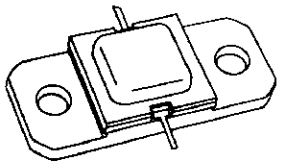
SGS-THOMSON MICROELECTRONICS

AM1517-012

RF & MICROWAVE TRANSISTORS SATELLITE COMMUNICATIONS APPLICATIONS

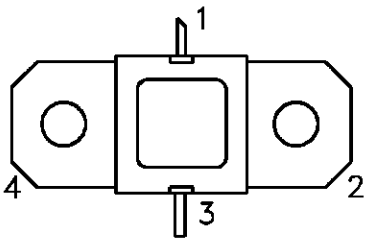
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- ∞:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 12 W MIN. WITH 8.5 dB GAIN



.400 x .400 2NLFL (S042)
hermeticallysealed

ORDER CODE	BRANDING
AM1517-012	1517-12

PIN CONNECTION



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

DESCRIPTION

The AM1517-012 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 AM1517-012 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)	27	W
I_C	Device Current*	1.25	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*	5.5	°C/W

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 4mA	I_E = 0mA	45	—	—	V
BV_{EBO}	I_E = 4mA	I_C = 0mA	3.0	—	—	V
I_{CBO}	V_{CB} = 28V		—	—	1	mA
h_{FE}	V_{CE} = 5V	I_C = .8A	15	—	150	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1.5 — 1.7GHz	P_{IN} = 1.7W	V_{CC} = 28V	12	13	—	W
η_C	f = 1.5 — 1.7GHz	P_{IN} = 1.7W	V_{CC} = 28V	55	58	—	%
G_P	f = 1.5 — 1.7GHz	P_{IN} = 1.7W	V_{CC} = 28V	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.

