

Product Features

- GaN on SiC Broadband High Power Amplifier
- Operation across 450MHz to 880MHz
- 40Watts P3dB typical
- GaN HFET

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

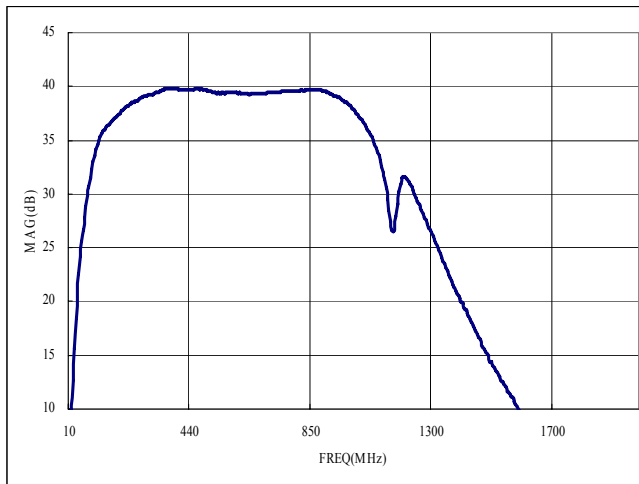
$V_{CC} = +28V$; $T = 25^{\circ}C$; $Z_S = Z_L = 50\Omega$

| Ref. | CHARACTERISTIC | CONDITIONS | | Min. | Typ. | Max. | Units |
|------|--------------------------------------------------------------------------------------------|-------------------------------------------------|---------|------|------|------|-------|
| 1. | Bandwidth | | | 450 | | 880 | MHz |
| 2. | 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 650MHz | | 44 | 45 | | dBm |
| | | 650 MHz to 880MHz | | 44 | 45 | | |
| 6. | OIP3 2tone 1MHz @ +30dBm output power | 450MHz to 650MHz | | 49 | 51 | | dBm |
| | | 650 MHz to 880MHz | | 49 | 51 | | |
| 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 | | | | +28 | +30 | V |
| 11. | Quiescent Current consumption | | | 2.3 | 2.5 | 2.7 | A |
| 12. | On/Off Switch Time | On: TTL "Low" Off: TTL "High"(100mA@Disable) | | | 3.0 | 5.0 | uS |

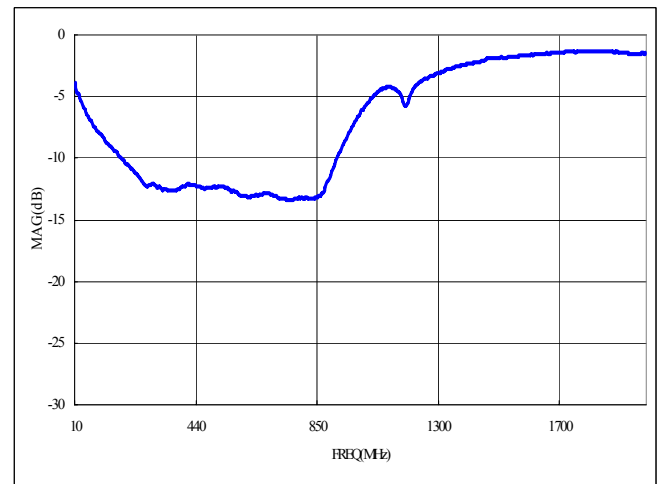
RWP06040-10 Typical Performance @ 25°C

| Frequency (MHz) | P1dB (dBm) | P3dB (dBm) | Current@ P1dB (A) | Current@ P3dB (A) | OIP3@1GHz (dBm) | W-CDMA 64CH 4FA @ 28dBm | | | |
|--------------------|---------------|---------------|-------------------------|-------------------------|--------------------|-------------------------|-------|--------|--------|
| | | | | | | -5MHZ | +5MHZ | -10MHZ | +10MHZ |
| 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 |

