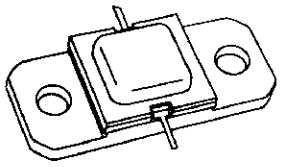
SGS-THOMSON MICROELECTRONICS

AM1517-025

RF & MICROWAVE TRANSISTORS SATELLITE COMMUNICATIONS APPLICATIONS

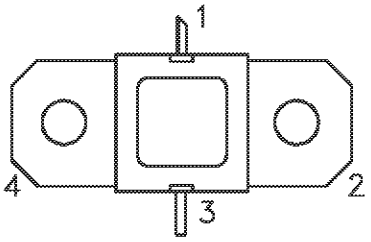
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- ∞:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 25 W MIN. WITH 8.5 dB GAIN



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

ORDER CODE	BRANDING
AM1517-025	1517-25

PIN CONNECTION



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

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 Refactory/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* ($T_C \leq 100°C$)	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

*Applies only to rated RF amplifier operation

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

STATIC

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

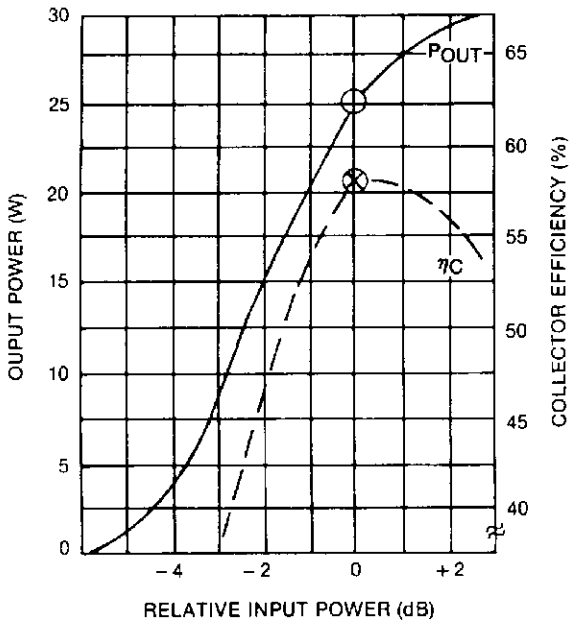
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1.5 — 1.7GHz	P_{IN} = 3.5W	V_{CC} = 28V	25	—	—	W
ηc	f = 1.5 — 1.7GHz	P_{IN} = 3.5W	V_{CC} = 28V	55	58	—	%
G_P	f = 1.5 — 1.7GHz	P_{IN} = 3.5W	V_{CC} = 28V	8.5	—	—	dB

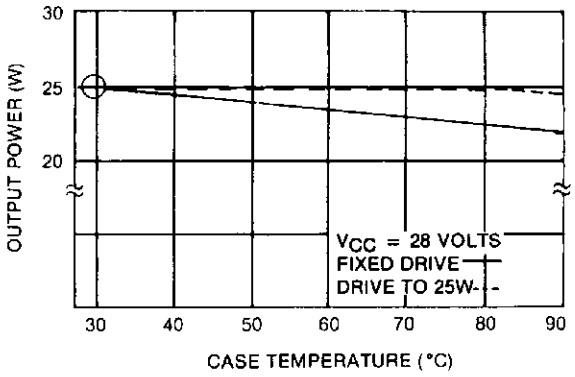
Note: AM1517 series vary P_{IN} to achieve P_{OUT}; performance guaranteed in 50 MHz increments.
Alpha-Suffix added to AM1517 P/N designates band segment.
A -1500 - 1550 MHz
M -1620 - 1660 MHz
S -1625 - 1675 MHz

TYPICAL PERFORMANCE

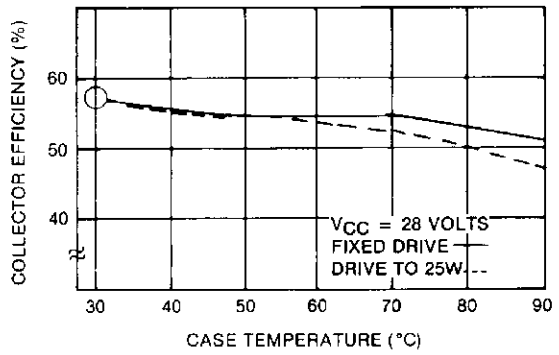
POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT