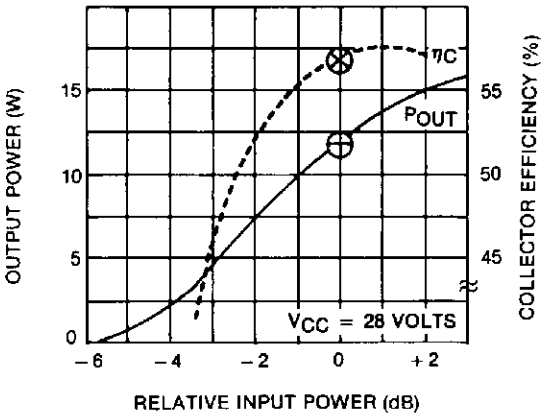
A -1500 = 1550 MHz

M -1620 = 1660 MHz

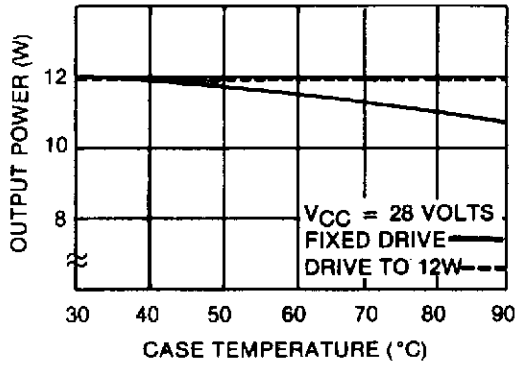
S -1625 = 1675 MHz

TYPICAL PERFORMANCE

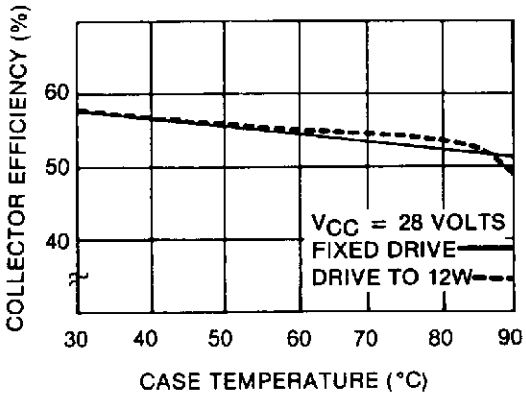
TYPICAL PERFORMANCE vs DRIVE POWER



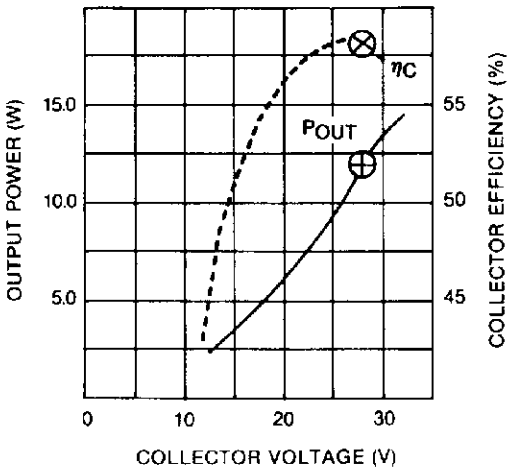
POWER OUTPUT vs TEMPERATURE



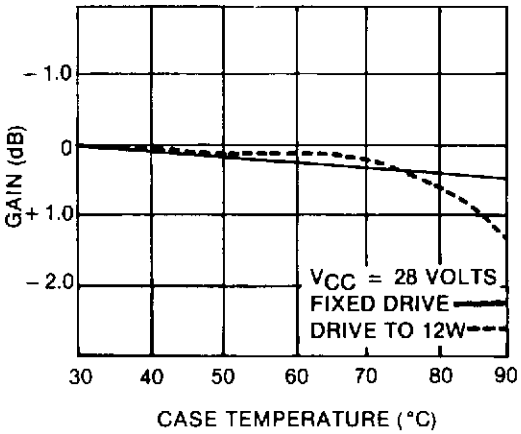
COLLECTOR EFFICIENCY vs TEMPERATURE



TYPICAL PERFORMANCE vs VOLTAGE @ FIXED DRIVE

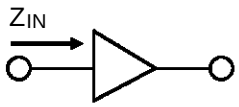


GAIN vs TEMPERATURE

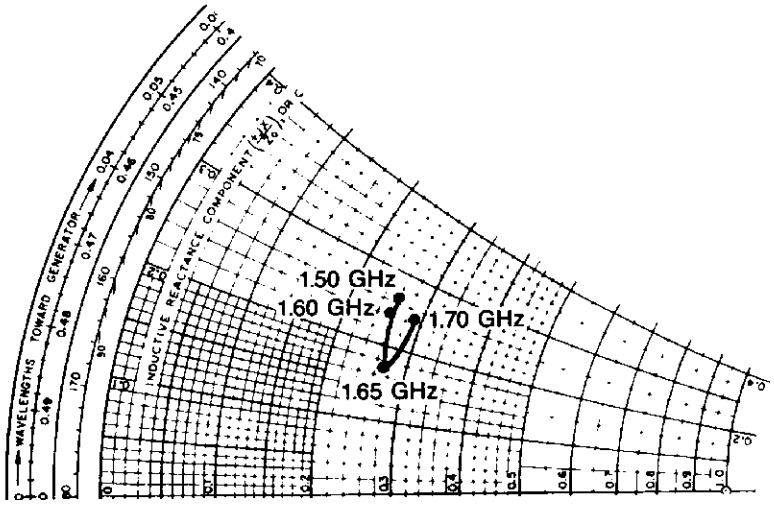


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

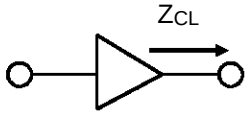


P_{OUT} = 12 W
V_{CC} = 28 V
Z_O = 50 ohms



FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
L = 1.50 GHz	13.0 + j 13.5	11.5 + j 5.0
M = 1.60 GHz	13.0 + j 12.0	10.5 + j 2.2
H = 1.70 GHz	14.5 + j 12.5	9.5 – j 1.5

