

**Features**

- Gain: 57dB typical
- Output power: +53dBm typical
- Supply Voltage: +36V



**Typical Applications**

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

RF Microwave & VSAT  
Fiber Optics

Parameter	Min.	Typ.	Max.	Units
Frequency Range	0.7		2.7	GHz
Gain	55	57		dB
Gain Flatness		±2.0	±3.0	dB
Gain Variation Over Temperature (-40°C~+70°C )		±2.5		dB
Input Return Loss		15		dB
Output 1dB Compression Point (P1dB)	49.5	51		dBm
Saturated Output Power (Psat)	51	53		dBm
3rd Order Intermodulation Product(IM3)		-35		dBc
Supply Current (Idd) (Vcc=+36V)		3.8	20	A
Efficiency at P1dB		25		%
Isolation S12		-55		dB
Input Max Power(no damage)			0	dBm

Weight	108 ounces Max.(Net)	Impedance	50 ohms
Input / Output Connectors	Input: SMA-Female, Output: N-Female	Material	Aluminum
Finish	Nickel Plated	Package Sealing	Epoxy Sealing (Standard)
			Hermetically Sealed (Option with extra charge)

**QOTANA TECHNOLOGIES**

Wide Band Solid State Power Amplifier 0.7GHz~2.7GHz

**Absolute Maximum Ratings**

Operating Voltage	+38V
RF Input Power (RFIN)	+0dBm

**Biassing Up Procedure**

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +36V biasing

**Power OFF Procedure**

Step 1	Turn off +36V biasing
Step 2	Remove RF connection
Step 3	Remove Ground

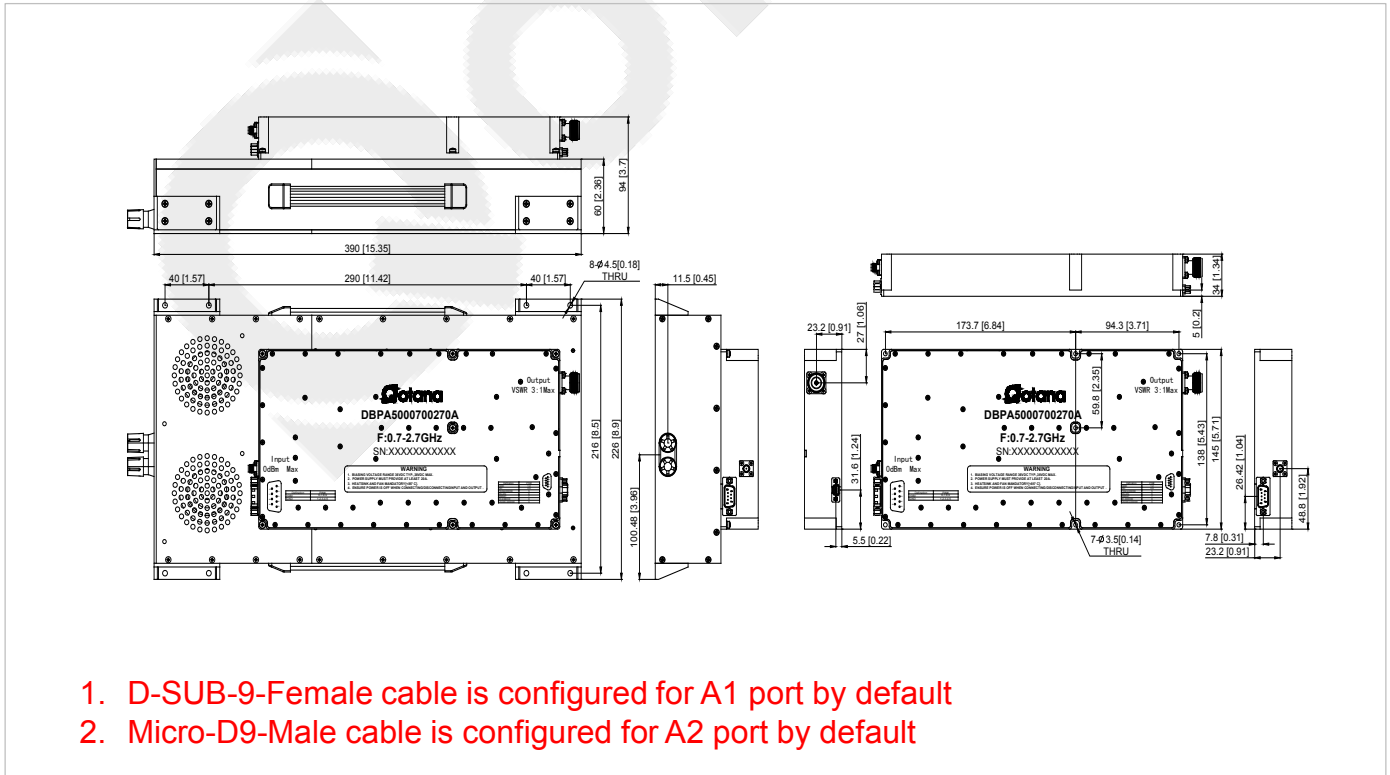
**Environmental Specifications**

Operational Temperature	-40°C~+70°C
Storage Temperature	-50°C~+105°C
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 35°C, 95%RH at 40°C
Shock	20G for 11msec half sine wave,3 axis both directions

**Outline Drawing:**

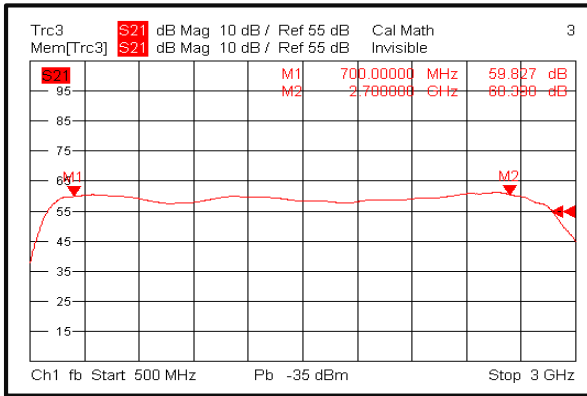
All Dimensions in mm (inches)  
Housing Tolerances ±0.5 (0.02)

Heat Sink required during operation(Sold Separately)