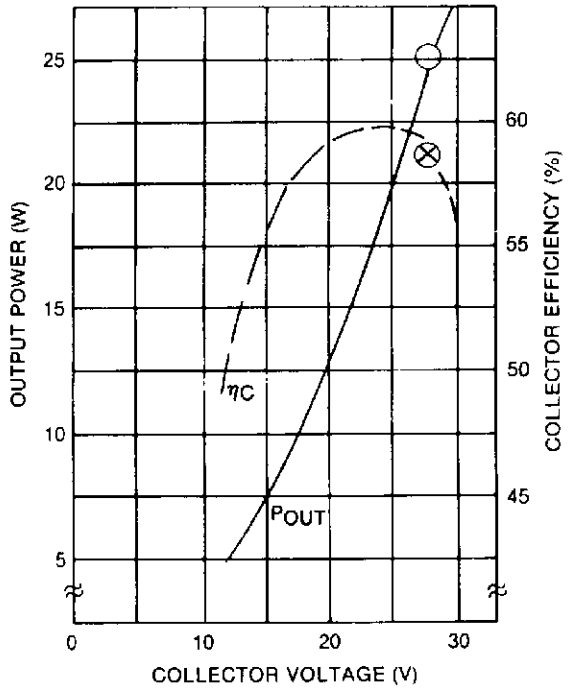
POWER OUTPUT vs TEMPERATURE



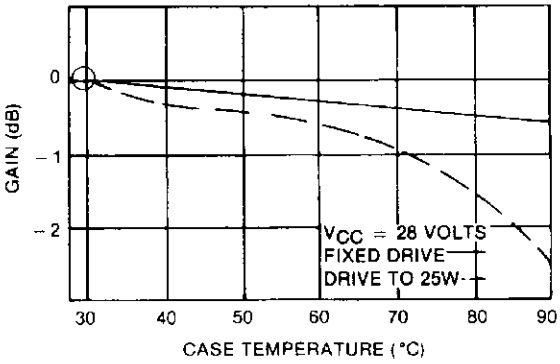
COLLECTOR EFFICIENCY vs TEMPERATURE



POWER OUTPUT & COLLECTOR EFFICIENCY vs COLLECTOR VOLTAGE

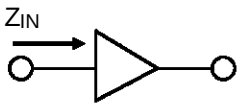


GAIN vs TEMPERATURE

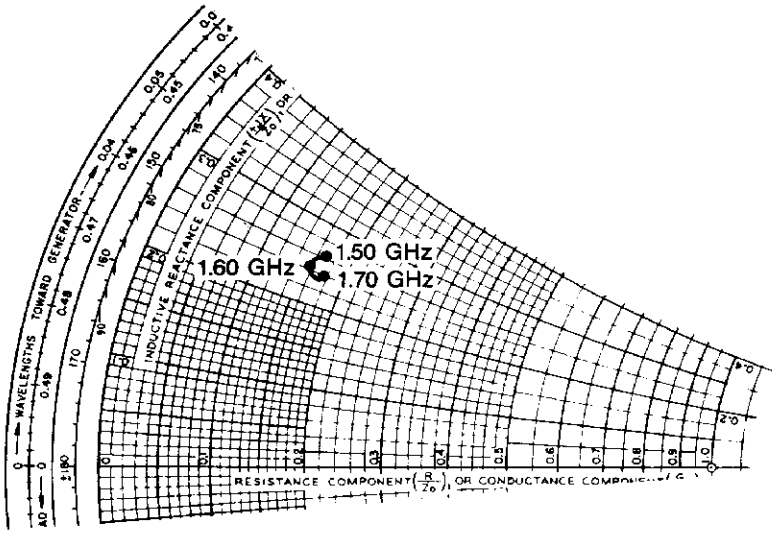


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

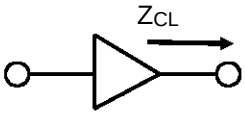


P_{OUT} = 25 W
V_{CC} = 28 V
Z_O = 50 ohms



FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
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



