

## PowerBlast™ 300

250 Watts CW,  
2400 MHz to 2500 MHz,  
300W Saturated Pout

P/N: ERN-PP-2425-300-ID



Images are for reference only.  
See Product Specifications.

**E-REON's PowerBlast 300 is a compact, highly efficient, connectorized solid state power amplifier that delivers over 250 watts of RF power over the 100MHz BW of ISM 2.45GHz frequency band.**

The amplifier accepts a nominal 22 dBm (160 mW) RF input and provides 33 dB of gain from 2400 MHz to 2500 MHz for continuous wave (CW) and constant envelope input signals. Based on the latest and more mature LDMOS technology, this high power amplifier achieves drain efficiency of 60% (final stage) and more than 57% in module level at rated power<sup>1</sup>.

**E-REON Green Series PAs feature, PA Enable function and Active Bias as standard functions . The units can be provided in machined aluminum housing, or in pallet form. For proper thermal management E-REON provides customized solutions of forced air or water-cooling plates. For more information, please contact us at [info@e-reon.com](mailto:info@e-reon.com).**

### Features

- Min 250 Watts RF Output Power
- 2400 MHz to 2500 MHz
- Small Form Factor
- High-Efficiency LDMOS Technology
- 22 dBm Nominal RF Input
- Logic On/Off Control

### Benefits

- Minimal integration requirements
- Ease of use
- Reduced load on DC power budget due to high efficiency operation
- Requires less volume on space-constrained platforms

### Applications

- Solid State Cooking driver
- Food Science Labs
- Power "Brick" in multiport cavity excitation
- Plasma Generation
- RF Lighting
- RF Ignition
- Laboratory equipment
- Telecom links

<sup>1</sup> Pallet's efficiency varies according to extra features employed to the module.

# PowerBlast 300

## Specifications

### Absolute Maximums

Parameter	Rating	Unit
Max Device Voltage	32.5	V
Max Device Current	18	A
Max Load VSWR	5:1	-
Max RF Input Power, ZL = 50 Ω	30	dBm
Max Operating Temperature (ambient)	55	°C
Max Operating Temperature (baseplate)	85	°C
Max Storage Temperature	150	°C

### Export Classification

EAR99

### Electrical Specifications @ 28 VDC, 20 °C, ZS=ZL=50 Ω,

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Operating Frequency	BW	2400		2500	MHz	
RF Output Power	P <sub>SAT</sub>	54.6		54.9	dBm	20°C TR FlangeTemperature
Output Power @ 1dB Compression	P1dB	53.8		54.5	dBm	
Gain	G	32		33	dB	
Gain Flatness	ΔG	0		1	dB	
Input VSWR	VSWR			2:1		
Nominal Input Drive Level	P <sub>IN</sub>		22		dBm	For P1dB out
Operating Voltage	VDC	28		32	V	
Quiescent Current (RF Enable Off)	I <sub>DQ</sub>			1	mA	
Quiescent Current (RF Enable On)	I <sub>DQ</sub>	200	225	270	mA	
Operating Current	I <sub>D</sub>		16		A	@P1dB
Module Efficiency		55		58	%	@28VDC
Switching Speed	T <sub>XON/OFF</sub>	1			μs	
Harmonics	2nd			40	dBc	
	3rd			55		
Output Mismatch (No Damage)	VSWR <sub>load</sub>			5:1		External isolator required if the module is to operate under continuous mismatch. For integrated circulator please contact: <a href="mailto:info@e-reon.com">info@e-reon.com</a>

