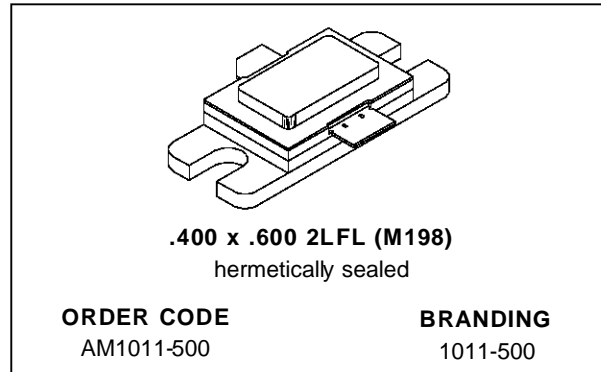


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- $P_{OUT} = 500\text{ W MIN. WITH } 8.5\text{ dB MIN. GAIN}$
- 10:1 LOAD VSWR CAPABILITY @ $10\mu\text{S.}, 1\% \text{ DUTY}$
- SIXPAC™ HERMETIC METAL/CERAMIC PACKAGE
- EMITTER SITE BALLASTED OVERLAY GEOMETRY
- REFRACTORY/GOLD METALLIZATION
- LOW THERMAL RESISTANCE
- INTERNAL INPUT/OUTPUT MATCHING
- CHARACTERIZED UNDER $32\mu\text{S.}, 2\% \text{ DUTY CYCLE PULSE CONDITIONS}$

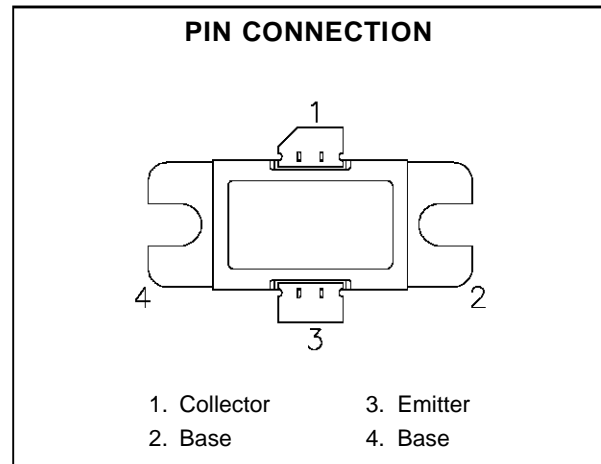


DESCRIPTION

The AM1011-500 device is a high power Class C transistor specifically designed for L-Band Avionic applications involving high pulse burst duty cycles.

This device is capable of operation over a wide range of pulse widths, duty cycles, and temperatures. Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The AM1011-500 is supplied in the SIXPAC™ Hermetic metal/ceramic package with internal input/output matching structures.



ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100^{\circ}\text{C}$)	1,360	W
I_C	Device Current*	27	A
V_{CC}	Collector-Supply Voltage*	55	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*	0.11	$^{\circ}\text{C/W}$
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*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 = 50 mA	I _E = 0 mA	70	—	—	V
BV _{EB0}	I _E = 30 mA	I _C = 0 mA	3.0	—	—	V
BV _{CES}	I _C = 50 mA	V _{BE} = 0 V	70	—	—	V
I _{CES}	V _{BE} = 0 V	V _{CE} = 50 V	—	—	40	mA
h _{FE}	V _{CE} = 5 V	I _C = 1.0 A	10	—	200	—

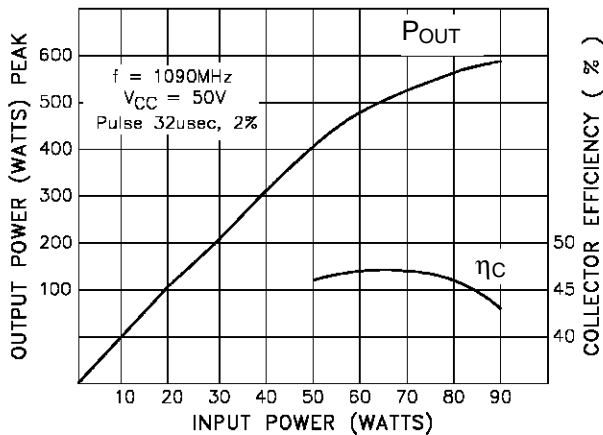
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 1090 MHz	P _{IN} = 70 W	V _{CC} = 50 V	500	—	—	W
hc	f = 1090 MHz	P _{OUT} = 500 W	V _{CC} = 50 V	40	—	—	%
G _p	f = 1090 MHz	P _{OUT} = 500 W	V _{CC} = 50 V	8.5	—	—	dB
Load Mismatch	P _{OUT} = 500 W Peak F = 1090MHz V _{CC} = 50 V	VSWR = 10:1, 10μS, 1% Duty VSWR = 5:1, 32μS, 2% Duty		No Degradation in Output Power			

