

Features

- Small Signal Gain 55dB Typical
- Output Saturation Power 48dBm Typical
- Supply Voltage +36 VDC
- 50 Ohm Matched Input/Output
- Overvoltage Protection
- Overcurrent Protection


Typical Applications

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

 RF Microwave & VSAT
Fiber Optics

Parameter	Min.	Typ.	Max.	Units
Frequency Range	0.2 – 2.5			GHz
Small Signal Gain		55		dB
Gain Flatness		±3.5		dB
Gain Variation Over Temperature (-40°C to +70°C)		±3.5		dB
Input Return Loss		-10		dB
Output 1dB Compression Point (P1dB)	44	45		dBm
Saturated Output Power (Psat)	46	48		dBm
Supply Current (Output Power @ Psat)		8		A
IM3		-28		dBc
RF ON and OFF Speed		1		us
Power Added Efficiency (PAE)		30		%
Time Division Duplexing (TDD) Blanking	ON		600	us
	OFF		30	us

Weight	Amplifier	80 ounces (Max.)	Impedance	50 ohms
	Including Heat sink	176 ounces (Max.)		
Input /Output Connectors	SMA-Female		Material	Aluminum and Copper
Finish	Nickel Plated		Package Sealing	Epoxy Sealed (Standard)
				Hermetically Sealed (Optional)

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Ultra Wide Band Power Amplifier 0.2GHz-2.5GHz

Absolute Maximum Ratings

Supply Voltage Range	+34 VDC to +38 VDC
*RF Input Power (RFIN)	P _{sat} – Large Signal Gain

Biasing Up Procedure

Step 1	Connect ground
Step 2	Connect input and output with 50 Ohm source/load. (In band VSWR < 1.9:1 or >10dB return loss.)
Step 3	Connect +36 VDC and make sure power supply can handle max current.

Power OFF Procedure

Step 1	Turn off +36 VDC
Step 2	Remove +36 VDC Connection
Step 3	Remove RF Connection
Step 4	Remove ground

Environmental Specifications

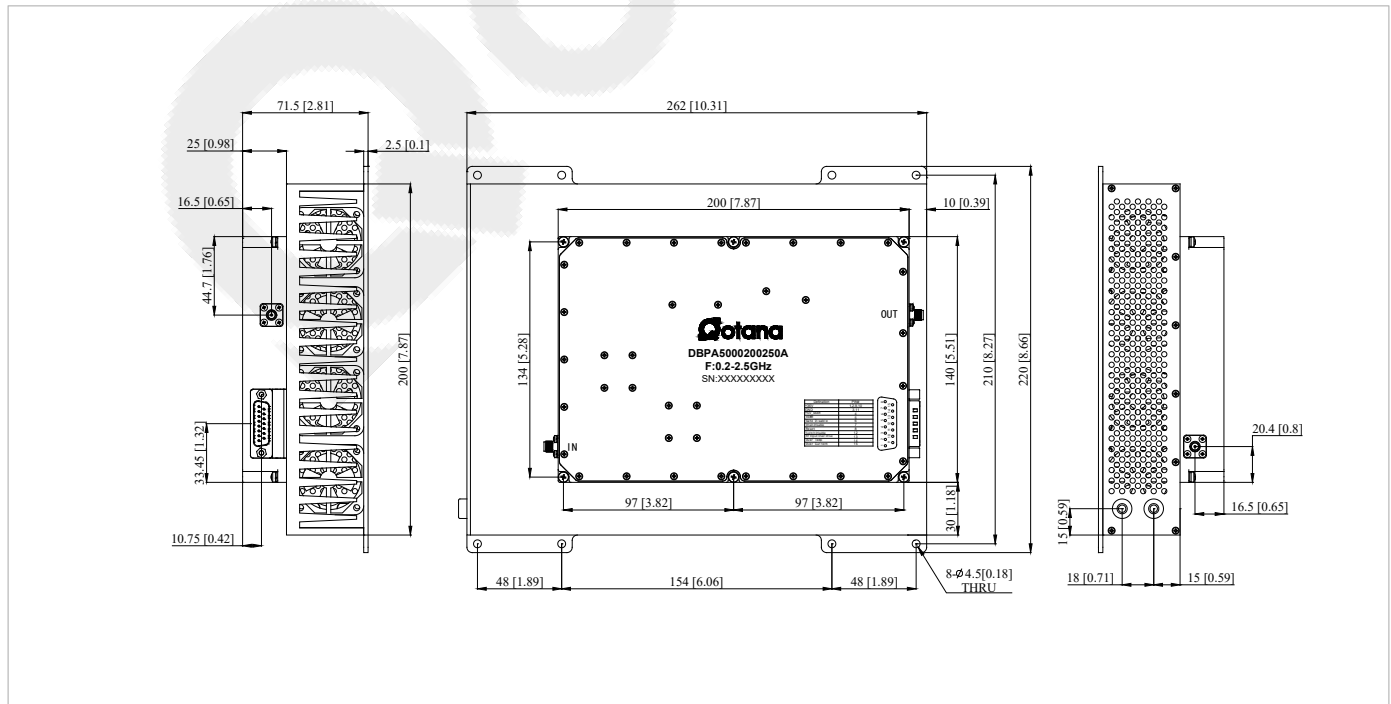
Operational Temperature	-40°C~+70°C
Storage Temperature	-50°C~+105°C
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
**Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35°C, 95%RH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

