

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

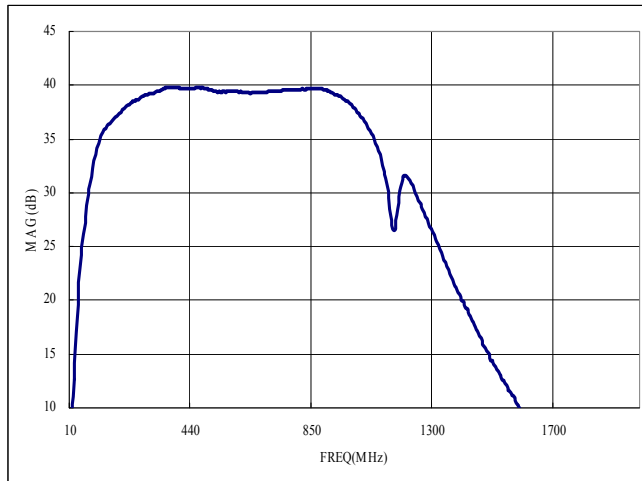
* RWP06040-1H is a SMA connectorized housing version of RWP06040-10. Electrical parameters are all same as RWP06040-10.

For more information, please contact RFHIC.

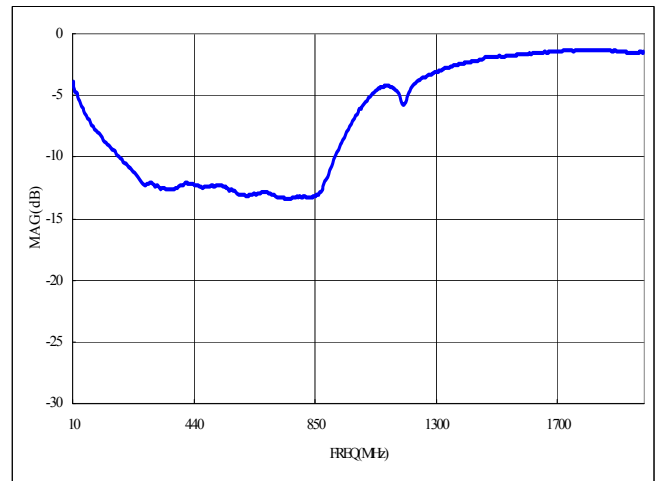
RWP06040-10 Typical Performance @ 25°C

