P/N:DBPA4406001800A

QOTANA TECHNOLOGIES

Wide Band Power Amplifier 6GHz~18GHz

Features

- Gain: 60dB Typical
- Saturated Output Power: 44dBm Typical
- Supply Voltage: +48V @ 9A
- 50 Ohm Matched Input / Output

Typical Applications

- Wireless Infrastructure
- 5G communication
- Test and measurement Instrument

RF Microwave & VSAT
Fiber Optics

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	6		12	12		18	GHz
Gain	57	62	68	52	56	68	dB
Gain Flatness		±5			±4		dB
Gain Variation Over Temperature (-40ºC~+70ºC)		±3.0			±3.0		dB
Input Return Loss		10			10		dB
Output Power for 1 dB Compression (P1dB)	36	40		37	41		dBm
Saturated Output Power (Psat)	43	45		43	44		dBm
IM3 @40dBm output		28			28		dBc
Supply Current (Idd) (Vcc=+48V)		5.2	9		5.2	9	A
Isolation S12		-70			-70		dB

Weight	210 ounces(Max)	Impedance	50ohms
Input / Output Connectors	SMA-Female/N-Female	Material	Aluminum
Finish	Nickel Plated	Package Sealing	Epoxy and Screw tight Sealed (Standard)
			Hermetically Sealed (Option with extra charge)

Notes:
1.P1dB, P3dB and Psat power testing signal: 200μs pulse width with 10% duty cycle.
2.For average CW power testing, a 5dB back off from Psat is required unless water/oil cooling system is applied.

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Absolute Maximum Ratings

Operating Voltage	+50Vdc
RF Input Power (RFIN)	+5dBm

Note: Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves

Biasing Up Procedure

Step 1	Connect input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dBreturn loss)
Step 2	Connect Ground Pin
Step 3	Connect +48V biasing

Power OFF Procedure

Step 1	Turn off +48V biasing
Step 2	Remove RF connection
Step 3	Remove Ground

Environmental Specifications

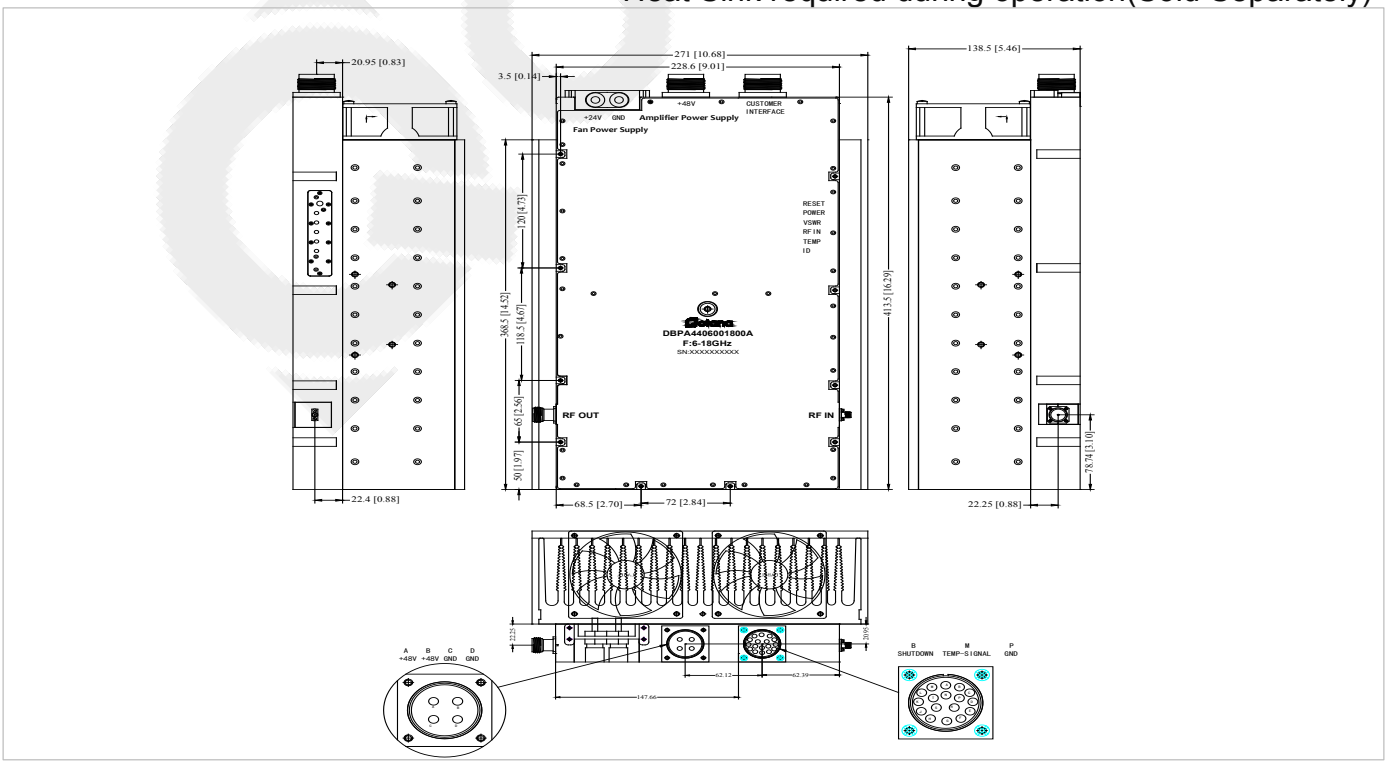
Operational Temperature	-40ºC~+70ºC
Storage Temperature	-50ºC~+105ºC
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35ºc, 95%RH at 40ºc
Shock	20G for 11msec half sine wave,3 axis both directions