*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.
 **For vibration testing details please see additional information section.

Outline Drawing:

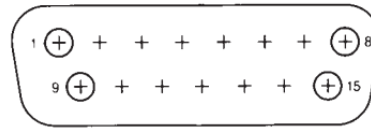
All Dimensions in mm (inches)
 Tolerances ±0.25 [0.01]

Heat Sink required during operation(Sold Separately)



Protection Connector Table

Male D-Sub is on the housing
 The mating female part number: 172-E15-203R001



Pin #	Name	Function	Initial State	Description	Applied
1,2,9,10	VDD	Power Supply	+36V	+36 VDC is supply Voltage	Yes
3,11	GND	Ground	GND	Ground	Yes
4	+5V_USER	Power Supply	+5V	+5V DC is supplied for reference	Yes
5	VSWR	Indicator	LOW	Pin will be latched to logic HIGH when output reflection is over limit	Yes
6	Gate Disable	Control	LOW	Applying logic HIGH disables gates of amplifiers	Yes
7	Drain Disable	Control	LOW	Applying logic HIGH disables drains of amplifiers	Yes
8	Reset	Control	HIGH	Resets PA when logic LOW is applied and released	Yes
12	Switch Disable	Control	HIGH	Applying logic LOW switches off the RF signal	Yes
13	RF Input Over Drive	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	Yes
14	Over Temp	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	Yes
15	Over Current	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached	Yes

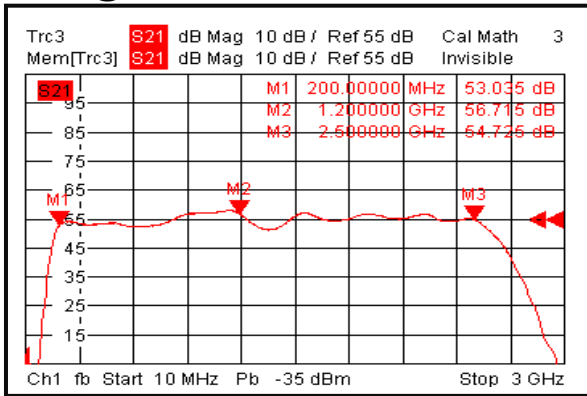
Notes:

- HIGH/LOW voltages are standard TTL signals 0.0V-0.8V = LOW. 2V-5V = HIGH. Input current is 10uA.
- Matching connector and cable will be shipped with the product.
- Applied=Yes means the feature is included. Applied=No means the feature is not included with this model.
- 5V reference supply can source 700mA.
- Indicator output signals can source 24mA.