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

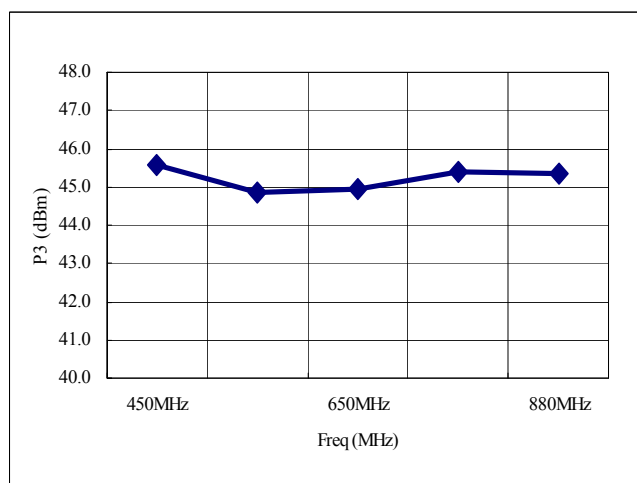
Gain



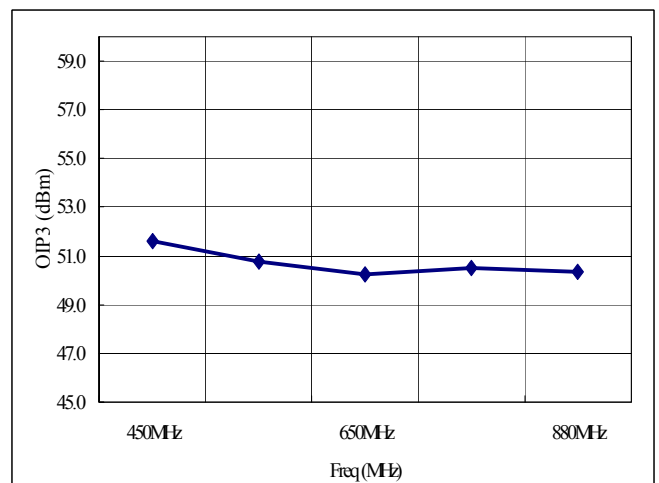
Input Return Loss



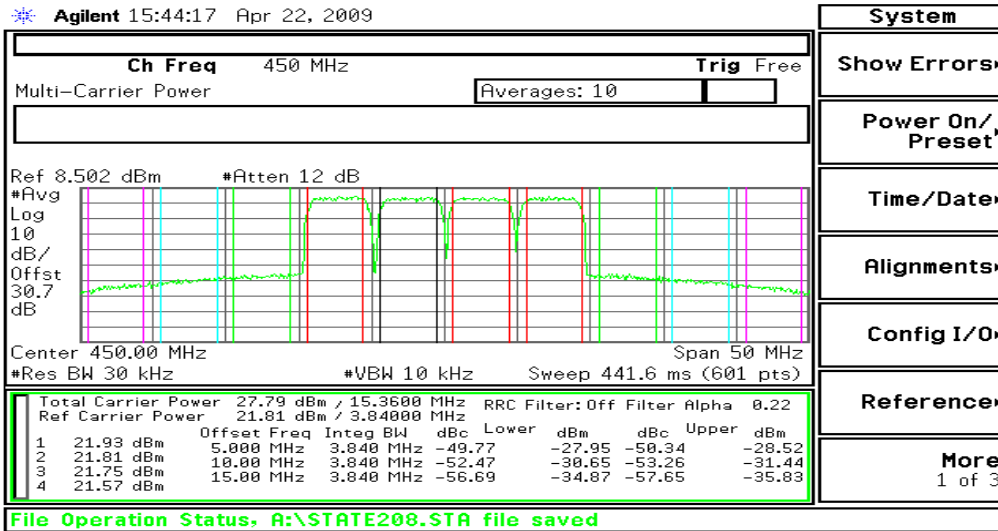
P3



OIP3



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



System

Show Errors>

Power On/
Preset>

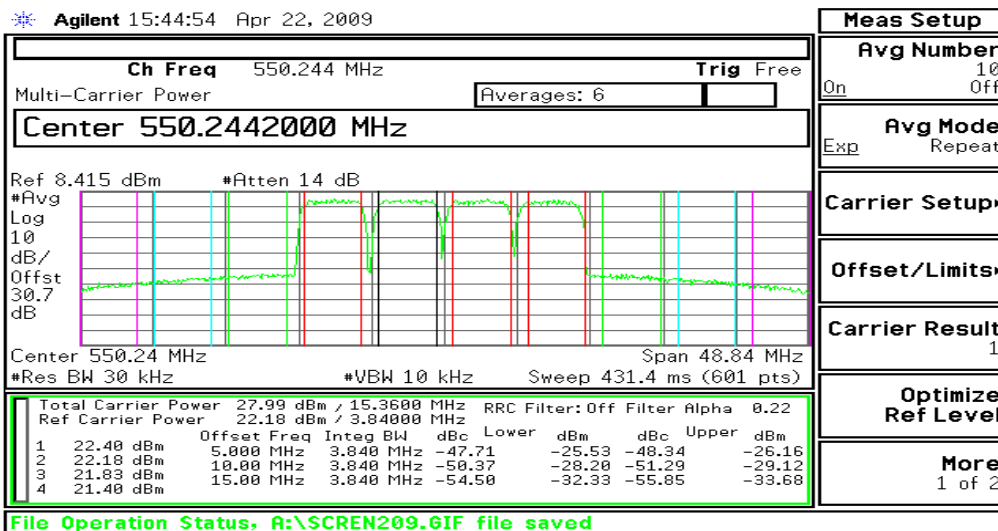
Time/Date>

Alignments>