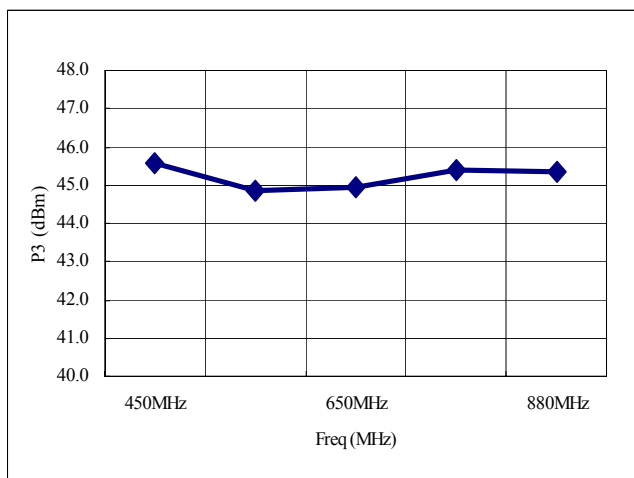
Gain



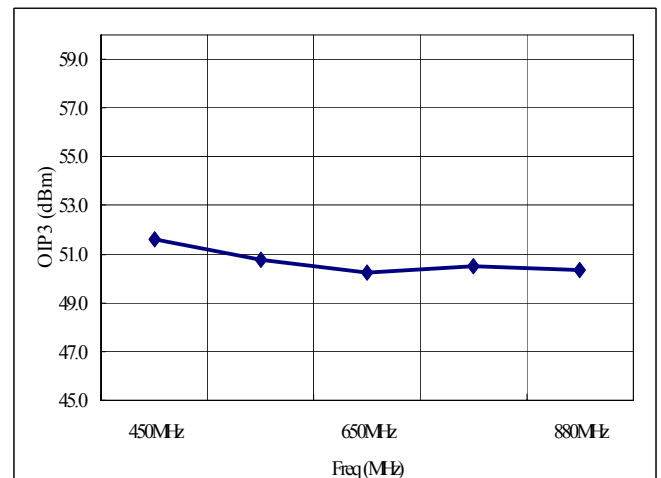
Input Return Loss



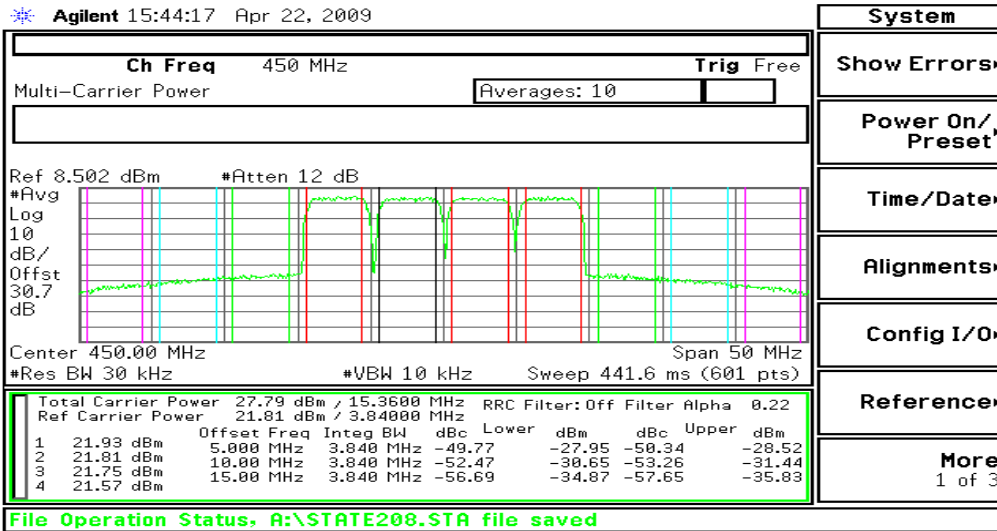
P3



OIP3



W-CDMA,64PCH,4FA ACLR



System

Show Errors>

Power On/