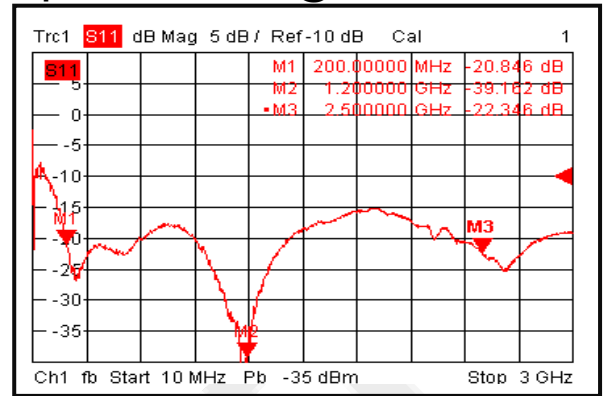
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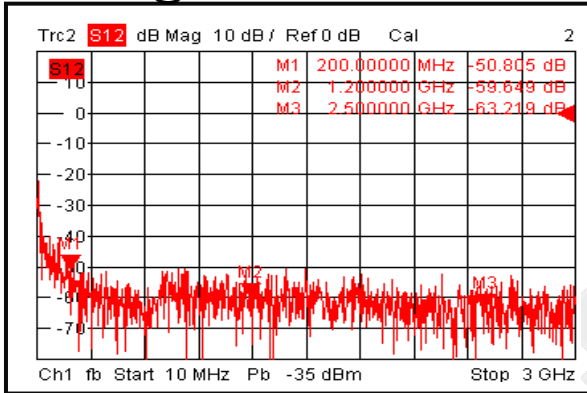
Gain @+25°C