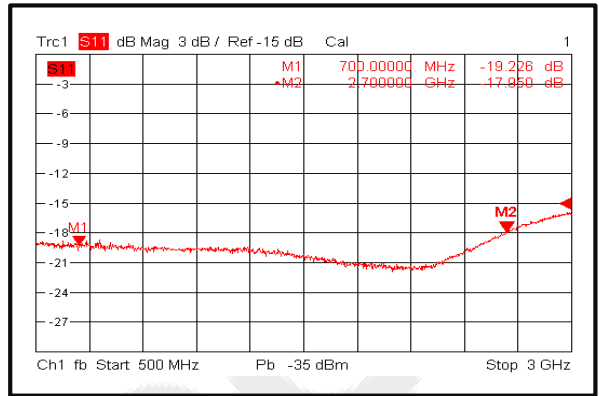


1. D-SUB-9-Female cable is configured for A1 port by default
2. Micro-D9-Male cable is configured for A2 port by default

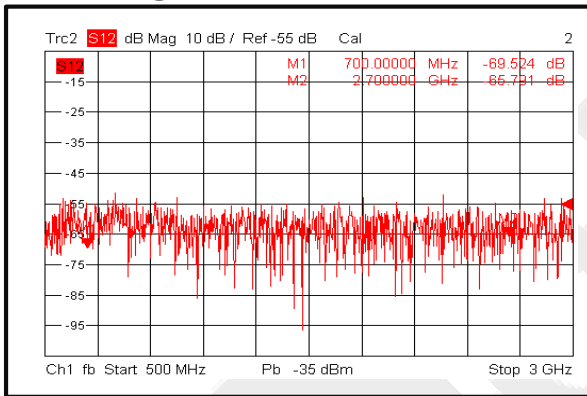
Gain@+25°C



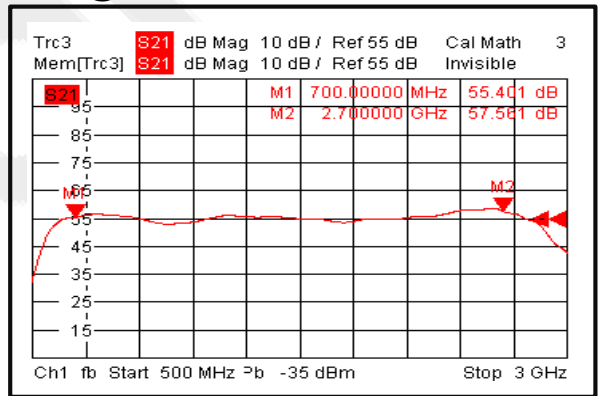
Input VSWR @+25°C



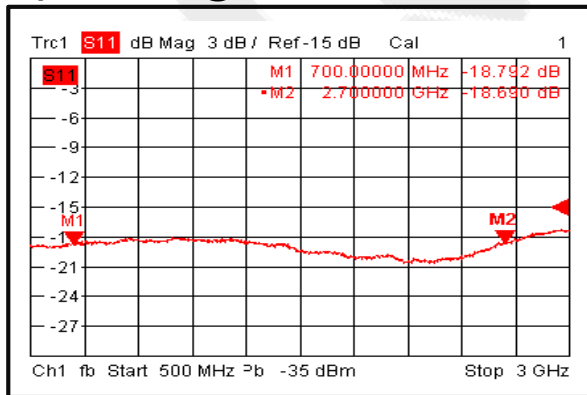
Isolation@+25°C



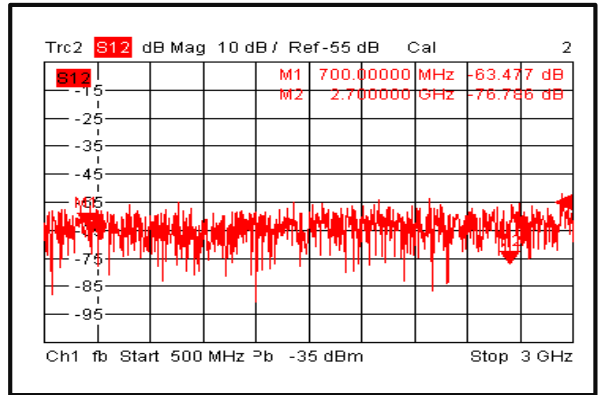
Gain@-40°C



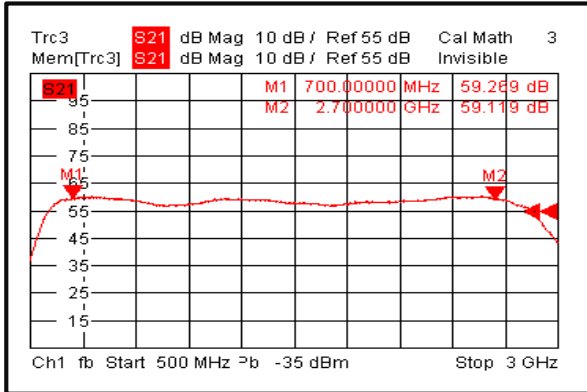
Input VSWR @-40°C



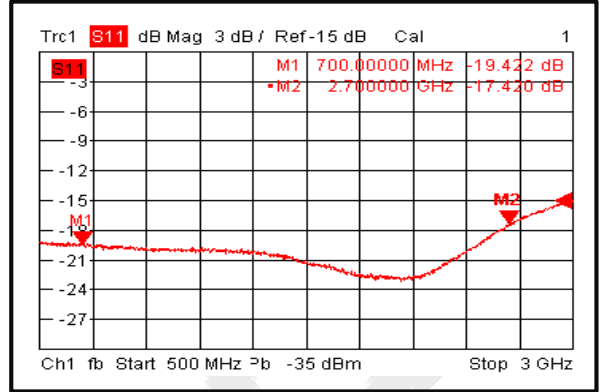
Isolation@-40°C



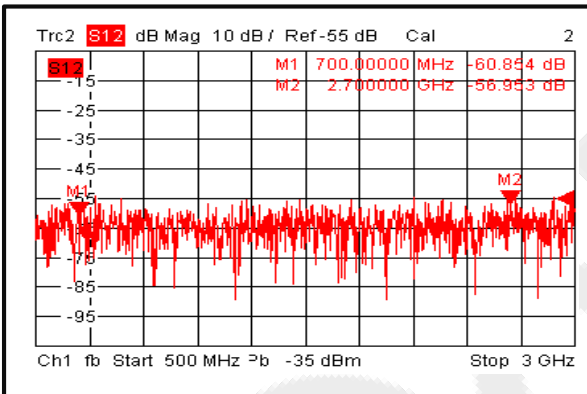
Gain@+70°C



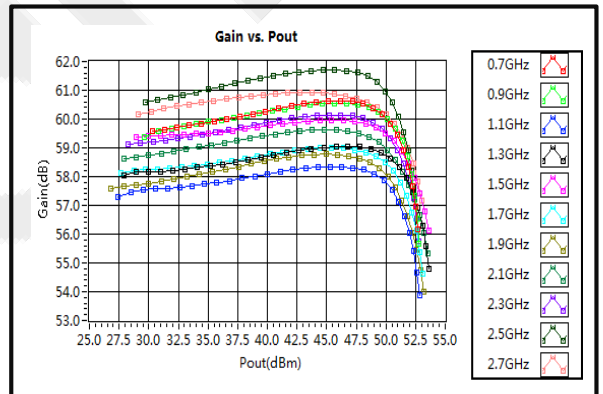
Input VSWR @+70°C



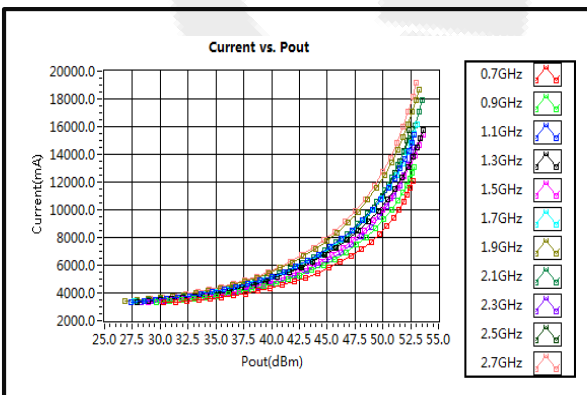
Isolation@+70°C



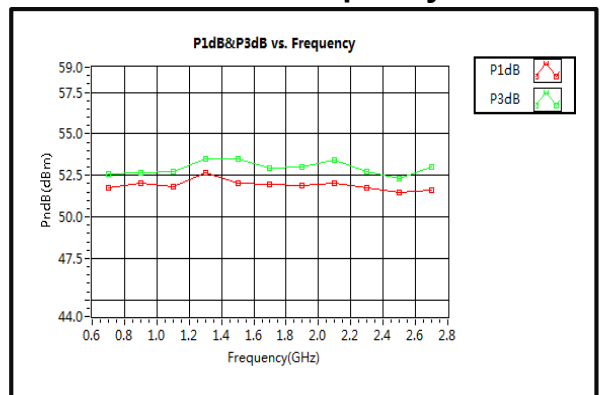
Gain vs. Output Power



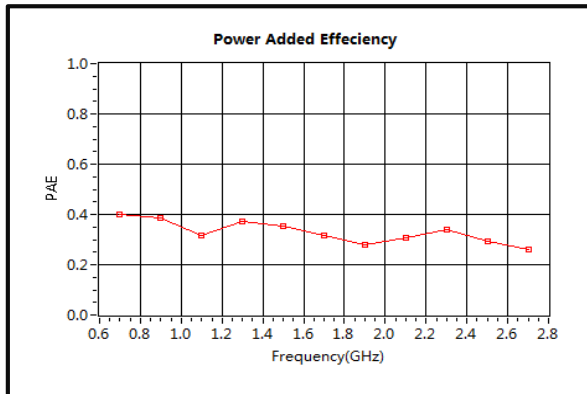
Current



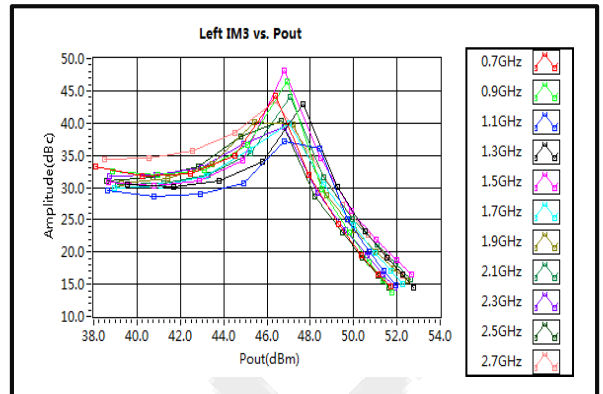
P1dB & P3dB vs. Frequency



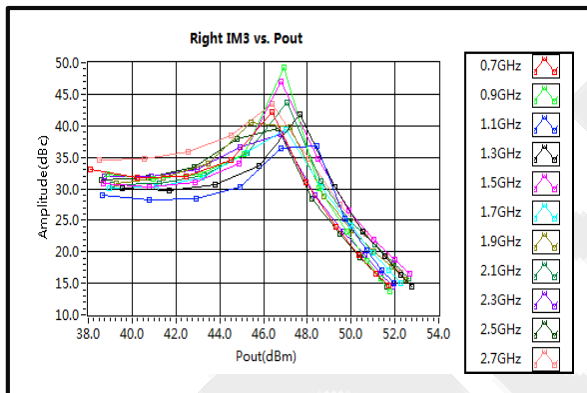
### Power Added Efficiency



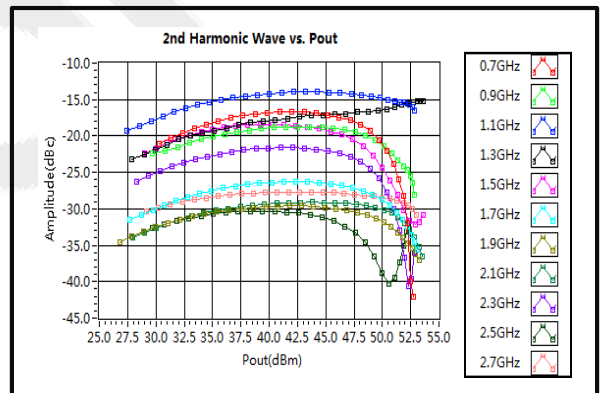