## Specifications (cont.)

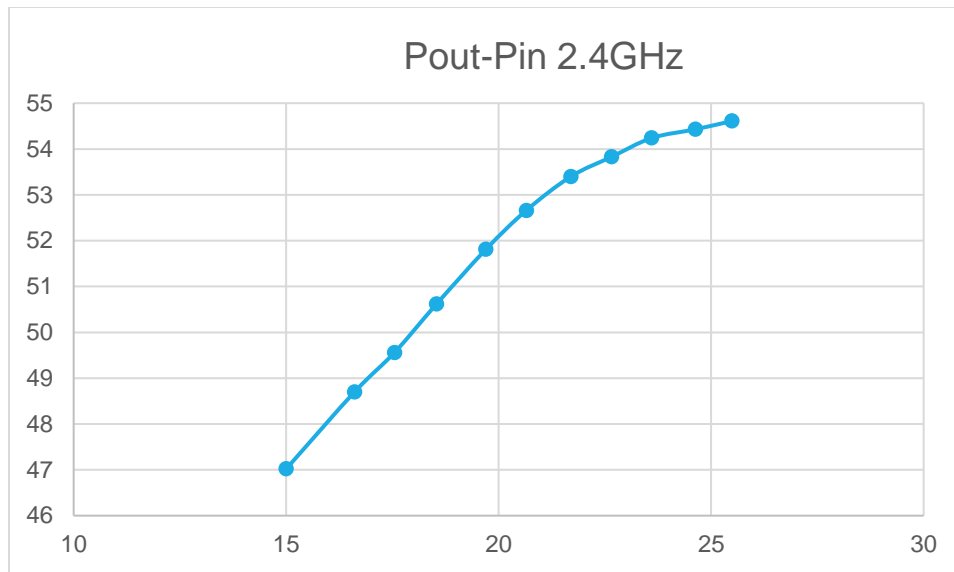


Figure 1: Output power vs Input power at 2.4GHz (50 Ohm load).

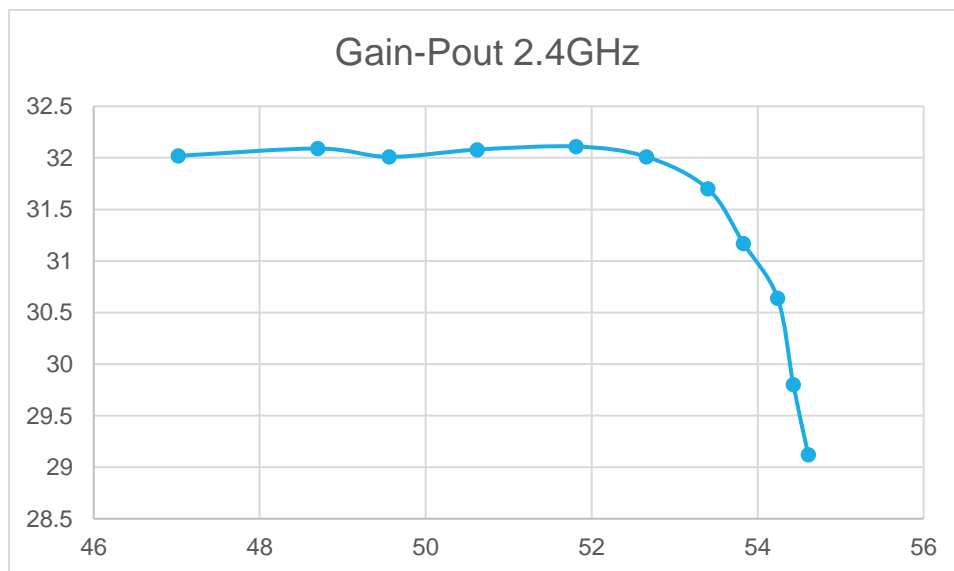


Figure 2: Gain variation with output power at 2.4GHz (50 Ohm load).