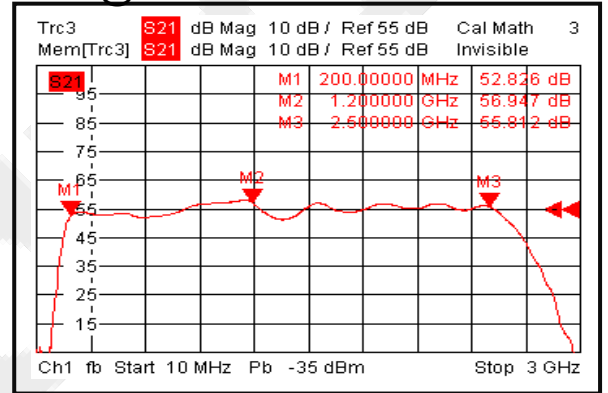
Input Return Loss @+25°C



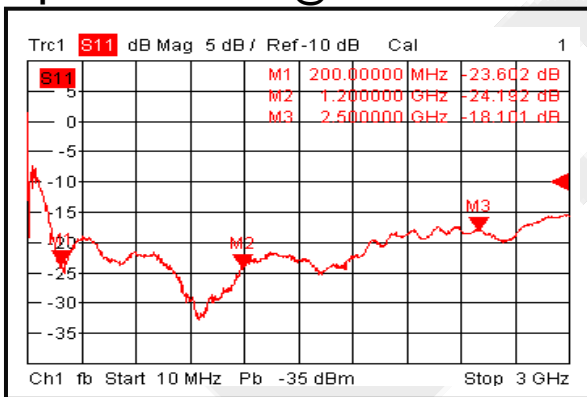
Isolation @+25°C



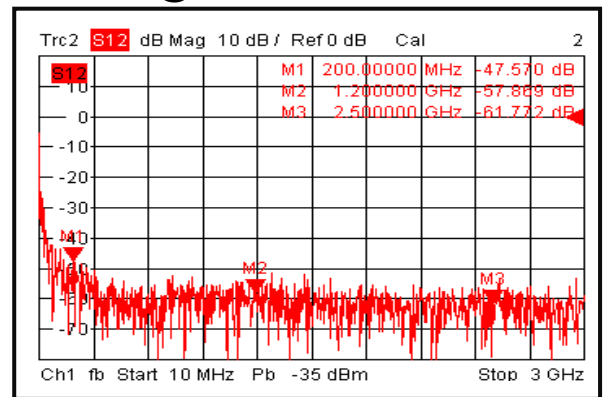
Gain @-40°C



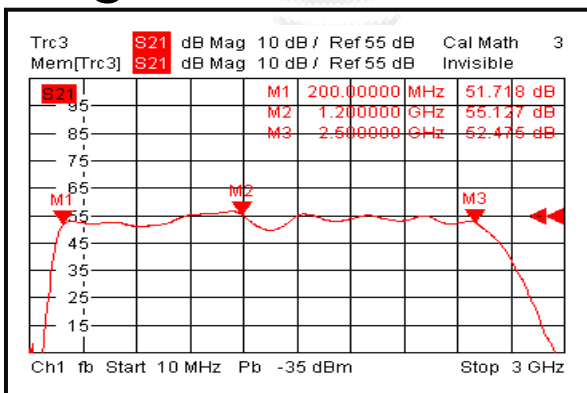
Input Return Loss @-40°C



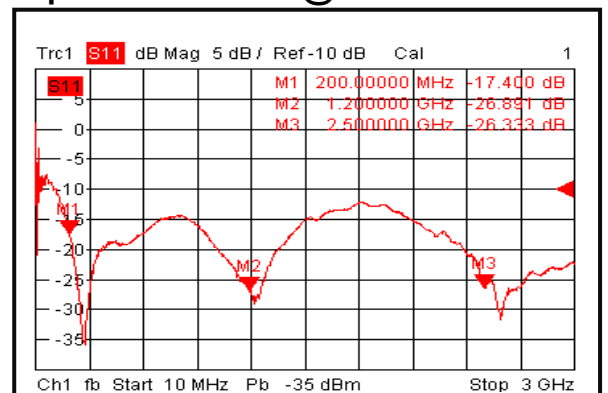
