Preliminary
Wideband Power Amplifier
RWP15040-10

Product Features

- GaN on SiC Broadband High Power Amplifier
- 500 ~ 2500MHz Operation Bandwidth
- Power Gain 38dB @ Pin 9dBm
- 50W Typical @ Pin 9dBm

Applications

- General Purpose

Description

The power amplifier module is designed for Broadcasting, Telecommunication, Medical and Other markets.
Operating frequency range is from 500 ~ 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; Tc = 45°C; Z_S = Z_L = 50Ω

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	500	-	2500	-
Power Gain @ Pin 9dBm	dB	36	38	-	500 ~ 2500MHz
Power Gain Flatness @ Pin 9dBm	dBpp	-	±1.0	±2.0	500 ~ 2500MHz
Output Power @ Pin 9dBm	dBm	45	47	-	500 ~ 2500MHz
Input Return Loss	dB	-	-10	-5	-
Supply Voltage	V	31.5	32	-	Vcc(=Vds)
Quiescent Current Consumption	A	-	1.2	1.7	-
Current Consumption @ Pin 9dBm	A	-	5.0	6.5	CW 1-tone
On/Off Switching Time*	uS	-	2	5	On : TTL "Low"
					Off : TTL "High"(30mA@Disable)
Shut Down or Switch On/Off TTL Voltage**	V	0	-	0.5	On : TTL “Low”(Enable)
		2.5	5	5.5	Off : TTL “High”

NOTE
*. Gate On/Off : High speed switching
**. Drain On/Off : 500ms delay

Absolute Maximum Ratings

PARAMETER	UNIT	RATING
Input RF Power	dBm	13
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	℃	-10	-	80	Tc
Storage Temperature	℃	-40	-	105	Tstg
Vibration	MIL-STD-810G Method 514.6 ANNEX C				VI

Ordering Information

Part Number	Package
RWP15040-10	Pallet
RWP15040-1H	Module assembled with RWP15040-10

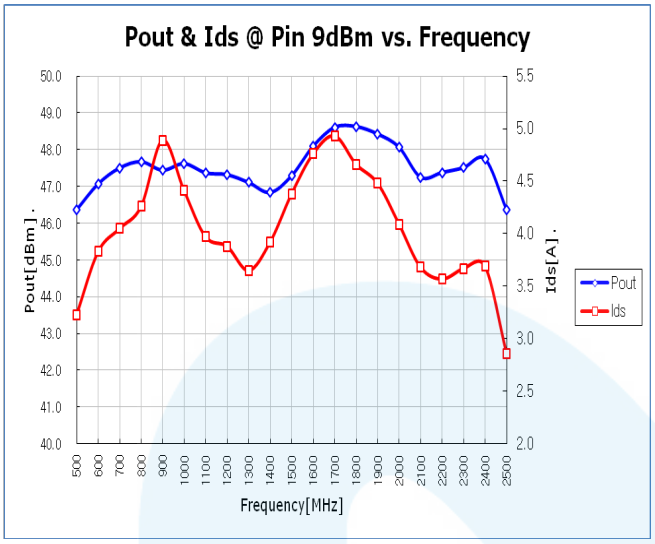
* RWP15040-1H is a SMA connectorized housing version of RWP15040-10. Electrical parameters are all same as RWP15040-10.
For more information, please contact RFHIC

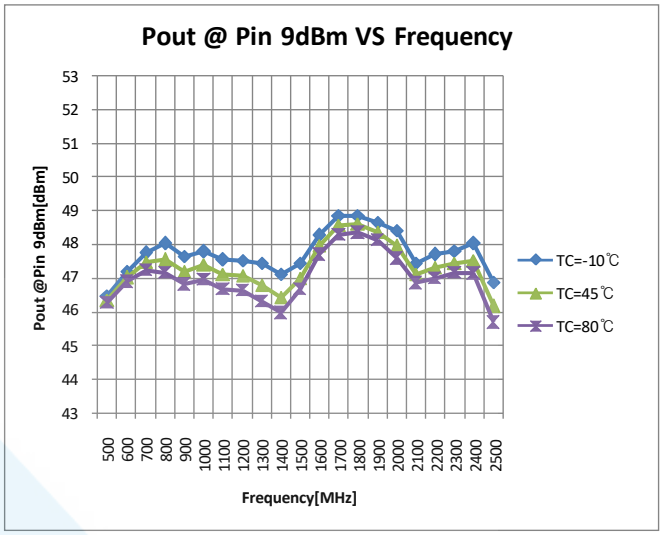
Mechanical Specifications

PARAMETER		UNIT	TYP
Dimension	Package	mm	72(L) x 50.8(W) x 16.8(H)
	Housing		98.8(L) x 75(W) x 25(H)
Weight	Package	g	105
	Housing		355
Housing RF IN/OUT Connector		-	SMA Female
Cooling		-	External Heat-sink

