40W Broadband High Power Amplifier Module 0.8GHz~4.2GHz

Note: Photo is for illustration purposes only.
Please refer to outline drawing.

RoHS Compliant

Features

- Broadband High Power
- High Efficiency
- High Linearity
- Small Size & Light Weight
- Low Distortion

Electrical Specifications, T_A = +25°C, VDD = +28V

Parameter	Min.	Typ.	Max.	Units
Frequency Range	0.8		4.2	GHz
RF Output Power		50		Watt
Power Gain		47		dB
Power Gain Flatness		±2		dB
Input Return Loss			-10	dB
Harmonics @20W		-15		dBc
Spurious Signals		-60		dBc
Switching Speed		2	5	us
Impedance		50		Ω
Operating Voltage	24	28	30	Volt
DC Current @ POUT = 40W			13	Amp

Mechanical Specifications

Dimensions	150x90x25mm
Weight	1.5 kg
RF Connectors Input	SMA, Female
RF Connectors Output	SMA, Female
DC Interface Connector	D-Sub 9-Pin, Male
Cooling	External Heatsink Required (Not Supplied)

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Absolute Maximum Ratings

Input RF drive level without damage	+10dBm (Max)
Load VSWR @ POUT =30W	∞ @ all load phase & amplitude for duration of 1 minutes; 3:1 @ all load phase & amplitude continuous

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-20℃~+60℃
Storage Temperature		-55℃~+125℃
Thermal Shock		1 Hour@ -45℃ → 1 Hour @ +85℃ (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & Temperature Burn In		Temperature +85℃ for 72 Hours
Shock		1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s 2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s 3. Total 18 times (6 directions, 3 repetitions per direction).
Altitude		Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)
Hermetically Sealed (Optional)	MIL-STD-883	MIL-STD-883 (For Hermetically Sealed Units)

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.

Harmonics Performace Vs Frequecy (Pout@20W)

Freq	MHz	800	1100	1400	1700	2000	2300	2600	2900	3200	3500	3800	4200
Harmonics	dBc	-14	-14	-10	-26	-17	-20	-30	-33	-30	-23	-24	-23
Spurious	dBc	-60											
Switching Time @1KHz On/Off	us	On: 500ns						Off: 700ns					

