

## 200 watt power amplifier module

### Features

- RF input power  $\leq 10$  dBm
- RF output power above 53 dBm
- Small signal gain typ. 48 dB
- High effective class AB mode
- Reverse power protection with isolator and high power attenuator
- Automatic shutdown by overheating
- 50  $\Omega$  system
- Compact case design

### Optional

- Measurement of load matching in operation (hot s-parameter measurement)



Fig. 1: PM-200.3 module with optional connector

### Application

The PM-200.3 module is perfectly suitable for designing 50  $\Omega$  based microwave applications within the ISM frequency range of 2.4 to 2.5 GHz.

The compact design of this module allows you to be flexible in use. The principle schematic of the PM-200.3 module is depicted in Fig. 2, including the load isolation.

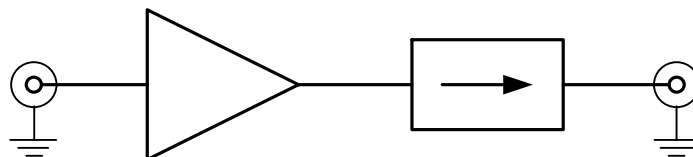


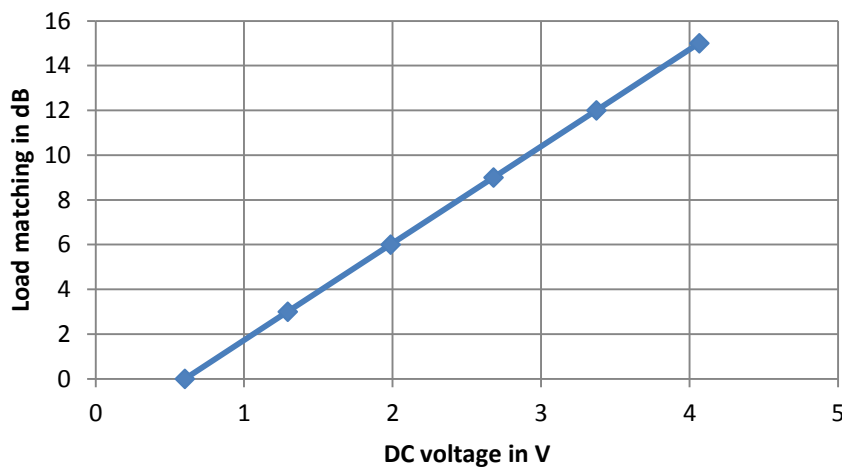
Fig. 2: Principal schematic of the PM-200.3 amplifier module including isolator

## Product Description

The compact designed PM-200.3 is a power amplifier module for the design of 50  $\Omega$  based microwave applications within the nominal ISM frequency range of 2.4 to 2.5 GHz. With an integrated isolator, this module enables an operation with mismatched conditions. The class AB mode design results in a high efficiency of over 43 % in all operational conditions.

Without adequate cooling, the module turns off when operated with a mismatched load for a longer period of time (transistor case temperature of about 95 °C). In this case, a temperature error signal is given. After cooling down to below 60 C, the module is turned on, accompanied with a reset of the temperature error signal.

Optionally, directional couplers with a directivity of over 20 dB can be implemented to measure the load matching during operation (so called hot S-parameter measurement). In this case, a DC voltage proportional to the actual load matching is provided (Tab. 1).



Tab. 1: Load matching versus corresponding DC voltage

## Specifications

Parameter	Min	Typ	Max	Unit	Remark
Frequency range	2.4		2.5	GHz	
Input power		6	10	dBm	
Output power @ 1dB GCP		53.2		dBm	CW operation, 2.45 GHz
Saturated output power		54.1		dBm	pulsed operation, 10% duty cycle (10 $\mu$ s pulse width), 2.45 GHz, @ 3dB GCP
Efficiency	43	46		%	CW operation, 2.45 GHz
Gain		48		dB	small signal
Input RL		10		dB	
Output RL		18		dB	

## Electrical specification

Power supply: 28 VDC (maximal 30 VDC)  
 Power dissipation: up to 560 W  
 PA enable: active low TTL  
 Temperature error: 5 V TTL in case of over temperature

## Physical specification

Size (H x W x D):	195 x 210 x 30 (mm)
Weight:	2.5 kg
Input connector:	SMA
Output connector:	N
Power supply:	D-Sub3 (GND – GND – VDC)
Connector for control / measured signals:	Cinch (3.5 mm)

## Typical performance

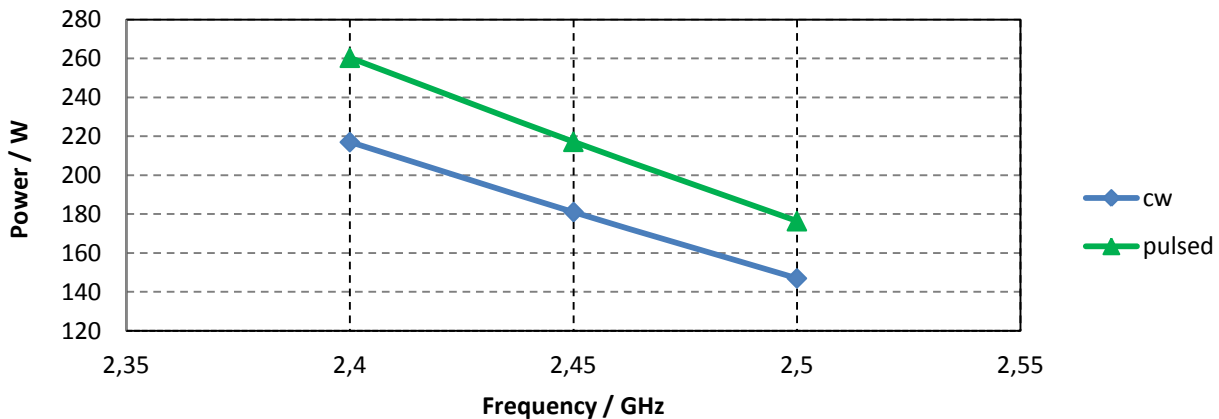


Fig. 3: Output power for CW and pulsed signals over frequency range (input power of 5 dBm)

## Order information

Model: PM-200.3  
 PM-200.3-H (with Hot S-parameter measurement)

## Cooling

We recommend the following cooling:

Amplifier: 2 axial fans in line (intake & exhaust)  
 Power supply: 1 axial fan (exhaust)

## Safety

The amplifier must be grounded. Small objects must be kept away of the front panel cooling fan. Do not remove any panels. The center conductor of the RF output connector should not be touched whilst the unit is in operation. An output power of up to 230 W can be achieved, which may cause skin burns.

## Warranty

2 years warranty from date of shipment.

## Contact information

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