



# RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

## RFLUPA5M25MK

### 50W Broadband High Power Amplifier Module 500 – 2500MHz



#### Features

- Ultra-broadband Amplifier Module
- Small and lightweight
- Supply Voltage: +28V

#### Typical Applications

- Wireless Infrastructure
- Test and Measurement
- Aerospace and Military

Electrical Specifications,  $T_A = +25^\circ\text{C}$ ,  $V_{dd} = +28\text{V}$

| Parameter                        | Min. | Typ.      | Max. | Units    |
|----------------------------------|------|-----------|------|----------|
| Frequency Range                  | 500  |           | 2500 | MHz      |
| Output Power CW                  |      | 50        |      | Watt     |
| Power Gain                       |      | 47        |      | dB       |
| Gain Flatness                    |      | $\pm 2.5$ |      | dB       |
| Input Return Loss                |      |           | -10  | dB       |
| Harmonics @ POUT = 30W           |      | -15       |      | dBc      |
| Spurious Signals                 |      | -55       |      | dBc      |
| Impedance                        |      | 50        |      | $\Omega$ |
| Operating Voltage                | 24   | 28        | 32   | Volt     |
| Current Consumption @ POUT = 50W |      | 6         |      | Amp      |
| Switching Speed                  |      | 2         |      | us       |

#### Mechanical Specifications

|                        |                                           |
|------------------------|-------------------------------------------|
| Dimensions             | 140x85x20.5mm                             |
| Weight                 | 0.7Kg                                     |
| 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               | $\infty$ @ all load phase & amplitude for duration of 1 minute;<br>3:1 @ all load phase & amplitude continuous |
| Over Temperature                    | 85°C @ heatsink(restored @ 60°C )                                                                              |

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### Environmental Specifications and Test Standards

| Parameter                        | Standard      | Description                                                                                                                                                                                                     |
|----------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Temperature          | MIL-STD-39016 | -20°C~+60°C                                                                                                                                                                                                     |
| Storage Temperature              |               | -20°C~+65°C                                                                                                                                                                                                     |
| Thermal Shock                    |               | 1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)                                                                                                                                                                       |
| Random Vibration                 |               | Acceleration Spectral Density 6 (m/s)<br>Total 92.6 RMS                                                                                                                                                         |
| Electrical & Temperature Burn In |               | Temperature +85°C for 72 Hours                                                                                                                                                                                  |
| Shock                            |               | 1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s<br>2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s<br>3. Total 18 times (6 directions, 3 repetitions per direction). |
| Altitude                         | MIL-STD-883   | Standard: 30,000 Ft (Epoxy Sealed Controlled Environment)<br>Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)                                                                                             |
| Hermetically Sealed (Optional)   |               | MIL-STD-883 (For Hermetically Sealed Units)                                                                                                                                                                     |



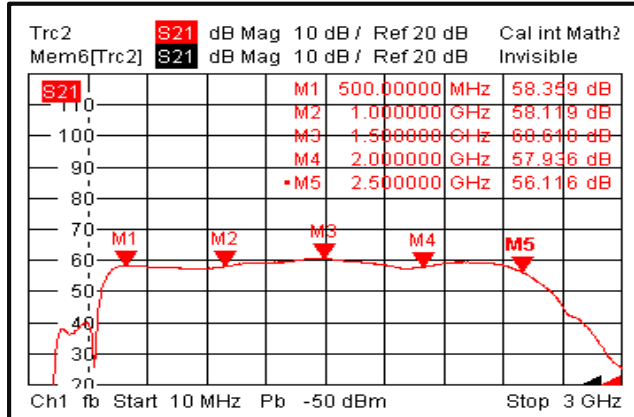
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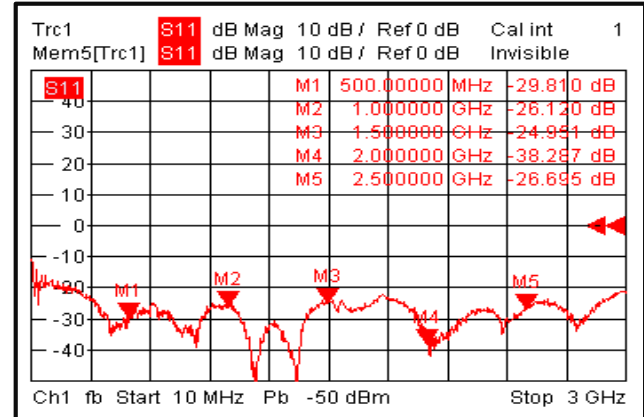
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### Typical Performance Plots

