

E-REON RF Power Amplifier Module, 1–6 GHz, 20 W, +28 V.

Wideband RF power amplifier module designed for CW and pulsed signals in the 1–6 GHz range. Integrated current and temperature sensors provide monitoring and safe system integration.

FREQUENCY

1–6 GHz

OUTPUT POWER

20 W CW

PEAK POWER

20 W (Psat)

GAIN

43–45 dB

HIGHLIGHTS

- Wideband operation: 1–6 GHz
- Output power: 20 W (43 dBm)
- High gain: 43–45 dB with ± 1.2 dB flatness
- Integrated current and temperature sensors
- 28 V single supply operation

APPLICATIONS

- Radar systems
- Communication jammers
- Test instrumentation
- Broadband RF subsystems



Images are for reference only. Final appearance based on asked configuration.

External heatsink/cold-plate cooling required. Integrated sensors provide current and temperature monitoring.

Electrical Summary

Values @ +28 VDC, 25 °C, $Z_S = Z_L = 50 \Omega$, 0 dBm input unless otherwise noted

Parameter	Value	Unit	Notes
Frequency range	1000-6000	MHz	Continuous coverage
Output power (CW, Psat)	20	W	43 dBm nominal
Output power (CW, Psat)	43	dBm	20 W nominal
Gain	43–45	dB	Small-signal gain
Nominal input drive level	0 (max +10)	dBm	Max +10 dBm
Input VSWR	≤ 1.5	–	Across band
DC supply voltage	28	VDC	Single supply
Efficiency	30	%	Typical at Psat

Absolute Maximum Ratings

Not simultaneous, @ 20 °C ambient

Parameter	Rating	Unit	Notes
Supply Voltage (Vcc)	+30	V	Continuous DC input
RF Input Power, CW	+10	dBm	$Z_L = 50 \Omega$
Output VSWR (no damage)	2:1	—	All phase angles
Quiescent Current (I_{DQ})	2	A	No RF input
Operating Temperature	-45 to +75	°C	Case baseplate
Storage Temperature	-55 to +85	°C	Non-operating

Export Classification

EAR 99

Electrical Specifications

 (+28 VDC, 25 °C, $Z_S=Z_L=50 \Omega$, 0 dBm input unless otherwise noted)

Parameter	Min	Typ.	Max	Unit	Notes
Frequency Range	1	—	6	GHz	Continuous coverage
Gain	+43	+44	+45	dB	Small-signal gain
Gain Flatness	—	±1.2	—	dB	Across full band
Output Power (CW, P_{sat})	—	43	—	dBm	20 W nominal
Nominal Input Drive Level	—	0	10	dBm	Max +10 dBm
Efficiency	—	30	—	%	At P_{sat}
Quiescent Current (I_{DQ})	—	1.5	2	A	+28 VDC, no RF
Input VSWR	—	≤ 1.5	—	—	Across band
2nd Harmonic	—	-12	—	dBc	Typical
3rd Harmonic	—	-15	—	dBc	Typical
Spurious Suppression	—	-70	—	dBc	Typical
OIP3	—	TBD	—	dBm	Two-tone test, 1 MHz spacing
Switching Speed	—	<50	—	μs	PAEN enable to RF output