Isolation @-40°C



Gain @+70°C



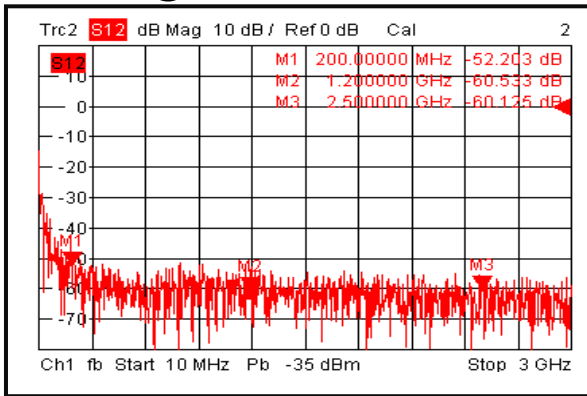
Input Return Loss @+70°C



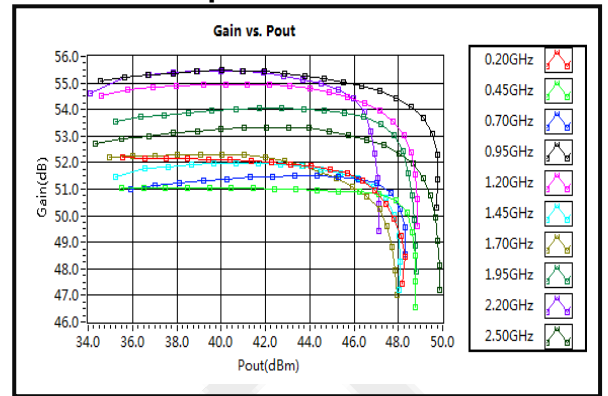
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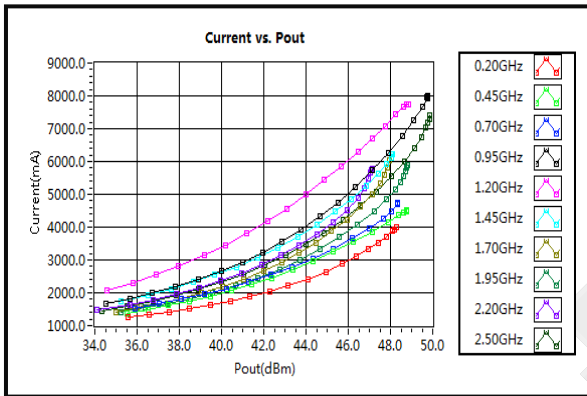
Isolation @+70°C



