

Waveguide Power Amplifier, 1W 71 - 86 GHz



MAAP-011346-01W12A

Rev. V1A

Features

- E-band Power Amplifier
- 22 dB Typical Gain
- +30dBm Typical Psat (71GHz)
- Internally regulated
- +7 to +8V Supply Voltage
- 2.5A Quiescent, 4.0A (max) under drive
- WR-12 Waveguide Module
- Package Size 1.25" x 1.00" x 1.60"

Description

The MAAP-011346-01W12A is a 1W E-band solid state power amplifier. This GaAs SSPA includes internal voltage regulators and all bias and sequencing circuitry operating with a single 7-8V power supply requiring 2.5A quiescent or 4.0A at saturation. Typical applications include E-band terrestrial & satellite communications, test & measurement, and radar.

Each device is 100% RF tested to ensure performance compliance.

Power-combined versions with up to 16 devices in a single package are also available.



Pin Configuration³

Pin No.	Function	Description
V1	N.C.	No Connect
V2	V+	7-8V Supply ¹
V3	N.C.	No Connect
GND	GND	GND ²

1. The voltage drop through supply wires may be significant. The voltage at the V2 pins must be at least 7V for proper operation.
2. RF & DC Ground are connected to the metal housing.

Waveguide Power Amplifier, 1W

71 - 86 GHz



MAAP-011346-01W12A

Rev. V1A

Electrical Specifications: $T_C = 25^\circ\text{C}$, $V_D = +7\text{ V}$, $I_{DQ} = 2.5\text{A}$, CW Operation

Parameter	Test Conditions	Units	Min.	Typ.	Max.
RF Frequency Range	—	GHz	71	—	86
Gain, Small Signal	71 GHz 76 GHz 81 GHz 86 GHz	dB	—	26 22 22 17	—
Output 1dB Compression (P1dB)	71-76 GHz 81-86GHz	dBm	—	28 26	—
Saturated Output Power	Pin = +14dBm 71 GHz 76 GHz 81 GHz 86 GHz	dBm	—	30 30 28 26	—
OIP3	Pout = +20dBm/tone (10MHz Tone spacing) 71-76 GHz 81-86GHz	dBm	—	37 35	—
Input Return Loss	Pin = -20 dBm	dB	—	7	—
Output Return Loss	Pin = -20 dBm	dB	—	10	—
Supply Voltage	—	V	+7	—	+8
Supply Current	Saturated output power, Pin = +14dBm	A	—	3.5	—
Operating Temperature (baseplate)	—	$^\circ\text{C}$	0	—	50

Maximum Operating Ratings

Parameter	Maximum
Input Power	+14 dBm
Supply Voltage	+8V
Max Quiescent Current	2.5A
Max Current, under RF drive	4.5A
Operating Temperature (baseplate)	0°C to +50°C

3. Exceeding any one or combination of these limits may cause permanent damage to this device.
4. MACOM does not recommend sustained operation near these survivability limits.

Absolute Maximum Ratings^{3,4}

Parameter	Absolute Maximum
Input Power	+17 dBm
Supply Voltage	+10V
Max Current, under RF drive	5.0A
Operating Temperature (baseplate)	75°C
Storage Temperature	-55°C to +125°C

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices. This device is classified as Class 1C for HBM.

