

Product Features

- GaN on SiC Broadband High Power Amplifier
- 20 to 1000MHz Operation Bandwidth
- Small Signal Gain 35dB min.
- 20W Typical. P3dB

Application

- HF/VHF/UHF



Package : DP-75

Description

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

Operating frequency range is from 20MHz 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

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

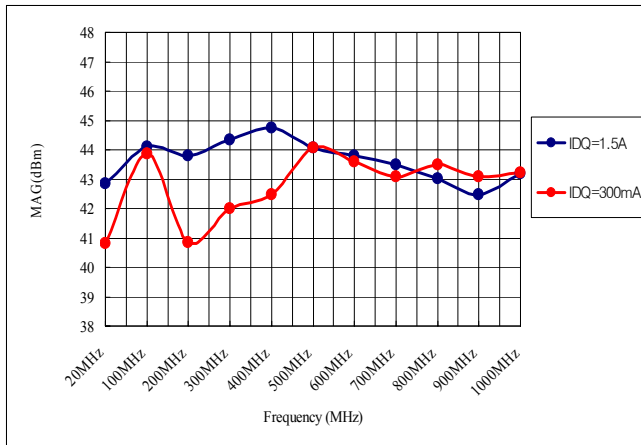
Ref.	CHARACTERISTIC	CONDITIONS	Min.	Typ.	Max.	Units
1.	Bandwidth		20		1000	MHz
2.	Gain		38	40	42	dB
3.	Gain variation vs temperature	-20°C to 60°C	-2.0		+2.0	dB
4.	Gain variation vs frequency			±1	±2	dBpp
5.	P _{3dB}	20MHz to 400MHz	42	44		dBm
		400 MHz to 1000MHz	41	43		
6.	OIP3 2tone 1MHz @ +30dBm output power	20MHz to 400 MHz	49	51		dBm
		400 MHz to 700 MHz	45	47		
		700 MHz to 1000 MHz	43	45		
7.	Input Return Loss			-15	-10	dB
8.	Output Return Loss			-10	-7	dB
9.	2 nd Harmonic suppression	1 CW tone @ +30dBm FREQ 500MHz	-28	-35		dBc
10.	Supply voltage			+28	+30	V
11.	Quiescent Current consumption		1.3	1.5	1.7	A
12.	On/Off Switch Time	On: TTL "Low" Off: TTL "High"(100mA@Disable)		3.0	5.0	uS

Note : Above Typical Specification is with Bias point A Class(I_{DQ}=1.5A) data. Low current (I_{DQ}=300mA) version is available : RWP05020-20

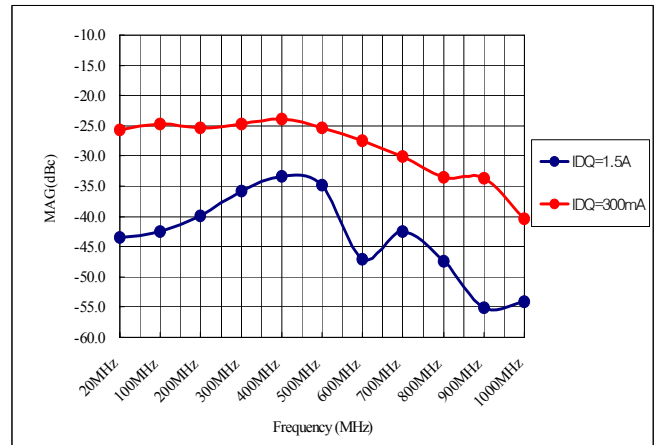
RWP05020-10 Typical Performance @ 25°C

Frequency (MHz)	P1dB (dBm)	P3dB (dBm)	Current@P1dB (A)	Current@P3dB (A)	2nd Harm@30dBm(dBc)	OIP3@1GHz(dBm) (30dBm/Tone)
20	40.62	42.85	1.53	1.89	-43.42	52.12
100	41.32	44.10	1.57	1.99	-42.51	52.90
200	41.69	43.81	1.66	1.89	-39.90	52.95
300	40.93	44.35	1.58	2.03	-35.83	52.20
400	40.70	44.73	1.56	2.06	-33.45	51.65
500	41.47	44.06	1.55	1.95	-34.90	50.60
600	39.22	43.81	1.46	1.86	-47.11	49.59
700	39.72	43.50	1.42	1.80	-42.47	46.87
800	40.82	43.02	1.50	1.79	-47.34	46.55
900	39.11	42.46	1.48	1.87	-55.08	45.28
1000	39.59	43.18	1.53	2.02	-54.10	44.78