### Left IM3 vs. Pout



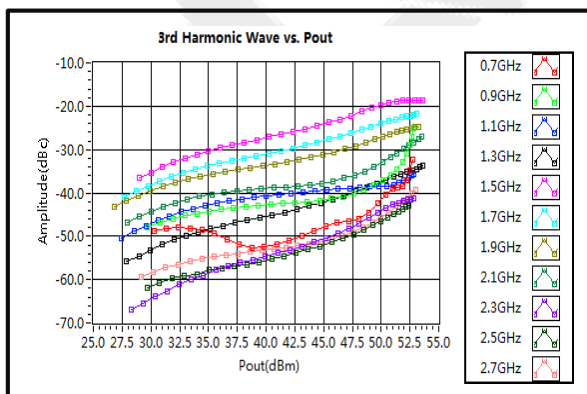
### Right IM3 vs. Pout



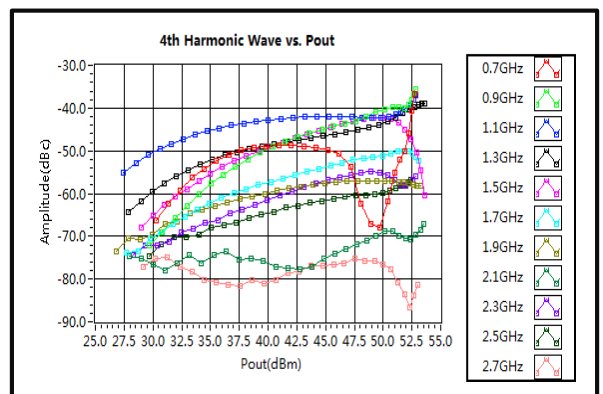
### 2nd Harmonic Wave Output Power



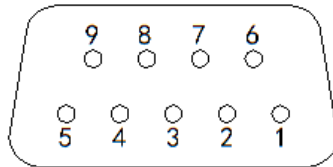
### 3rd Harmonic Wave Output Power



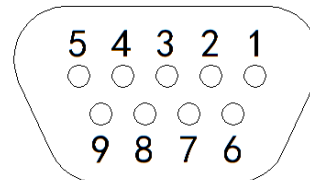
### 4th Harmonic Wave Output Power



**Amplifier Ports Definitions**



**A1: DB-9**



**A2: MICRO-DB-9**

Pin	Parameter	Description	Specification
A1:6,7,8,9	+36V	Power	(+36V) Power
A1:1,2,3,4,5	GND	DC Power Return	DC Return
A2:1,2	GND		
A2:3,4	NC		
A2:5	TEM-ERROR	Over-temperature Alarm (Output)	If the temperature is higher than 80°C, the amplifier is in protect state, this pin outputs VOH(3.3V); if not, outputs VOL. When temperature decrease to 60°C, the amplifier is powered on automatically
A2:6	PA-EN	Amplifier Enable (Input)	VOH(3.3V)powers the amplifier on, and Low-level voltage(VOL) shuts down the internal power of the amplifier. There is a Pull-high resistance inside the amplifier, pulling the power of this pin up to 3.3V.