Preset>

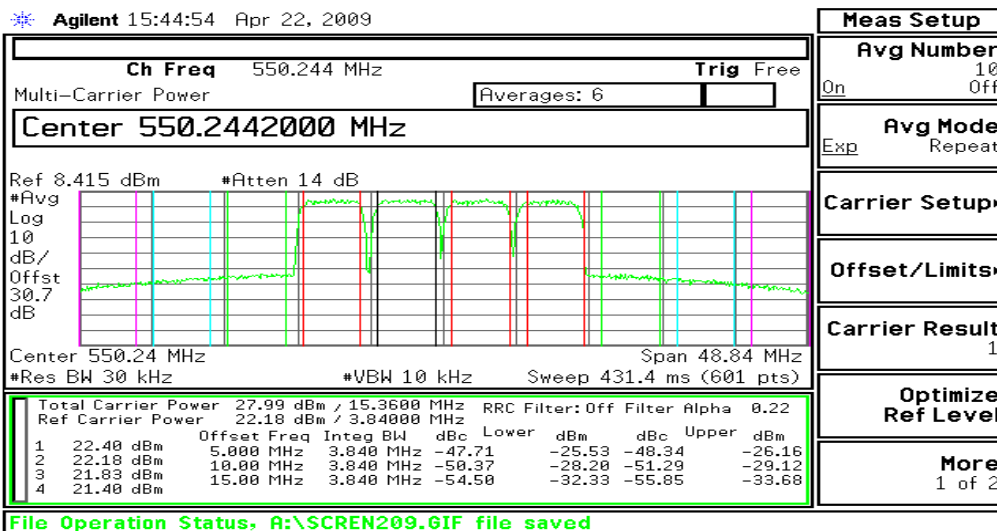
Time/Date>

Alignments>

Config I/O>

Reference>

More
1 of 3



Meas Setup

Avg Number 10
On Off

Avg Mode
Exp Repeat

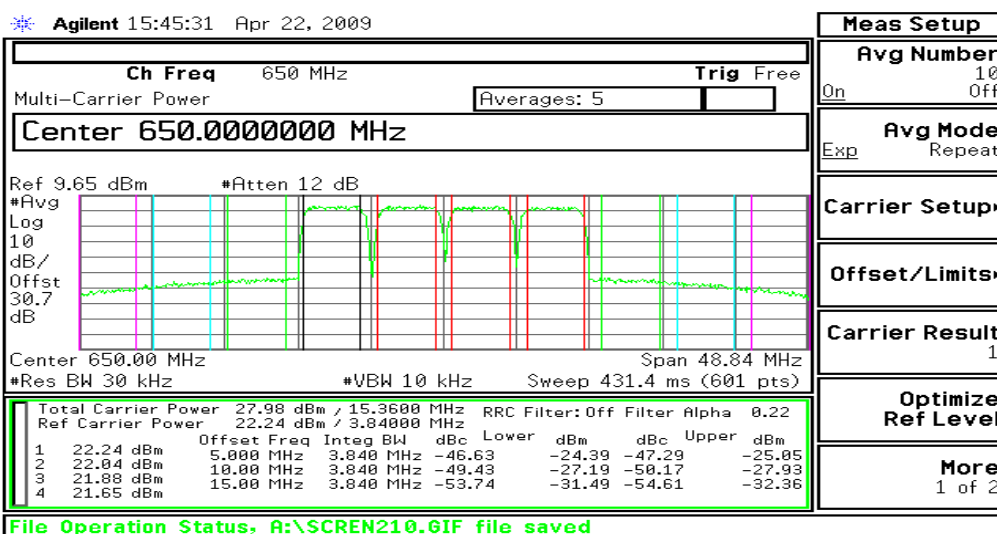
Carrier Setup>

