

The RFPA5.8S is a 5.8 GHz RF power amplifier block designed to deliver high output power and good gain for RF transmitter applications operating in the 5.8 GHz band. This block is implemented as an unmatched RF power amplifier core, requiring external (off-chip) matching networks at the input and output to achieve optimum performance.

When properly matched using off-chip RF components, the RFPA5.8S is capable of delivering up to 1 W ( $\approx 30$  dBm) of output power at 5.8 GHz with good power gain. The unmatched architecture provides flexibility to the system designer, allowing the matching network to be optimized for maximum output power, efficiency, bandwidth, or specific load conditions, depending on application requirements.

The RFPA5.8S is intended for integration into RF front-end transmit chains where a dedicated driver stage precedes the power amplifier, and the final output is matched to a standard 50  $\Omega$  load through an external matching network. Its design makes it suitable for high-frequency RF systems requiring compact integration with external impedance tuning.

### Features:

- RF Frequency: 5.5 - 6 GHz
- Small signal gain: 23.7 dB
- Output P1dB: 30.9 dBm
- Saturated Output Power: 31.8 dBm
- DC drain bias voltage: 5 V
- DC Gate bias voltage: -0.5/-0.6 V
- DC supply current: 474 mA
- 0.1 $\mu$ m GaAs pHEMT Technology
- Die Size: 1.2 mm \* 1.02 mm

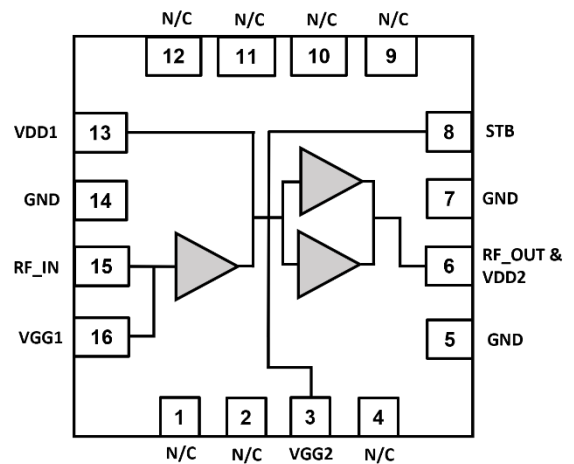
### Applications:

- Bluetooth
- Radar Systems
- SATCOM
- IoT
- Wi-Fi

### Tech Specs:

- Part Number: RFPA5.8S
- Provider: Millimeterchips Pvt. Ltd.
- Foundry node: 0.1 $\mu$ m GaAs pHEMT Win Semiconductors

### Functional Block Diagram



### Pin Configuration

Pin No.	Pin Name	Description
5,7,14	GND	Ground
13	VDD1	Drain Bias Voltage 1
6	VDD2	Drain Bias Voltage 2
16	VGG1	Gate Bias Voltage 1
3	VGG2	Gate Bias Voltage 2
15	RF-IN	RF Input
6	RF-OUT	RF Output
8	STB	Stability
1,2,4,9,10,11,12	N/C	Not Connected

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