

**Product Features**

- GaN on SiC Broadband High Power Amplifier
- 20 ~ 520MHz Operation Bandwidth
- Small Signal Gain 40dB min.
- 40W Typical. @ P3dB

**Applications**

- General Purpose



Package Type : DP-75

**Description**

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

Operating frequency range is from 20 ~ 520MHz.

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 @  $V_{CC} = 28V$ ;  $T_c = 45^{\circ}C$ ;  $Z_S = Z_L = 50\Omega$** 

PARAMETER	UNIT	MIN	TYP	MAX	CONDITION
Operating Frequency	MHz	20	-	520	-
Small Signal Gain	dB	40	42	44	-
Gain Variation vs Frequency	dBpp	-	$\pm 1$	$\pm 1.5$	-
P <sub>3</sub> dB	dBm	45	46	-	20 ~ 100MHz
		46	47	-	100 ~ 520MHz
OIP3 @ Po = +33dBm (1MHz Tone spacing, CW 2-Tone)	dBm	50	54	-	20 ~ 520 MHz
Input Return Loss	dB	-	-11	-7	-
Output Return Loss	dB	-	-7	-4	-
2 <sup>nd</sup> Harmonic suppression	dBc	-	-48	-40	CW 1-tone @Po = +30dBm, Freq 200MHz
Supply Voltage	V	27.5	28	30	V <sub>cc</sub> (=V <sub>ds</sub> )
Quiescent Current consumption	A	2.8	3	3.2	-
Current Consumption @ P <sub>3</sub> dB	A	-	3.8	4.5	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 : 300ms delay

**Absolute Maximum Ratings**

PARAMETER	UNIT	RATING
Input RF Power	dBm	13
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
RWP03040-10	Pallet
RWP03040-1H	Module assembled with RWP03040-10

\* RWP03040-1H is a SMA connectorized housing version of RWP03040-10. Electrical parameters are all same as RWP03040-10.  
For more information, please contact RFHIC

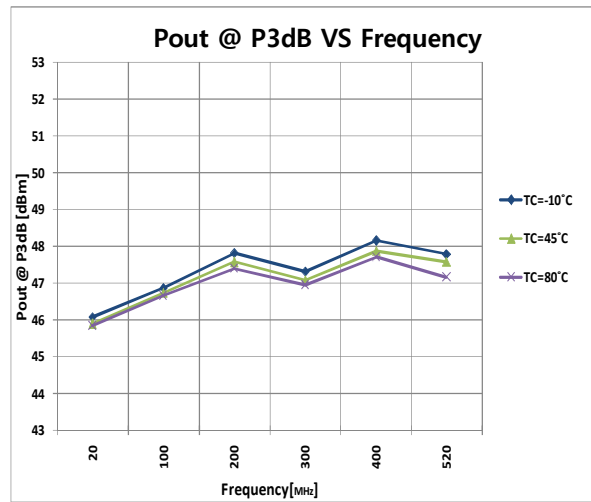
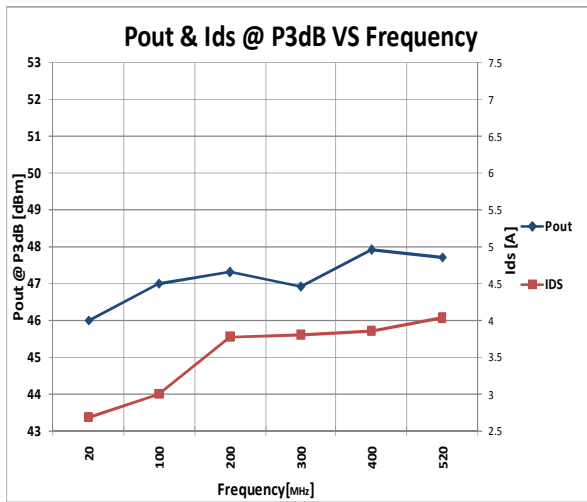
**Mechanical Specifications**

PARAMETER		UNIT	TYP
Dimension	Package	mm	70(L) x 50.8(W) x 17.1(H)
	Housing		90(L) x 75(W) x 25(H)
Weight	Package	g	55
	Housing		250
Housing RF IN/OUT Connector		-	SMA Female
Cooling		-	External Heat-sink

\*Dimension and weight may change without notice.

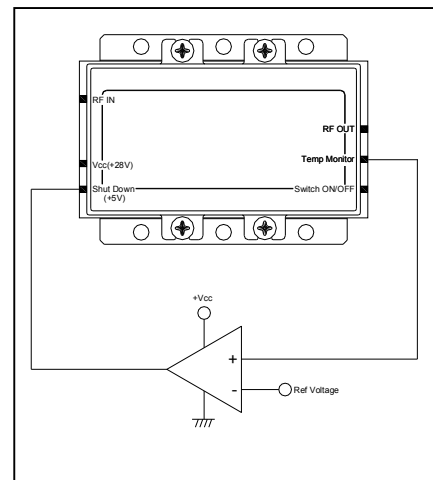
Typical Performance @ 25°C

Frequency	P1dB	P3dB	Current @P1dB	Current @P3dB	2nd Harm @30dBm	OIP3 (30dBm/Tone)
(MHz)	(dBm)	(dBm)	(A)	(A)	(dBc)	(dBm)
20	45.5	46.0	2.7	2.68	-57.51	55.7
100	46.2	47.0	2.9	3.00	-49.11	56.9
200	46.6	47.3	3.5	3.77	-48.43	56.3
300	45.8	46.9	3.4	3.80	-52.39	54.8
400	46.8	47.9	3.5	3.85	-71.33	54.8
520	46.1	47.7	3.5	4.03	-57.16	55.0



Precaution

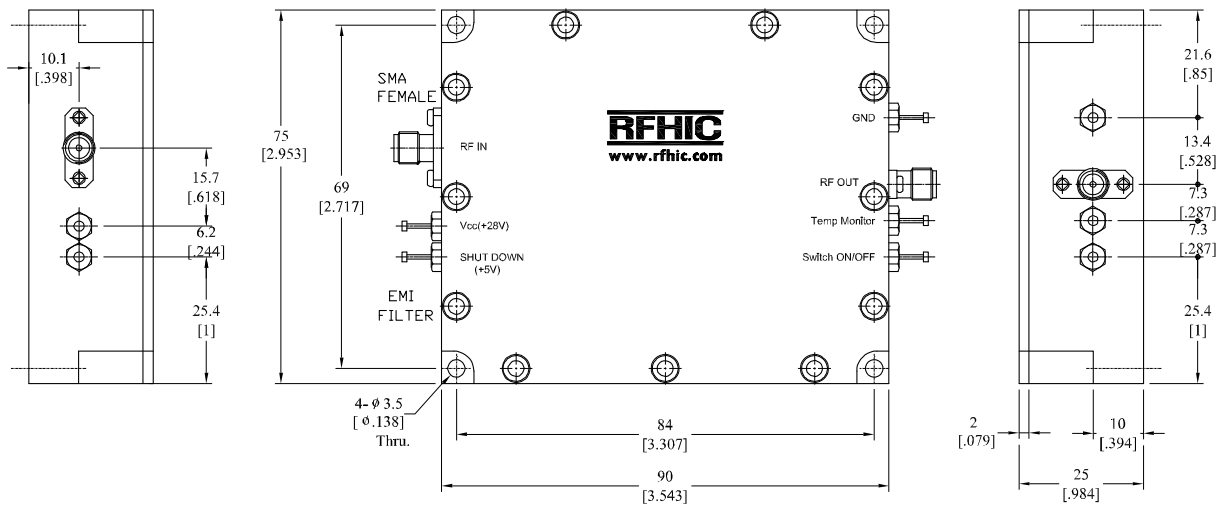
1. This product is designed to be used for broadband amplification. Heat generation is higher when there is no RF signal in the device. Therefore, the worst case scenario is when there is no RF signal, and the amplifier is “on” with current draw. The temperature must be calculated properly. Case temperature must maintain below 80°C. 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)



SMA Connectorized Housing Dimensions



**Revision History**

<b>Part Number</b>	<b>Release Date</b>	<b>Version</b>	<b>Modification</b>	<b>Data Sheet Status</b>
RWP03040-10	2014.5.23	1.8	Graph modification	-
RWP03040-10	2014.4.2	1.7	Mechanical Specifications	-
RWP03040-10	2013.10.18	1.6	Parameter & Graph modification	-

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