

## Performance characteristics

- Frequency band: 6GHz ~ 20GHz
- Gain: 14.5 dB
- Output P-1dB: 20.5 dBm
- Output saturation power: 21dBm
- Power supply: + 5V @ 113mA
- Package size: 3.0 mm × 3.0 mm

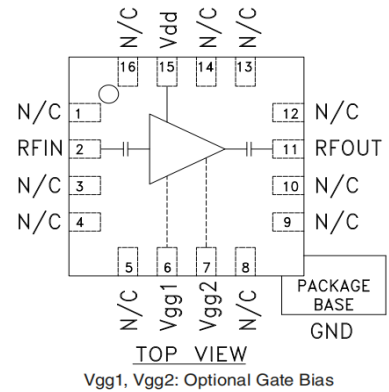
## Overview

The CW441SP3 is a GaAs MMIC driver amplifier with a frequency range of 6GHz to 20GHz and an in-band gain of 14.5 dB. The chip is powered by + 5V single power supply.

## Typical application

- Base station communication
- Wireless infrastructure
- Automotive electronics
- Instruments and meters

## Functional Diagram



## Electrical performance table (TA=+25 °C, VD=+5V)

Indicators	Minimum value	Typical value	Maximum value	Unit
Frequency range	6 ~ 20			GHz
Gain	12	14.5	-	dB
Input return loss	10	16	-	dB
Output return loss	10	18	-	dB
Output P1dB	19	20.5	-	dBm
Saturated output power	20	21	-	dBm
Additional power efficiency	-	21	-	%
Operating current	-	113	-	mA

## Use parameters (exceeding any of the above maximum limits may cause permanent damage)

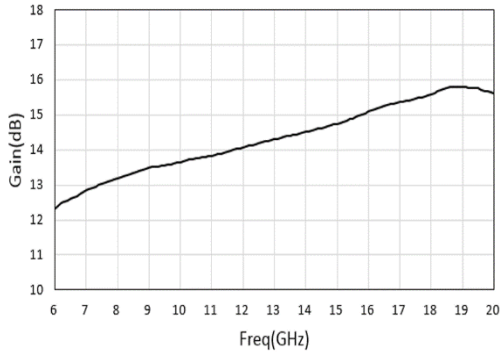
Input power	10dBm
Voltage	+ 7V
Storage temperature	-65 °C -150 °C
Operating temperature	-55 °C -85 °C