Typical Performance @ 25°C

Frequency	Pout @Pin 9dBm	Gp @Pin 9dBm	Current @Pin 9dBm	PAE @ Pin 9dBm	Harmonic @ Pin 9dBm	
					2nd Harm	3rd Harm
(MHz)	(dBm)	(dB)	(A)	(%)	(dBc)	(dBm)
500	46.37	37.37	3.23	41.94	-10.73	-12.16
600	47.07	38.07	3.83	41.56	-13.93	-13.08
700	47.5	38.50	4.05	43.39	-18.73	-11.6
800	47.67	38.67	4.26	42.90	-24.34	-10.63
900	47.44	38.44	4.89	35.44	-15.55	-21.66
1000	47.62	38.62	4.41	40.96	-19.16	-42.78
1100	47.37	38.37	3.97	42.96	-22.48	-27.73
1200	47.32	38.32	3.88	43.45	-21.62	-22.72
1300	47.11	38.11	3.65	44.01	-21.63	-25.08
1400	46.84	37.84	3.92	38.51	-30.6	-15.74
1500	47.29	38.29	4.38	38.23	-45.08	-16.96
1600	48.09	39.09	4.76	42.29	-35.66	-30.12
1700	48.6	39.60	4.93	45.92	-31.25	-41.74
1800	48.62	39.62	4.66	48.80	-24.4	-49.32
1900	48.42	39.42	4.48	48.48	-20.48	-78.16
2000	48.06	39.06	4.09	48.88	-21.99	-79.11
2100	47.25	38.25	3.68	45.08	-17.6	-50.81
2200	47.38	38.38	3.57	47.88	-19.64	-47.38
2300	47.51	38.51	3.67	47.99	-23.02	-45.03
2400	47.74	38.74	3.69	50.33	-32.22	-56.89
2500	46.37	37.37	2.86	47.37	-32.46	-56.75



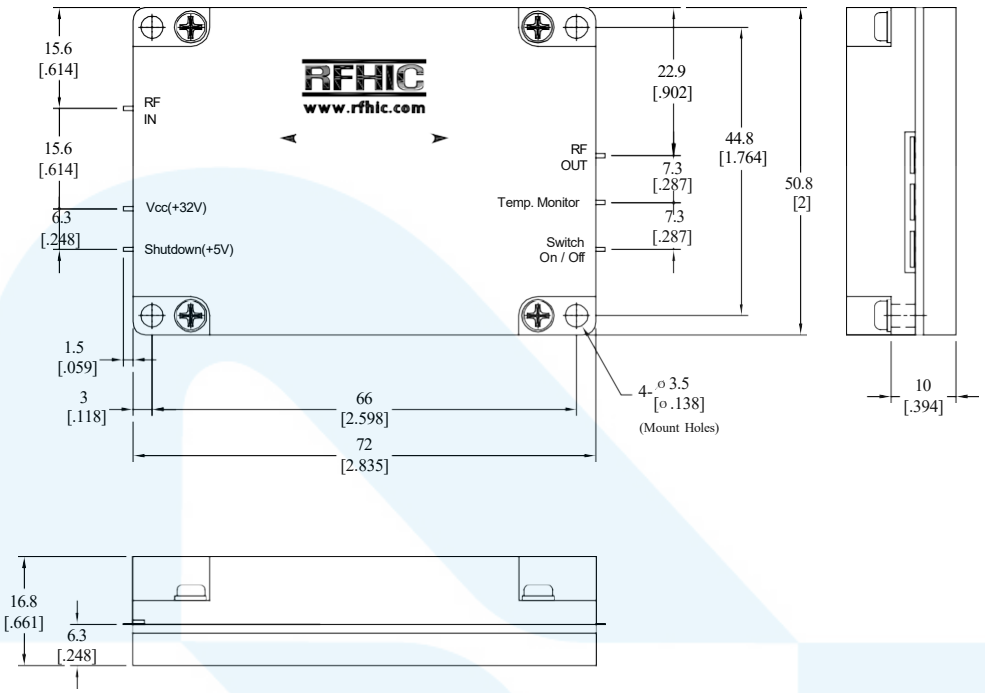


Precautions

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 80°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]

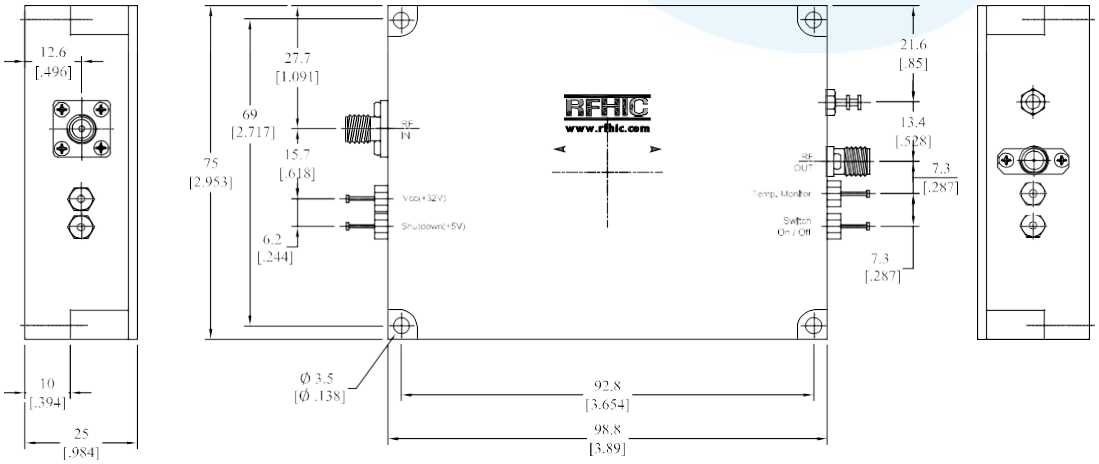


Pin Description			
Pin No	**Function**	**Pin No**	**Function**
1	RF IN	4	Switch ON/OFF
2	Vcc(+32V)	5	Temp Monitor
3	Shut Down(+5V)	6	RF OUT

* Recommended Screw Torque : 8.0kgf.cm±1 using SEMS M3 14mm Bolt

SMA Connectorized Housing Dimension

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



Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RWP15040-10	2023.04.13	1.9	Picture Change	-
RWP15040-10	2019.07.18	1.8	Package Dimensions	-
RWP15040-10	2015.11.10	1.7	Package Dimensions & Note	-
RWP15040-10	2015.05.12	1.6	Graph Modification	-

Certification

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