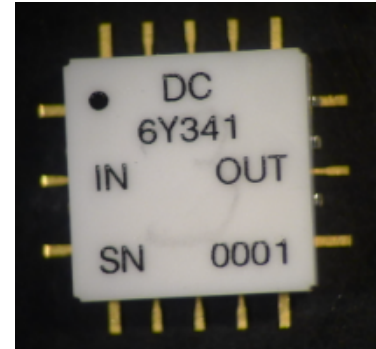


Features:

- **Wide Frequency Range:** 1.0 to 12 GHz
- **Excellent NF :** 1.9 dB @ 6.0 GHz
- **High Gain:** 16 dB @ 6 GHz
- **P-1dB:** 16 dBm @ 6 GHz
- **OIP3:** 28 dBm @ 6 GHz
- **Bias Condition:** VDD = 5 V and IDD = 55 mA
- **50-Ohm On-chip Matching**
- **Unconditionally Stable:** 50 MHz to 20 GHz
- **7x9 mm, 16 Lead Hermetic Ceramic SMT Package**
- **Also Available in Low Cost Non-Hermetic SMT Packages**



Applications:

- **Satellite Communications**
- **Space and Hi-Rel Applications**
- **EW Systems**
- **Telemetry**
- **Test Instrumentation**
- **Microwave Point-to-Point Radios**
- **Wide-band Communication Systems**
- **Commercial Wireless System**

Description:

The MLA-01122B-H7 is a packaged fully-matched broadband Low-Noise MMIC amplifier utilizing high-reliability low-noise GaAsAl/InGaAs PHEMT technology. This MMIC is suited for Satellite Communications, Microwave radios, Instrumentation, Wideband Systems and also many commercial wireless applications where low-noise figure with high-gain is desirable. It has excellent gain (16 dB) and Noise Figure (1.9 dB, mid-band) over a broad frequency range. Typical P-1dB is 16 dBm with OIP3 of +28dBm @ 6 GHz. Its on-chip bias circuit, choke, and DC blocking provide bias stability and ease of use. Available in 7x9mm, 16 Lead Ceramic SMT Hermetic Package.



MLA-01122B-H7

1 - 12 GHz Low Noise MMIC Amplifier in Hermetic Package
Preliminary Data Sheet

Electrical Specifications: $V_{DD}=+5.0V, V_{G1}=+0.14V, V_{G2}=+2V, I_{DD}=55mA, T_a=25\text{ }^{\circ}C, Z_0=50\text{ ohm}^{(1)}$

Parameter	Units	Typical	Test Conditions
Frequency Range	GHz	1 - 12	
Noise Figure	dB	1.8 1.9 2.0	1 GHz 6 GHz 12 GHz
Gain	dB	16	1 – 12 GHz
Gain Flatness	+/-dB	1.0	1 – 12 GHz
Input Return Loss	dB	10 8	1 - 8 GHz 8 - 12 GHz
Output Return Loss	dB	13 9	1 - 10 GHz 10 - 12 GHz
Output P-1dB	dBm	17.0 16.0 15.0 13.0	1 GHz 6 GHz 10 GHz 12 GHz
Output IP3 @ 0 dBm/tone, 1 MHz separation	dBm	31 28 25	1 GHz 6 GHz 12 GHz
Operating Bias Conditions: V_{DD} I_{DD}	V mA	+ 5 55	$V_{G1}= +0.14\text{ V typ.}$ $V_{G2}= + 2\text{ V, typ.}^{(1)}$
Stability Factor K		> 1	0.05 to 20 GHz

(1) All Data is measured on Evaluation Board, with V_{G2} bias derived from V_{DD} bias using resistive voltage divider as shown in Evaluation Board Schematic & Layout. V_{G1} is used to set the desired bias current. Typical V_{G1} ranges from +0.1 to +0.2 V.



MLA-01122B-H7

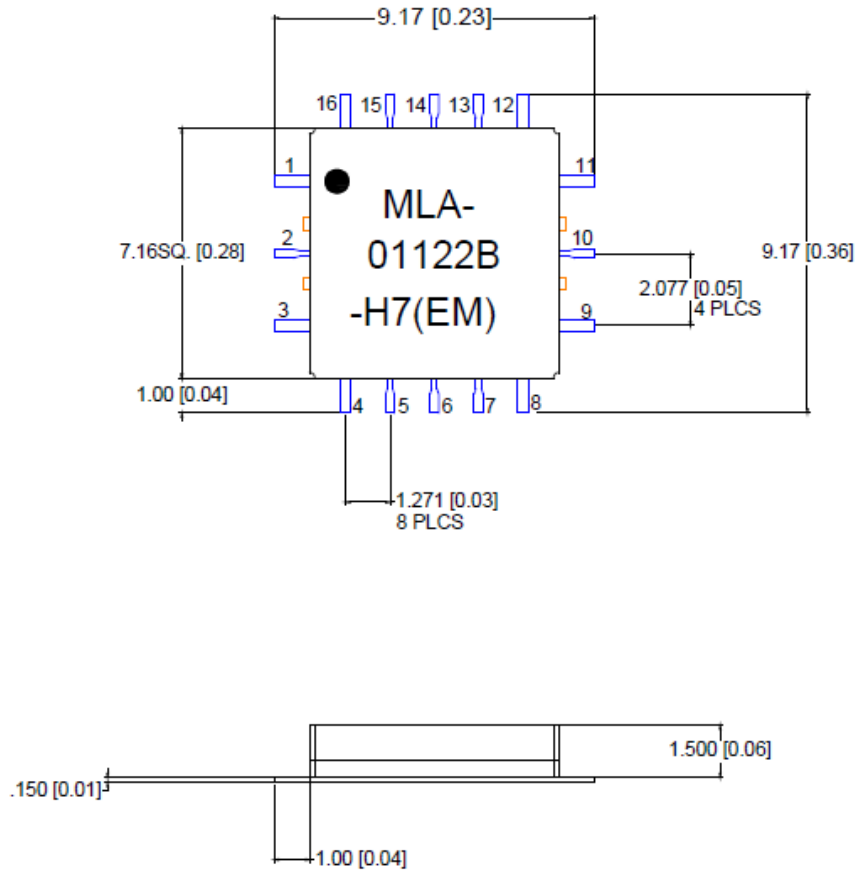
1 - 12 GHz Low Noise MMIC Amplifier in Hermetic Package Preliminary Data Sheet

