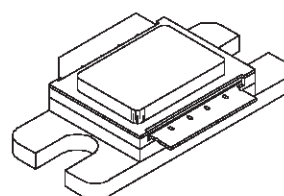


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTING
- LOW RF THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 325 \text{ W MIN. WITH } 7.7 \text{ dB GAIN}$
- 1030/1090 MHZ OPERATION



.400 x .600 2LFL (M207)
hermetically sealed

ORDER CODE
AM1011-300

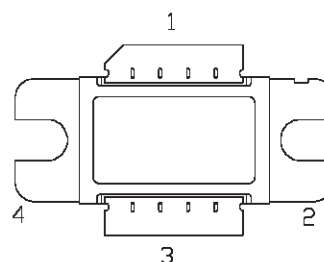
BRANDING
AM1011-300

DESCRIPTION

The AM1011-300 is a rugged, Class C common base device specifically designed for new Mode-S interrogator and transponder applications.

Minimal amplitude droop over the heavy Mode-S pulse burst is guaranteed by a thermal design incorporating an overlay site-ballasted die geometry.

PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation ($T_C \leq 100^{\circ}\text{C}$)*	1070	W
I_C	Device Current*	36	A
V_{CC}	Collector-Supply Voltage*	43	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*	0.14	$^{\circ}\text{C/W}$
---------------	-----------------------------------	------	----------------------

*Applies only to rated RF amplifier operation.

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

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 75 \text{ mA}$	$I_E = 0 \text{ mA}$	65	—	—	V
BV_{CES}	$I_C = 75 \text{ mA}$	$V_{BE} = 0 \text{ V}$	65	—	—	V
BV_{EBO}	$I_C = 25 \text{ mA}$	$I_C = 0 \text{ mA}$	3.0	—	—	V
I_{CES}	$V_{CE} = 40 \text{ V}$	$V_{BE} = 0 \text{ V}$	—	—	30	mA
h_{FE}	$V_{CE} = 5 \text{ V}$	$I_C = 10 \text{ A}$	10	—	—	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1090 \text{ MHz}$	$P_{IN} = 55 \text{ W}$	$V_{CC} = 40 \text{ V}$	325	350	—	W
hc	$f = 1090 \text{ MHz}$	$P_{OUT} = 325 \text{ W}$	$V_{CC} = 40 \text{ V}$	40	45	—	%
G_P	$f = 1090 \text{ MHz}$	$P_{OUT} = 325 \text{ W}$	$V_{CC} = 40 \text{ V}$	7.7	8.0	—	dB

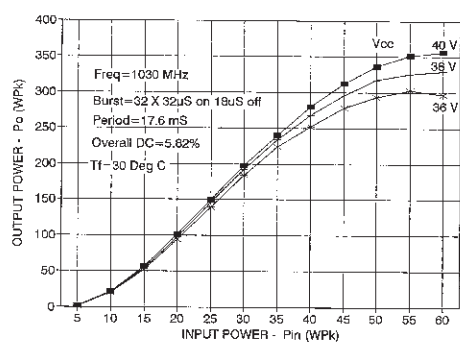
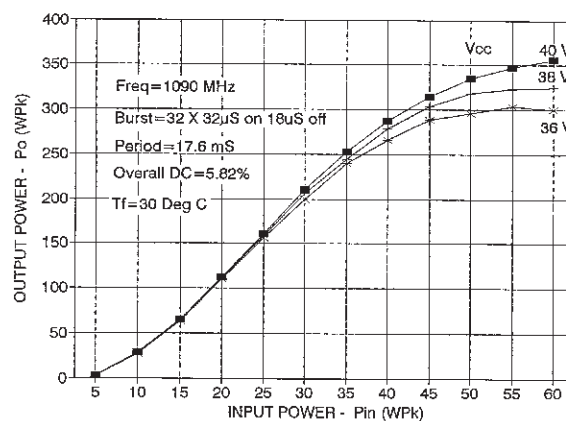
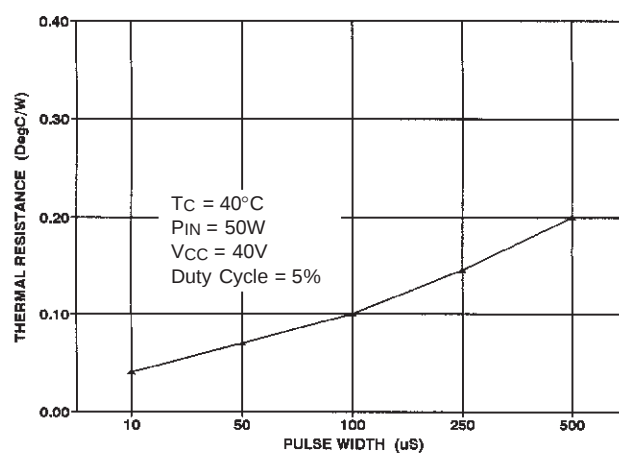
Pulse Conditions: Pulse width = 200 μs , Duty Cycle = 5%, are equivalent to the following pulse burst conditions:

Mode-S Interrogator (freq = 1030MHz)

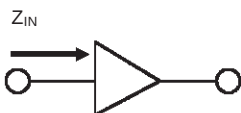
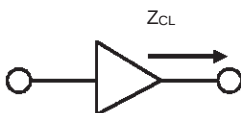
32 pulses, 32 μs on, 18 μs off, burst period = 17.6ms

long term duty = 5.82%

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT
@ 1030 MHzPOWER OUTPUT vs POWER INPUT
@ 1090 MHzMAXIMUM THERMAL RESISTANCE vs
PULSE WIDTH

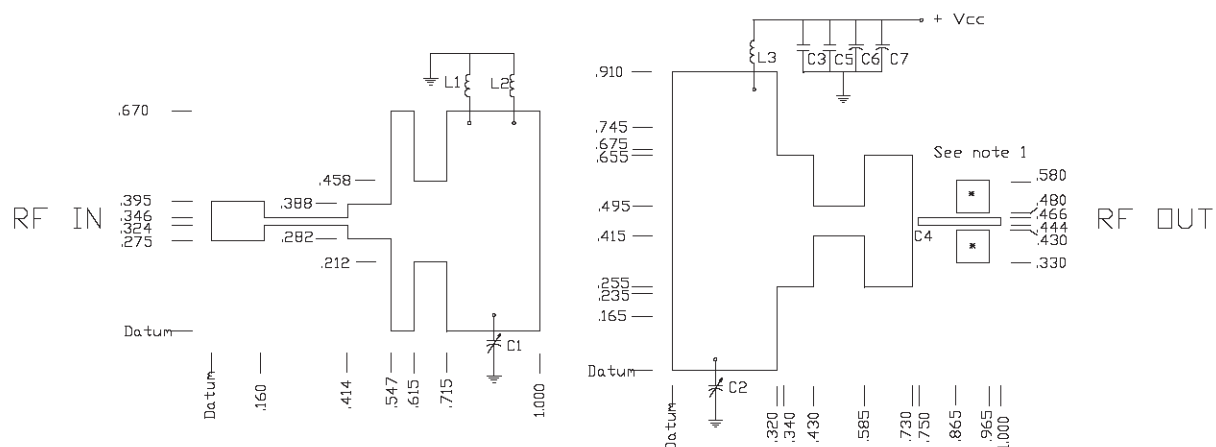
IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL
COLLECTOR LOAD

FREQ.	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
1030 MHz	$0.7 + j 4.1$	$0.78 - j 2.4$
1090 MHz	$0.65 + j 4.2$	$0.4 - j 2.4$

 $P_{IN} = 55W$

TEST CIRCUIT



C1 : 0.8-8.0 pf Johanson Gigatrim
 C2 : 0.6-4.5 pf Johanson Gigatrim
 C3,C4 : 100 pf Chips
 C5 : 47 pf Chip
 C6 : 10 uF Tantalum, 50 V
 C7 : 100 uF Electrolytic, 63 V
 L1,L2 : Straps 0.300" long, 0.100" wide
 and 0.005" thick
 L3 : 3 Turns #24 wire, 0.085" ID
 Substrate : Er=10.2 H=0.025"

Notes:

1. Freq=1030/1090 MHz
* denotes areas to be connected for 1030 MHz operation only.
2. Power supply should have at least 5 Joules (6600 uF) of energy storage.
3. Air cooling required.
4. All dimensions are in inches.



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.