## Specifications (cont.)

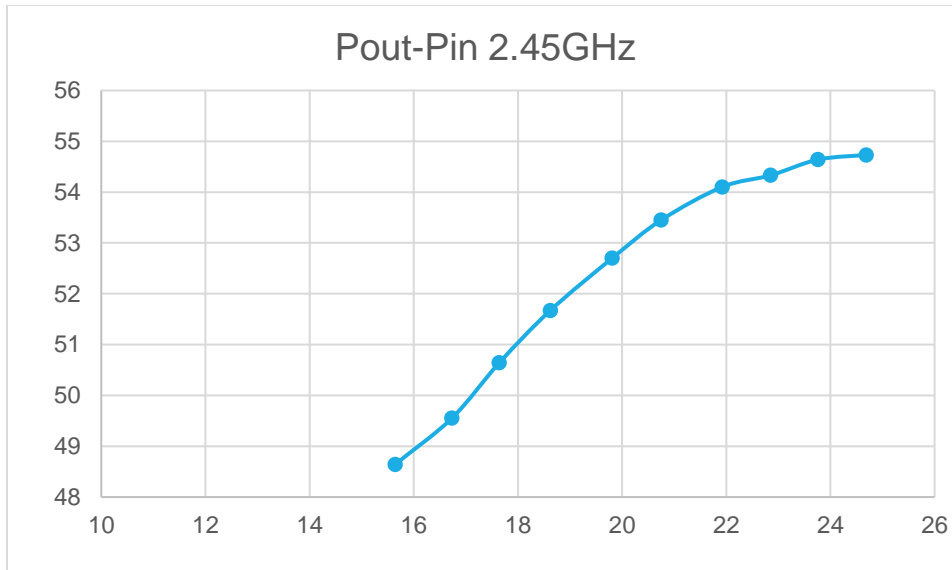


Figure 3: Output power vs Input power at 2.45GHz (50 Ohm load).

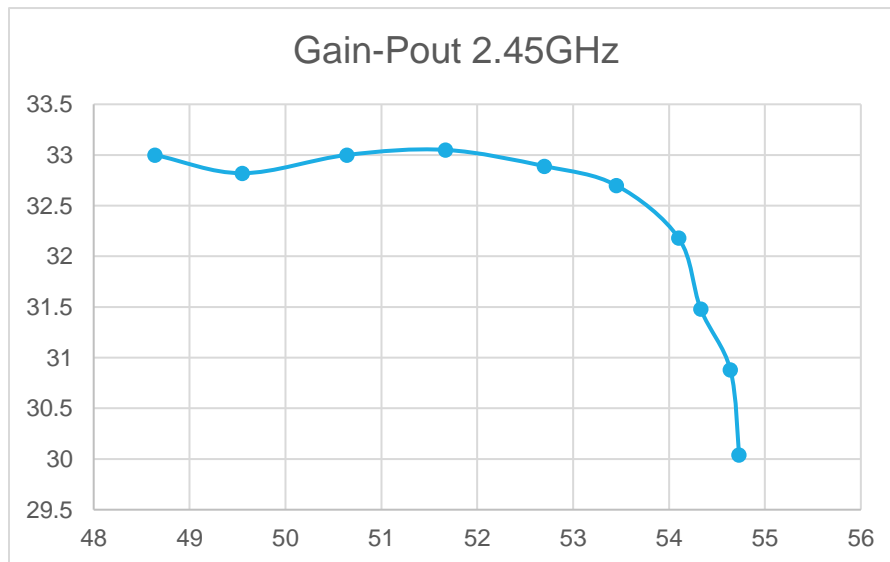


Figure 4: Gain variation with output power at 2.45GHz (50 Ohm load).