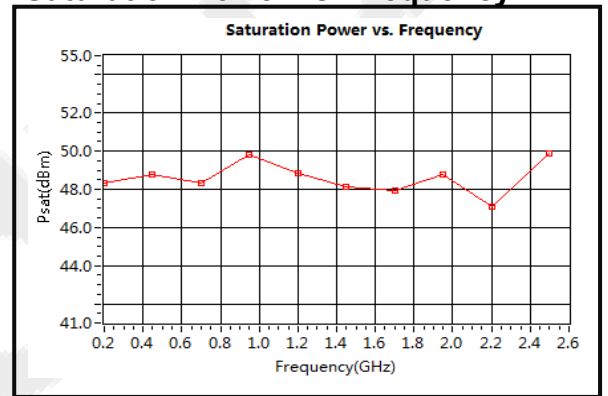
Gain vs. Output Power



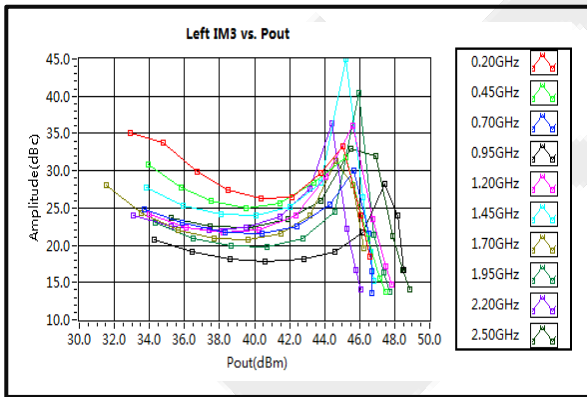
Current vs. Pout



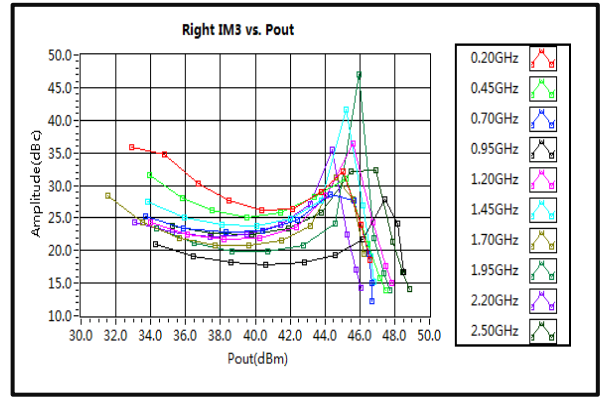
Saturation Power vs. Frequency



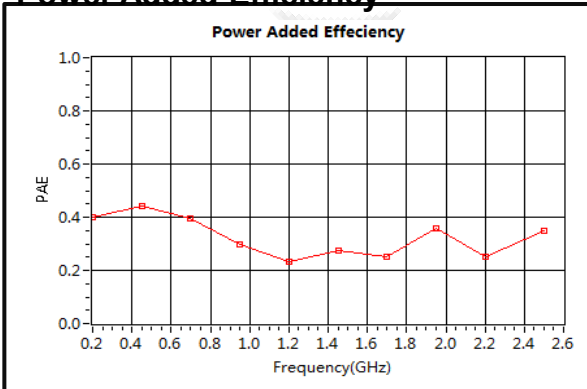
Left IM3 vs. Pout



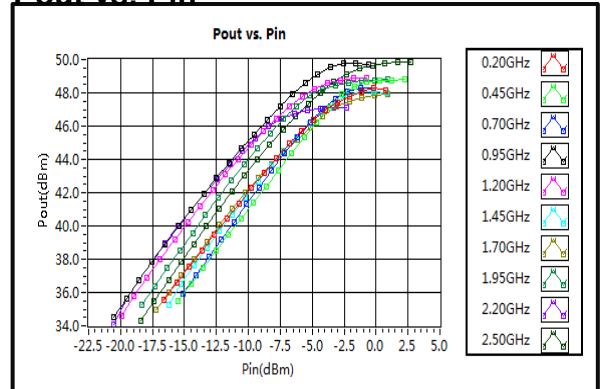
Right IM3 vs. Pout



Power Added Efficiency



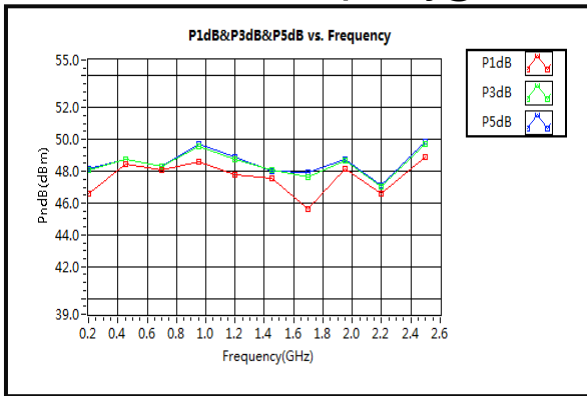
Pout vs. Pin



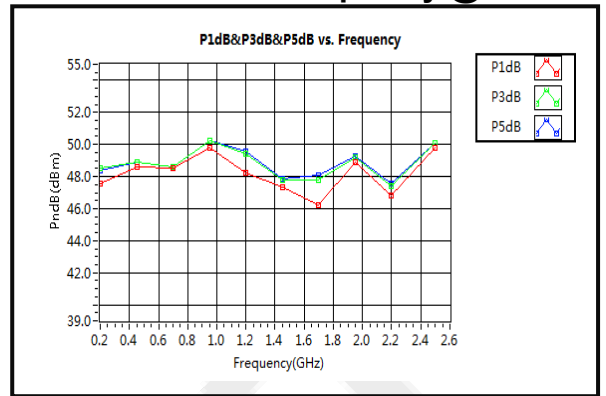
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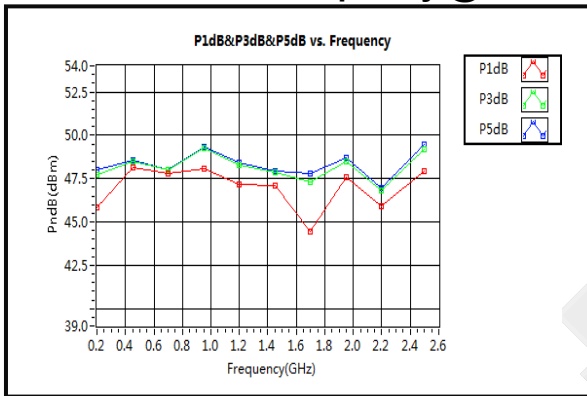
P1dB – P5dB vs. Frequency @+25 °C



