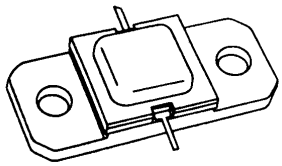
SGS-THOMSON MICROELECTRONICS

MSC81325M

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

PRELIMINARY DATA

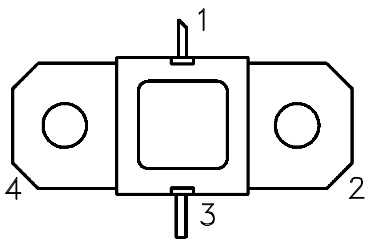
- REFRACTORY/GOLD METALLIZATION
- EMITTER BALLASTED
- RUGGEDIZED VSWR ∞:1
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 325 W MIN. WITH 6.7 dB GAIN



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

ORDER CODE	BRANDING
MSC81325M	81325M

PIN CONNECTION



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

DESCRIPTION

The MSC81325M device is a high power pulsed transistor specifically designed for DME/TACAN avionics applications.

This device is capable of withstanding an infinite load VSWR at any phase angle under full rated conditions. Low RF thermal resistance and semi-automatic bonding techniques ensure high reliability and product consistency.

The MSC81325M is housed in the industry-standard AMPAC™ metal/ceramic hermetic package with internal input/output matching structures.

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100°C$)	880	W
I_C	Device Current*	24	A
V_{CC}	Collector-Supply Voltage*	55	V
T_J	Junction Temperature (Pulsed RF Operation)	250	°C
T_{STG}	Storage Temperature	– 65 to +200	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	0.17	°C/W

*Applies only to rated RF amplifier operation

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

STATIC

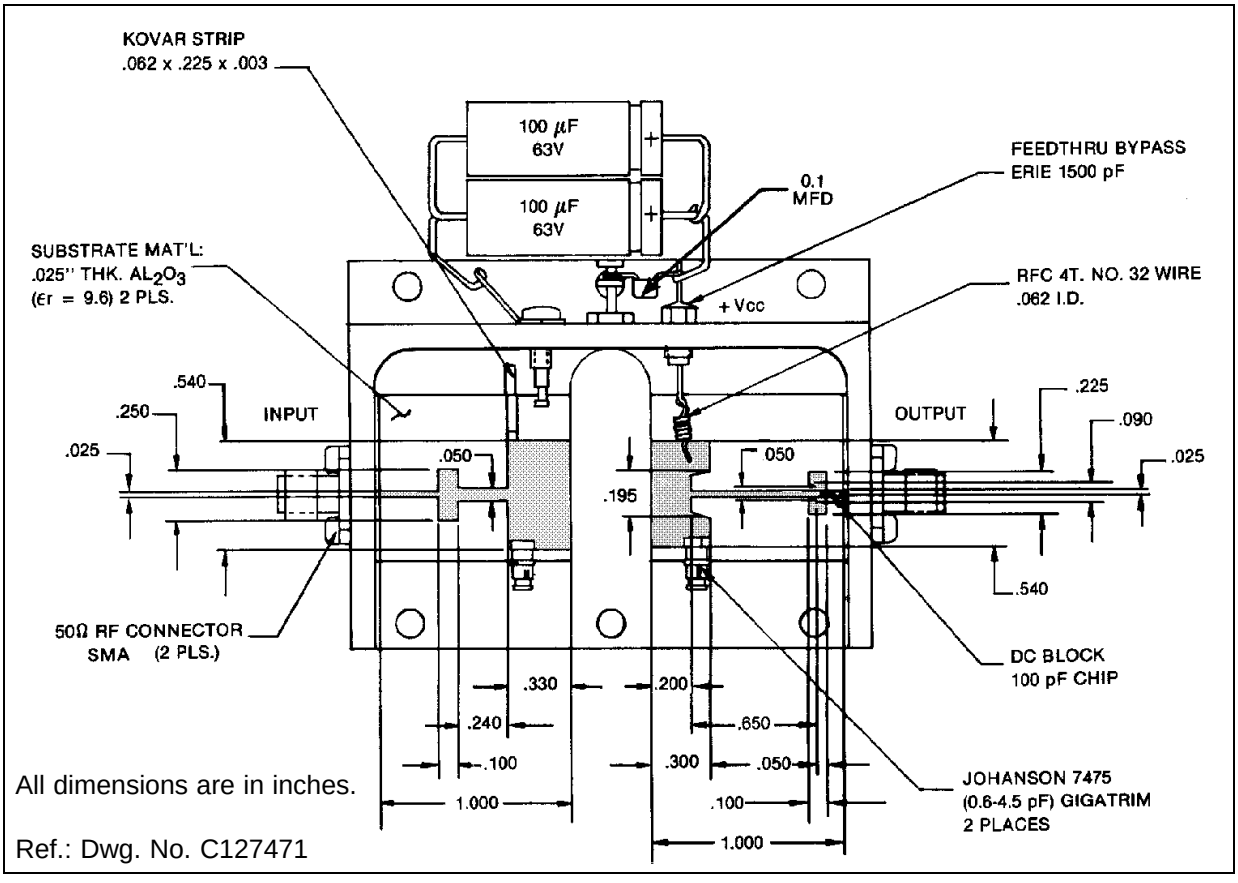
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 10mA	I_E = 0mA	65	—	—	V
BV_{EBO}	I_E = 1mA	I_C = 0mA	3.5	—	—	V
BV_{CER}	IC = 25mA	R_{BE} = 10Ω	65	—	—	V
I_{CES}	V_{BE} = 0V	V_{CE} = 50V	—	—	25	mA
h_{FE}	V_{CE} = 5V	I_C = 1A	15	—	120	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1025 — 1150 MHz	P_{IN} = 70 W	V_{CC} = 50 V	325	360	—	W
ηc	f = 1025 — 1150 MHz	P_{IN} = 70 W	V_{CC} = 50 V	40	41	—	%
G_P	f = 1025 — 1150 MHz	P_{IN} = 70 W	V_{CC} = 50 V	6.7	7.1	—	dB

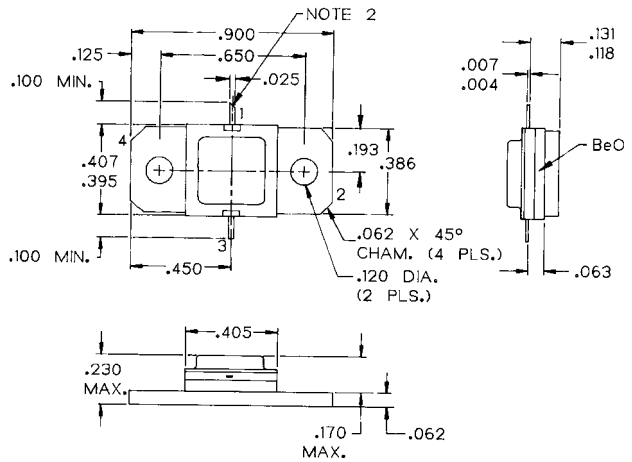
Note: Pulse Width = 10μSec
Duty Cycle = 1%

TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J113214F



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