Config I/O>

Reference>

More
1 of 3



Meas Setup

Avg Number 10
On Off

Avg Mode
Exp Repeat

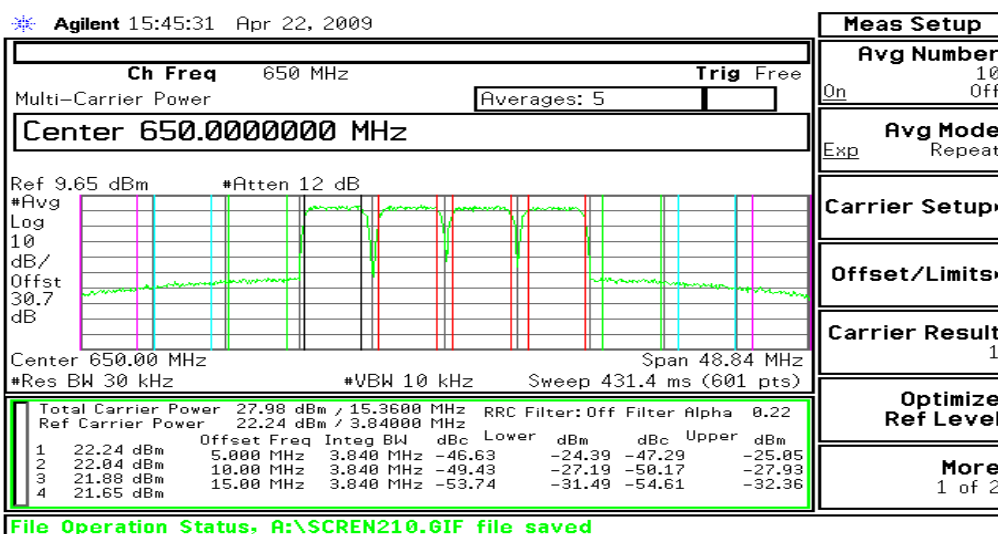
Carrier Setup>

Offset/Limits>

Carrier Result 1

Optimize Ref Level

More
1 of 2



Meas Setup

Avg Number 10
On Off

Avg Mode
Exp Repeat

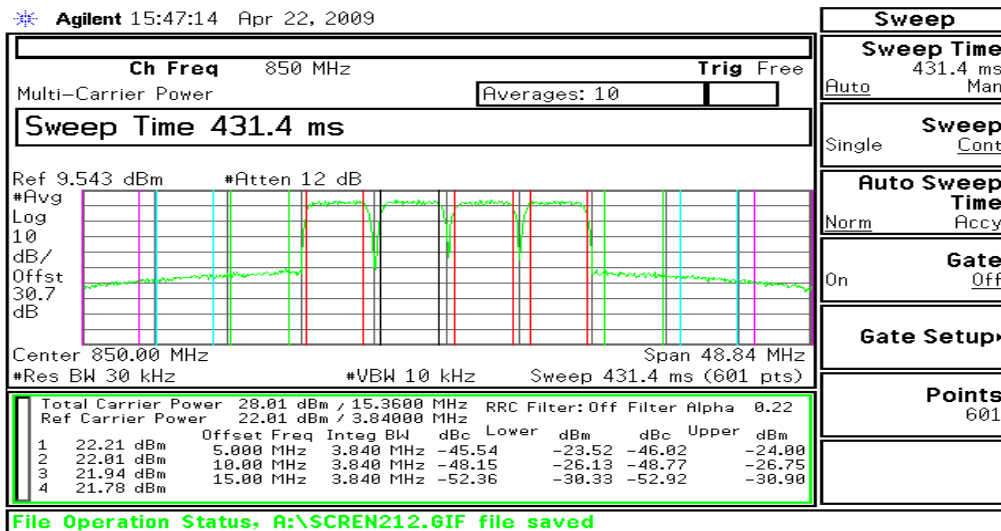
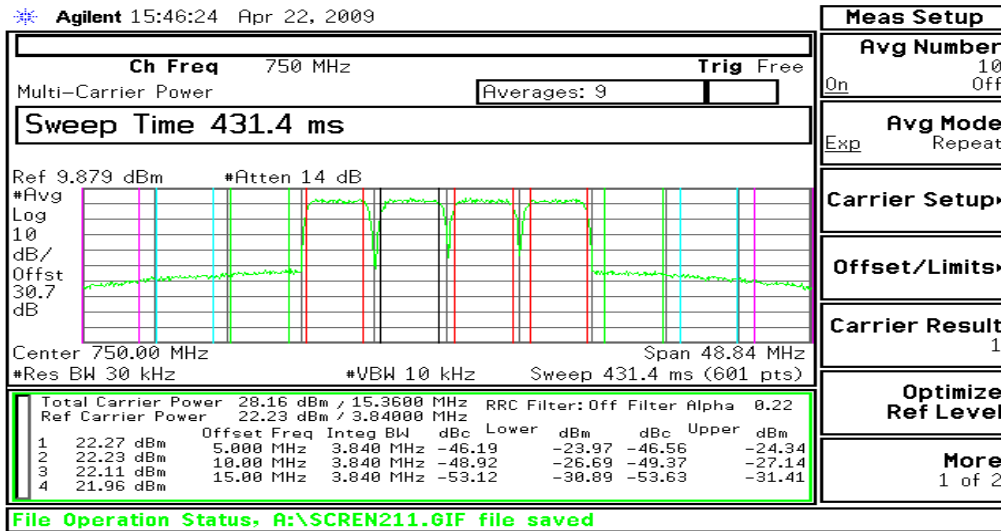
Carrier Setup>