Note: The operating temperature for the unit is specified at the package base. It is the user's responsibility to ensure the part is in an environment capable of maintaining the temperature within the specified limits

Outline Drawing:

All Dimensions in mm (inches)
Housing Tolerances ±1.0 (0.04)

Heat Sink required during operation(Sold Separately)



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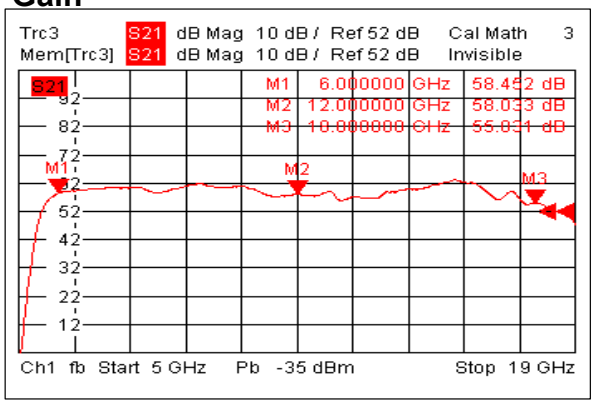
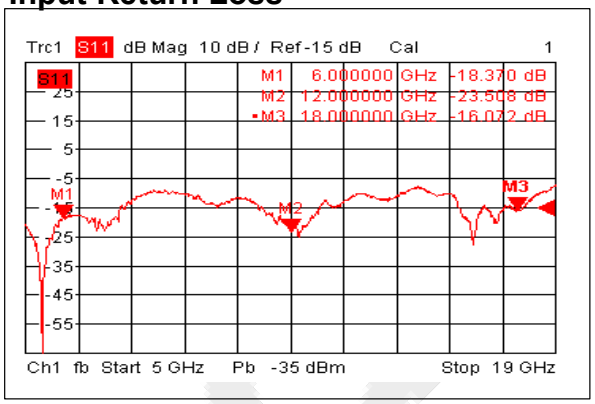
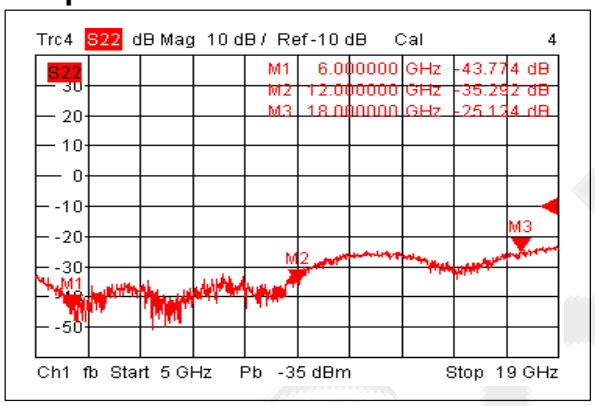
Gain