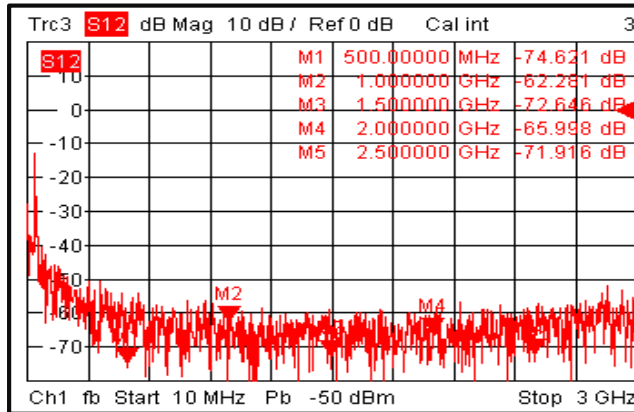
#### Gain



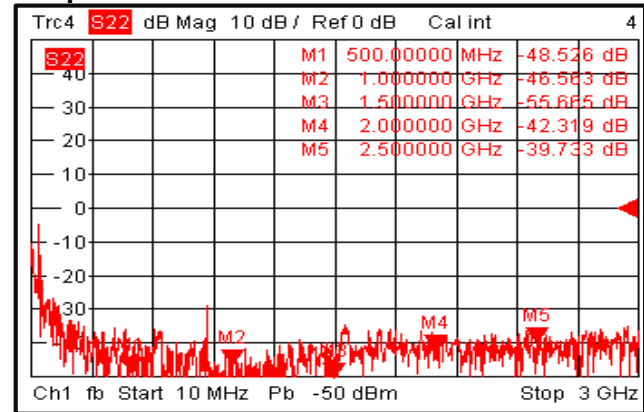
#### Input Return Loss



#### Isolation



#### Output Return Loss

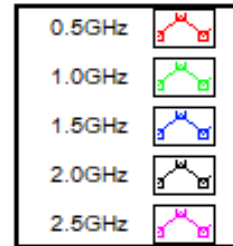
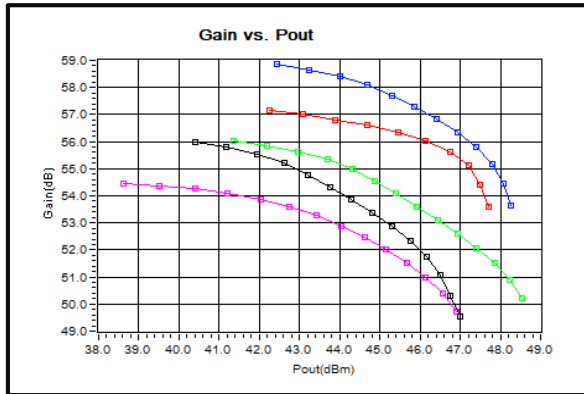


Note: Input/output return loss measurements include attenuators to protect equipment

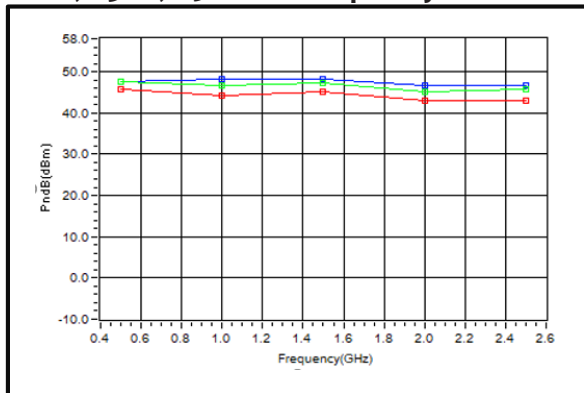
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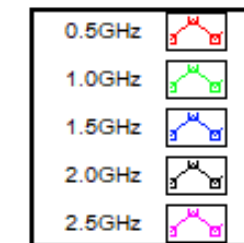
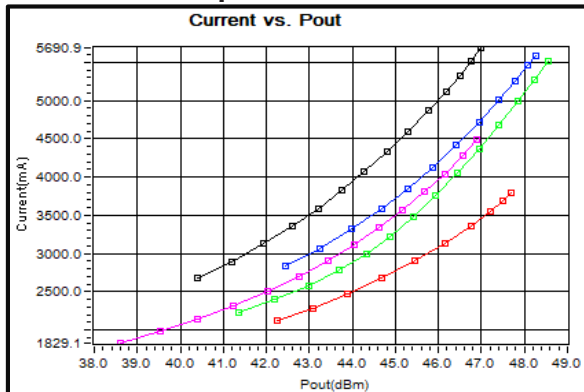
### Gain vs. Output Power



### P1dB, P3dB, P5dB vs. Frequency



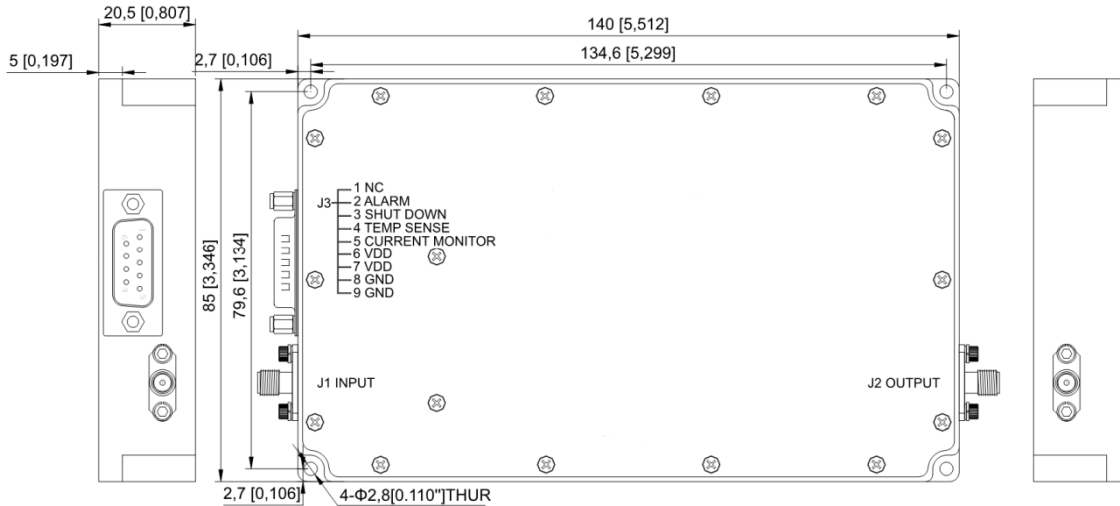
### Current vs. Output Power





### Outline Drawing:

All Dimensions in mm [inches]



### DC Interface Connector

| Pin # | Description   | Specifications                                                  |
|-------|---------------|-----------------------------------------------------------------|
| 1,2,3 | VDD           | 50V <sub>DC</sub>                                               |
| 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      |



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