A2:7	RESET	Reset (Input)	When the amplifier is in protection state, pull low this pin 1ms and the amplifier can be reset. If the pin is pulled low constantly, the amplifier will not have protect function until the pin is in high-level voltage(VOH) again. There is a Pull-high resistance inside the amplifier, pulling the power of this pin up to 3.3V.
A2:8	ID-ERROR	Over-Current Alarm (Output)	If the current is higher than 25A, the amplifier is in protect state, this pin outputs VOH(3.3V); if not, outputs VOL
A2:9	VSWR-ERROR	Over-VSWR Alarm (Output)	If the output VSWR is bigger than 3.5, the amplifier is in protect state, this pin outputs VOH(3.3V); if not, outputs VOL.

**Note:**

- 1.The Protec State means the internal power is turned off, and the current of 36V is only dozens of milliampere.
- 2.If the amplifier is in protect state because of over-current or over-VSWR, the amplifier can only work normally again by pulling low the Reset pin, or to turn off the +36V power to reset the amplifier.
- 3.If the amplifier is in protect state because of over-temperature, the amplifier will automatically work normally again when the temperature decreased to 60°C.
4. If the customer need not monitor the status of the amplifier, the MICRO DB-9 can be floated.

**Fan Power Supply, 24V/1.5A**

Red wire	+24V
Black wire	GND

**Power-on sequence**

1	Connect the input and output connectors, ensure there's no RF signal in the input connector.
2	Set another DC power to +24V, connect the +ve to the red wire of the fan, and the -ve to the black wire, turn on the power supply.
3	Set a DC power to +36V, connect the +ve to A1(6,7,8,9) pin, and the -ve to A1(1,2,3,4,5) pin, turn on the power supply.

**Power-off sequence**

1	Turn off the RF signal supplied to the connectors.
2	Turn off the +36V power.
3	Turn off the +24V power.
4	Only after the 3 steps above, the input & output connectors can be removed.

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