## Test curve

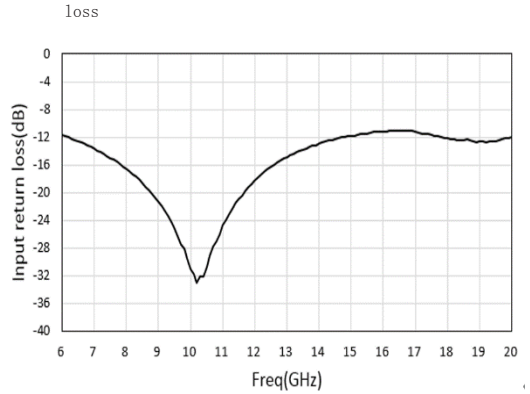
CW

Driver amplifier series

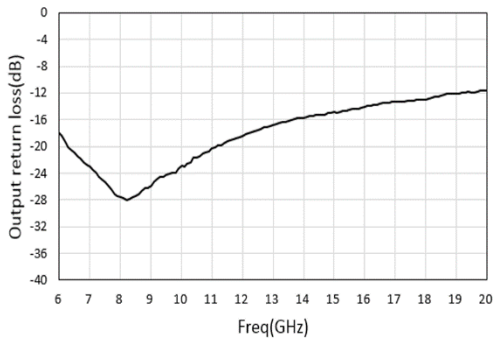
Gain



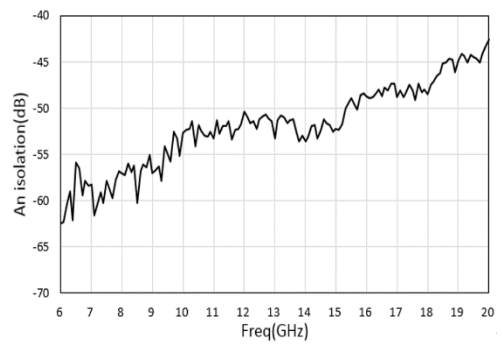
Input return loss



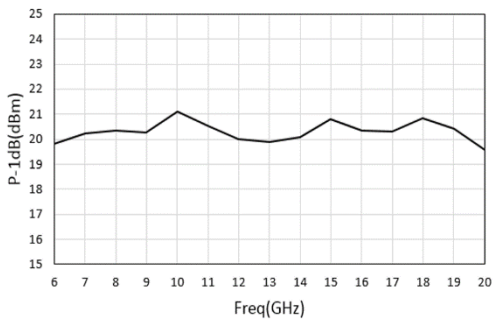
Output return loss



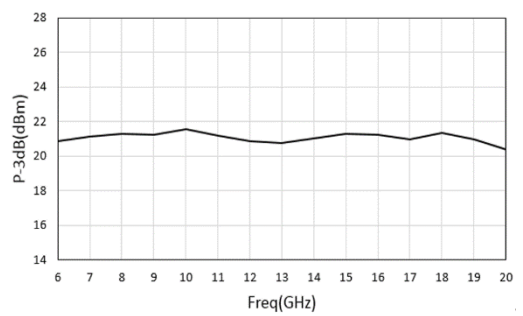
Reverse isolation



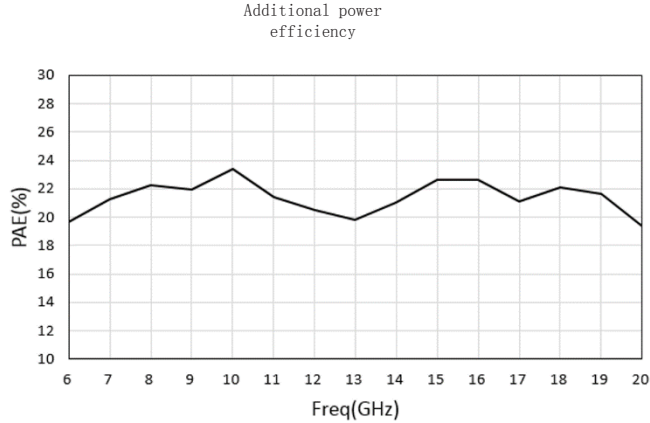
Output P1dB power



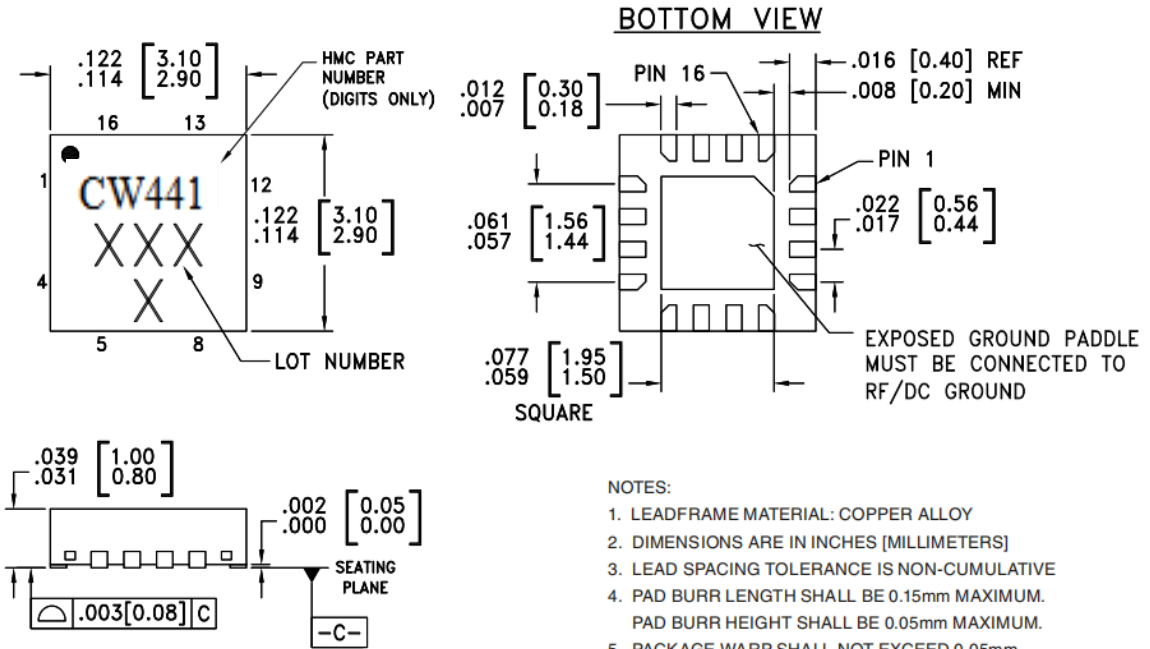
Saturated output power



## Test curve



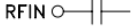
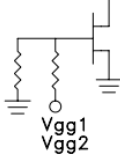
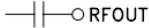
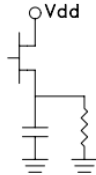
## Outline Drawing



**NOTES:**

1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. LEAD SPACING TOLERANCE IS NON-CUMULATIVE
4. PAD BURR LENGTH SHALL BE 0.15mm MAXIMUM. PAD BURR HEIGHT SHALL BE 0.05mm MAXIMUM.
5. PACKAGE WARP SHALL NOT EXCEED 0.05mm.
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.

## PIN Description

Pin Number	Function	Description	Interface Schematic
1, 3-5, 8-10, 12-14, 16	N/C	This pin may be connected to RF/DC ground.	
2	RFIN	This pin is AC coupled and matched to 50 Ohms.	RFIN 
6, 7	Vgg1, Vgg2	Optional gate control for amplifier. If left open, the amplifier will run at standard current. Negative voltage applied will reduce current.	
11	RFOUT	This pin is AC coupled and matched to 50 Ohms.	
15	Vdd	Power Supply Voltage for the amplifier. An external bypass capacitor of 100 pF is required.	
	GND	Package bottom must be connected to RF/DC ground.	