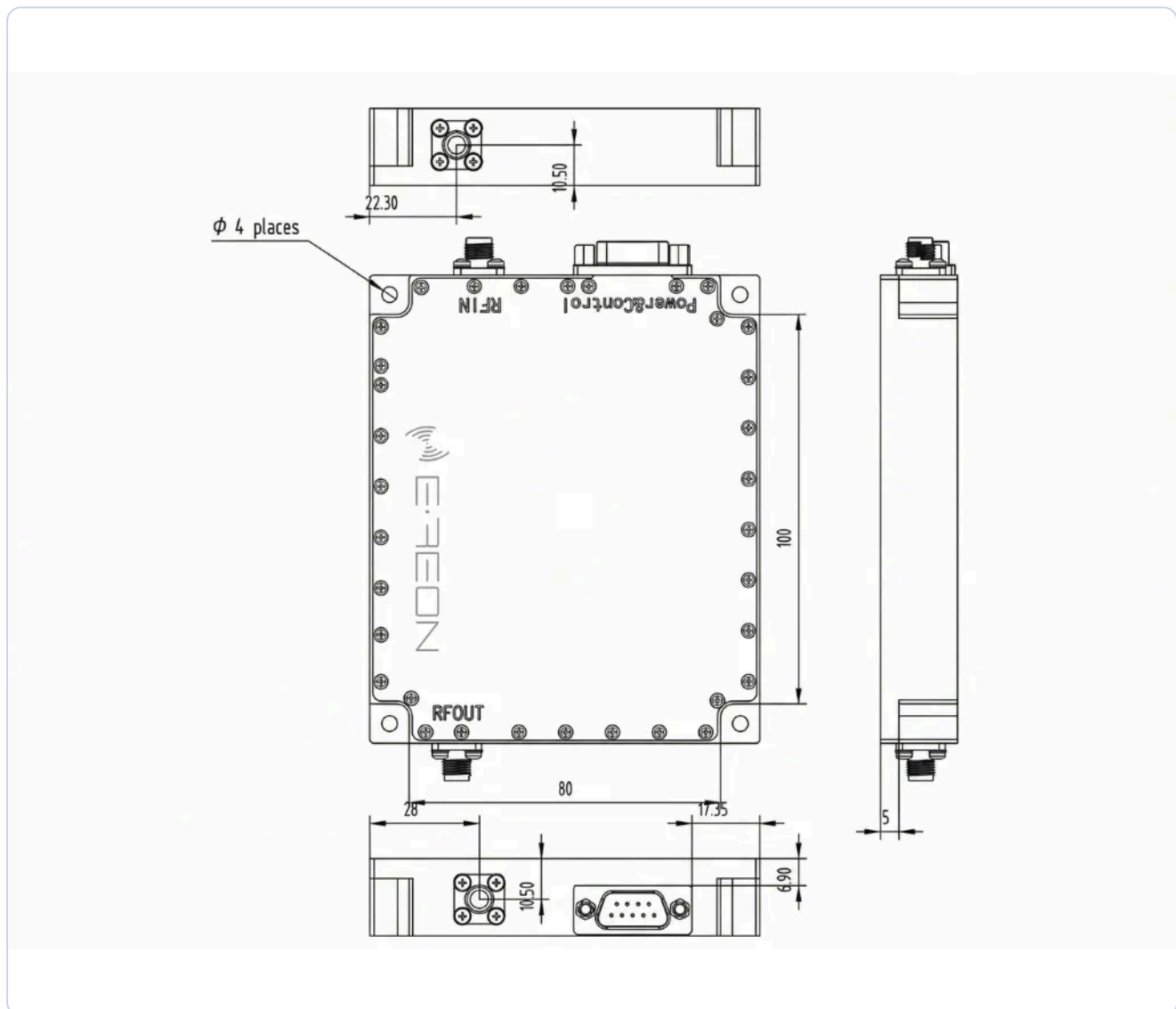
Mechanical Specifications

Module mechanical interface and connectors

Parameter	Value	Unit	Notes
RF Input Connector	SMA Female	—	50 Ω interface
RF Output Connector	SMA Female	—	50 Ω interface
DC / Control Connector	D-sub 9-pin male	—	Power and monitoring signals
Cooling Method	External heatsink / cold plate	—	Baseplate thermal interface
Module Dimensions	See drawing	mm	Reference mechanical drawing
Weight	≤ 2	kg	Maximum

Mechanical Drawing

Reference outline drawing



All dimensions are in millimeters unless otherwise specified. Mechanical drawing is provided for reference only.