Offset/Limits>

Carrier Result 1

Optimize Ref Level

More
1 of 2



Meas Setup

Avg Number 10
On Off

Avg Mode
Exp Repeat

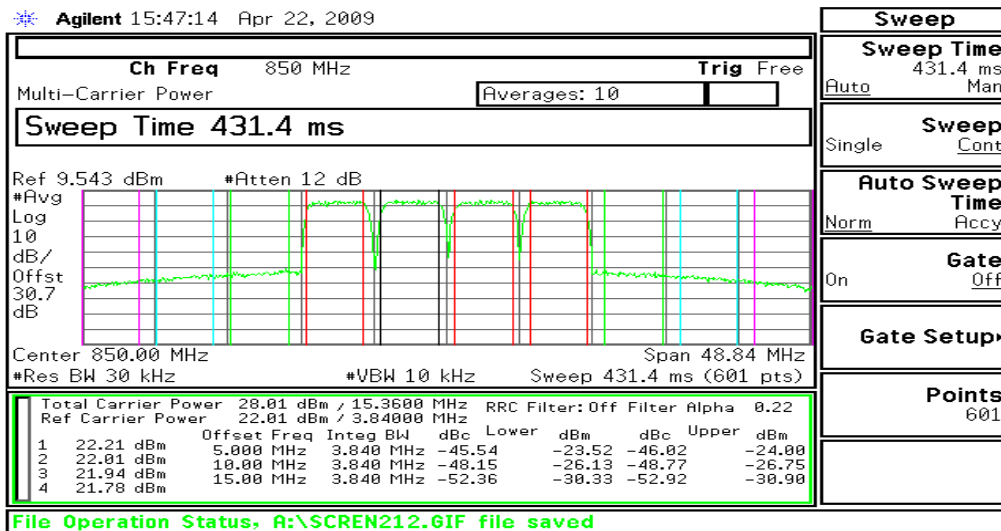
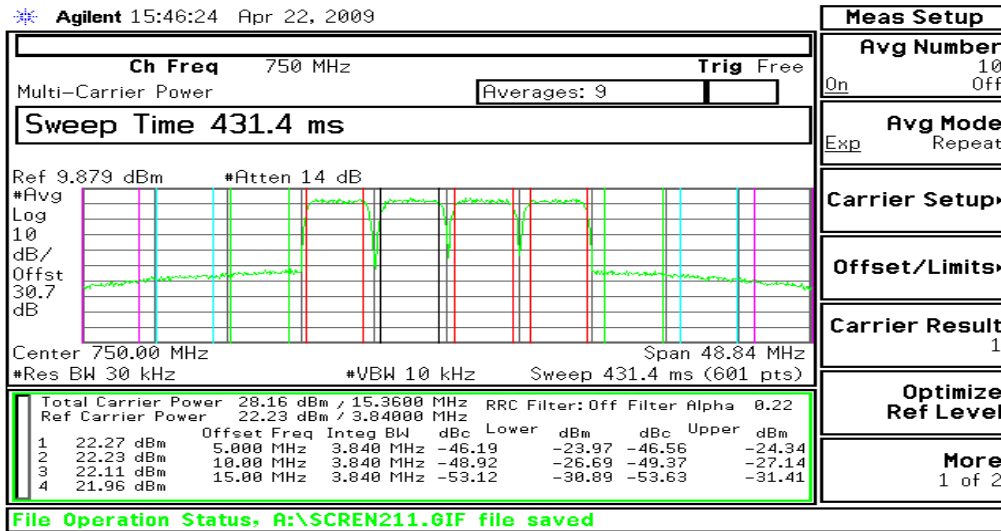
Carrier Setup>

