Wideband Power Amplifier RWP03160-10

Product Features

- GaN on SiC Broadband High Power Amplifier
- 20 ~ 500MHz Operation Bandwidth
- Small Signal Gain 41dB min.
- 160W Minimum . @ Psat

Applications

- General Purpose

Package Type : DP-100

Description

The power amplifier module is designed for Broadcasting, Telecommunication, Medical and Other markets.
Operating frequency range is from 20 ~ 500MHz.
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} = 28V; Tc = 45°C; $Z_S = Z_L$ = 50Ω

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	20	-	500	-
Small Signal Gain	dB	41	43	45	-
Gain Variation vs Frequency	dBpp	-	±1	±1.5	-
P_{3dB}	dBm	50	52	-	20 ~ 500MHz
OIP3 @ Po = +43dBm (1MHz Tone spacing, CW 2-Tone)	dBm	50	54	-	20 ~ 500 MHz
Input Return Loss	dB	-	-11	-7	-
N^{th} Harmonic suppression	dBc	15	25	-	CW 1-tone @Po = P1dBm
Supply Voltage	V	27.5	28	30	Vcc(=Vds)
Quiescent Current consumption	A	-	7	7.5	-
Current Consumption @ P_{3dB}	A	-	11	13	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	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	15
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	SYMBOL
Operating Case Temperature	°C	-10	-	80	Tc
Storage Temperature	°C	-40	-	105	Tstg
Vibration	MIL-STD-810G Method 514.6 ANNEX C				VI

Ordering Information

Part Number	Package
RWP03160-10	Pallet
RWP03160-1R	Pallet with SMA Connectorized

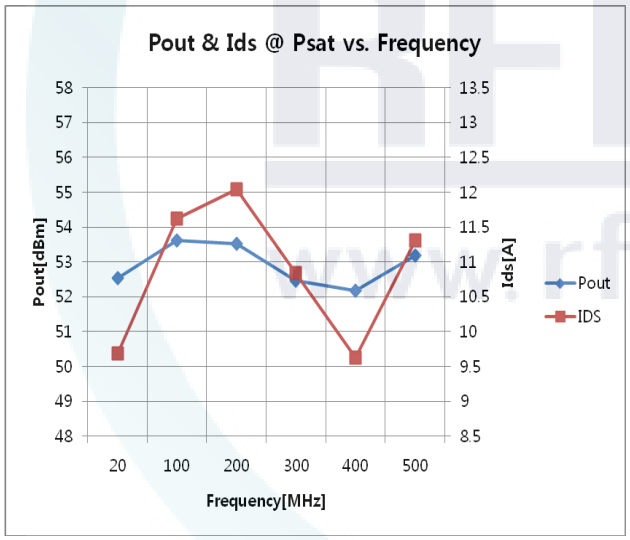
* RWP03160-1R is a SMA connectorized version of RWP03160-10. Electrical parameters are all same as RWP03160-10.
For more information, please contact RFHIC

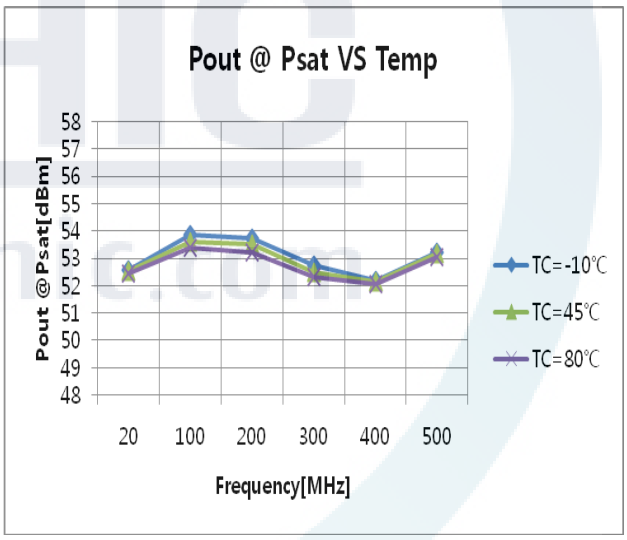
Mechanical Specifications

PARAMETER	UNIT	TYP
Dimension	㎜	120(L) x 65(W) x 16.7(H)
Weight	g	240
RWP03160-1R RF Connector	-	SMA Female
DC Connector	-	SMW420-06P
Cooling	-	External Heat-sink

Typical Performance @ 25°C

Frequency	P1dB	P3dB	Psat	Current @P1dB	Current @P3dB	Current @Psat	Gp @ P3dB	PAE @ P3dB	Nth Harmonic @Po = P1dBm		OIP3 @40dBm/Tone
									2nd Har	3rd Har	
(MHz)	(dBm)	(dBm)	(dBm)	(A)	(A)	(A)	(dB)	(%)	(dBc)		(dBm)
20	48.1	51.0	52.3	6.60	8.30	8.9	39.50	54.17	-43.2	-23.1	56.6
100	48.1	52.1	53.0	7.08	10.18	11.1	40.10	56.90	-40.0	-20.6	56.5
200	48.2	52.3	53.0	7.30	11.04	12.0	40.70	54.94	-46.1	-23.1	56.2
300	48.0	51.1	52.1	7.01	9.73	11.1	40.90	47.29	-35.2	-24.9	55.4
400	48.0	51.2	52.0	7.13	9.07	9.9	40.90	51.91	-38.9	-42.9	55.3
500	48.0	52.0	52.4	7.57	10.98	11.0	40.20	51.55	-57.9	-45.9	54.4