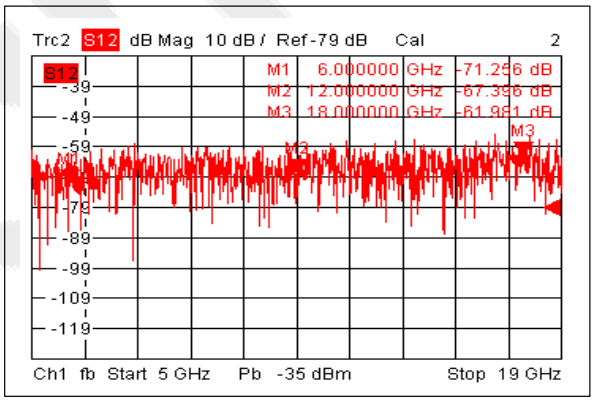
Input Return Loss



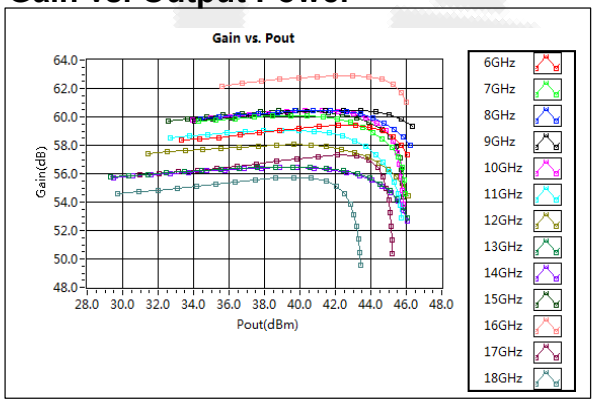
Output Return Loss



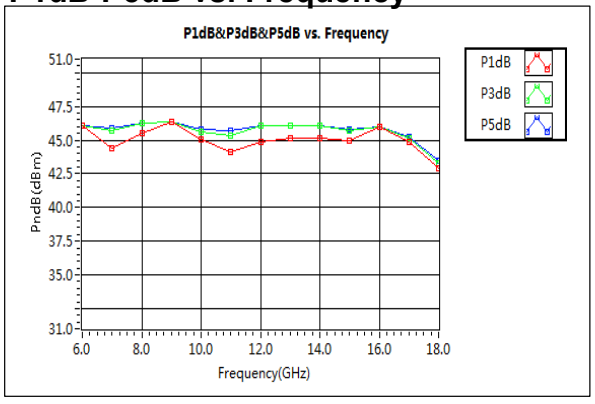
Isolation



Gain vs. Output Power



P1dB-P5dB vs. Frequency



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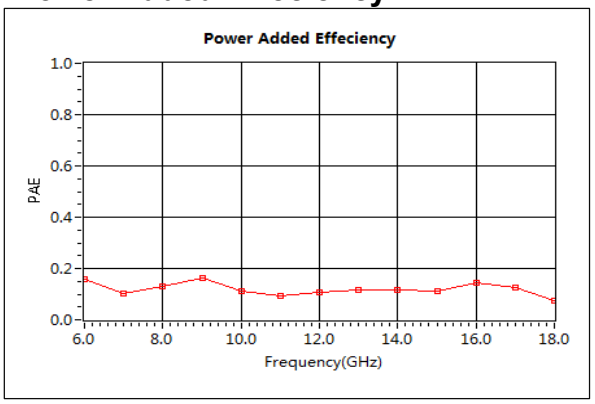
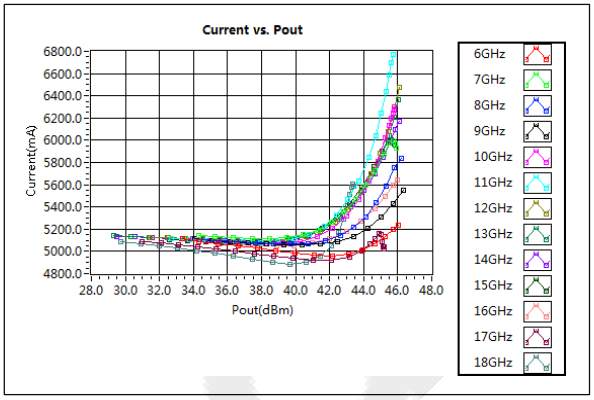
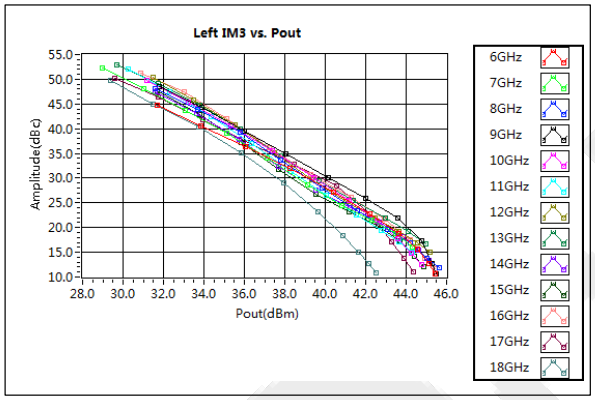
Power Added Effeciency