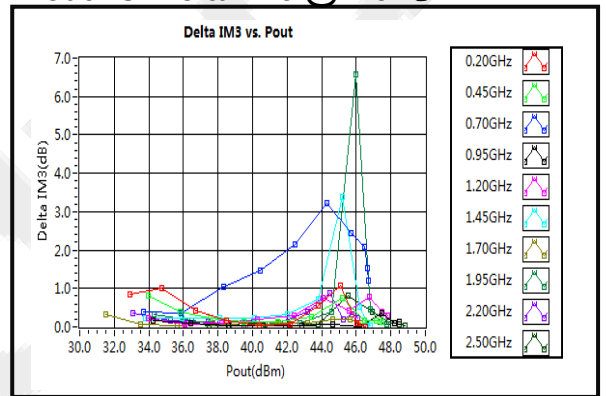
P1dB – P5dB vs. Frequency @-40°C



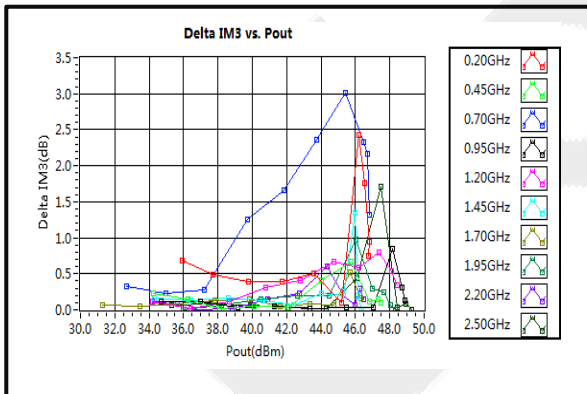
P1dB & P3dB vs. Frequency @+70°C



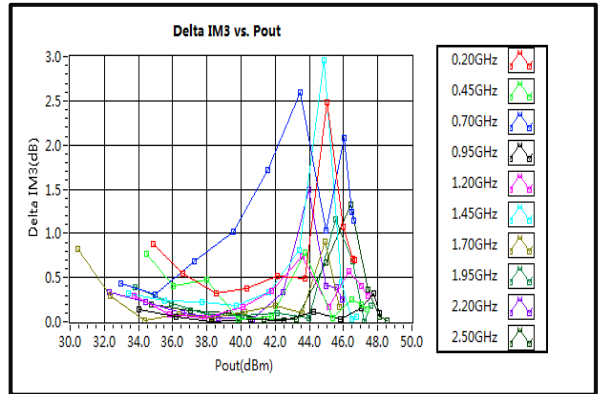
Pout vs. Delta IM3 @+25 °C



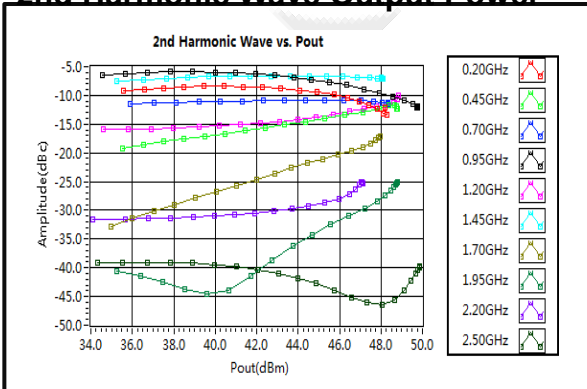
Pout vs. Delta IM3 @-40 °C



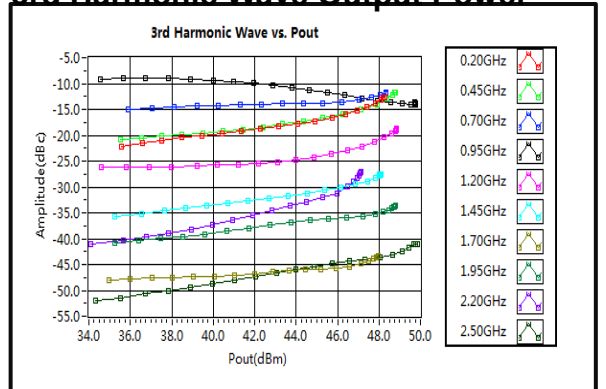
Pout vs. Delta IM3 @+70 °C



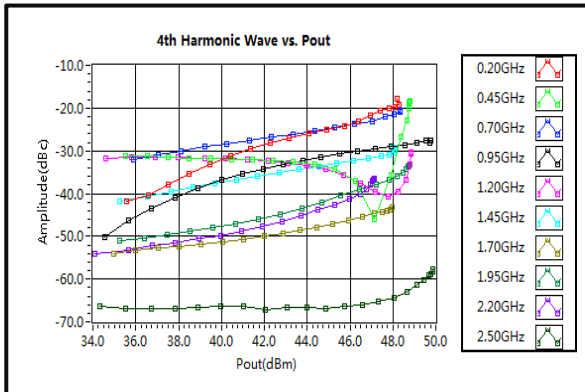
2nd Harmonic Wave Output Power



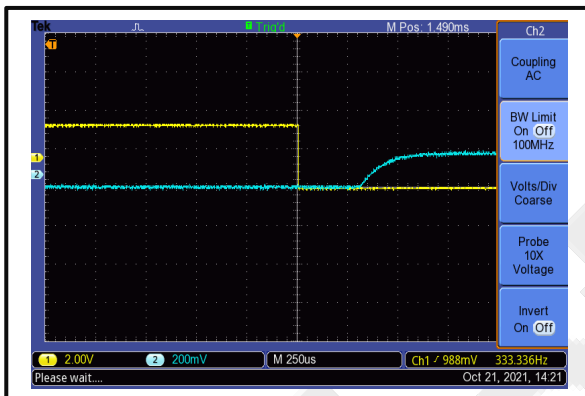
3rd Harmonic Wave Output Power



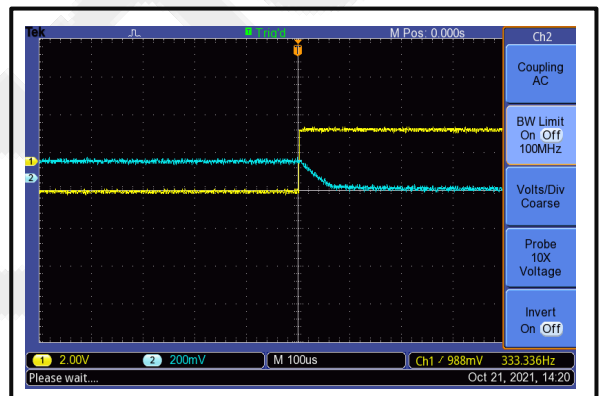
4th Harmonic Wave Output Power