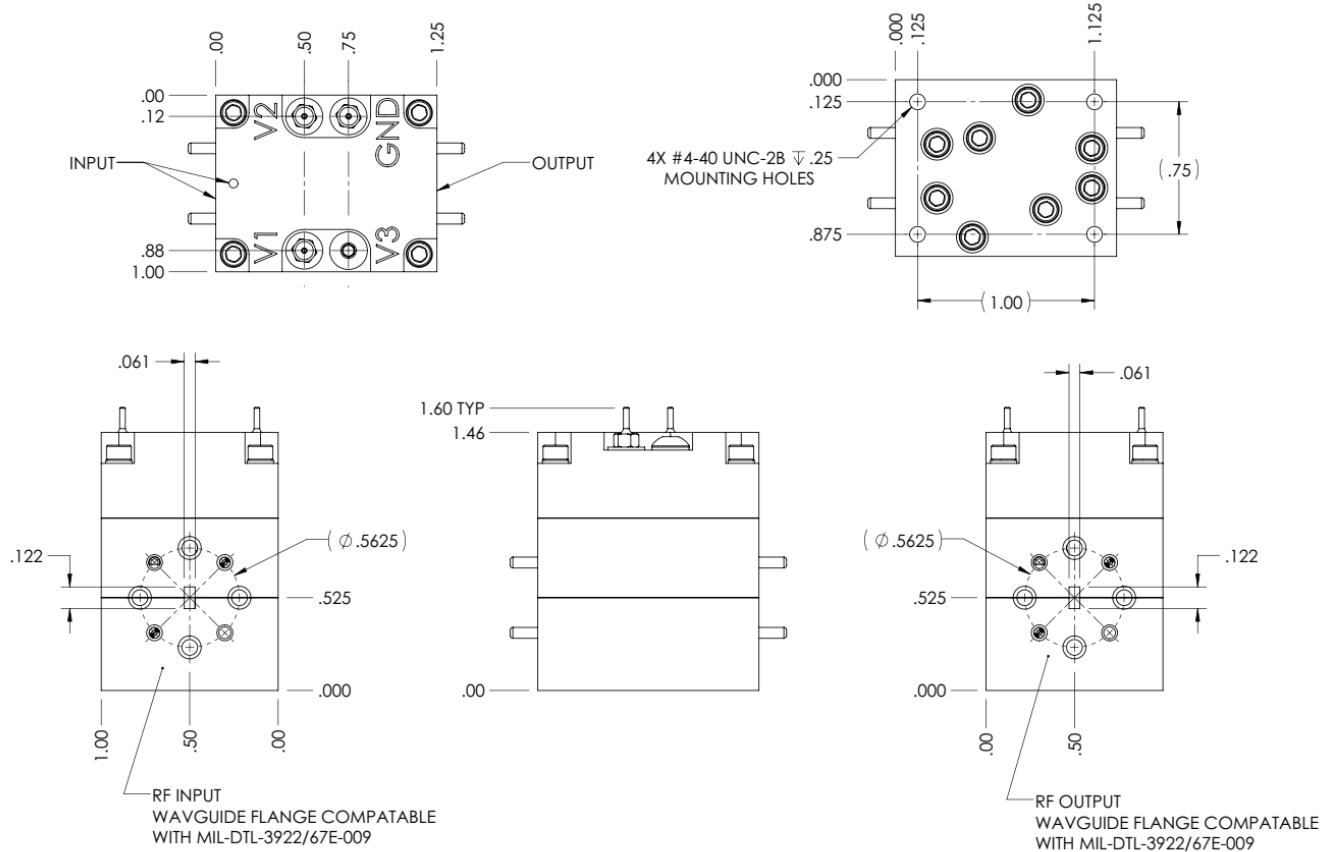
Waveguide Power Amplifier, 1W 71 - 86 GHz



MAAP-011346-01W12A

Rev. V1A

Package Dimensions⁵



5. Dimensions are in inches

MACOM Technology Solutions Inc. ("MACOM"). All rights reserved.

These materials are provided in connection with MACOM's products as a service to its customers and may be used for informational purposes only. Except as provided in its Terms and Conditions of Sale or any separate agreement, MACOM assumes no liability or responsibility whatsoever, including for (i) errors or omissions in these materials; (ii) failure to update these materials; or (iii) conflicts or incompatibilities arising from future changes to specifications and product descriptions, which MACOM may make at any time, without notice. These materials grant no license, express or implied, to any intellectual property rights.

THESE MATERIALS ARE PROVIDED "AS IS" WITH NO WARRANTY OR LIABILITY, EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHT, ACCURACY OR COMPLETENESS, OR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.