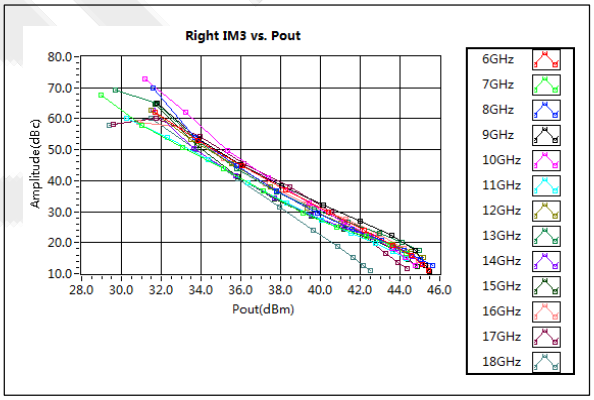
Current



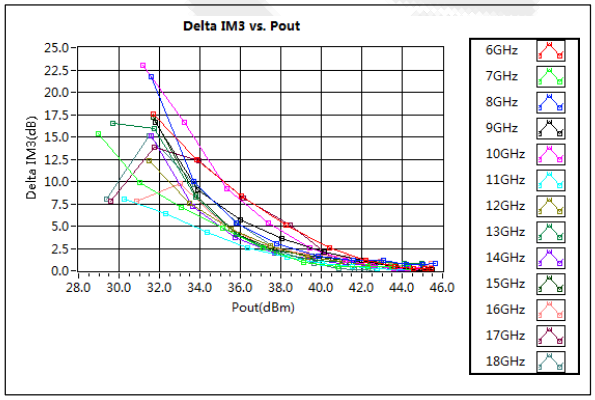
Left IM3 vs. Pout



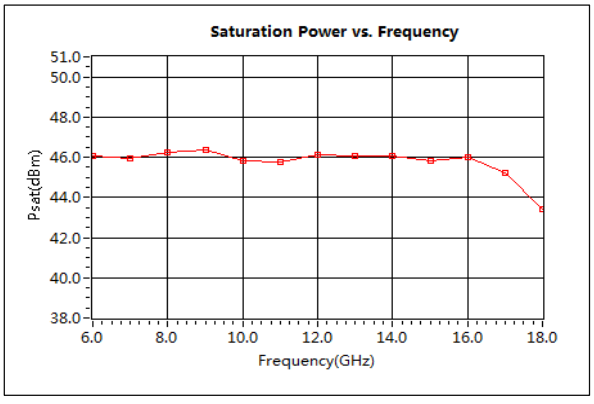
Right IM3 vs. Pout



DeltaIM3 vs. Pout



Saturation Power vs. Frequency



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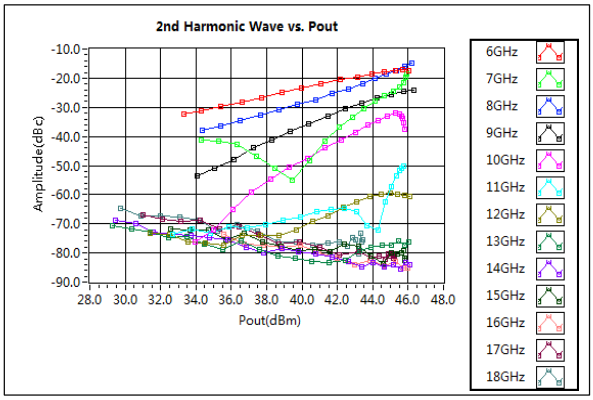
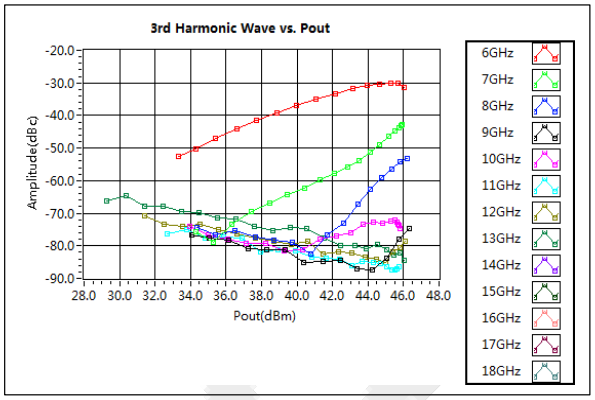
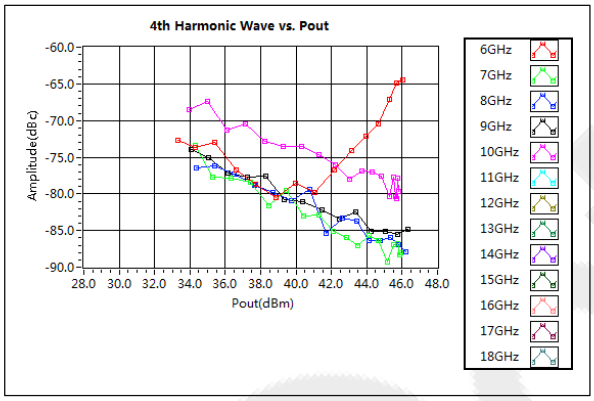
2nd Harmonic Wave Output Power



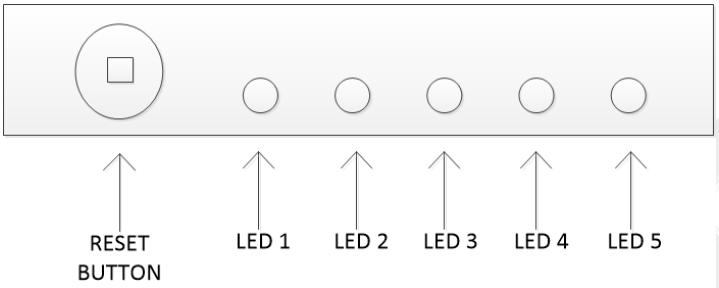
3rd Harmonic Wave Output Power



4th Harmonic Wave Output Power

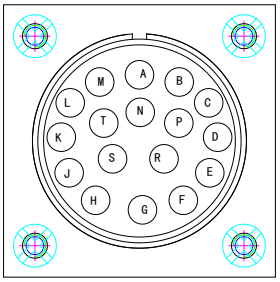


Protection Connector Table:



	Name	Function	Initial State	Description	Applied
	RESET	Control		Manual reset button to reset PA	Yes
LED 1	POWER	Indicator	RED Color	LED will light to RED color when supply power is applied	Yes
LED 2	VSWR	Indicator	GREEN Color	PA will shut down and latch this LED to a RED color when output reflection is over limit *	No