TYPICAL COLLECTOR LOAD IMPEDANCE



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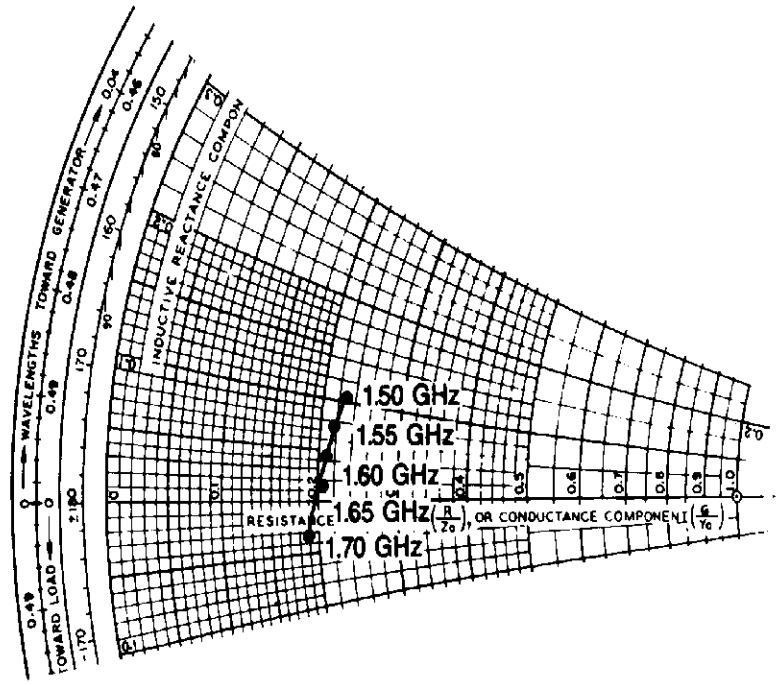
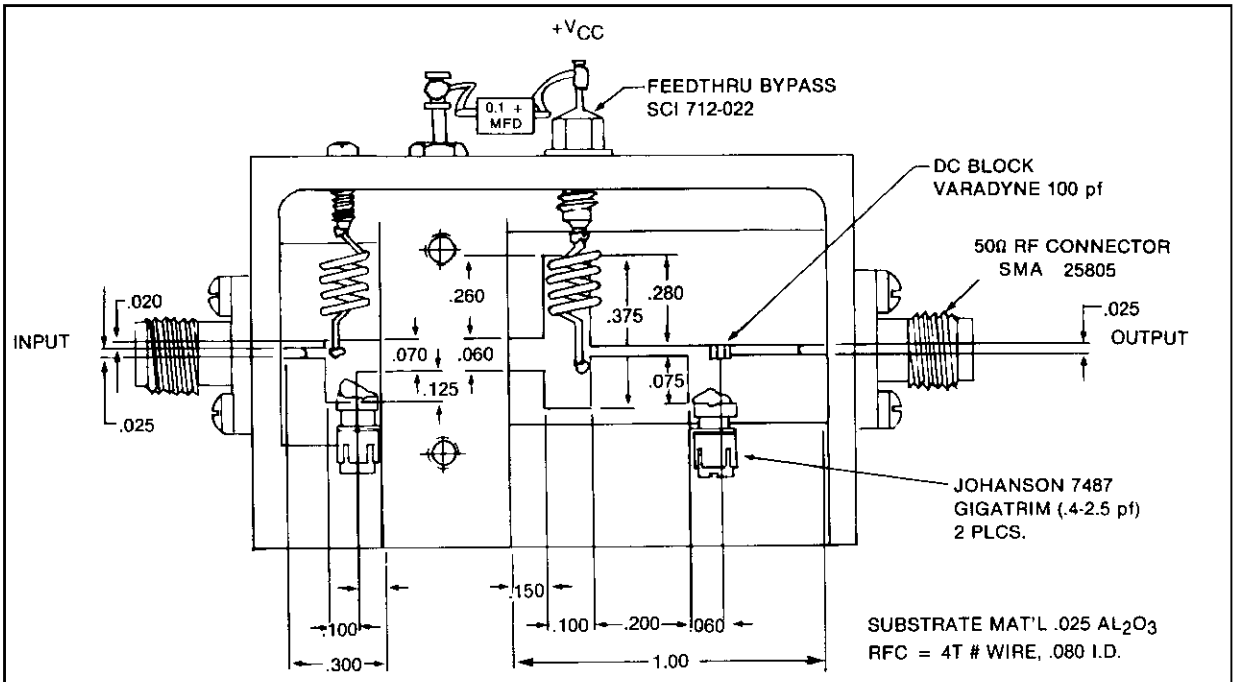


TEST CIRCUIT

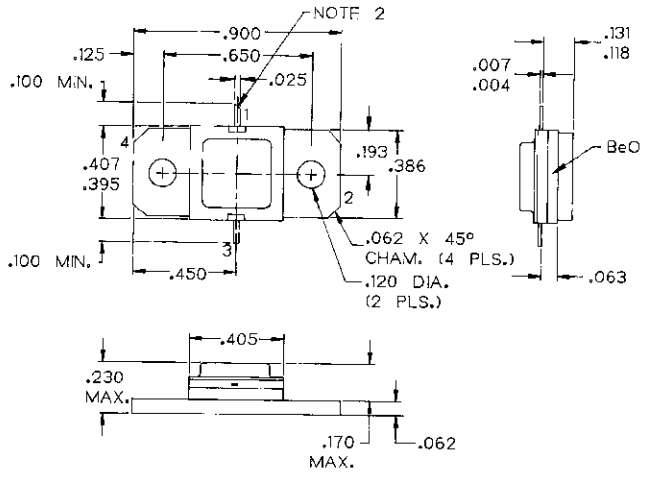


All dimensions are in inches.

Ref.: Dwg. No. C125369

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J113214F



NOTES:
1. ALL TOLERANCE ± .010 EXCEPT WHERE NOTED; DIMENSIONS IN INCHES.
2. COLLECTOR LEAD SLANT CUT.