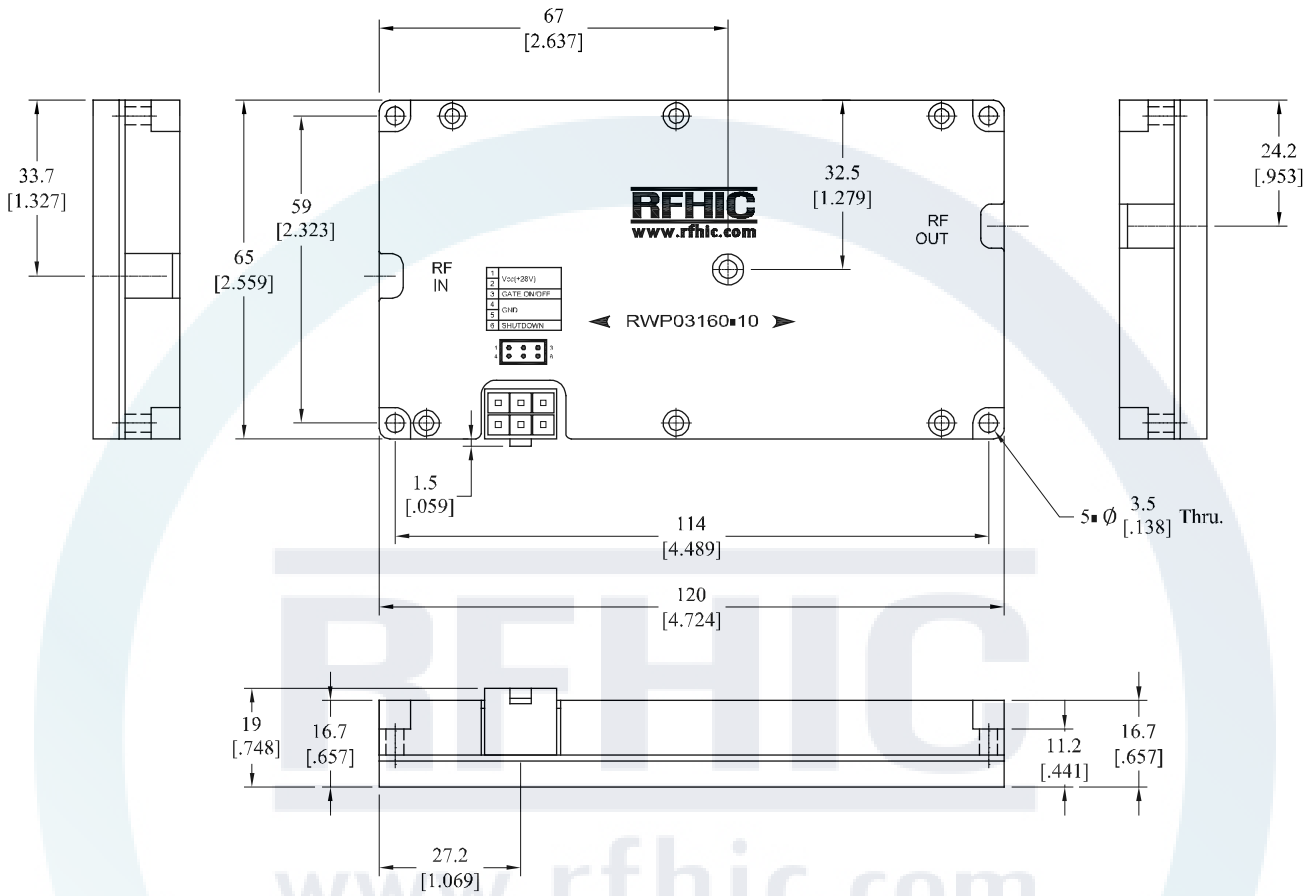
Precautions

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 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 (Type: DP-100)

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



Interface Connector		
Pin No	**Port Name**	**Function**
1	Vcc(28V)	28VDC
2	Vcc(28V)	28VDC
3	Switch ON/OFF	Switching Time : 5us max
		Enable : TTL “Low” or Open, Disable : TTL “High”
		(Low : 0~0.5V, High : 2.5~5V)
		Disable Status : 20mA Current consumption
4	GND	DC Ground
5	GND	DC Ground
6	Shut Down	Enable : TTL “Low” or Open, Disable : TTL “High”
		(Low : 0~0.5V, High : 2.5~5V)
		Disable Status : 20mA Current consumption

* Interface connector information : SMW420-06P(YEONHO Electronic, Wafer), SMH420-06(YEONHO Electronic, Housing)
* Recommended Screw Torque : 8.0kgf.cm±1 using SEMS M3 15MM Bolt

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
RWP03160-10	2019.07.18	2.1	Package Dimensions	-
RWP03160-10	2019.06.24	2.0	Ordering Information Change	-
RWP03160-10	2015.11.10	1.9	Note	-