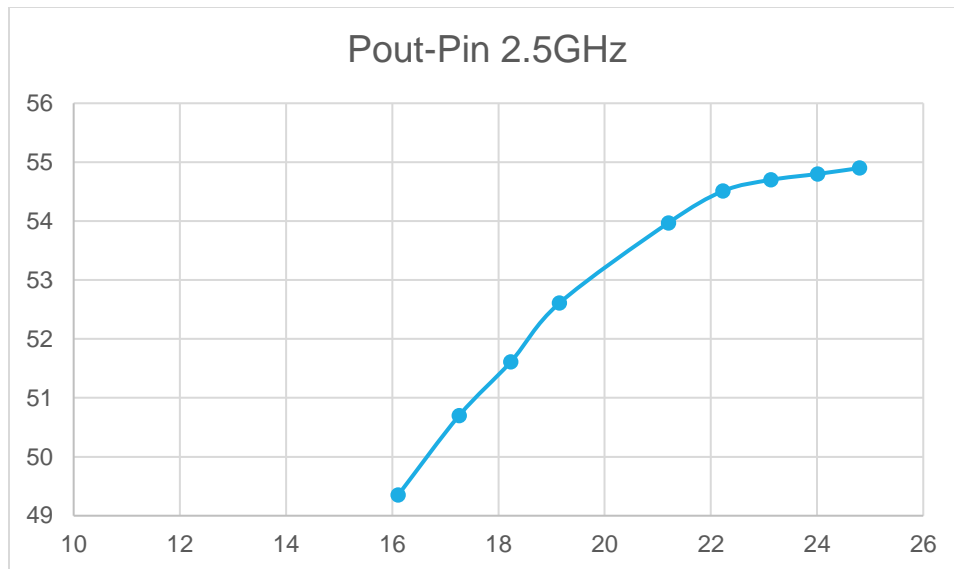


Figure 5: Output power vs Input power at 2.5GHz (50Ohm load).

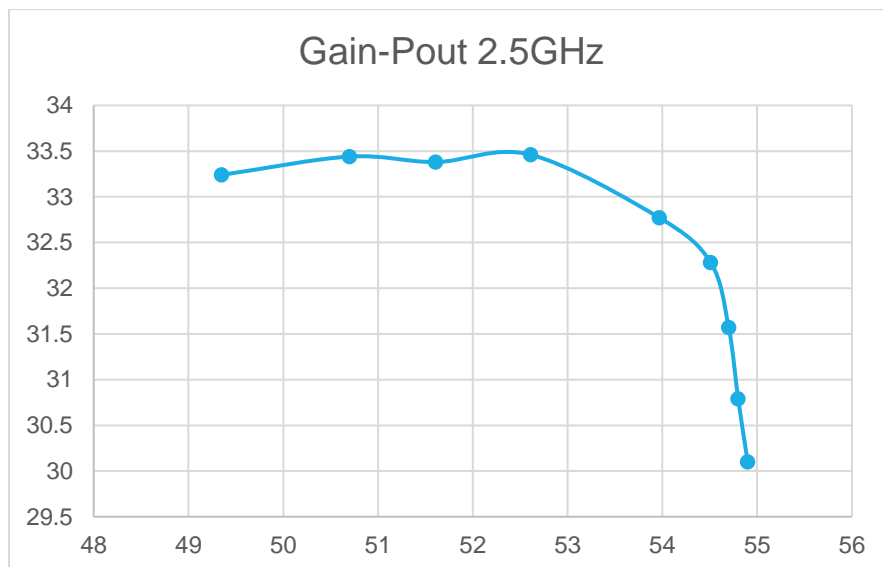


Figure 6: Gain variation with output power at 2.45GHz (50Ohm load).

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## Mechanical specifications

Parameter	Value	Unit	Limits
Dimensions	127.5x59x10	mm	158x59x18.85 (connectors included)
Weight	276	grams	
RF Connectors, Input/Output	SMA(F)/Ntype(F)	-	
Interface Connector	Solder Pads	-	M3 thread provided for ring terminal (GND)
Cooling	Adequate Heatsink (not included)	-	Depends on mode of operation. Consult factory contact: <a href="mailto:info@e-reon.com">info@e-reon.com</a>