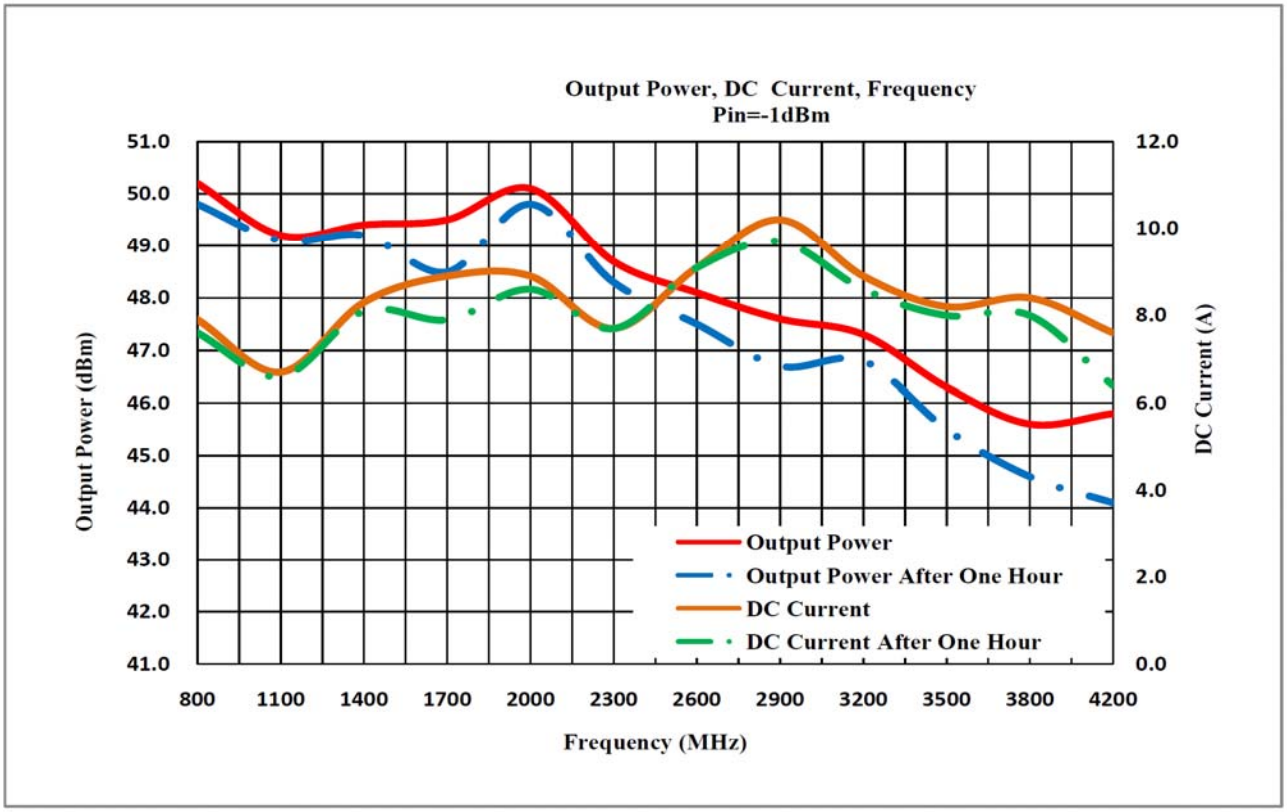
Current Sense Vs Current

Current	A	9	7	5	4
Current Sense	V	1	0.7	0.5	0.4

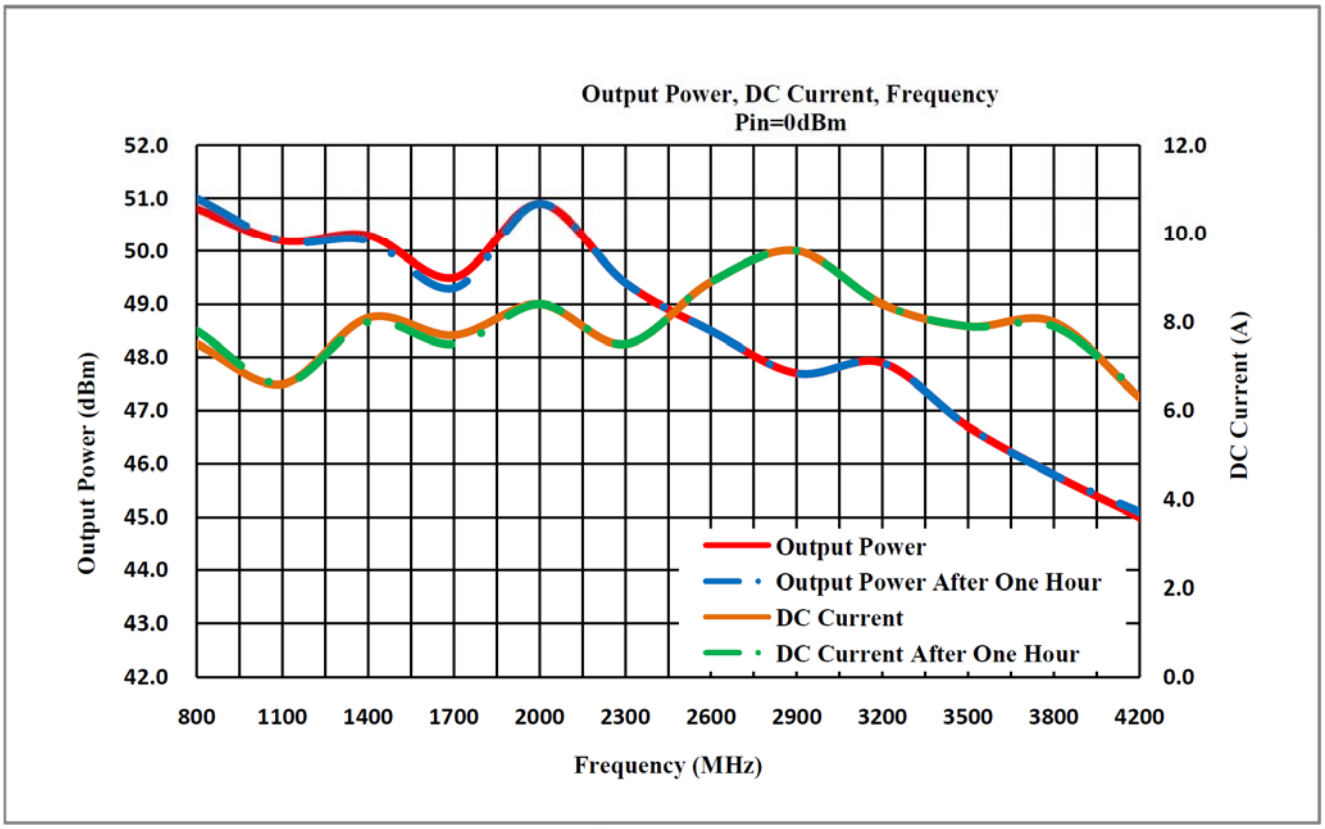
Temp. Sense

Temp. Sense	V	-20℃/0.31V	25℃/0.8V	60℃/1.10V

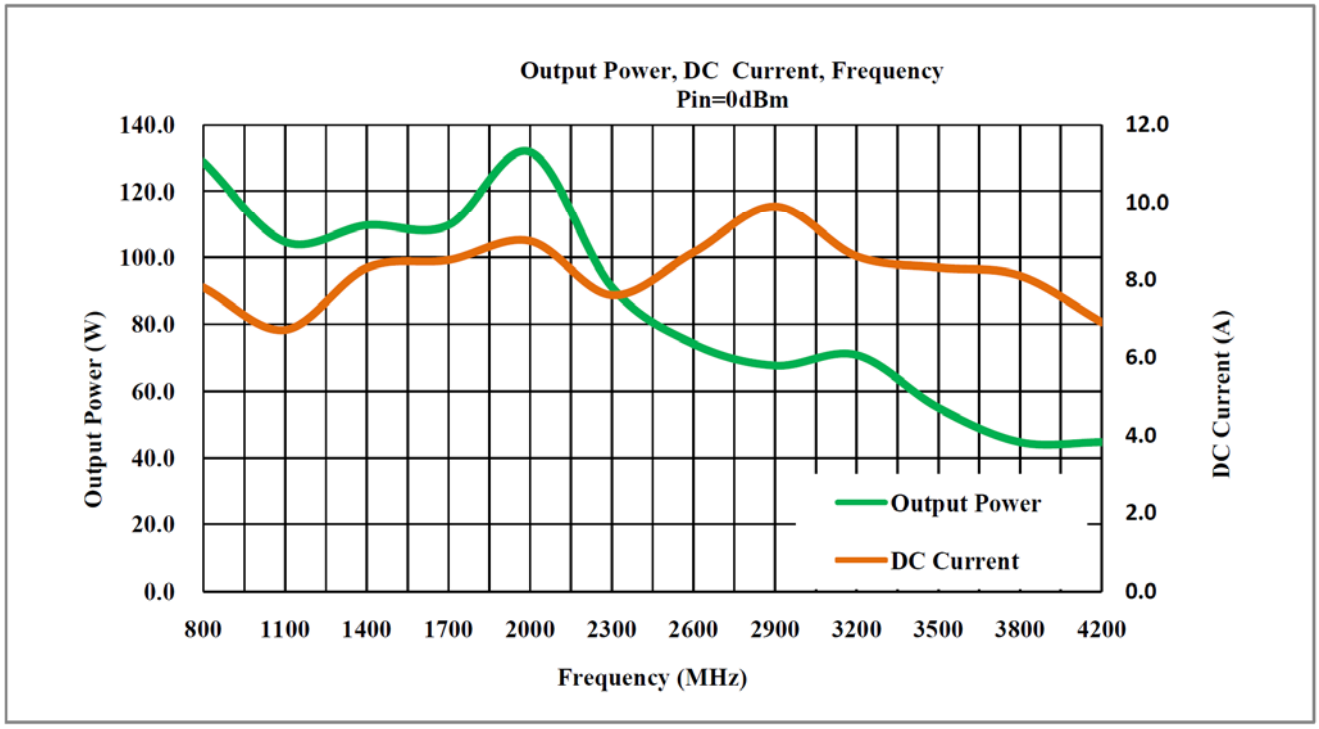
Graph1: Output Power (Low temp. -20±3℃)



Graph2: Output Power (High temp. +60±3℃)



Graph3: Output Power (Normal temp. +25±3℃)



Power Gain:

Input Return Loss:

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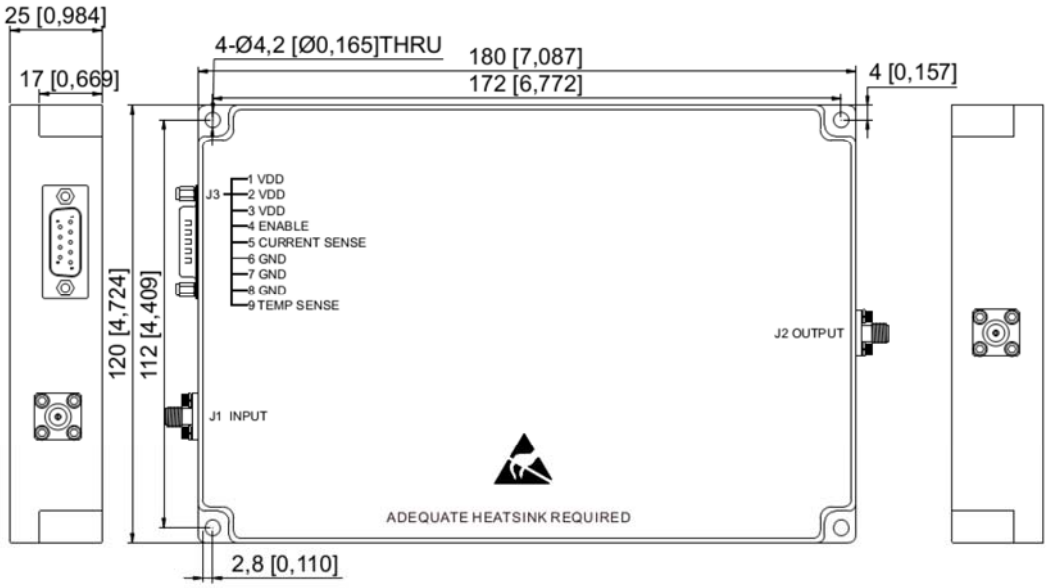
Outline Drawing:

All Dimensions in mm [inches]



DC Interface Connector

Pin #	Description	Specifications
1,2,3	VDD	28VDC
4	ENABLE	Amplifier Enable: TTL Logic High (3.3V) (Internally Pulled-Low)
5	CURRENT SENSE	Analog voltage relative to IDD @ 100mV per Ampere
6,7,8	GND	Ground
9	TEMP SENSE	Analog voltage relative to Module's Temperature @ 10 mV/°C

Important Notice