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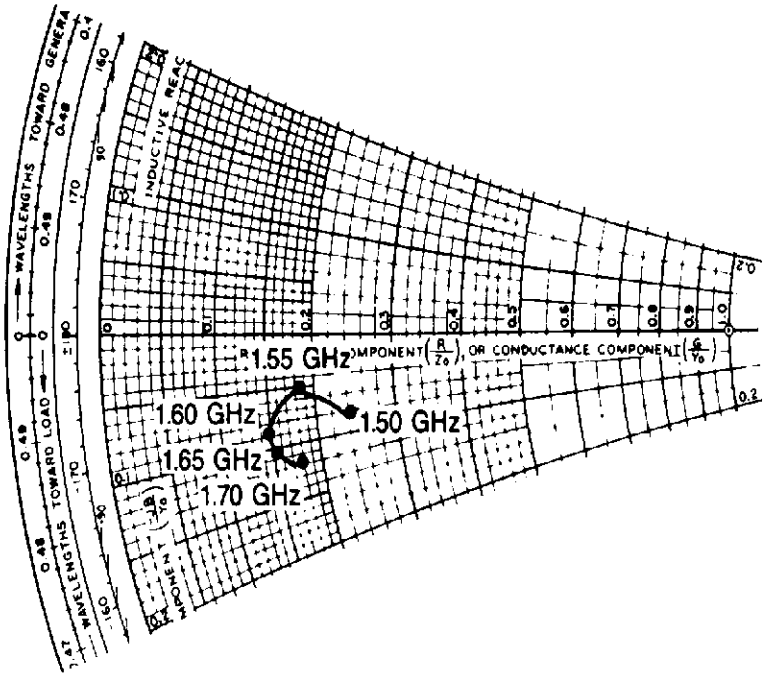
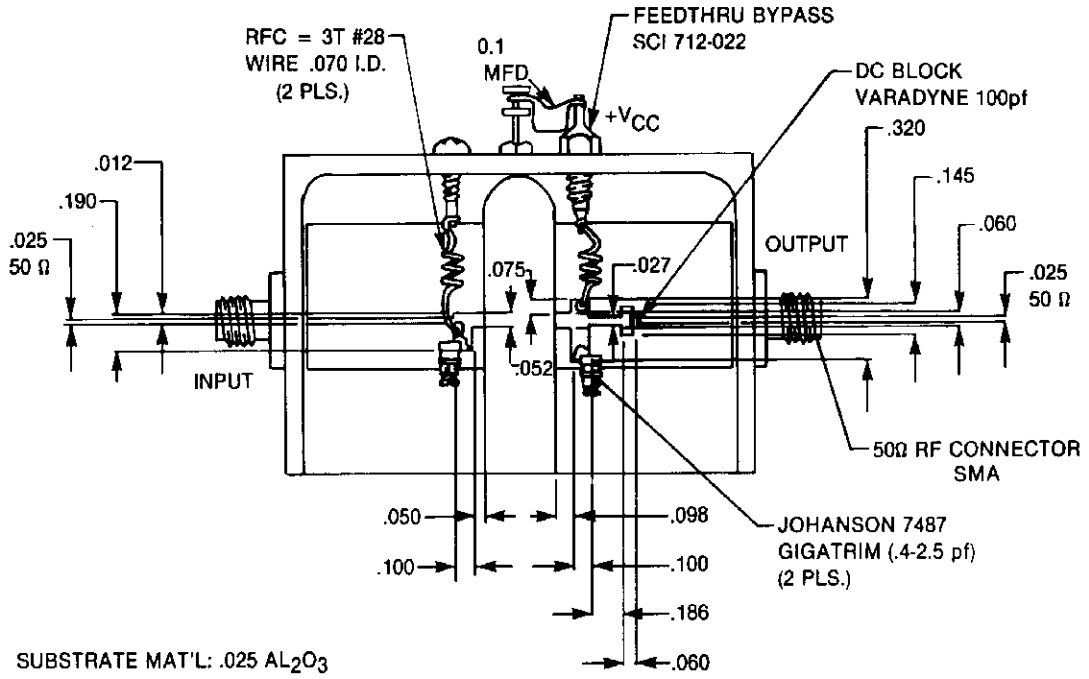


TEST CIRCUIT

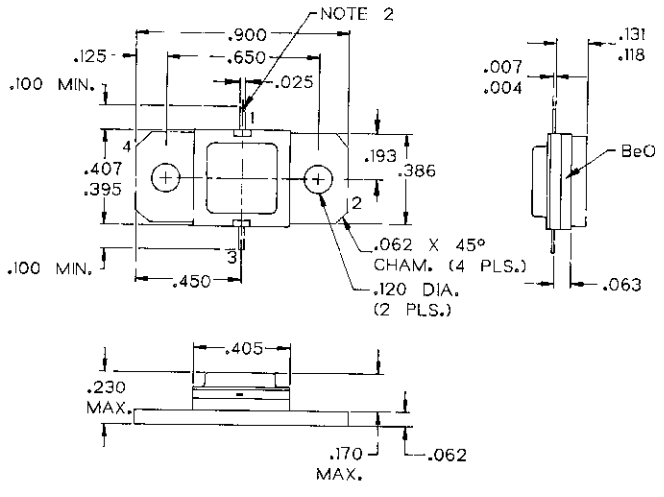


All dimensions are in inches.

Ref. Dwg. No.: C125383

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J113214F



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