

## Product Features

- GaN on SiC Broadband High Power Amplifier
- 20 ~ 2500MHz Operation Bandwidth
- Small signal Gain 17dB typical
- 4W typical. P3dB

## Applications

- HF/VHF/UHF
- Broadband PA
- Broadcasting PA



Package Type : DP-34

## Description

The power amplifier module is designed for Broadcasting, Telecommunication, Medical and Other markets.

Operating frequency range is from 20 ~ 2500MHz

Gallium Nitride on SiC Technology is used and attached on an aluminum sub carrier.

Improved thermal handling by patented technology.

Electrical Specifications @  $V_{DD} = 24V$ ,  $T_A = 25^\circ C$ 

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	20	-	2500	-
Small Signal Gain	dB	14	17	19	-
Gain Variation vs Temperature	dB	-	$\pm 1$	$\pm 2$	-20 ~ 60°C
P3dB	dBm	36	38	-	20 ~ 1200MHz
		34	36	-	1200 ~ 2000MHz
		36	38	-	2000 ~ 2500MHz
OIP3 @ $P_o = +33dBm$ (1MHz Tone spacing, CW 2-Tone)	dBm	45	48	-	20 ~ 500MHz
		40	43	-	500 ~ 1000MHz
		38	41	-	1000 ~ 2500MHz
Input Return Loss	dB	-	-5	-2	-
Output Return Loss	dB	-	-5	-2	-
2 <sup>nd</sup> Harmonic suppression (CW 1-tone @ $P_o = +30dBm$ )	dBc	-	-35	-25	20 ~ 1600MHz
		-	-50	-40	1600 ~ 2500MHz
Supply Current	A	27.5	28	30	$V_{cc}(=V_{ds})$
Quiescent Current consumption	mA	600	700	800	-

## Absolute Maximum Ratings

PARAMETER	UNIT	RATING	CONDITION
Operating Flange Temperature	°C	85	-
Input RF Power	dBm	27	-
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			

**Ordering Information**

Part Number	Package
RFW2500H10-28	Pallet
RFW2500H10-28-H	Module assembled with RFW2500H10-28

\* RFW2500H10-28-H is a SMA connectorized housing version of RFW2500H10-28.

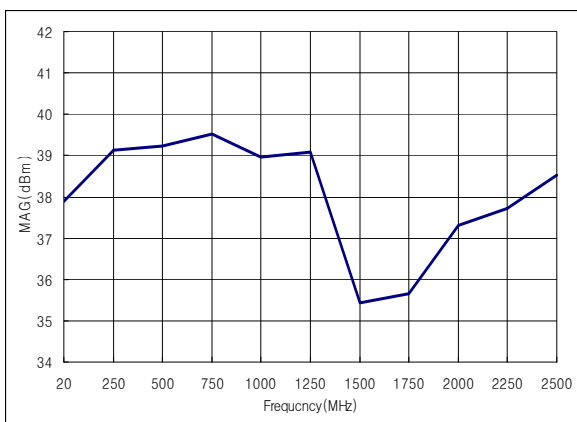
Electrical parameters are all same as RFW2500H10-28.

For more information, please contact RFHIC

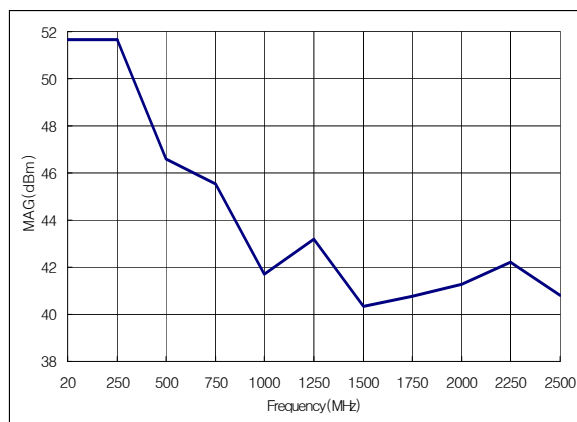
**Typical Performance @ 25°C**

Frequency	P1dB	P3dB	Current@P1dB	Current@P3	2nd Harm@30dBm	Gain	OIP3@30dBm/Tone
(MHz)	(dBm)	(dBm)	(A)	(A)	(dBc)	(dB)	(dBm)
20	37.84	37.88	0.76	0.67	-41.72	18.024	51.68
250	39.2	39.14	0.71	0.63	-35.97	17.539	51.65
500	37.75	39.23	0.8	0.97	-28.77	17.691	46.61
750	38.49	39.51	0.81	0.93	-30.5	18.209	45.54
1000	37.75	38.96	0.7	1.07	-34.67	18.699	41.69
1250	35.28	39.09	0.78	1.12	-36.49	18.715	43.2
1500	33.14	35.43	0.75	0.89	-34.94	18.062	40.33
1750	33.09	35.65	0.75	0.92	-46.57	16.715	40.76
2000	34.09	37.3	0.75	1.01	-55.09	15.198	41.28
2250	35.06	37.72	0.74	0.95	-55.82	15.261	42.21
2500	36.99	38.52	0.65	0.75	-49.46	15.446	40.82

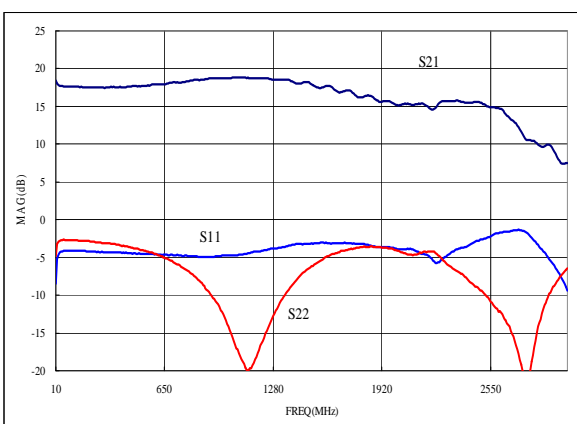
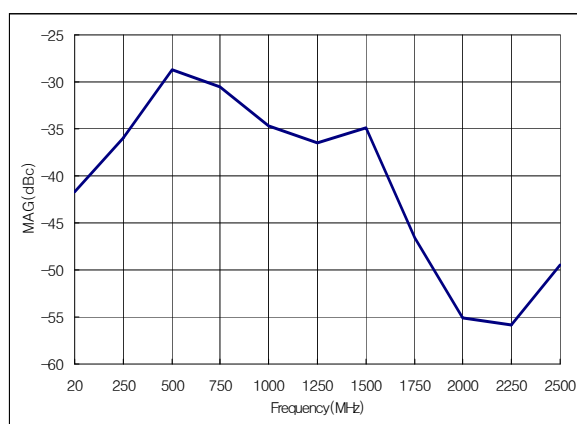
P3dB



OIP3



Gain

2<sup>nd</sup> Harmonics

## Precautions

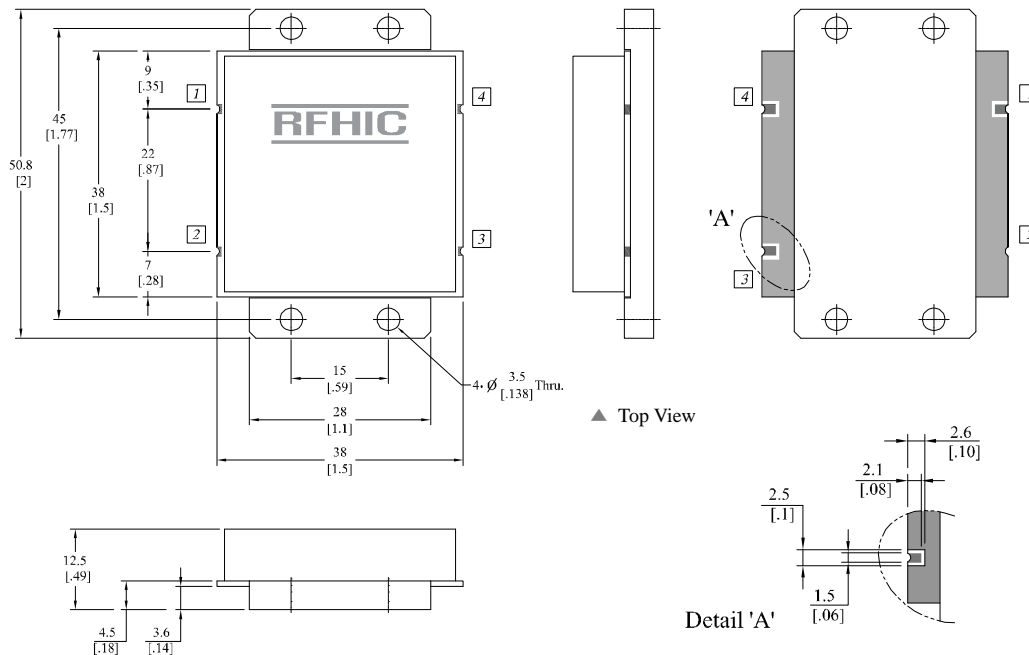
1. This product is designed to be used for broadband amplification.

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.

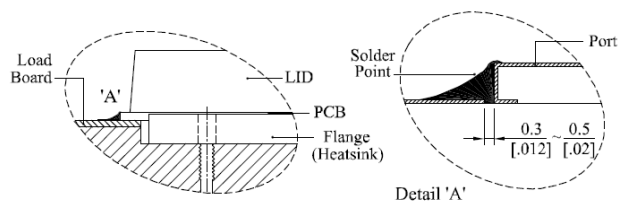
Case temperature must maintain below 85°C.

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.

**Package Dimensions (Type: DP-34)**\* Unit: mm[inch] | Tolerance:  $\pm 0.2$ [.008]

Pin Description			
Pin No	Function	Pin No	Function
1	RF IN	3	Vcc(+28V)
2	GND	4	RF OUT

**How to connect the amplifier to a target PCB****\* Mounting Configuration Notes**

1. Ground / thermal via holes are critical for the proper performance of this device.
2. Add as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.
3. Mounting screws can be added near the part to fasten the board to a heatsink. Ensure that the ground / thermal via hole region contacts the heatsink.
4. Do not put solder mask on the backside of the PCB in the region where the board contacts the heatsink.
5. RF trace width depends upon the PCB material and construction.
6. Use 1 oz. Copper minimum.

**Revision History**

Part Number	Release Date	Version	Modification	Data Sheet Status
RFW2500H10-28	2012.11.6	6.4	Electrical Specifications modification	-
RFW2500H10-28	2012.9.5	6.3	-	-

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