Absolute Maximum Ratings:

SYMBOL	PARAMETERS	UNITS	ABSOLUTE MAXIMUM
VDD	Drain Voltage	V	7
IDD	Drain Current	mA	75
Pdiss	DC Power Dissipation	W	0.4
Pin max	RF Input Power	dBm	13
Toper	Operating Case/Lead Temperature Range	°C	- 40 to + 85
Tch	Channel Temperature	°C	150
Tstg	Storage Temperature	°C	-60 to +150

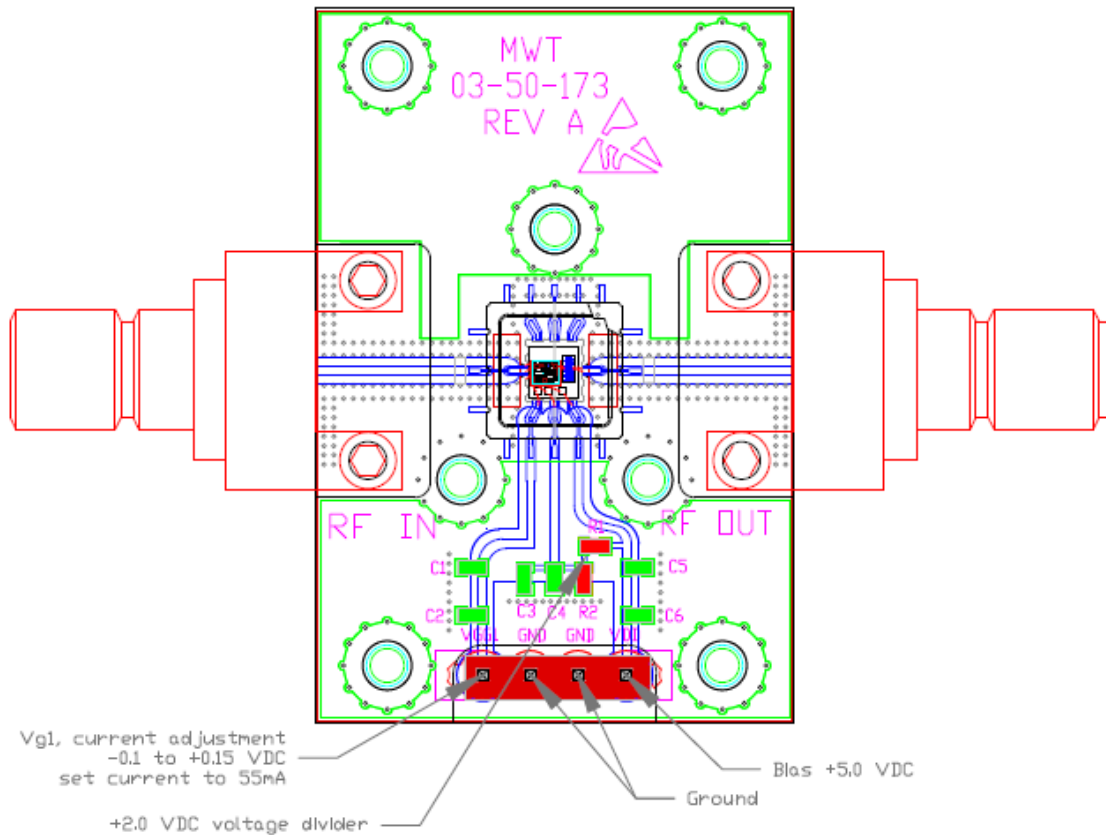
*Operation of this device above any one of these parameters may cause permanent damage.

Outline Drawing



PACKAGE PINOUTS			
1	GROUND	9	GROUND
2	RF IN	10	RF OUT
3	GROUND	11	GROUND
4	GROUND	12	GROUND
5	Vg1	13	GROUND
6	GROUND	14	GROUND
7	Vd1	15	GROUND
8	GROUND	16	GROUND

Evaluation Board Layout with Bias Components and BOM



		Vendor Part number	MwT M/N	MLA-01122B-H7
C1	1000pF	C0603C102K5RACTU		399-1082-1-ND
C2	0.1uF	0603YC104KAT2A	03-02-593	478-1239-1-ND
C3	1000pF	C0603C102K5RACTU		399-1082-1-ND
C4	0.1uF	0603YC104KAT2A	03-02-593	478-1239-1-ND
C5	1000pF	C0603C102K5RACTU		399-1082-1-ND
C6	0.1uF	0603YC104KAT2A	03-02-593	478-1239-1-ND
R1	5.6K	RC0603FR-075K6L		311-5.60KHRCT-ND
R2	3.92K	RC0603FR-73K92L		311-3.92KHRCT-ND