## Environmental Specifications

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature (ambient)	Ta	-20		85	°C
Operating Temperature (baseplate)	Tc	-20		55	°C
Storage Temperature	Tstg	-30		150	°C
Relative Humidity (non-condensing)	RH	N/A	N/A	N/A	%
Altitude	N/A	N/A	N/A	N/A	ft
Vibration / Shock Profile		N/A <sup>2</sup>			

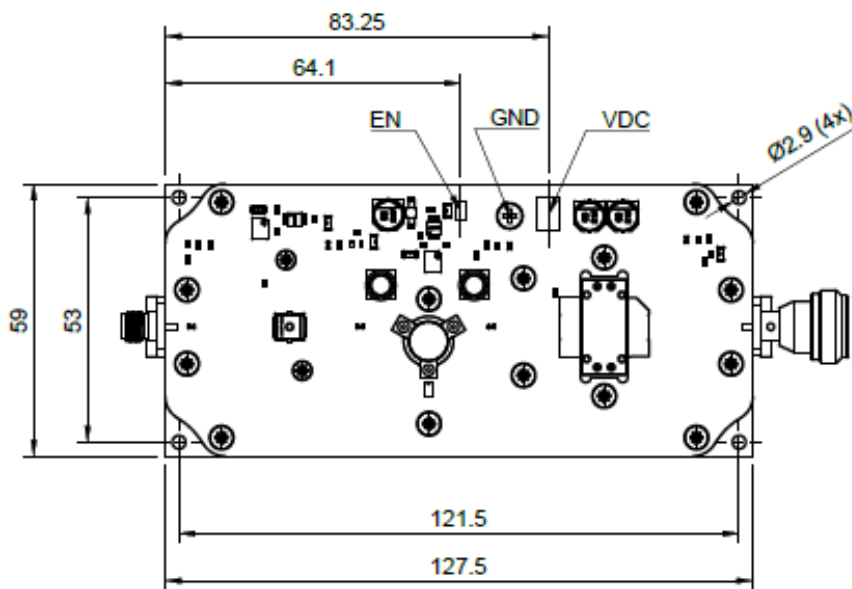
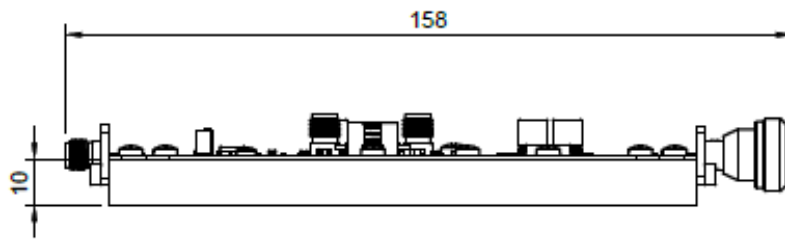
<sup>2</sup> N/A: Not Applicable

### Operation

- This pallet offers two solder pad terminals (for DC Power and Control voltages) and for the Ground a solder pad as also a M3 thread for securing ring ground terminal.
- For proper module operation the module must be powered with 28 to 32 Volts.
- **! Never Exceed 32.5V or permanent damage might occur**
- The control pin (EN) operates as:
  - 0 to 1V “OFF state”
  - 1V to Vdc “ON state”
- **! Never exceed the Vdc voltage at the EN terminal. Permanent damage may occur.**
- The module consumes 16A at 28V at P1dB.
- Avoid powering the module (DC) with the RF input and/or output connectors non terminated to 50Ohm.
- Avoid running the amplifier at full power with high VSWR loads.
- The amplifier pallet provides an integrated overtemp protection; In case the protection will be triggered the gate bias is set to 0V.
- Adequate heatsink is required for proper operation.

# PowerBlast 300

## Mechanical Outlines





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## Accessory Part Numbers

Part Number	Description
N/A	N/A

## Pinout

Function	Pin	Input/Output
DC power (+28 volt DC)	VDC	I
Ground	GND	O
BIAS Enable	EN	I

## Contact E-REON

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Notes: