

Product Features

- GaN on SiC Broadband High Power Amplifier
- 700 ~ 2500MHz Operation Bandwidth
- Power Gain 53dB @ Pin -3dBm
- 100W Typical @ Pin -3dBm

Applications

- Aerospace & Defense
- Military
- Electronic Warfare
- Rader
- SATCOM
- Communication
- EMI/RFI
- Jamming



Description

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

Operating frequency range is from 700 ~ 2500MHz.

Gallium Nitride on SiC technology is used and attached on an aluminum sub carrier. Full in/out matching for broadband performance is already applied.

Improved thermal handling by patented technology.

Electrical Specifications @ $V_{CC} = 32V$; $T_c = 45^\circ C$; $Z_s = Z_L = 50\Omega$

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	700	-	2500	-
Power Gain @ Pin -3dBm	dB	50	53	-	700 ~ 2500MHz
Power Gain Flatness @ Pin -3dBm	dBpp	-	± 1.0	± 2.0	700 ~ 2500MHz
Output Power @ Pin -3dBm	dBm	48	50	-	700 ~ 2500MHz
Input Return Loss	dB	-	-9	-5	-
Supply Voltage	V	31.5	32	-	$V_{CC} (=V_{ds})$
Quiescent Current consumption	A	-	2.5	2.7	-
Current Consumption @ Pin -3dBm	A	-	10	12	CW 1-tone

Absolute Maximum Ratings

PARAMETER	UNIT	RATING
Input RF Power	dBm	0
Supply Voltage	V	35
Load Mismatch Value	-	3 : 1 @all load phase

* Input Signal Condition : CW 1-Tone

Environmental Characteristics

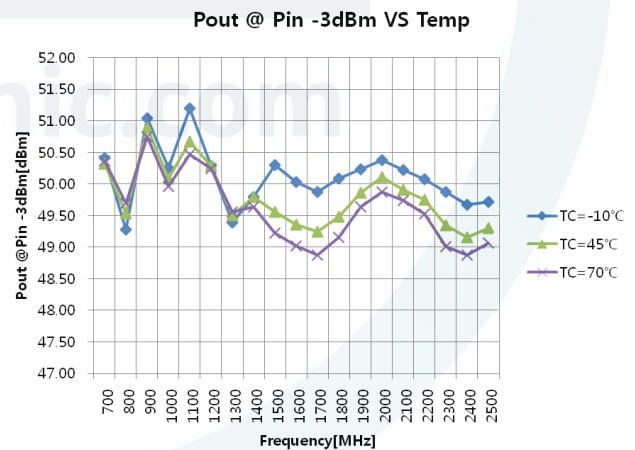
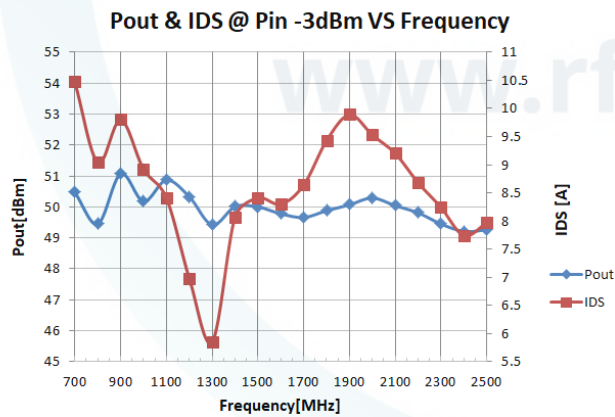
PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL
Operating Flange Temperature	°C	-10	-	70	Tc
Storage Temperature	°C	-40	-	105	Tstg
Vibration	MIL-STD-810G Method 514.6 ANNEX C				VI

Mechanical Specifications

PARAMETER	UNIT	TYP
Dimension	mm	134(L) x 105(W) x 30(H)
Weight	g	635
RF Connector	-	RF Input : SMA Female
		RF Output : N-Type Female
DC Connector	-	C7W2 / D-SUB / Male type
Cooling	-	External Heat-sink

Typical Performance @ 25°C

Frequency (MHz)	Pout @Pin -3dBm (dBm)	Gp @Pin -3dBm (dB)	Current @Pin -3dBm (A)	PAE @ Pin -3dBm (%)	Harmonic	
					2 nd Harm (dBc)	3 rd Harm (dBm)
700	50.47	53.47	10.47	33.26	-12.26	-31.88
800	49.45	52.45	9.04	30.46	-15.66	-24.97
900	51.07	54.07	9.80	40.80	-22.20	-24.46
1000	50.18	53.18	8.92	36.52	-16.51	-40.08
1100	50.87	53.87	8.41	45.40	-21.79	-38.36
1200	50.33	53.33	6.98	48.31	-19.76	-33.86
1300	49.42	52.42	5.85	46.74	-18.99	-18.83
1400	50.01	53.01	8.07	38.81	-28.13	-30.48
1500	50.00	53.00	8.41	37.16	-34.43	-40.04
1600	49.78	52.78	8.30	35.79	-34.02	-54.08
1700	49.66	52.66	8.64	33.45	-43.59	-56.70
1800	49.88	52.88	9.43	32.24	-35.86	-64.36
1900	50.07	53.07	9.89	32.11	-21.00	-58.44
2000	50.29	53.29	9.53	35.06	-21.04	-45.14
2100	50.04	53.04	9.20	34.28	-41.85	-49.81
2200	49.81	52.81	8.68	34.46	-47.34	-61.68
2300	49.45	52.45	8.24	33.41	-42.68	-59.77
2400	49.21	52.21	7.74	33.66	-62.21	-63.68
2500	49.26	52.26	7.97	33.07	-51.35	-69.88

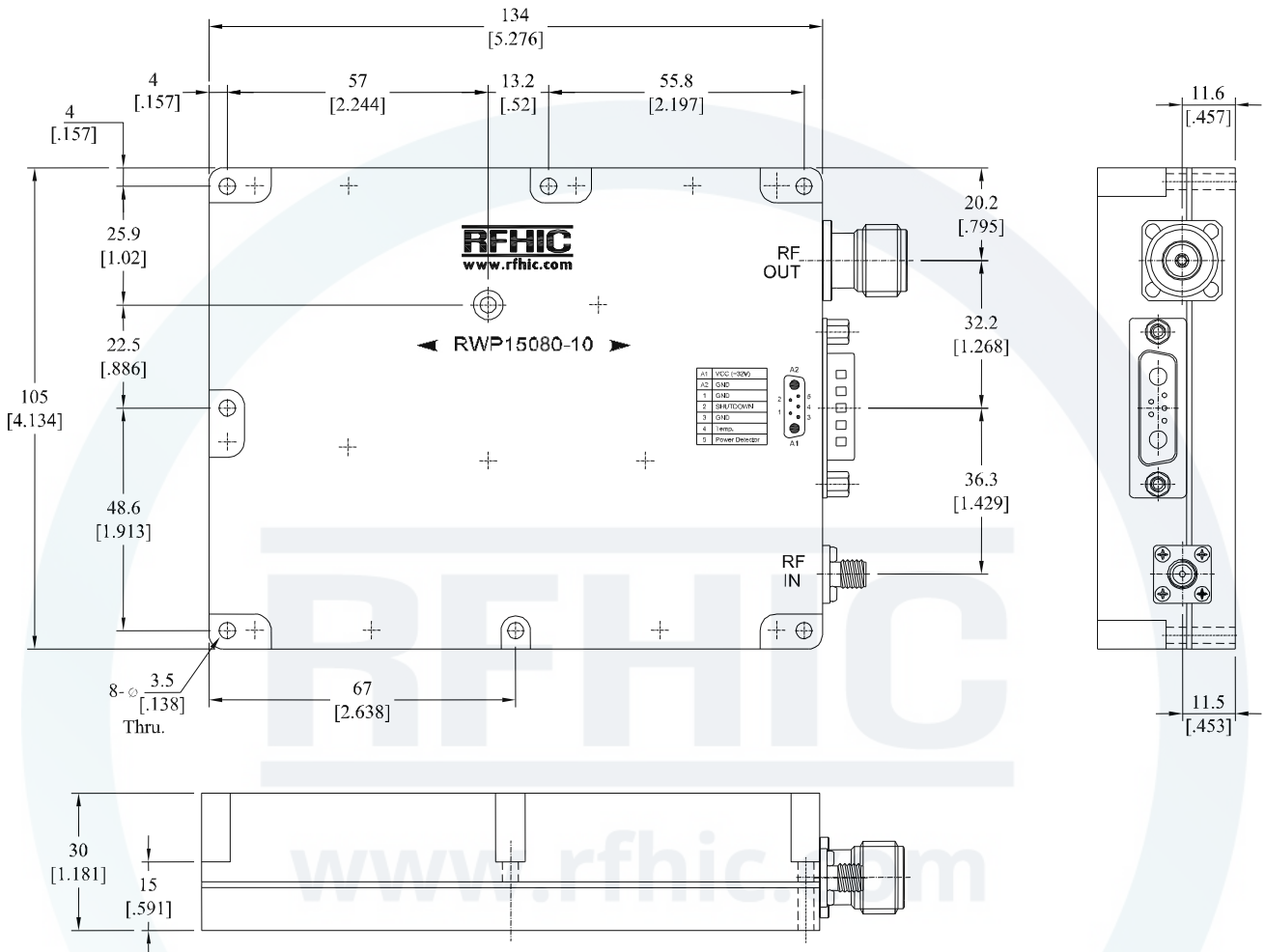


Precautions

1. This product is designed to be used for broadband amplification. Heat generation is higher when there is RF signal in the device. Therefore, the worst case scenario is when there is RF signal. The temperature must be calculated properly. Case temperature must maintain below 70°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

* Unit: mm[inch] | Tolerance: ±0.3[.012]



Pin Description (C7W2 / D-SUB / Male type)			
Pin No	Description	I/O	Specifications
A1	Vcc	I	+32VDC
A2	GND	I	Ground
1	GND	I	Ground
2	Shut Down	I	Enable : TTL "Low", Disable : TTL "High" (Low : 0 ~ 1.0V, High : 4.0 ~ 5.0V) Disable Status : 150mA Current consumption (Turn ON Delay Time : 450mS Max)
3	GND	I	Ground
4	Temperature Monitor	O	Reference voltage : 750mV @ 25°C
5	Power Monitor	O	Pout 48dBm Voltage : 700 ~ 1000mV

* Recommended Screw Torque : 8.0kgf.cm±1 using SEMS M3 19mm Bolt

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RWP15080-10	2023.01.12	1.7	Operating Frequency Modification	-
RWP15080-10	2019.07.18	1.6	Package Dimensions	-
RWP15080-10	2015.09.30	1.5	Pin Description	-
RWP15080-10	2015.09.10	1.4	Pin Description	-



RFHIC Corporation reserves the right to make changes to any products herein or to discontinue any product at any time without notice. While product specifications have been thoroughly examined for reliability, RFHIC Corporation strongly recommends buyers to verify that the information they are using is accurate before ordering. RFHIC Corporation does not assume any liability for the suitability of its products for any particular purpose, and disclaims any and all liability, including without limitation consequential or incidental damages. RFHIC products are not intended for use in life support equipment or application where malfunction of the product can be expected to result in personal injury or death. Buyer uses or sells such products for any such unintended or unauthorized application, buyer shall indemnify, protect and hold RFHIC Corporation and its directors, officers, stockholders, employees, representatives and distributors harmless against any and all claims arising out of such unauthorized use.

Sales, inquiries and support should be directed to the local authorized geographic distributor for RFHIC Corporation. For customers in the US, please contact the US Sales Team at 919-677-8780. For all other inquiries, please contact the International Sales Team at 82-31-8069-3036.