LED 3	RF IN	Indicator	GREEN Color	PA will shut down and latch this LED to a RED color when input signal is over limit *	No
LED 4	TEMP	Indicator	GREEN Color	PA will shut down and latch this LED to a RED color when driven over temperature *	Yes
LED 5	ID	Indicator	GREEN Color	PA will shut down and latch this LED to a RED color when an imbalance in the drain current of the combining branches occurs OR if a drain current limit is reached *	No

User Control Connector on Rear Panel



Pin #	Name	Function	Initial State	Description	Applied
A	NA	NA	NA	NA	Yes
B	SHUTDOWN	Control	High	Applying logic High disables gates of amplifiers (Internally Pulled-Low)	Yes
C	NA	NA	NA	NA	Yes
D	NA	NA	NA	NA	No
E	NA	NA	NA	NA	Yes
F	NA	NA	NA	NA	Yes
G	NA	NA	NA	NA	Yes
H	NA	NA	NA	NA	No
J	NA	NA	NA	NA	No
K	NA	NA	NA	NA	No
L	NA	NA	NA	NA	No
M	Temp Over	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	Yes
P	GND	Ground	GND	Ground	Yes
R	NA	NA	NA	NA	No
S	NA	NA	NA	NA	No
T	NA	NA	NA	NA	No