Environmental Specifications

Operating conditions

Parameter	Value	Unit	Notes
Operating Temperature	-45 to +75	°C	Baseplate temperature
Storage Temperature	-55 to +85	°C	Non-operating
Humidity	Up to 95	%	Non-condensing

Control Connector Pinout

DB-9 Female control interface

Pin	Signal	Description
1	Vcc	+28 V DC power input (tied to pins 2 and 3)
2	Vcc	+28 V DC power input (tied to pins 1 and 3)
3	Vcc	+28 V DC power input (tied to pins 1 and 2)
4	GND	Power ground (tied to pins 5 and 6)
5	GND	Power ground (tied to pins 4 and 6)
6	GND	Power ground (tied to pins 4 and 5)
7	VTEMP	Temperature sensor output (10 mV/°C)
8	VCUR	Current sensor output (100 mV/A)
9	PAEN	Enable control input (+3.3 V = ON, 0 V = OFF)

Bias Sequencing

Recommended power-up procedure

- Apply +28 V supply to Vcc (pins 1–3 tied together).
- Ensure RF input signal is disabled during initial power-up.
- Enable amplifier by setting PAEN (pin 9) to +3.3 V.
- Apply RF input after the amplifier is enabled.

Monitoring Outputs

Integrated diagnostic sensors

Signal	Description
VTEMP	Analog voltage proportional to temperature: 10 mV/°C .
VCUR	Analog voltage proportional to current: 100 mV/A .

Operation & Warranty

Recommended operating guidance and legal information

Operation (reference)

INSTALLATION & USE

This amplifier module is intended for integration into RF systems using an external heatsink or cold-plate. Ensure proper thermal interface, mounting torque, and airflow/coolant management as applicable.

Follow the recommended bias sequencing and control interface guidance provided in this datasheet before applying RF drive.

KEY OPERATING LIMITS (FROM DATASHEET)

- **RF input power (absolute max):** +10 dBm
- **Nominal RF input operating level:** 0 dBm (max +10 dBm)
- **Supply voltage (absolute max):** +30 V
- **Output VSWR (no damage):** 2:1 (all phase angles)
- **Operating temperature:** -45 to +75 °C (baseplate)

External heatsink/cold-plate cooling is required. Monitor VTEMP and VCUR during operation and verify load match before applying high output levels.

Warranty & liability

Warranty

Warranty terms for this product are provided in E-REON's commercial documentation (quotation / order confirmation / sales terms). The datasheet does not define a warranty period.

Exclusions

This warranty does not cover damage caused by:

- Operating outside of the specified ratings and environmental conditions.
- Improper installation, handling, thermal management, or maintenance.
- Use in applications not approved by E-REON.
- Modification or repair performed by anyone other than E-REON or its authorized service partners.

Liability Disclaimer

Specifications may be updated as part of continuous product improvement, without prior notice. Operation outside the specified ratings and environmental conditions may result in damage and is not covered under standard commercial terms.

About E-REON

RF & Microwave engineering specialists

Founded
2015

Expertise
RF, Microwave & mmWave

Scope
Modules & Subsystems

Manufacturing
EU-based

WHO WE ARE

E-REON B.V. is a Dutch technology-driven company specializing in RF and Microwave solutions. Since 2015, we design, develop, and manufacture high-performance RF hardware for demanding commercial, industrial, defense, and research systems.

Our products are engineered for reliability, ease of integration, and long-term availability, supported directly by the engineers who design them.

WHAT WE DO

- Broadband & pulsed RF power amplifiers
- Solid-state & mechanical RF switch modules (SPDT–SP8T)
- Programmable attenuators, RF sources & matrices
- RF & Microwave test & measurement hardware
- Rack-mounted amplifier subsystems
- Custom integrated RF subsystems and ATE building blocks

ENGINEERING DNA

- Engineering-driven development approach
- Proven designs from MHz to mmWave (up to 40 GHz)
- Short feedback loops between design, test, and production
- Support for customization and long-term availability
- Experience with low-volume, high-reliability programs

INDUSTRIES SERVED

Automotive • Telecom & 5G • Defense & Aerospace
• Scientific Research • Industrial Test & Measurement

COMPLIANCE & QUALITY

- RoHS compliant
- Engineered and manufactured in the Netherlands
- Processes aligned with ISO 9001 / EN 9100 principles
- Designed for high-reliability system integration