10W Q-Band Power Amplifier
39GHz~48GHz

Features

- Wideband Solid State Power Amplifier
- 50 Ohm Matched.

Typical Applications

- Wireless Infrastructure
- Short Haul / High Capacity Links
- RF Microwave and Vsat
- Military & Aerospace Applications
- Test Instrumentation

RoHS Compliant

Electrical Specifications, T_A=25 ℃

Parameter	Min	Typ	Max	Units
Frequency Range		39 ~ 48		GHz
Gain	36	40	44	dB
Input Return Loss		-15	-10	dB
Output Return Loss		-18	-10	dB
Output Power For 1dB Compression (P1dB)		39		dBm
Saturated Power (Psat)		40		dBm
Supply Current (Vdd=+24V)		6.3	8	A
Power Supply		36		V
Isolation S12	60	65		dB
RF Input Power		2		dBm
Weight		4000		g
Impedance		50		Ohms
Input / Output Connectors		2.4mm - Female		
Finishing		Gold Plating		
Material		Aluminum / Copper		

* P1dB, P3dB and Psat power testing signal: 200μs pulse width with 10% duty cycle.
* For average CW power testing, a 5dB back off from Psat is required unless water/oil cooling system is applied.

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Absolute Maximum Ratings	
Supply Voltage	+40 Vdc
RF Input Power (RFIN)	Psat – Gain Sat
Storage Temperature (°C)	-50 to +125

Note: Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves

Biasing Up Procedure	
Step 1	Connect Ground Pin
Step 2	Connect input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dB return loss)
Step 4	Connect +36V biasing
Power OFF Procedure	
Step 2	Turn off +36V biasing
Step 3	Remove RF connection
Step 4	Remove Ground.

Environmental Specifications	
Operational Temperature (°C)	-45 ~ +55
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degree 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40°c
Shock	20G for 11msec half sine wave, 3 axis both directions

Ordering Information		
Part No.	ECCN	Description
RFLUPA39G48GC	3A001	39GHz~48GHz Power Amplifier

Amplifier Use

Ensure that the amplifier input and output ports are safely terminated into a proper 50 ohm load before turning on the power. Never operate the amplifier without a load. A proper 50 ohm load is defined as a load with impedance less than 1.9:1 or return loss larger than 10dB relative to 50 Ohm within the specified operating band width.

Power Supply Requirements

Power supply must be able to provide adequate current for the amplifier. Power supply should be able to provide 1.5 times the typical current or 1.2 times the maximum current (whichever is greater).

In most cases, RF - Lambda amplifiers will withstand severe mismatches without damage. However, operation with poor loads is discouraged. If prolonged operation with poor or unknown loads is expected, an external device such as an isolator or circulator should be used to protect the amplifier.

Ensure that the power is off when connecting or disconnecting the input or output of the amp.

Prevent overdriving the amplifier. Do not exceed the recommended input power level.

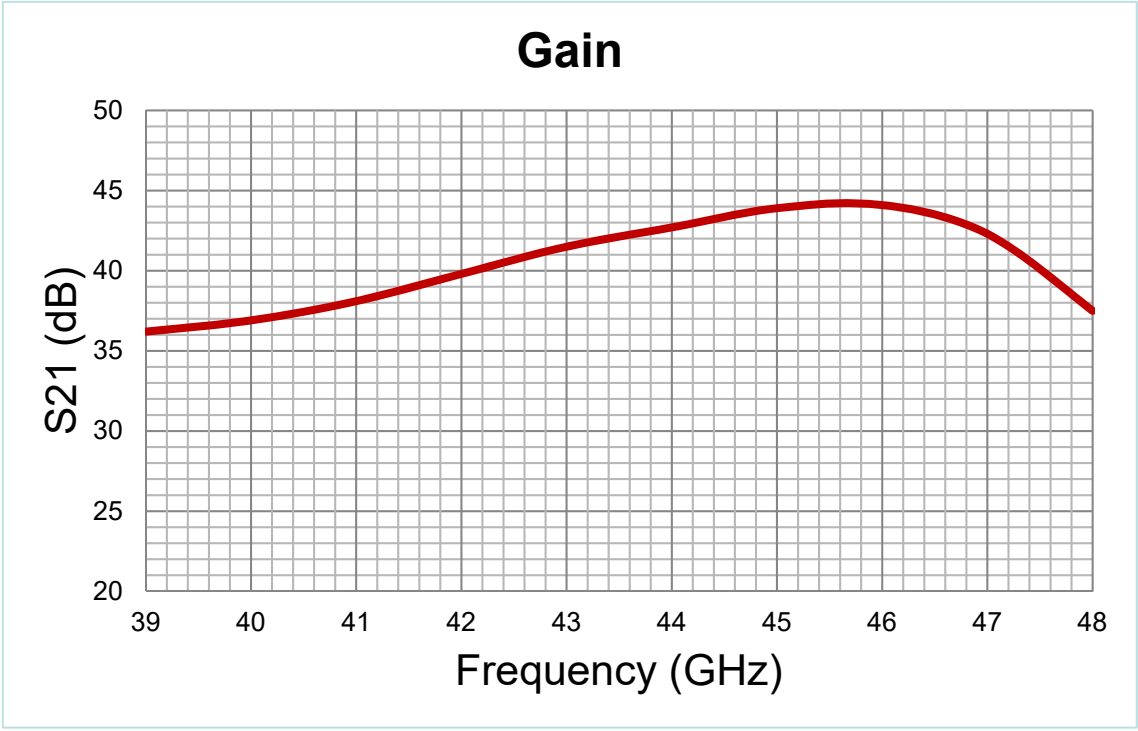
Adequate heat-sinking required for RF amplifier modules. Please inquire.

Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

Each RF - Lambda amplifier will go through power and temperature stress testing.
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.


Gain
S21 (dB)
50
45
40
35
30
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20
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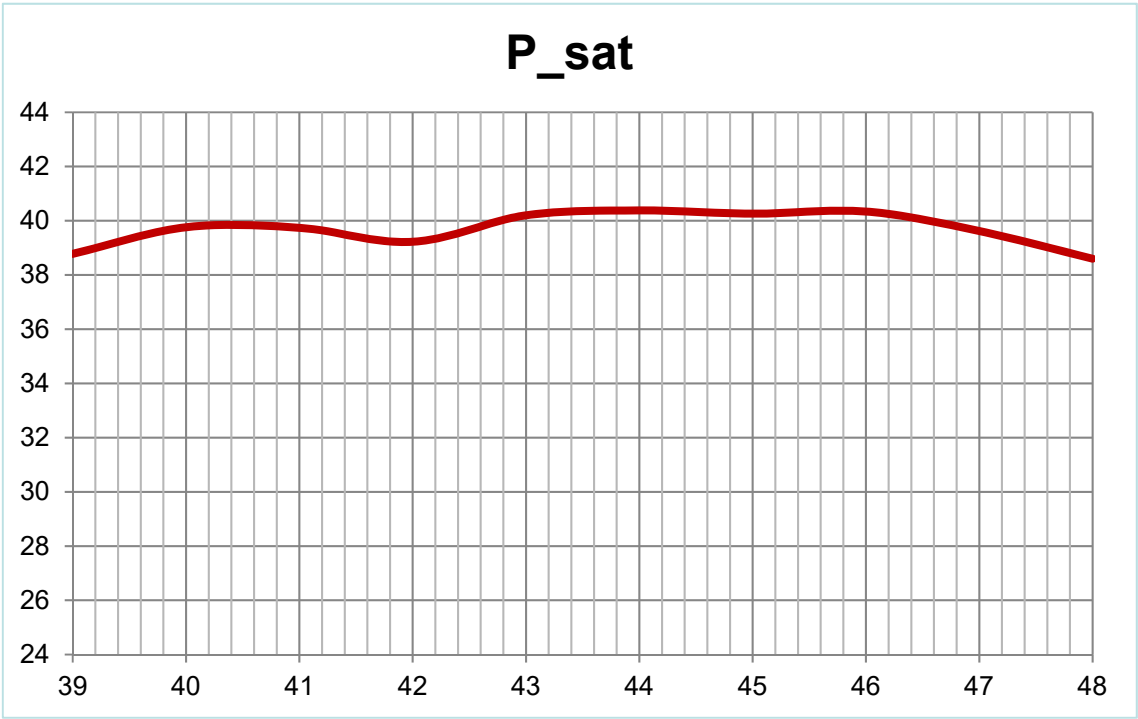
45
46
47
48
Frequency (GHz)


P_sat
44
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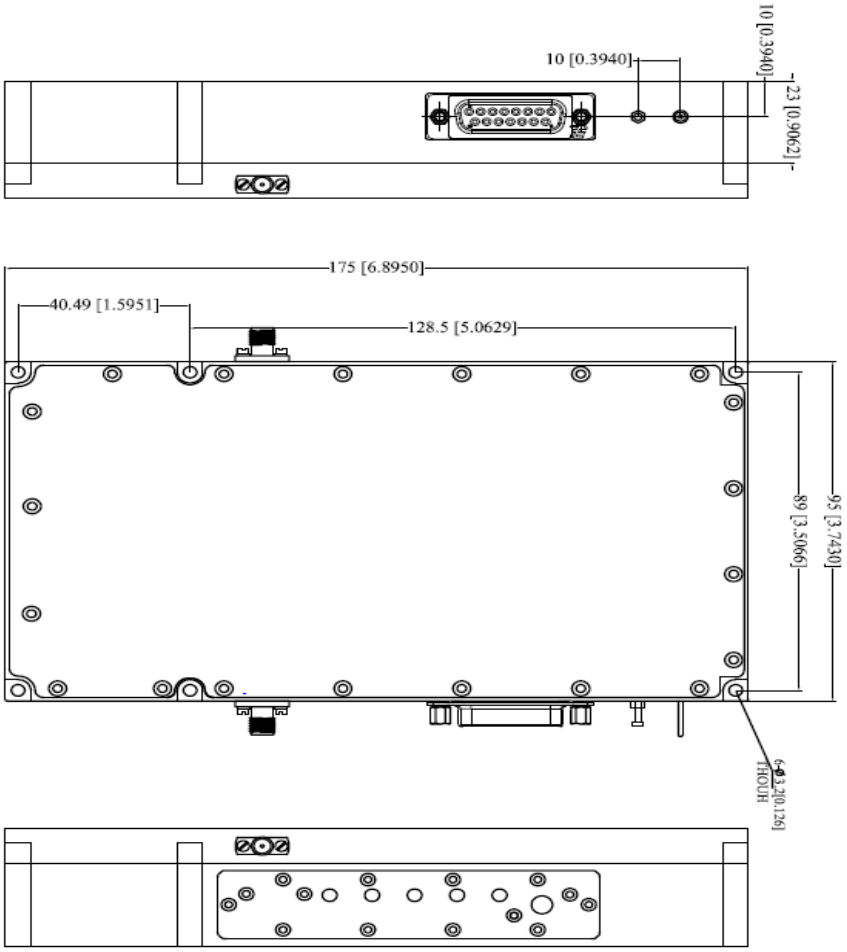
Outline Drawing:

All Dimensions in mm [inches]



Heat Sink and cooling fan required during operation

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Important Notice

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