Wideband Power Amplifier RWP06040-G1

Product Features

GaN on SiC Broadband High Power Amplifier

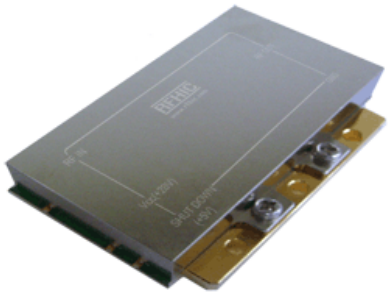
500 to 1000MHz Operation Bandwidth

Small Signal Gain 40dB min

40W Typical , P3dB

Application

UHF/Military



Package : DP-75

Description

The power amplifier module is specifically designed for Military markets.

Operating frequency range is from 500MHz to 1000MHz.

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.

Typical Specifications

V_{CC} = +28V; T = 25℃; Z_S = Z_L = 50Ω

No	Item	Conditions	Min	Typ	Max	Unit
1	**Bandwidth**		500		1000	MHz
2	**Small Signal Gain**		40	42	44	dB
3	**Gain Variation vs Temperature**	-20°C to 60°C	-2		+2	dB
4	**Gain Variation vs Frequency**			±1	±2	dBpp
5	**P_3dB**	500MHz to 700MHz	44	45		dBm
		700MHz to 1000MHz	46	47		
6	**OIP3 @ Po = +33dBm (1MHz Tone spacing, CW 2-Tone)**	500MHz to 1000MHz	48	46		dBm
7	**Input Return Loss**			-5	-3	dB
8	**Output Return Loss**			-12	-7	dB
9	**2nd Harmonic suppression**	CW 1-tone @Po = +30dBm, Freq 500MHz		-35	-30	dBc
10	**Supply Voltage**	Vcc(=Vds)	27.5	28	30	V
11	**Quiescent Current consumption**			3	3.5	A
12	**Current Consumption**	CW 1-tone @ Po = +46dBm		4.5	5	A
13	**On/Off Switching Time**	On : TTL "Low"		3	5	uS
		Off : TTL "High"(300mA@Disable)				
14	**Shut Down or Switch On/Off TTL Voltage**	On : TTL “Low”(Enable)	0		0.5	V
		Off : TTL “High”	2.5	5	5.5	

Environmental Characteristics

No	Item	Min	Typ	Max	Unit
1	**Operating Temperature**	-20		+60	°C
2	**Storage Temperature**	-40		+105	°C
3	**Vibration**	MIL-STD-810G Method 514.6 ANNEX C			

Absolute Maximum Ratings

No	Item	Rating	Unit
1	**Operating Flange Temperature**	+85	°C
2	**Input RF Power**	+12	dBm
3	**Supply Voltage**	+30	V
4	**Load Mismatch Value**	3 : 1 @ all load phase	

** Input Signal Condition : CW 1-Tone*

Ordering Information

No	Part Number	Package
1	**RWP06040-G1**	Pallet
2	**RWP06040-GH**	Module assembled with RWP06040-G1

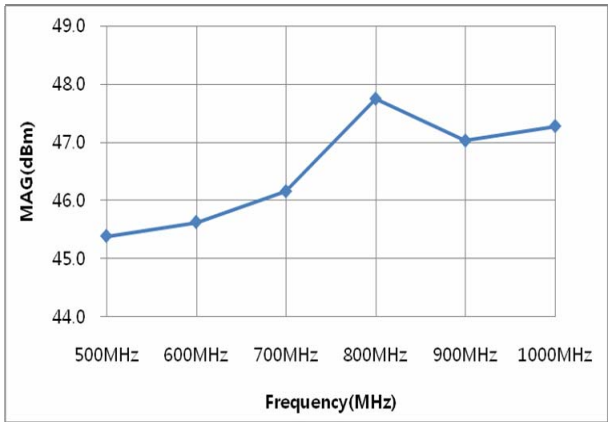
** RWP06040-GH is a SMA connectorized housing version of RWP06040-G1. Electrical parameters are all same as RWP06040-G1.*

For more information, please contact RFHIC.

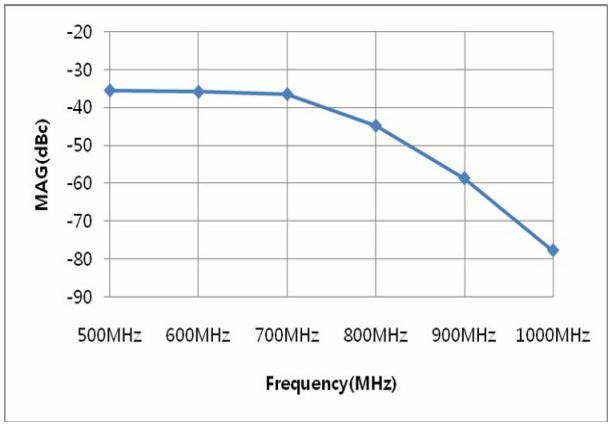
RWP06040-G1 Typical Performance @ 25℃

Frequency	P1dB	P3dB	Current@P1dB	Current@P3dB	2nd Harm	OIP3 (30dBm/Tone)
(MHz)	(dBm)	(dBm)	(A)	(A)	@30dBm(dBc)	(dBm)
500	42.6	45.4	2.99	3.80	-35.6	52.7
600	42.9	45.6	3.80	4.13	-35.96	53.3
700	43.1	46.2	3.33	4.74	-36.58	53.4
800	44.3	47.7	3.61	5.24	-44.92	53.4
900	44.0	47.0	3.41	4.85	-58.74	52.7
1000	46.3	47.3	3.30	3.51	-77.78	51.2

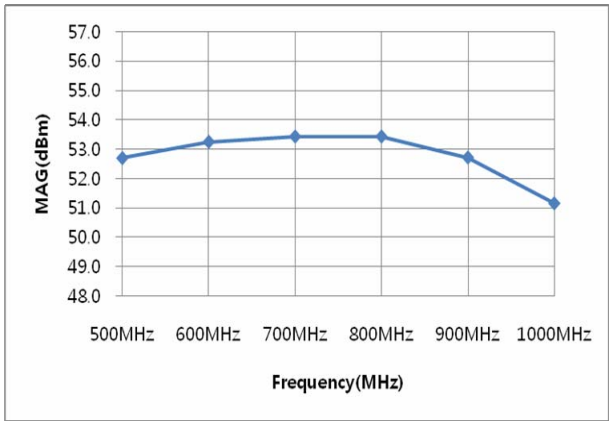
P3dB



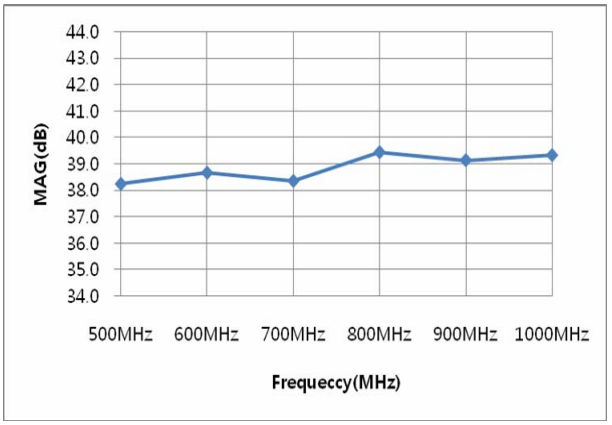
2nd Harmonics



OIP3



Power Gain @ Pin=8dBm



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.

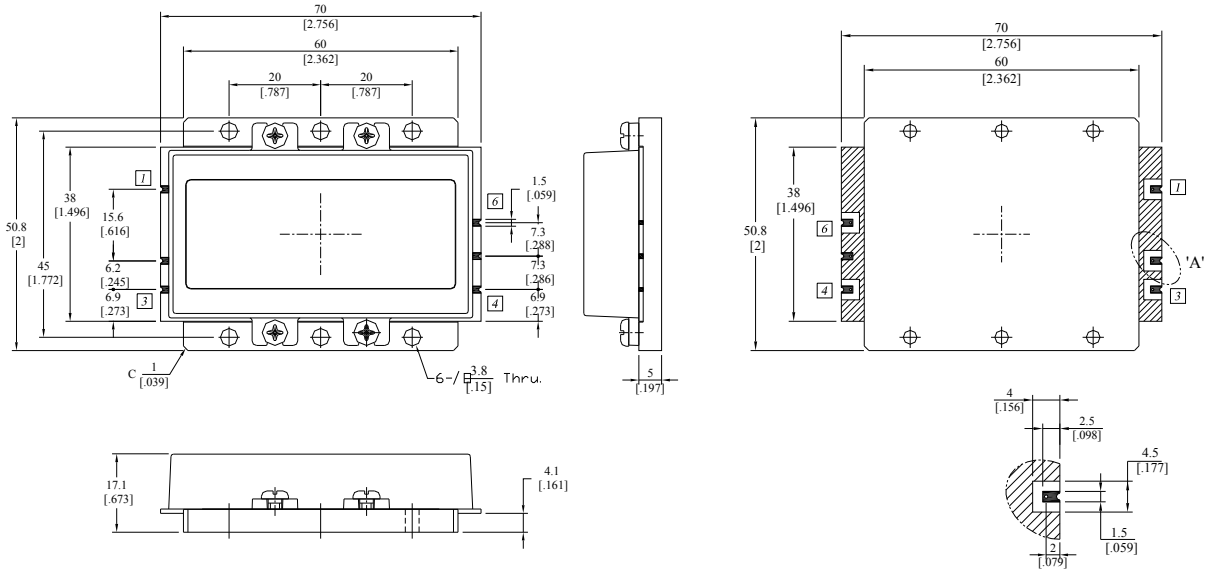
Case temperature must maintain below 85°C.

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.

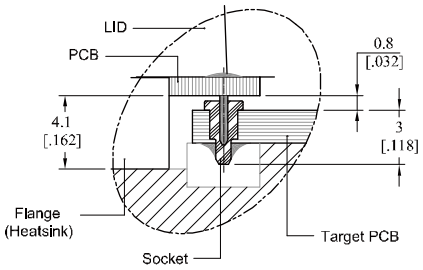
Package Dimensions (Type: DP-75)

(Unit : mm/[inch], Tolerance : ±0.2/[.008])

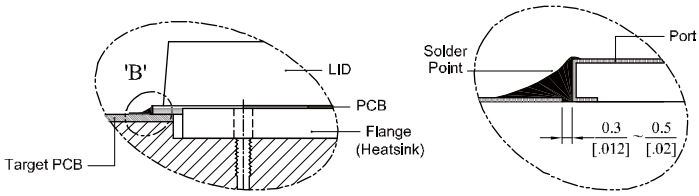


How to connect the amplifier to a target PCB

Method-I (with Pin)



Method-II (without Pin) - *If you cut out the pin*



Pin Description

Pin No	Port Name	Function
1	**RF IN**	RF Input
2	**Vcc (+28V)**	DC Supply
3	**Shut Down (+5V)**	Shut Down @ TTL High, Enable @ TTL Low
4	**Switch ON/OFF**	Disable @ TTL High (Switch Status : Off)
5	**GND**	Ground
6	**RF OUT**	RF Output

** Terminal Pin Information : ASK206091,AA (Acethink, Pin) , ASK20556,AA-1(Acethink, Pin Socket)*

** Recommended Screw Torque : 8.0kgf.cm±1 using SEMS M3 10mm Bolt*

Note :