Waveguide Solid State Power Amplifier, 10W
71 - 76 GHz

MAAP-011385-16W12A

Rev. V1A

Features

- E-band Power Amplifier
- 20 dB Typical Gain
- +40dBm Typical Psat (71GHz)
- Internally regulated
- +7 to +8V Supply Voltage
- 40.0A Quiescent, 80.0A (max) under drive
- WR-12 Waveguide Module
- Package Size 4.00” x 1.78” x 13”

Description

The MAAP-011346-16W12A is a 10W 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 40.0A quiescent or 80.0A at saturation. Typical applications include E-band terrestrial & satellite communications, test & measurement, and radar.

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

Pin Configuration[1,2,3]

Pin No.	Function	Description
V1	N.C.	7-8V Supply[4]
V2	V+	7-8V Supply[4]
J1-1	V-	-6 to -8V Supply
J1-2	N.C.	No Connect
J1-3	N.C.	No Connect
J1-4	GND	GND[3,5]

1. V1 & V2 must both be connected in order for amplifier to turn on. V1 & V2 are not connected internally.
2. Negative supply must be present for amplifier to turn on.
3. Two Lugs on the opposite side of V1 & V2 must be connected to ground with wire sufficient to carry 40A each.
4. The voltage drop through supply wires may be significant. The voltage at the V1 & V2 pins must be at least 7V for proper operation.
5. RF & DC Ground are connected to the metal housing

Electrical Specifications: T_C = 25°C, V_D = +7 V, I_{DQ} = 40.0A, CW Operation

Parameter	Test Conditions	Units	Min.	Typ.	Max.
RF Frequency Range	—	GHz	71	—	76
Gain, Small Signal	71 GHz 76 GHz	dB	— —	24 20	— —
Output 1dB Compression (P1dB)	71-76 GHz	dBm	—	39	—
Saturated Output Power	Pin = +27dBm	dBm	—	40	—
OIP3	Pout = +30dBm/tone (10MHz Tone spacing)	dBm	—	48	—
Input Return Loss	Pin = -20 dBm	dB	—	15	—
Output Return Loss	Pin = -20 dBm	dB	—	15	—
Supply Voltage	—	V	+7	—	+8
Supply Current	Saturated output power, Pin = +27dBm	A	—	56.0	—
Operating Temperature (baseplate)[6]	—	°C	0	—	50

Maximum Operating Ratings

Parameter	Maximum
Input Power	+27 dBm
Supply Voltage	+8V
Max Quiescent Current	5.0A
Max Current, under RF drive	9.0A
Operating Temperature (baseplate)	0°C to +50°C

Absolute Maximum Ratings[4,5]

Parameter	Absolute Maximum
Input Power	+30 dBm
Supply Voltage	+9V
Max Current, under RF drive	80.0A
Operating Temperature[6] (baseplate)	75°C
Storage Temperature	-55°C to +125°C

4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.
6. Extreme thermal management and heat sinking must be used to keep unit within it's maximum operating temperature. Contact MACOM for suggestions.

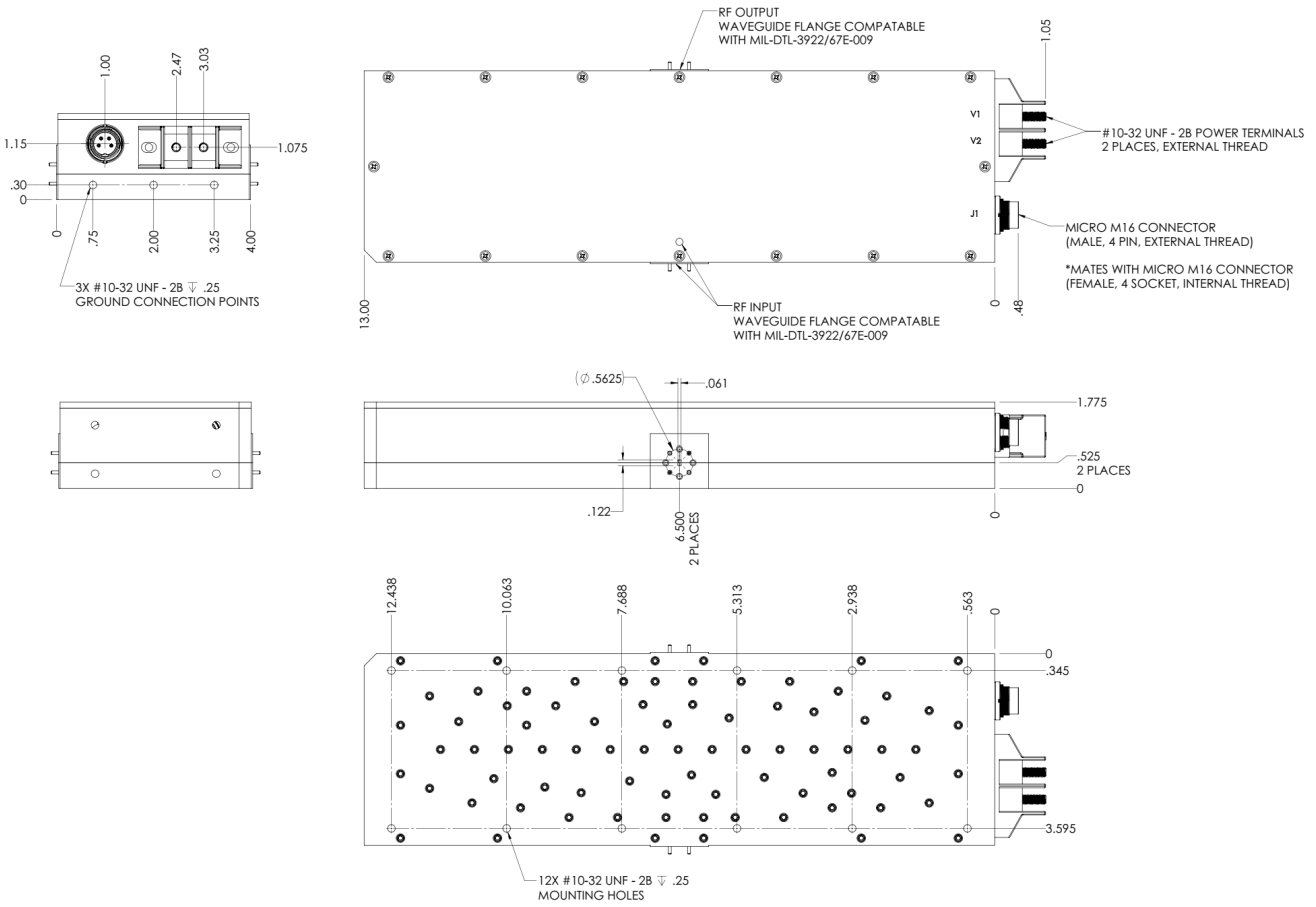
Handling Procedures

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.

Package Dimensions[7]



7.Dimensions are in inches