

Product Features

- GaN on SiC Broadband High Power Amplifier
- 20 ~ 512MHz Operation Bandwidth
- Small Signal Gain 42dB min.
- 40W Typical. P3dB

Applications

- HF/VHF/UHF

**Description**

RWS02540-10 is a unique GaN-SiC wideband amplifier that powers 46dBm over a wide instantaneous bandwidth of 20-512MHz. This affordable GaN wideband amplifier has been specifically developed for Broadcasting, Communication System and other applications in general. This amplifier offers a typical small signal gain of 44dB, and typically draws 2.5A at +28V_{cc}.

Electrical Specifications @ V_{CC} = 28V; V_{DC} = 7V; T = 25°C; Z_S = Z_L = 50Ω

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	20	-	512	-
Small Signal Gain	dB	42	44		-
Gain Variation vs Temperature	dB	-2	-	2	-20 ~ 60°C
Gain Variation vs Frequency	dBpp	-	±1	±1.5	-
P _{3dB}	dBm	44	46	-	20 ~ 512MHz
OIP3 @ P _o = +35dBm (1MHz Tone spacing, CW 2-Tone)	dBm	51	53	-	20 ~ 512 MHz
Input Return Loss	dB	-	-15	-10	-
N TH Harmonic suppression	dBc	-	-25	-15	CW 1-tone @P _o = +43dBm
Supply Voltage	V	27.5	28	30	V _{cc} (=V _{ds})
		6	7	12	V _{DC}
Quiescent Current consumption	A	-	2.5	2.7	+28V
	mA	-	20	50	+7V
Current Consumption @ P _{3dB}	A	-	3.5	4.0	CW 1-tone
On/Off Switching Time*	uS	-	3	5	On : TTL "Low"
					Off : TTL "High"(30mA@Disable)
Shut Down or Switch On/Off TTL Voltage**	V	2.5	5	5.5	On : TTL "High"(Enable)
		0	-	0.5	Off : TTL "Low"

Note.

1. Gate On/Off : High speed switching
2. Drain On/Off : 300ms delay

Absolute Maximum Ratings

PARAMETER	UNIT	RATING
Operating Flange Temperature	°C	85
Input RF Power	dBm	10
Supply Voltage	V	30
Load Mismatch Value	-	3 : 1 @all load phase

* Input Signal Condition : CW 1-Tone

Environmental Characteristics

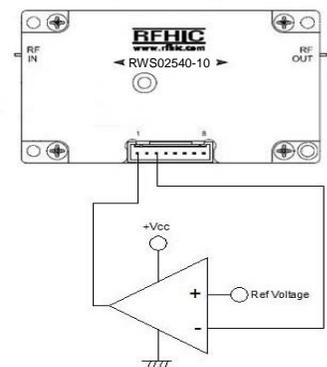
PARAMETER	UNIT	MIN	TYP	MAX
Operating Temperature	°C	-20	-	60
Storage Temperature	°C	-40	-	105
Vibration	MIL-STD-810G Method 514.6 ANNEX C			

Typical Performance @ 25°C

Frequency (MHz)	P1dB (dBm)	P3dB (dBm)	Current @P1dB (A)	Current @P3dB (A)	N TH Harm @43dBm		OIP3 (35dBm/Tone) (dBm)
					2 nd Harm	3 rd Harm	
					(dBc)		
20	44.9	45.6	2.50	2.62	-51.36	-26.79	58.39
100	44.6	45.8	2.51	2.72	-52.28	-26.67	55.13
200	44.2	46.3	2.65	3.24	-44.02	-25.58	55.23
300	43.5	45.8	2.73	3.36	-45.31	-24.01	54.23
400	43.8	46.4	2.75	3.38	-42.22	-25.24	53.99
512	44.1	47.0	2.77	3.63	-41.21	-29.50	54.25

