

# 5 W Solid State Power Amplifier 2 - 18 GHz



ENGAD00017

Rev. V1

## Features

- 2 to 18 GHz Band Coverage
- >5 Watts Saturated Output Power
- 15% Efficiency Nominal at Psat
- Solid State GaN MMICs
- SMA Input/Output Interface
- Single Bias Supply Required
- Optional Integrated Air Cooling
- Size: 2.90" x 2.14" x 0.45"
- RoHS\* Compliant

## Applications

- Military & Commercial SATCOM
- Electronic Warfare Circuits
- Transmit Circuits
- Telecom Infrastructure
- Test & Measurement Systems

## Description

The ENGAD00017 is a Solid State Power Amplifier (SSPA) operating across 2 to 18 GHz with a saturated output power (Psat) of greater than 5 W with a nominal 15% power added efficiency (PAE). The ENGAD00017 uses SMA interfaces for the RF input and output ports. A optional cooling fan and heat sink attachment provides controlled temperature of the SSPA at ambient temperature.

## Functional Block Diagram



## Ordering Information

Part Number	Package
ENGAD00017	bulk

\* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

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**Electrical Specifications: Freq. = 2 - 18 GHz, T<sub>A</sub> = +25°C, V<sub>IN</sub> = 28 V**

Parameter	Units	Min.	Typ.	Max.
Saturated Power	W	5	8	—
PAE at Psat	%	—	15	—
Small Signal Gain	dB	35	40	—
Input Return Loss	dB	—	17	—
Output Return Loss	dB	—	12	—
DC Current (Small Signal)	A	—	1.2	—

### Recommended Operating Conditions

Parameter	Units	Min.	Typ.	Max.
Input Voltage	V	26	28	30
RF Input Power (for 5 W Output Power)	dBm	—	5	—
Operating Temperature	°C	—	25	—

### Absolute Maximum Ratings<sup>1,2</sup>

Parameter	Absolute Maximum
Input Voltage	34 V
RF Input Power	10 dBm
Operating Temperature	+10°C to +45°C
Storage Temperature	-65°C to +125°C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.

### Handling Procedures

Please observe the following precautions to avoid damage:

### Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

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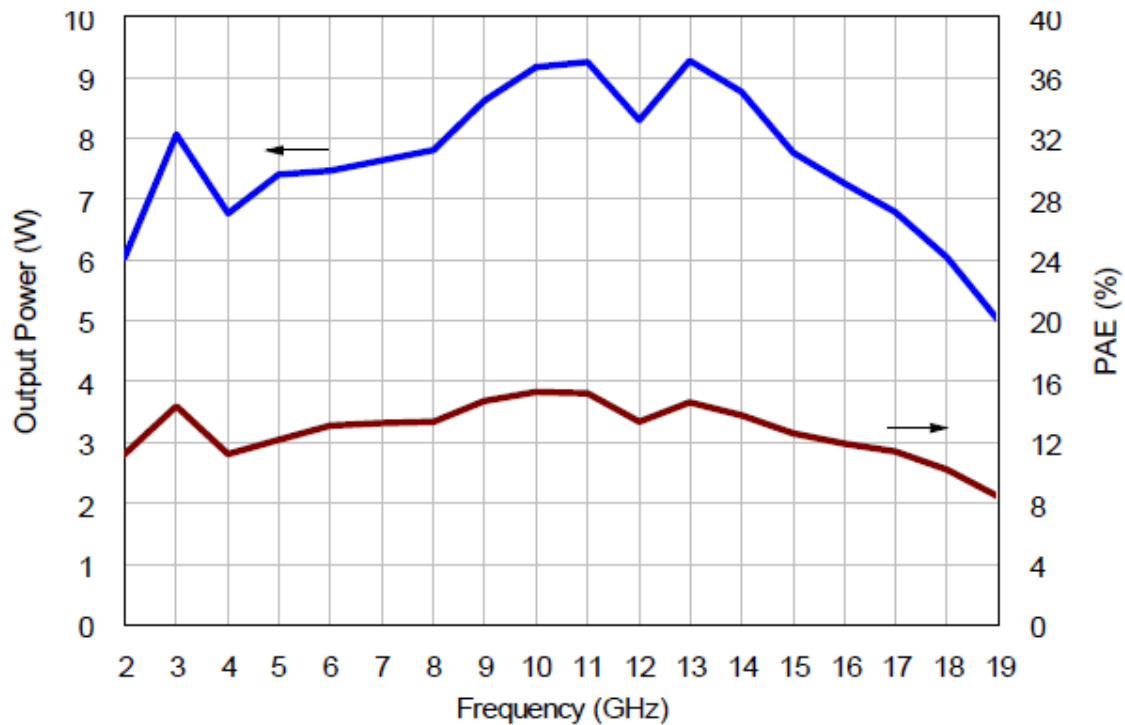
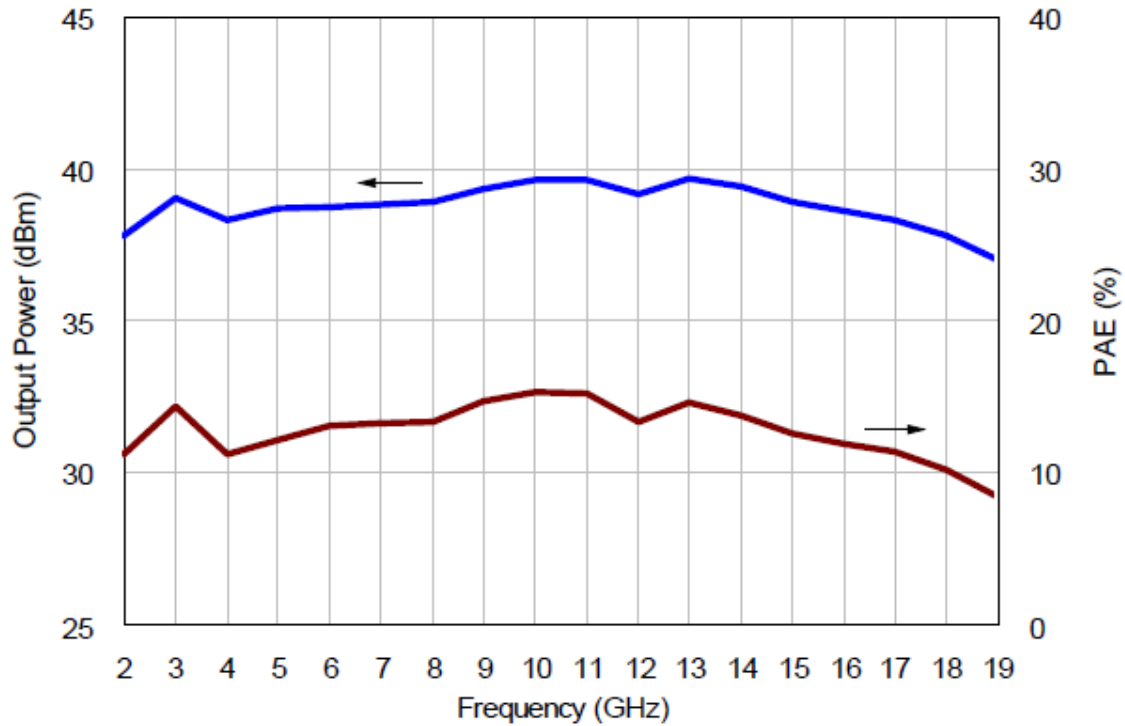


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### Typical Performance

Saturated Output Power and Efficiency:  $T_A = 25^\circ\text{C}$ ,  $V_{IN} = 28\text{ V}$ ;  $I_D = 2.1\text{ A}$ ,  $P_{IN} = 5\text{ dBm}$



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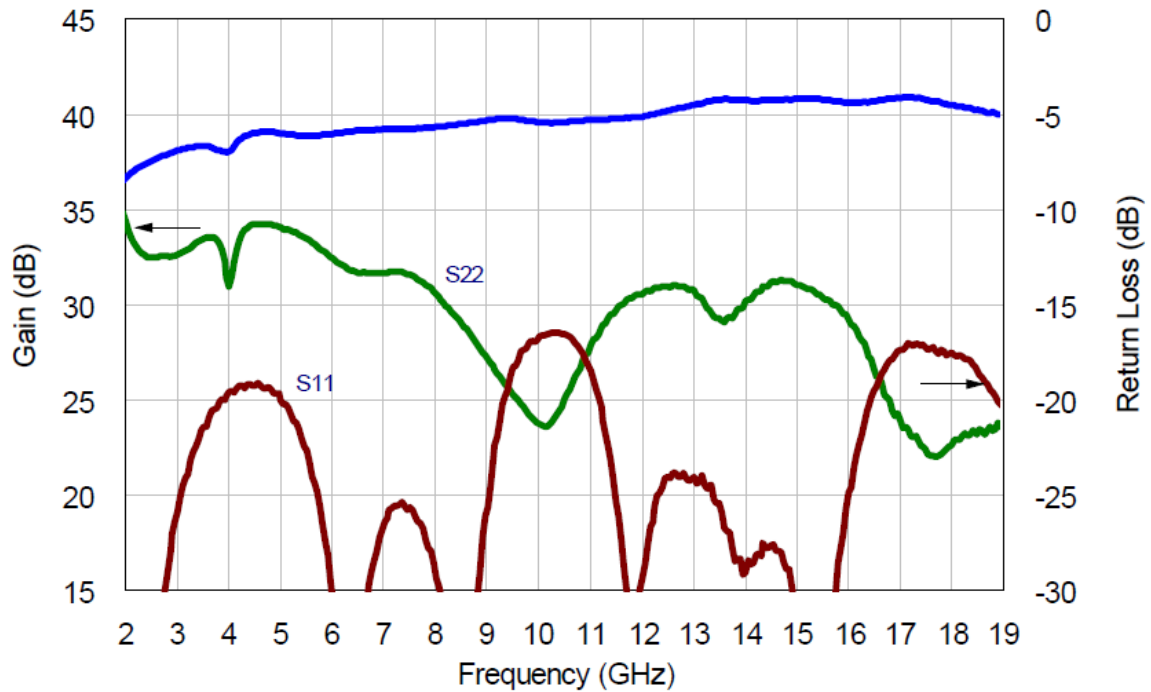