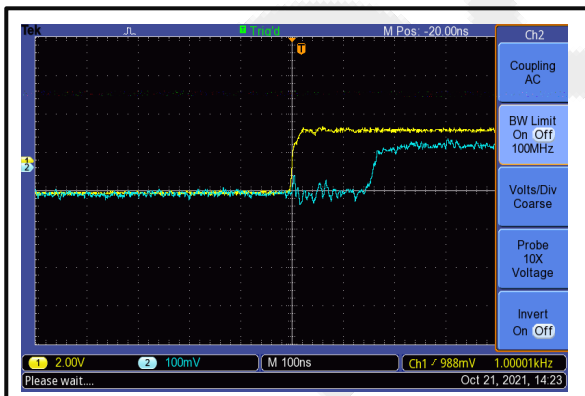
The TDD Enable Time is 500 us @+25°C



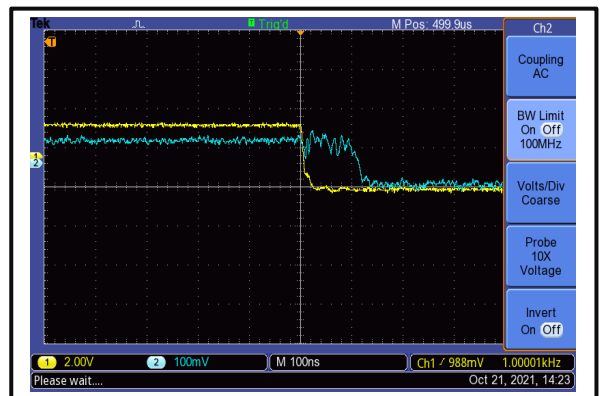
The TDD Disable Time is 60 us @+25°C



The Switching Rise Time is 160 ns @+25°C



The Switching Fall Time is 120 ns @+25°C



Notes:

- TDD control port: D-sub 15 PIN #6 (GATE_OFF).
- The blue curve is TDD control signal, the yellow curve is RF output envelope.
- Switch control port: D-sub 15 PIN #12(RF_Switch_Off).
- The blue curve is the switch control signal, the yellow curve is RF output envelope.

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