Offset/Limits>

Carrier Result 1

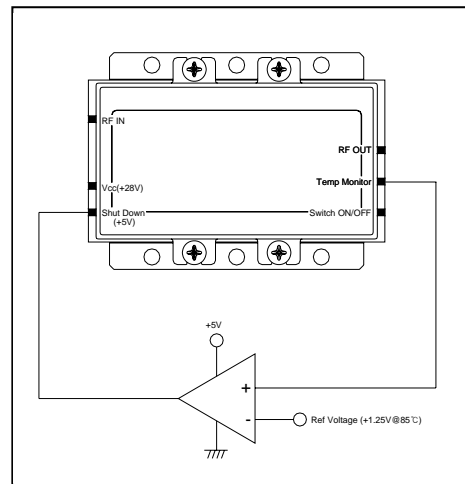
Optimize Ref Level

More
1 of 2

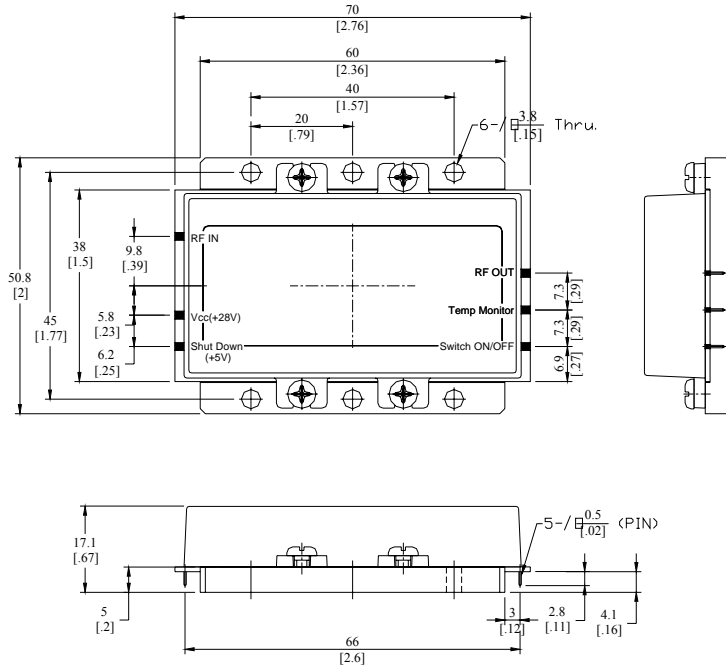


Precautions

- 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 thermal management must be calculated accordingly.
- Case temperature must maintain below 80C.
- Right side drawing notes how to use a temperature monitoring function to protect against over heating.



Package Dimensions (Type: DP-75)

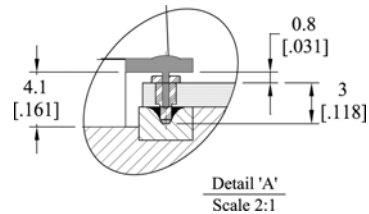
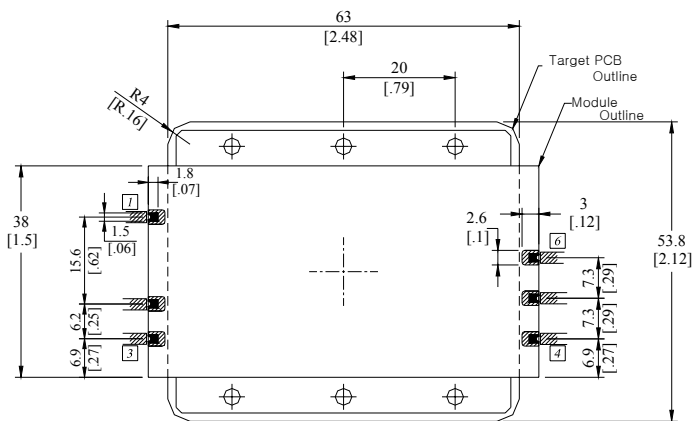


| | |
|------------------------------------------|------------------------------------|
| Unit : $\frac{\text{mm}}{\text{[inch]}}$ | Tolerance : $\pm \frac{0.2}{.008}$ |
|------------------------------------------|------------------------------------|

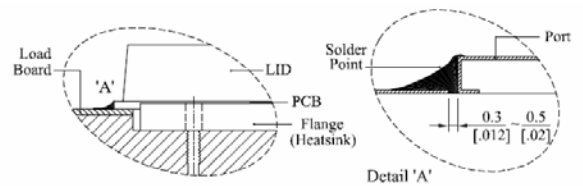
| Pin No. | Function |
|---------|---------------------------------------------------------------|
| 1 | RF In |
| 2 | V _{CC} (+28V) |
| 3 | Shut down(+5V) |
| 4 | Switch ON/OFF |
| 5 | Temp Monitor (0.75V@25°C, Scale:10mV/°C, Accuracy:±3°C) |
| 6 | RF Out |

| Terminal Pin | Acethink |
|---------------------|----------------|
| | ASK206091, AA |
| Terminal Pin socket | Acethink |
| | ASK20556, AA-1 |

Footprint for easy maintenance



Another Usage



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