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## Typical Performance

Small Signal Gain and Return Loss:  $T_A = 25^\circ\text{C}$ ,  $V_{IN} = 28\text{ V}$ ;  $I_D = 2.1\text{ A}$ ,  $P_{IN} = -20\text{ dBm}$



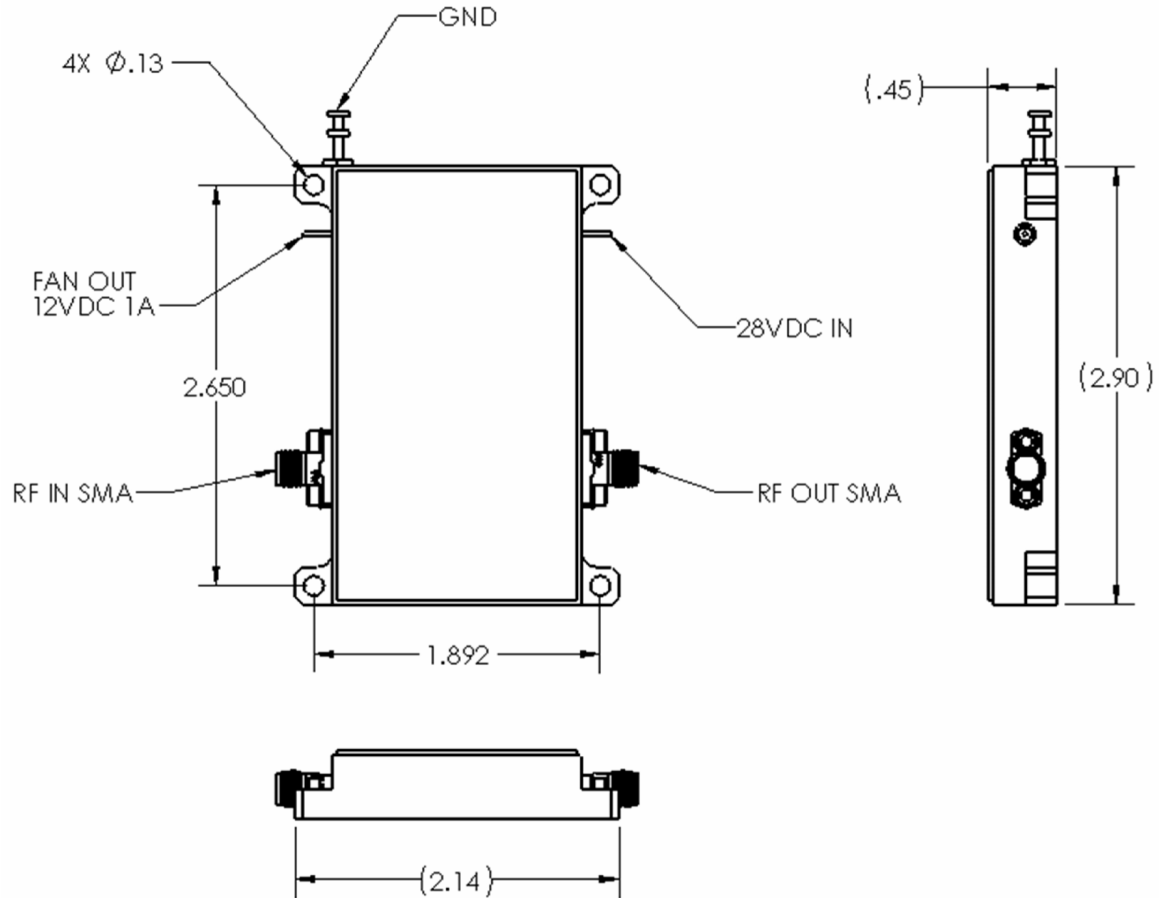
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## Outline Drawing (w/o integrated cold plate)



\*FAN OUT optional

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