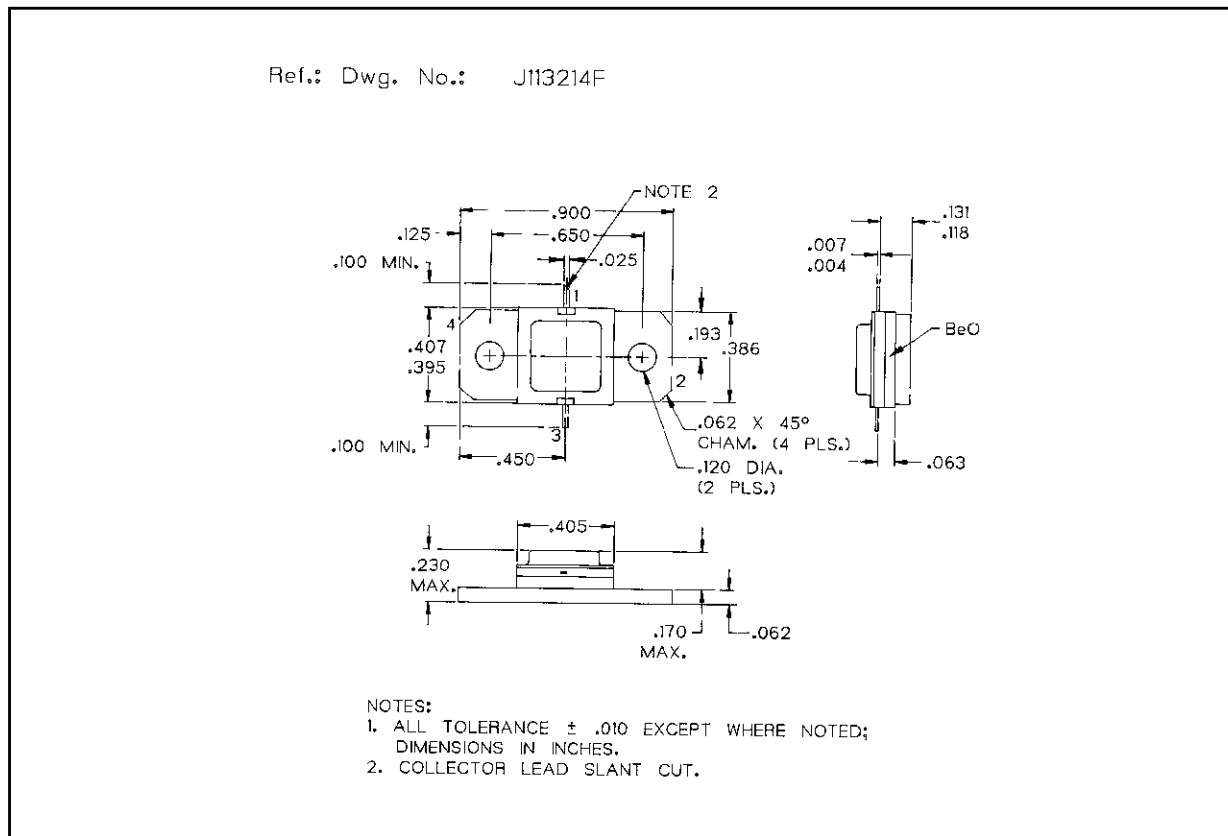
$P_{OUT} = 25\text{ W}$
 $V_{CC} = 28\text{ V}$
 $Z_0 = 50\text{ ohms}$



TEST CIRCUIT



PACKAGE MECHANICAL DATA



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