Preliminary
Wideband Power Amplifier
RWS05520-10

Product Features

- GaN on SiC Broadband High Power Amplifier
- 420 ~ 470MHz Operation Bandwidth
- Power Gain 39dB min
- 40W Typical @ P3dB

Applications

- Aerospace & Defense
- Military
- Radar
- Communication
- Test & Measurement

Description

RWS05520-10 is a unique GaN-SiC wideband amplifier that powers 45dBm over a wide instantaneous bandwidth of 420-470MHz. This affordable GaN wideband amplifier has been specifically developed for Broadcasting, Communication System and other applications in general. This amplifier offers a typical Power gain of 40dB, and typically draws 2.1A at +28V

Electrical Specifications @ V_{CC} = 28V; T = 25°C; Z_S = Z_L = 50Ω

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	420	-	470	-
Power Gain	dB	39	40		
Gain Flatness	dB	-	±1.0	±1.5	
Gain Variation vs Frequency	dBpp	-2.0	-	2.0	
P1dB	dBm	44	45	-	CW 1-tone
Input Return Loss	dB	-	-10	-5	
N^{TH} Harmonic suppression	dBc		-25	-15	CW 1-tone @Po = +41.5dBm
IMD @ Po = +41.5dBm (100KHz Tone spacing, CW 2-Tone)	dBc	-25			3rd IMD @ Operating Frequency
	dBc	-40			5th IMD @ Operating Frequency
	dBc	-45			7th IMD @ Operating Frequency
	dBc	-50			9th IMD @ Operating Frequency
Spurious	dBc	-65			Pout @ 41.5dBm
Supply Voltage	V	27.5	28	30	Vcc(=Vds)
Quiescent Current consumption	A		2.6	3.0	+28V
Current Consumption@41.5dB	A		2.6	3.0	CW 1-tone
Current Consumption@P1dB		-	3.4	4.5	
On/Off Switching Time*	uS	-	3	5	On : TTL "high"(Enable)
					Off : TTL "low"
Shut Down or Switch On/Off TTL Voltage	V	2.5	5	5.5	On : TTL "high"(Enable)
		0	-	0.5	Off : TTL "low"
***Temperature Monitor**	V		0.75		0.75V @ Tc = 25°

* For example, if the output voltage is 1.0 V, the temperature is calculated as: Temperature = (1000 mV - 500 mV) / 10 mV/°C = 50°C

Absolute Maximum Ratings

PARAMETER	UNIT	RATING
Input RF Power	dBm	10
Supply Voltage	V	28
Load Mismatch Value	-	3 : 1 @all load phase

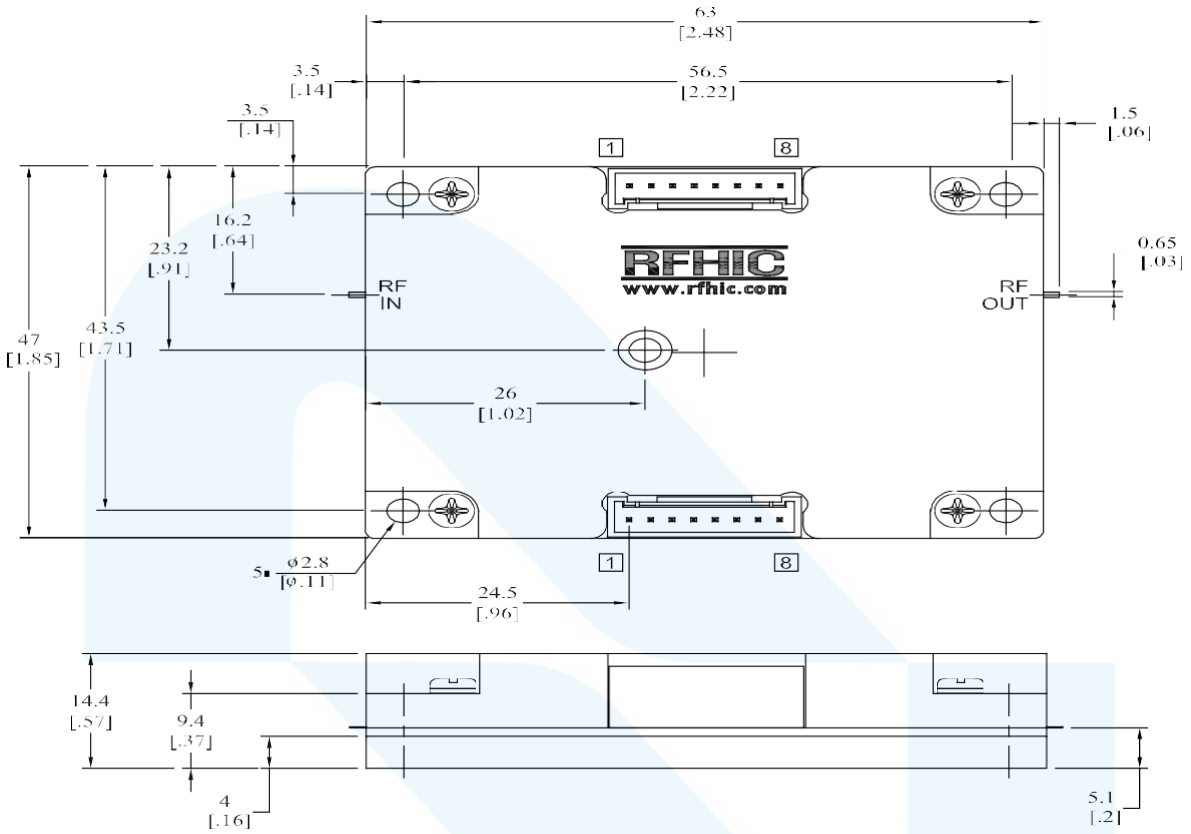
* Input Signal Condition : CW 1-Tone

Environmental Characteristics

PARAMETER	UNIT	MIN	TYP	MAX
Operating Temperature	℃	-40	-	85
Cold Start Temperature	℃	-40		
Storage Temperature	℃	-40	-	105
Vibration	MIL-STD-810G Method 514.6 ANNEX C			

Outline Drawing

* Unit: mm[inch] | Tolerance: ±0.15[.006]



Pin Description			
Pin No	**Function**	**Pin No**	**Function**
1	Vcc(+28V)	5	GND
2	Vcc(+28V)	6	Temp Monitor
3	Vcc(+28V)	7	Switch ON/OFF
4	GND	8	Shout down(+5V)

Note

* Cover screw holes and Module Mount Holes would be changed.
* Recommended Screw Torque : 6.0kgf.cm±1 using SEMS M2.6 14mm Bolt

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RWS05520-10	2025.06.24	1.1	Electrical Specifications addition.	-
RWS05520-10	2022.12.21	1.0	Electrical Specifications addition.	-

Certification

This product is manufactured by a company that is certified for the AS9100D quality management system.