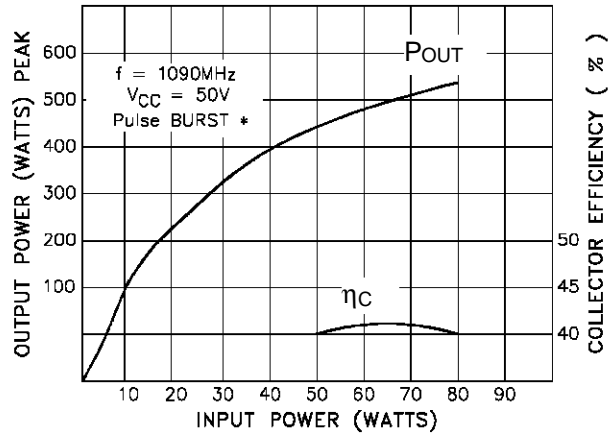
Note: Pulse Width = 32μSec, Duty Cycle = 2%

TYPICAL PERFORMANCE

POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT



POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT



* Pulse Burst conditions:
128 μSec train, 0.5 μSec on,
0.5 μSec off; with a period of 6.4 msec.

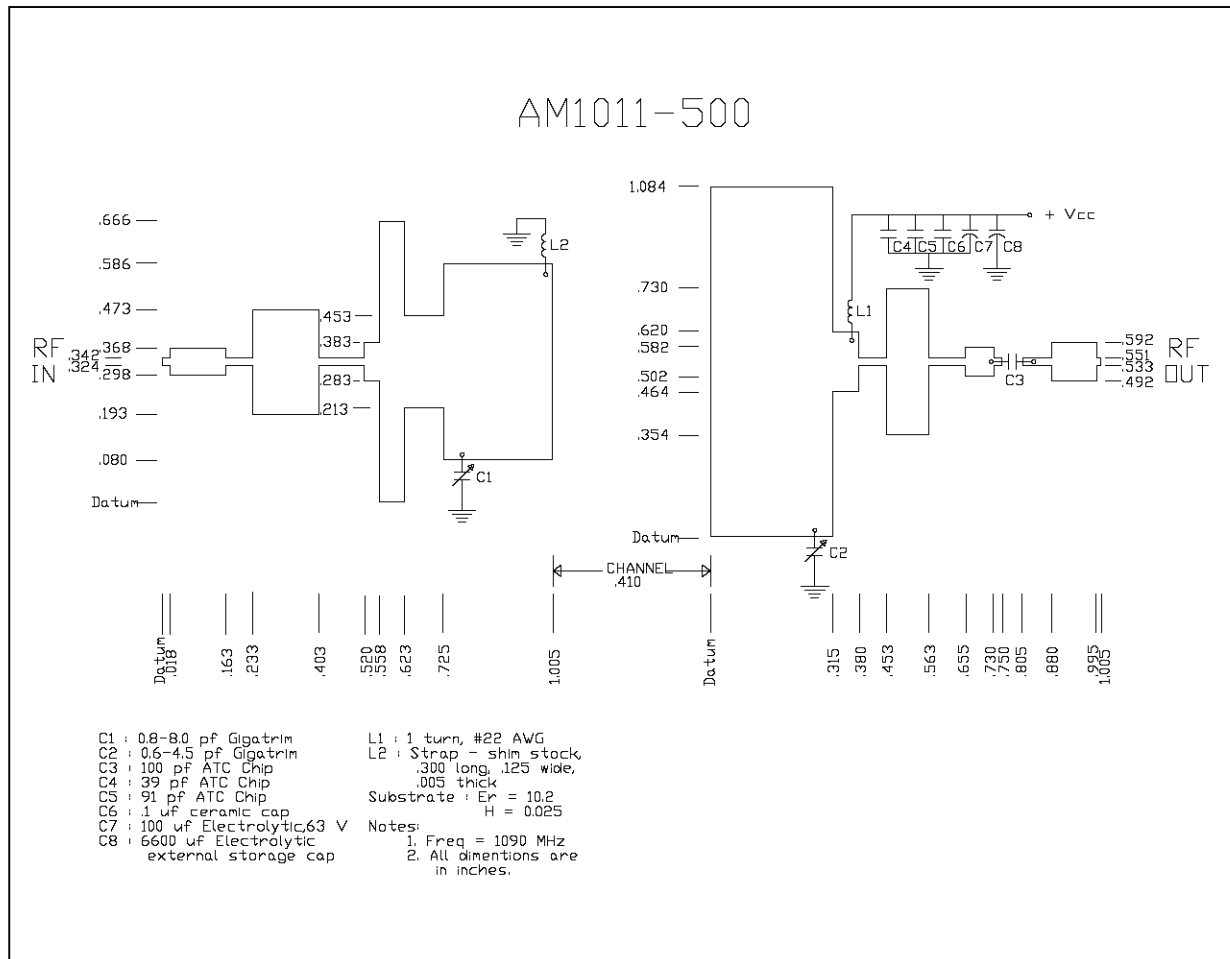
IMPEDANCE DATA

FREQ.	Z _{IN} (Ω)	Z _{CL} (Ω)
1030 MHz	4.35 + j 6.97	1.38 - j 4.08
1090 MHz	4.38 + j 2.75	.874 - j 3.55
1120 MHz	4.69 + j 2.95	1.3 - j 4.97

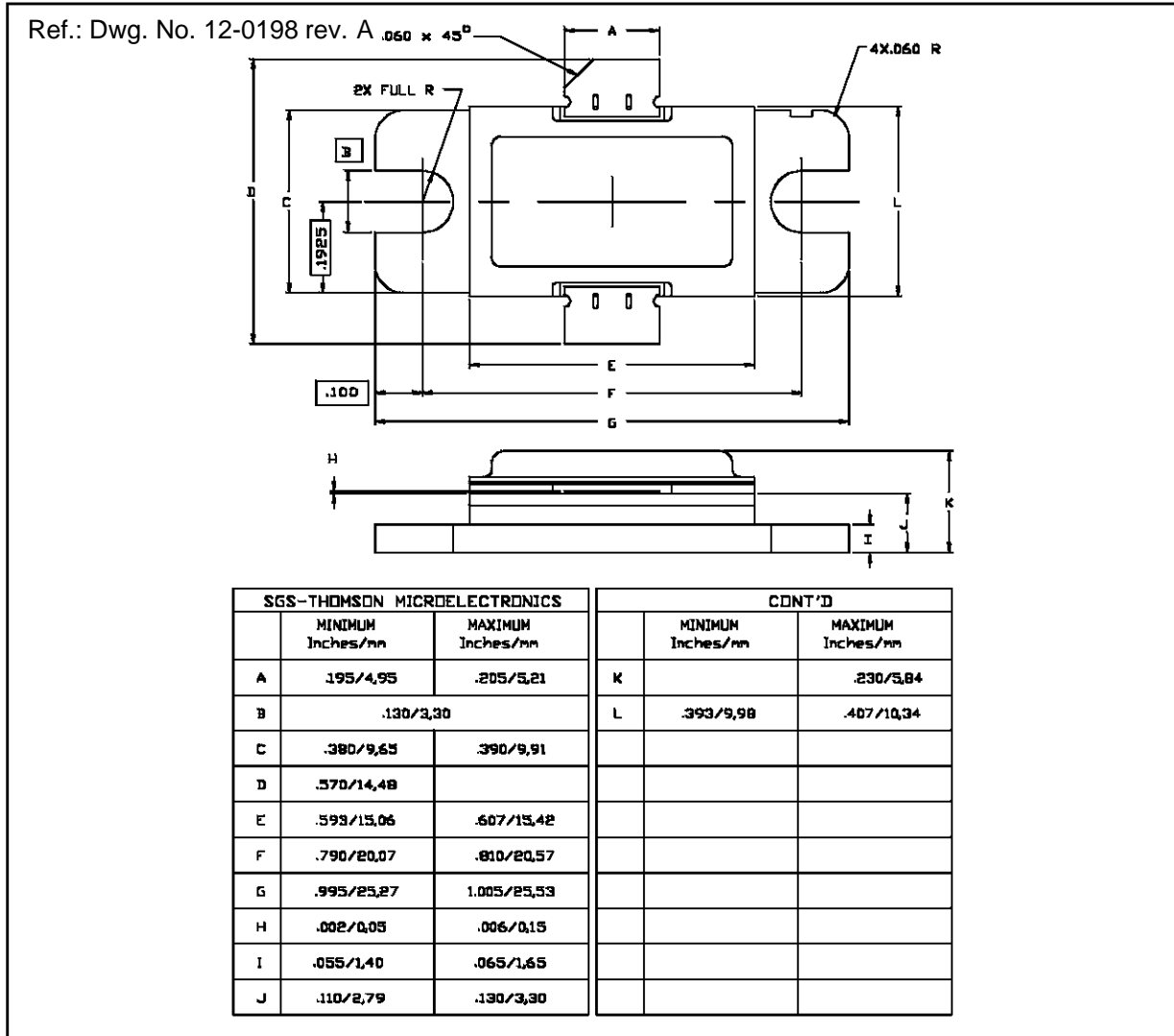
P_{IN} = 70W

V_{CC} = 50V

TEST CIRCUIT



PACKAGE MECHANICAL DATA



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