Precautions

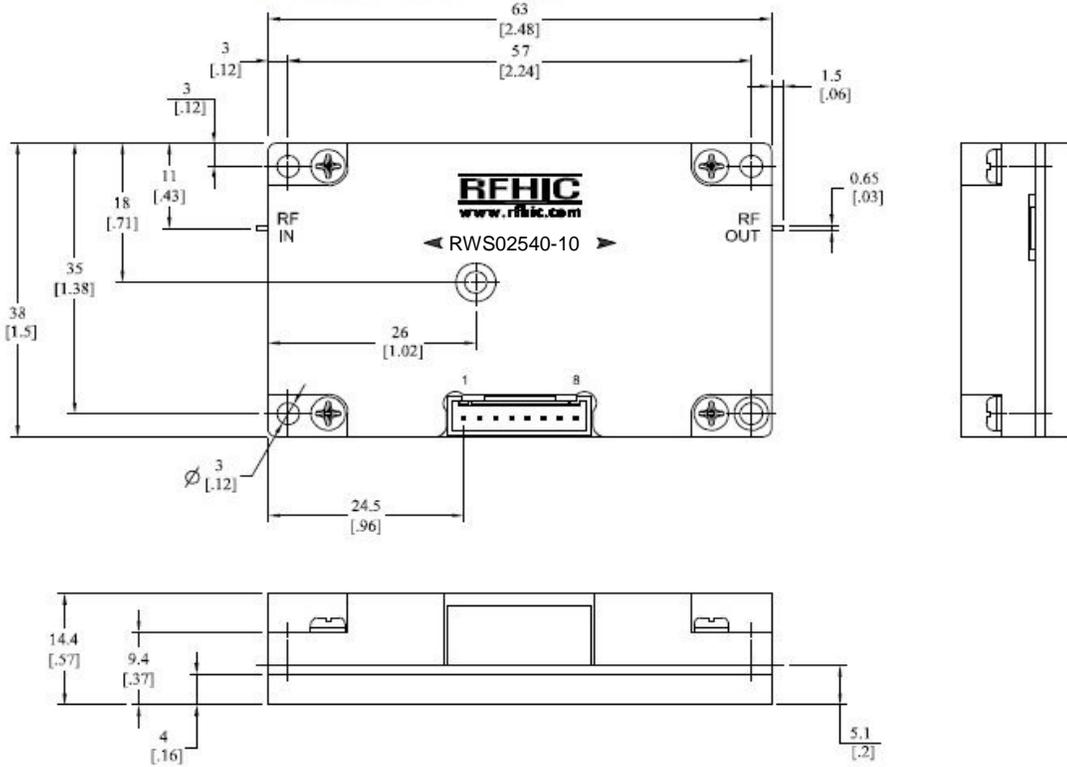
1. This product is designed to be used for broadband amplification. Heat generation is higher when there is no RF signal in the device. Therefore, the worst case scenario is when there is no RF signal, and the amplifier is “on” with current draw. The temperature must be calculated properly. Case temperature must maintain below 85°C. Right side drawing notes how to use a temperature monitoring function to protect against overheating.
2. Thermal Grease or Metal Thermal Interface Materials are recommended for heat dissipation. An example would be spreading thermal grease on the bottom of the device



Comparator Block (with hysteresis gap)

Package Dimensions

* Unit: mm[inch] | Tolerance: ± 0.2 [.008]



Pin Description			
Pin No	Function	Pin No	Function
1	Shut Down(+5V)	5	GND
2	Switch ON/OFF	6	+28V(Vcc)
3	Temp Monitor	7	+28V(Vcc)
4	GND	8	+7(V _{DC})

* Terminal Pin Information *SMW200-08 (YEONHO Electronic, Wafer)* , *SMH200-08(YEONHO Electronic, Housing)*

* Recommended Screw Torque : $6.0\text{kgf.cm} \pm 1$ using SEMS M2.6 14mm Bolt

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RWS02540-10	2013.8.22	1.0	-	-

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