Offset/Limits>

Carrier Result 1

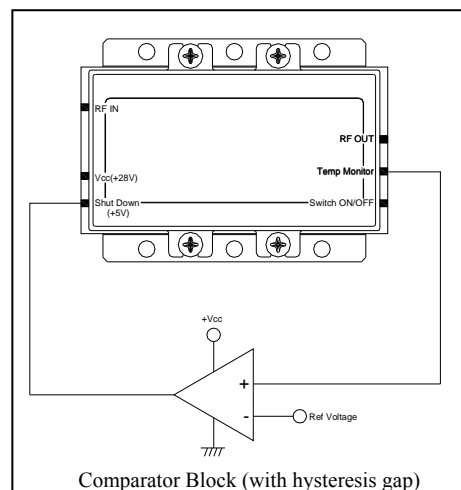
Optimize Ref Level

More
1 of 2



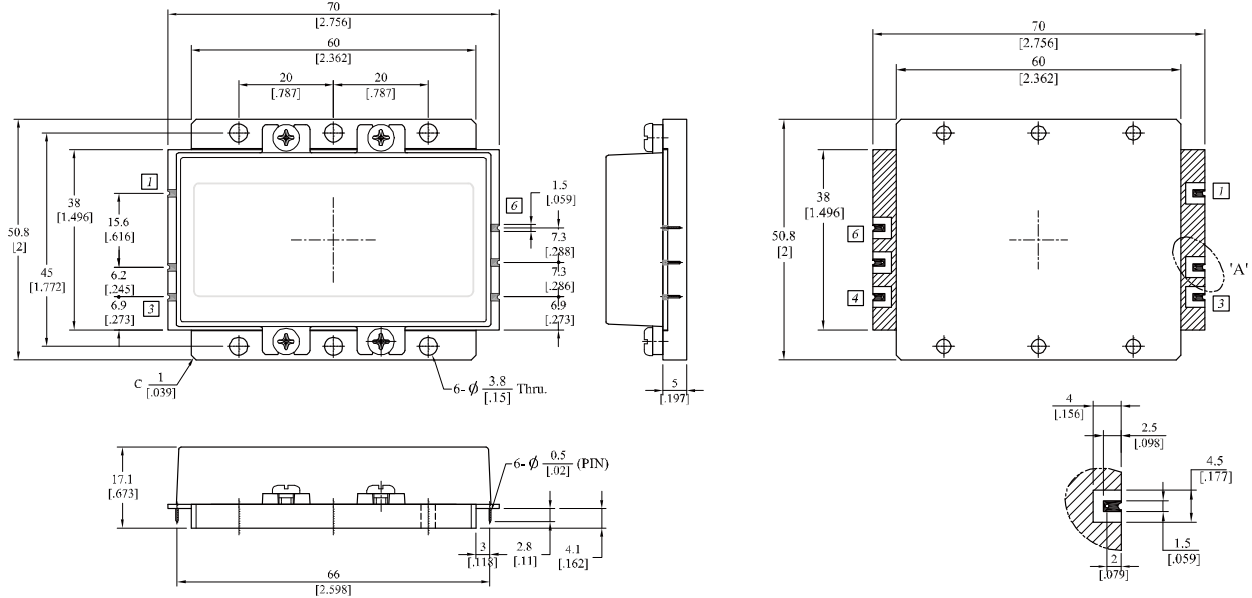
Precautions

- 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.



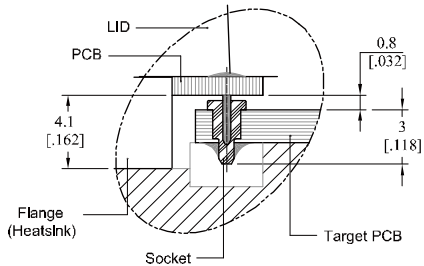
Package Dimensions (Type: DP-75)

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

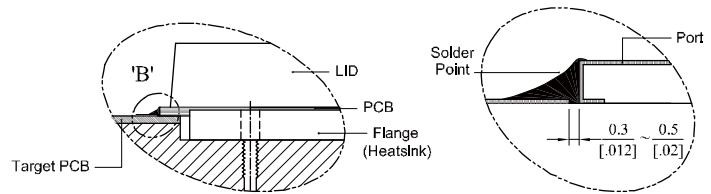


How to connect the amplifier to a target PCB

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 :

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