

Product Features

GaN on SiC Broadband High Power Amplifier
 450 to 880MHz Operation Bandwidth
 Small Signal Gain 38dB min
 40W Typical. P3dB

Application

UHF Television



Package : DP-75

Description

The RWP06040-10 is designed for Wideband Power Amplifier application frequencies from 450 to 880MHz. This module uses GaN HEMT technology which performs high breakdown voltage, high linearity, wide bandwidth and high efficiency.

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

$V_{CC} = +28V$; $T = 25^{\circ}C$; $Z_S = Z_L = 50\Omega$

No	Item	Conditions		Min	Typ	Max	Unit
1	Bandwidth			450		880	MHz
2	Small Signal Gain			38	40	42	dB
3	Gain Variation vs Temperature	-20°C to 60°C		-2.0		+2.0	dB
4	Gain Variation vs Frequency				±1	±2	dBpp
5	P _{3dB}	450MHz to 880MHz		44	45		dBm
6	OIP3 @ Po = +33dBm (1MHz Tone spacing, CW 2-Tone)	450MHz to 880MHz		49	51		dBm
7	Input Return Loss				-12	-10	dB
8	Output Return Loss				-11	-7	dB
9	ACLR@Pout=28dBm W-CDMA,64PCH,4FA Spectrum Analyzer Setting : RBW=30KHz, VBW=10KHz	450MHz	△=5MHz	45	48		dBc
			△=10MHz	48	51		
		880MHz	△=5MHz	44	45		
			△=10MHz	47	48		
10	Supply voltage	Vcc(=Vds)		27.5	28	30	V
11	Quiescent Current consumption				2.5	2.7	A
12	On/Off Switch Time	On: TTL "Low" Off: TTL "High"(300mA@Disable)			3.0	5.0	uS
13	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	RWP06040-10	Pallet
2	RWP06040-1H	Module assembled with RWP06040-10

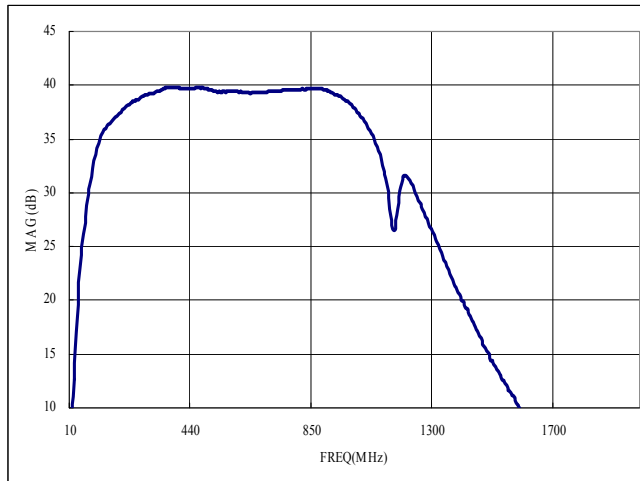
* RWP06040-1H is a SMA connectorized housing version of RWP06040-10. Electrical parameters are all same as RWP06040-10.

For more information, please contact RFHIC.

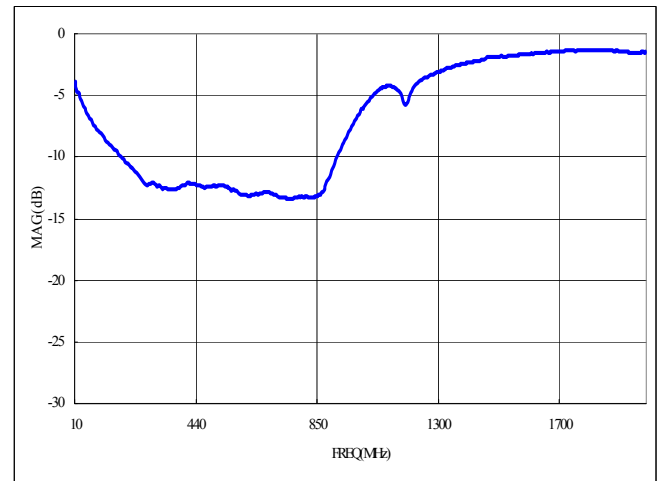
RWP06040-10 Typical Performance @ 25°C

Frequency (MHz)	P1dB (dBm)	P3dB (dBm)	Current @P1dB (A)	Current @P3dB (A)	OIP3 (30dBm/Tone) (dBm)	W-CDMA 64CH 4FA @ 28dBm			
						-5MHZ (dBc)	+5MHZ (dBc)	-10MHZ (dBc)	+10MHZ (dBc)
450MHz	44.4	45.6	2.3	2.4	51.6	-48.0	-48.1	-50.8	-51.0
550MHz	42.5	44.9	2.4	3.1	50.8	-46.3	-46.4	-49.1	-49.3
650MHz	42.5	44.9	2.4	3.2	50.2	-45.4	-45.7	-48.1	-48.6
750MHz	43.0	45.4	2.5	3.0	50.5	-45.7	-46.1	-48.4	-48.9
880MHz	43.1	45.4	2.5	3.0	50.3	-45.5	-46.0	-48.2	-48.8

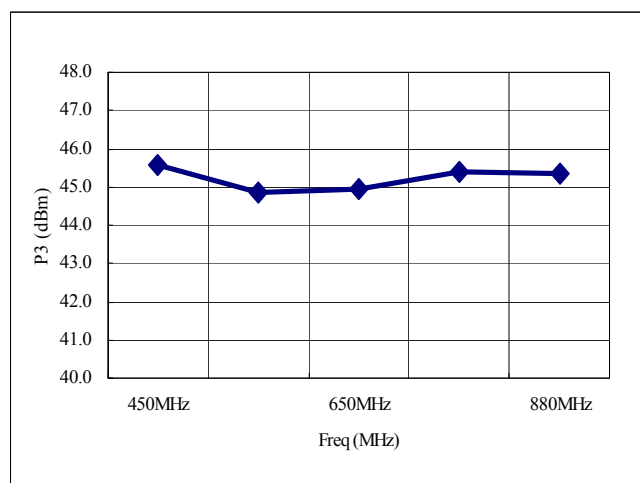
Gain



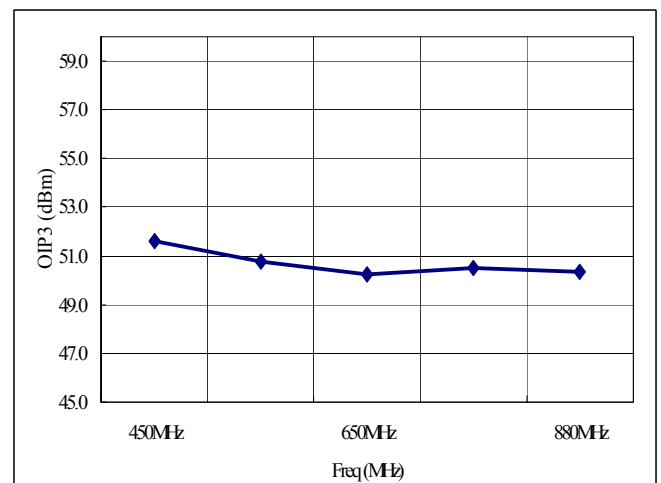
Input Return Loss



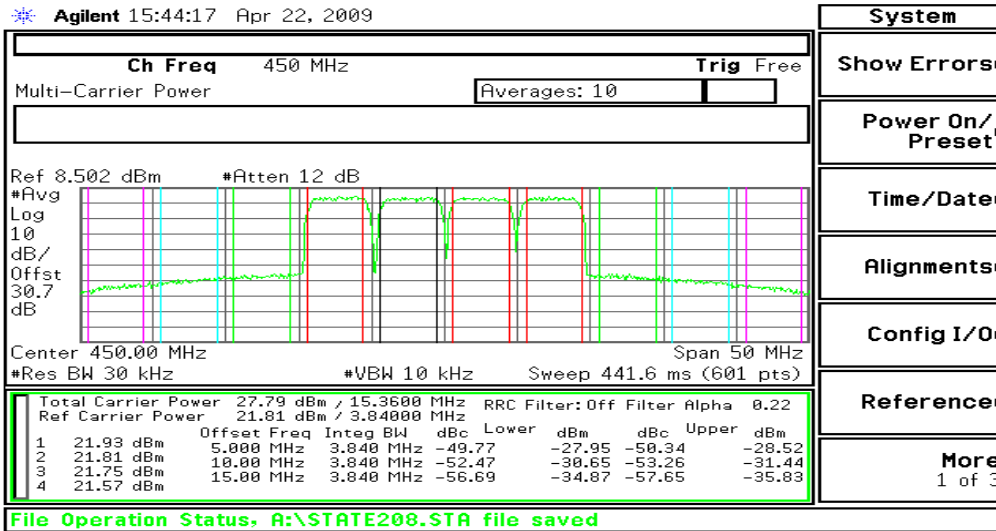
P3



OIP3



W-CDMA, 64PCH, 4FA ACLR, PAPR 11.3dB



System

Show Errors

Power On/ Preset

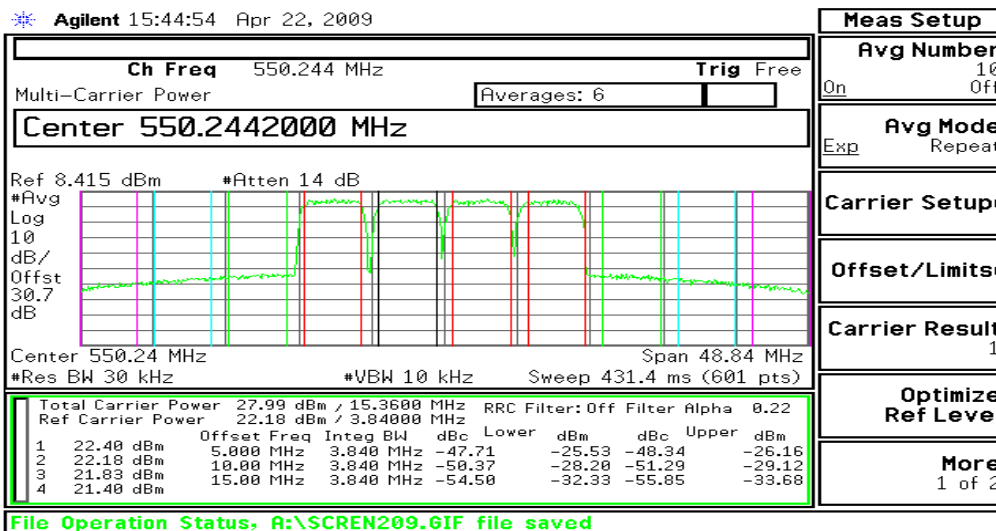
Time/Date

Alignments

Config I/O

Reference

More
1 of 3



Meas Setup

Avg Number 10
On Off

Avg Mode Exp Repeat

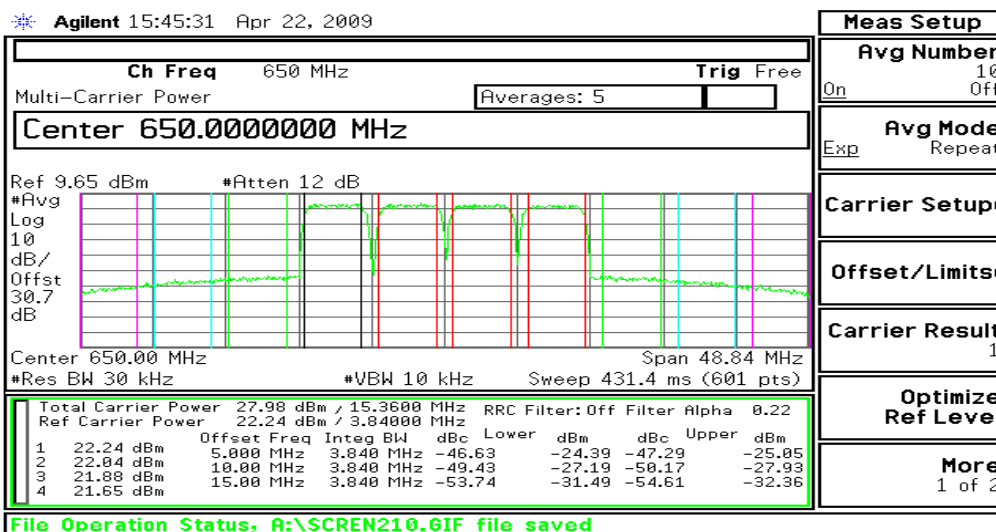
Carrier Setup

Offset/Limits

Carrier Result 1

Optimize Ref Level

More
1 of 2



Meas Setup

Avg Number 10
On Off

Avg Mode Exp Repeat

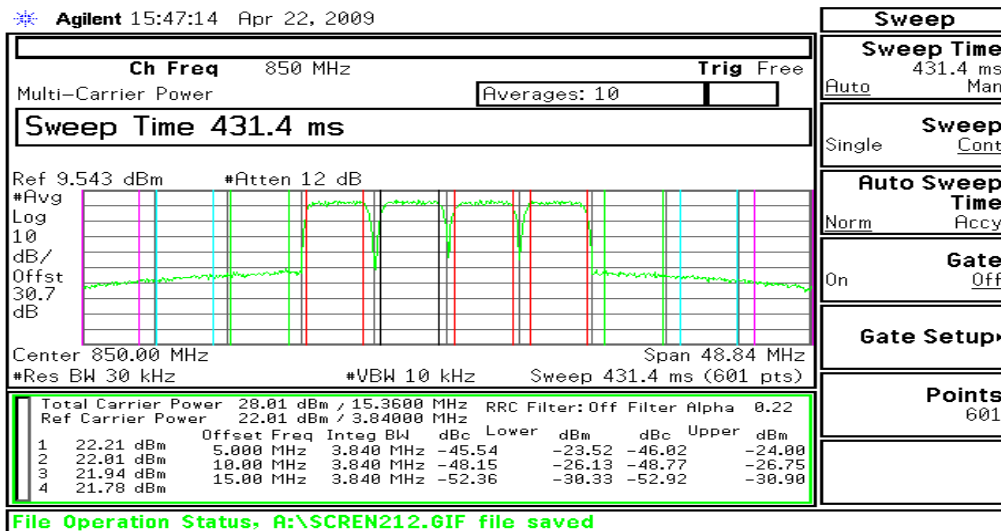
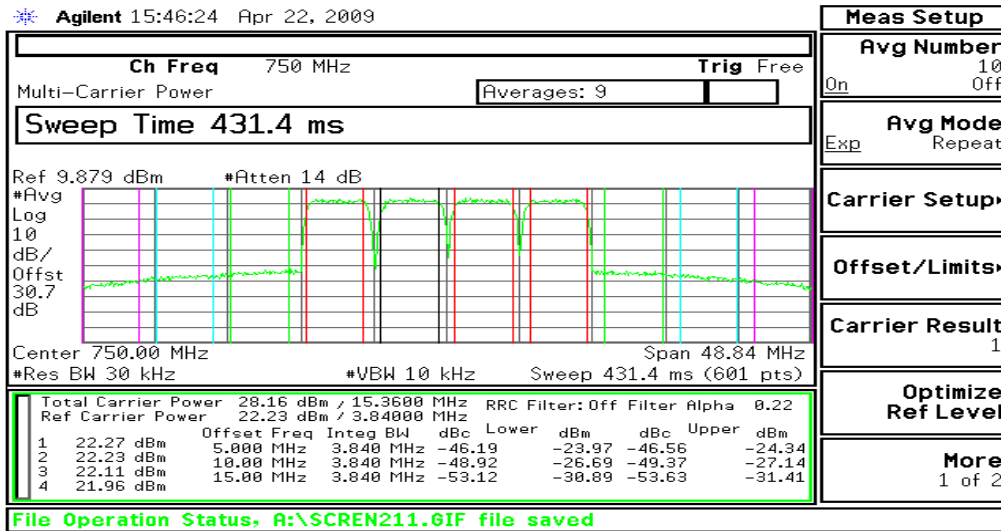
Carrier Setup

Offset/Limits

Carrier Result 1

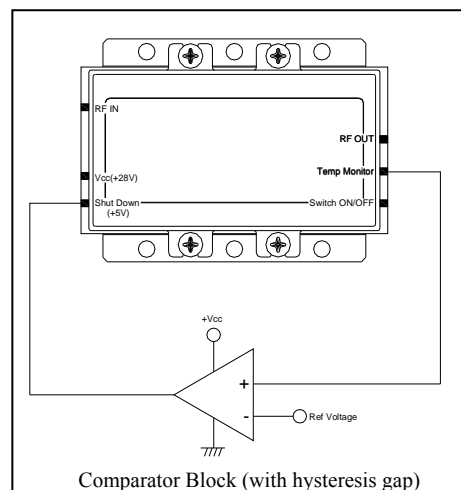
Optimize Ref Level

More
1 of 2



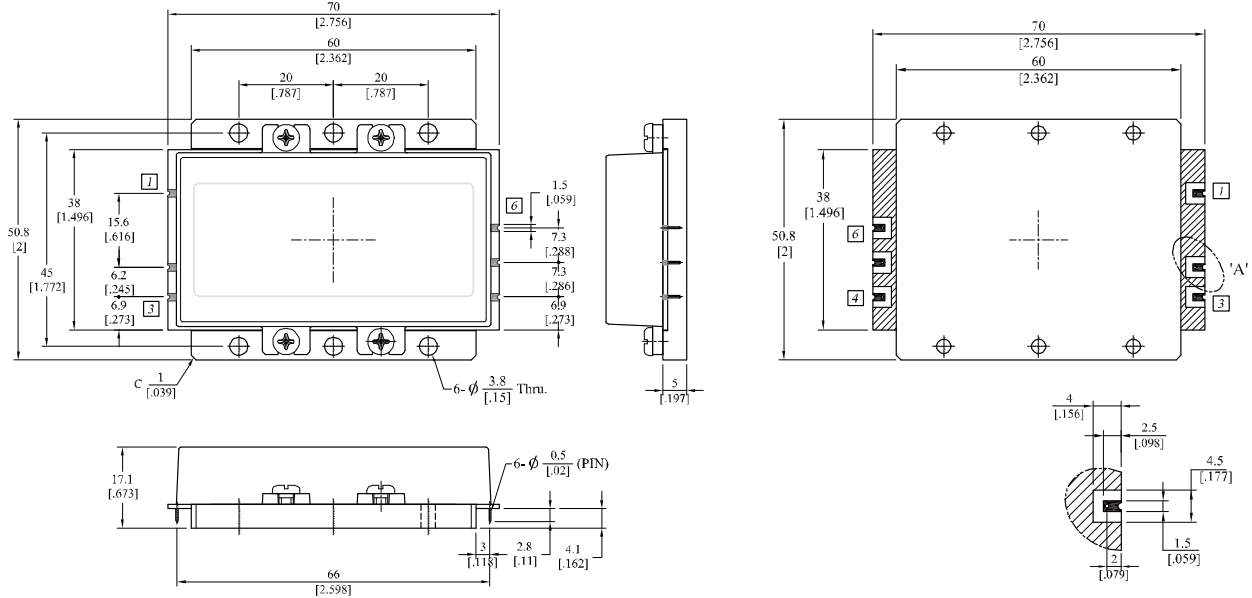
Precautions

- 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. Right side drawing notes how to use a temperature monitoring function to protect against overheating.
- 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.



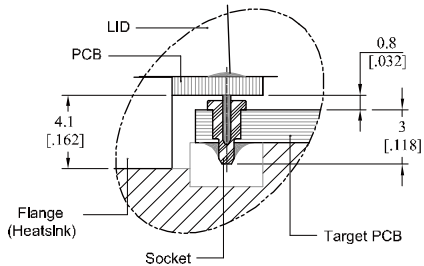
Package Dimensions (Type: DP-75)

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

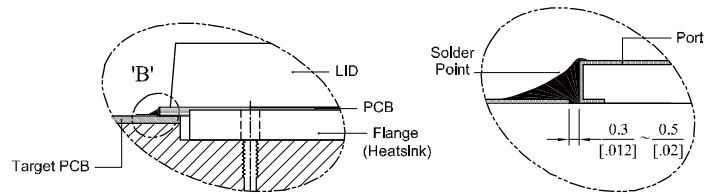


How to connect the amplifier to a target PCB

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	Temp Monitor	0.85V @ 25°C, Scale : 10mV/°C (Accuracy : ±3°C)
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 :

RFHIC Corporation (RFHIC) reserves the right to make changes to any products herein or to discontinue any product at any time without notice. RFHIC do 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. The product specifications herein expressed have been carefully checked and are assumed to be reliable. However, RFHIC disclaims liability for inaccuracies and strongly recommends buyers to verify that the information they are using is current before placing purchase orders. 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 and its directors, officers, stockholders, employees, representatives and distributors harmless against any and all claims arising out of such use. RFHIC's liability under or arising out of damages, claims of whatsoever kind and nature which RFHIC products could cause shall be limited in amount to the net purchase price of the products sold to buyer by RFHIC.