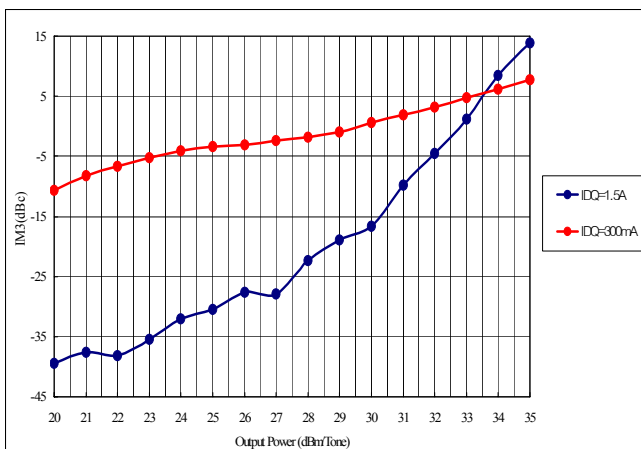
P3dB



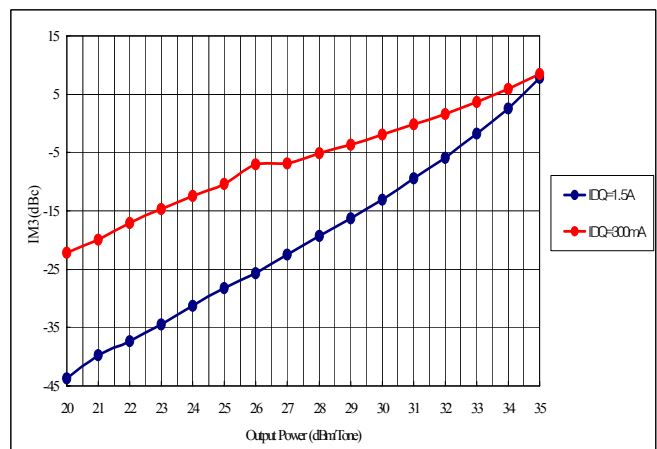
2nd Harmonics



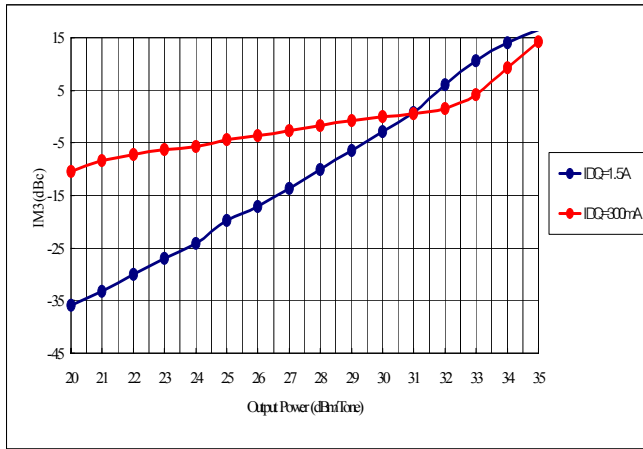
IM3 @ 20MHz



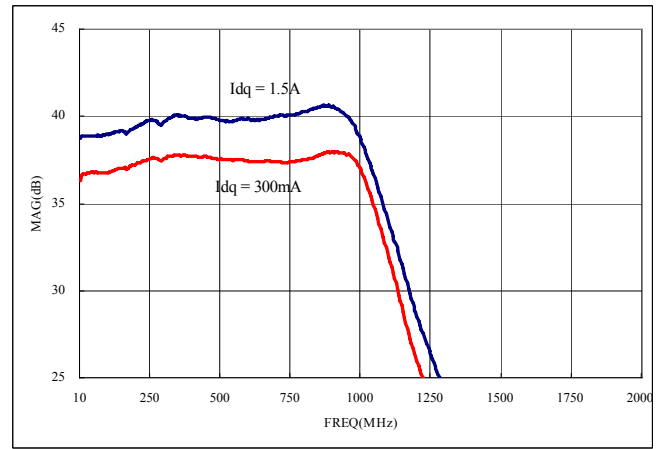
IM3 @ 500MHz



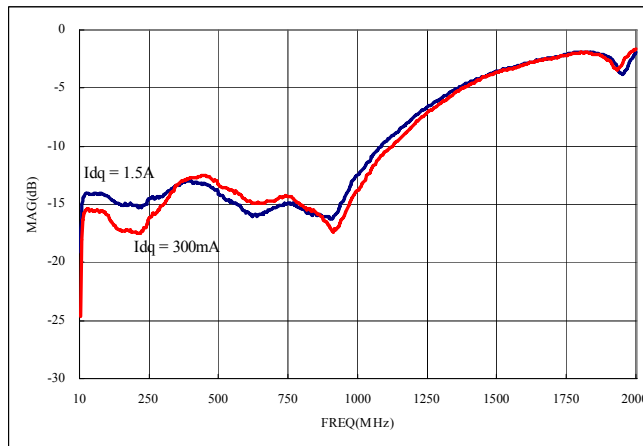
IM3 @ 1000MHz



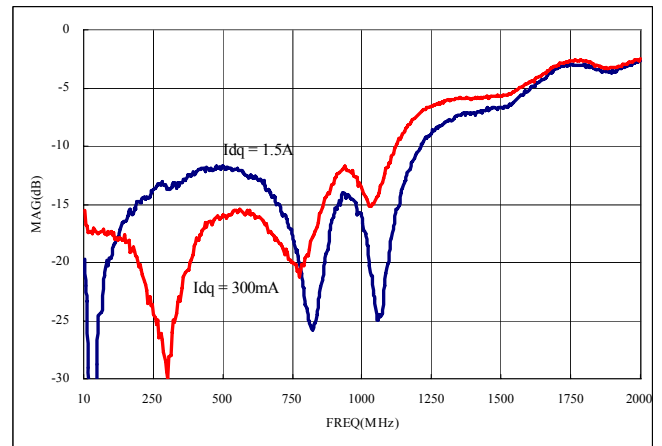
Gain



Input Return Loss

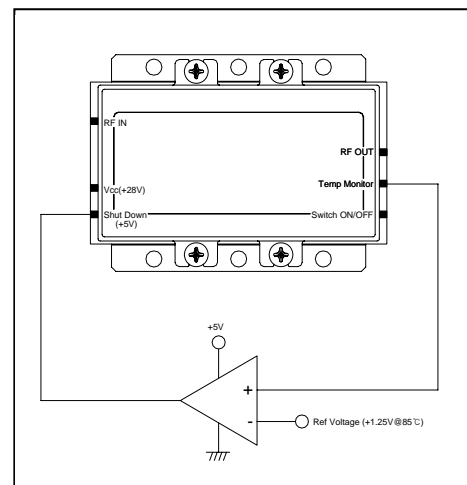


Output Return Loss

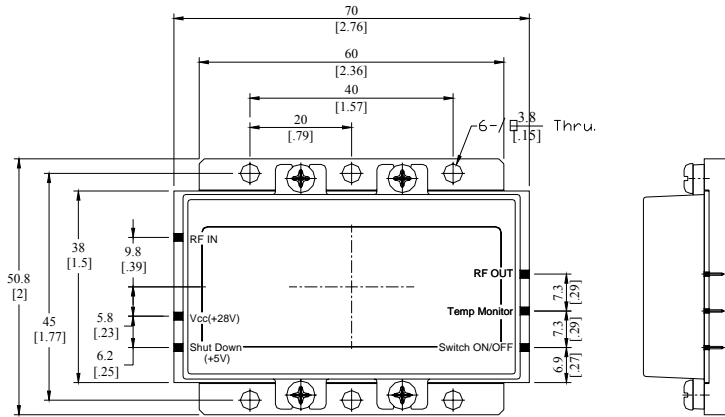


Precautions

- 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.

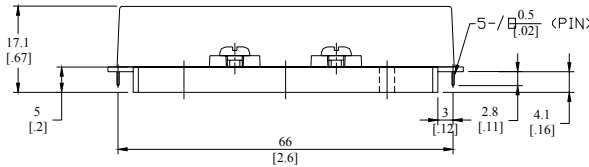


Package Dimensions (Type: DP-75)



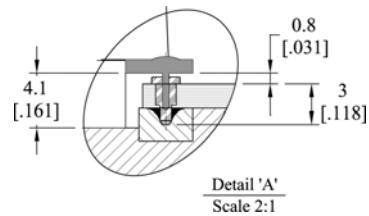
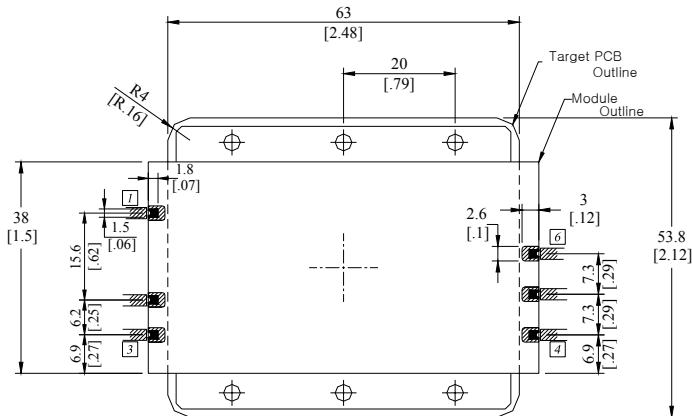
Unit :	$\frac{\text{mm}}{\text{[inch]}}$	Tolerance :	$\pm \frac{0.2}{.008}$
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Pin No.	Function
1	RF In
2	V _{CC} (+28V)
3	Shut down(+5V)
4	Switch ON/OFF
5	Temp Monitor (0.65V@25°C, Scale:10mV/°C, Accuracy:±3°C)
6	RF Out

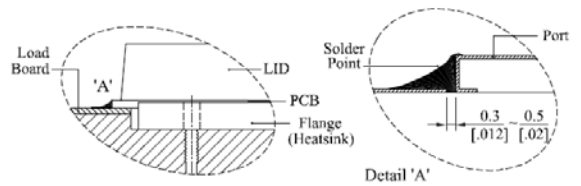


Terminal Pin	Acethink ASK206091, AA
Terminal Pin socket	Acethink ASK20556, AA-1

Footprint for easy maintenance



Another Usage



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