

Features

- Solid State Power Amplifier
- Gain: 50dB Typical
- Psat: 42dBm Typical
- Supply Voltage: +28V



Typical Applications

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

RF Microwave & VSAT
Fiber Optics

Parameter	Min.	Typ.	Max.	Units
Frequency Range	18		40	GHz
Gain	42	50		dB
Gain Flatness		±5.0		dB
Gain Variation Over Temperature (-40°C~+70°C)		±3.0		dB
Input Return Loss		10		dB
Output 1dB Compression Point (P1dB)		39		dBm
Saturated Output Power (Psat)	39.5	42		dBm
Supply Current (Vcc=+28V)		5.6	8	A
Power-Added Efficiency		10		%
Isolation S12		-50		dB
Turn On/Off Speed (Switch Disable)	ON		100	ns
	OFF		100	ns
Turn On/Off Speed (Drain Disable)	ON		50	us
	OFF		50	us
Turn On/Off Speed (Gate Disable)	ON		1000	us
	OFF		100	us

Weight	Net	67.2 Max ounces	Impedance	50ohms
	Including Heat sink	159 Max ounces		
Input / Output Connectors		2.92mm-Female/WRD180C24	Material	Copper
Finish	Nickel Plated		Package Sealing	Epoxy Sealed (Standard)
				Hermetically Sealed (Optional)

SALUKI TECHNOLOGY INC.

Ultra Wide Band Power Amplifier 18GHz~40GHz

Absolute Maximum Ratings

Operating Voltage	+30V
RF Input Power	Psat – Large Signal Gain

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.

Biassing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output with 50 Ohm source/load. (in band VSWR10dB return loss)
Step 3	Connect +28V

Power OFF Procedure

Step 1	Turn off +28V biasing
Step 2	Remove RF connection
Step 3	Remove Ground

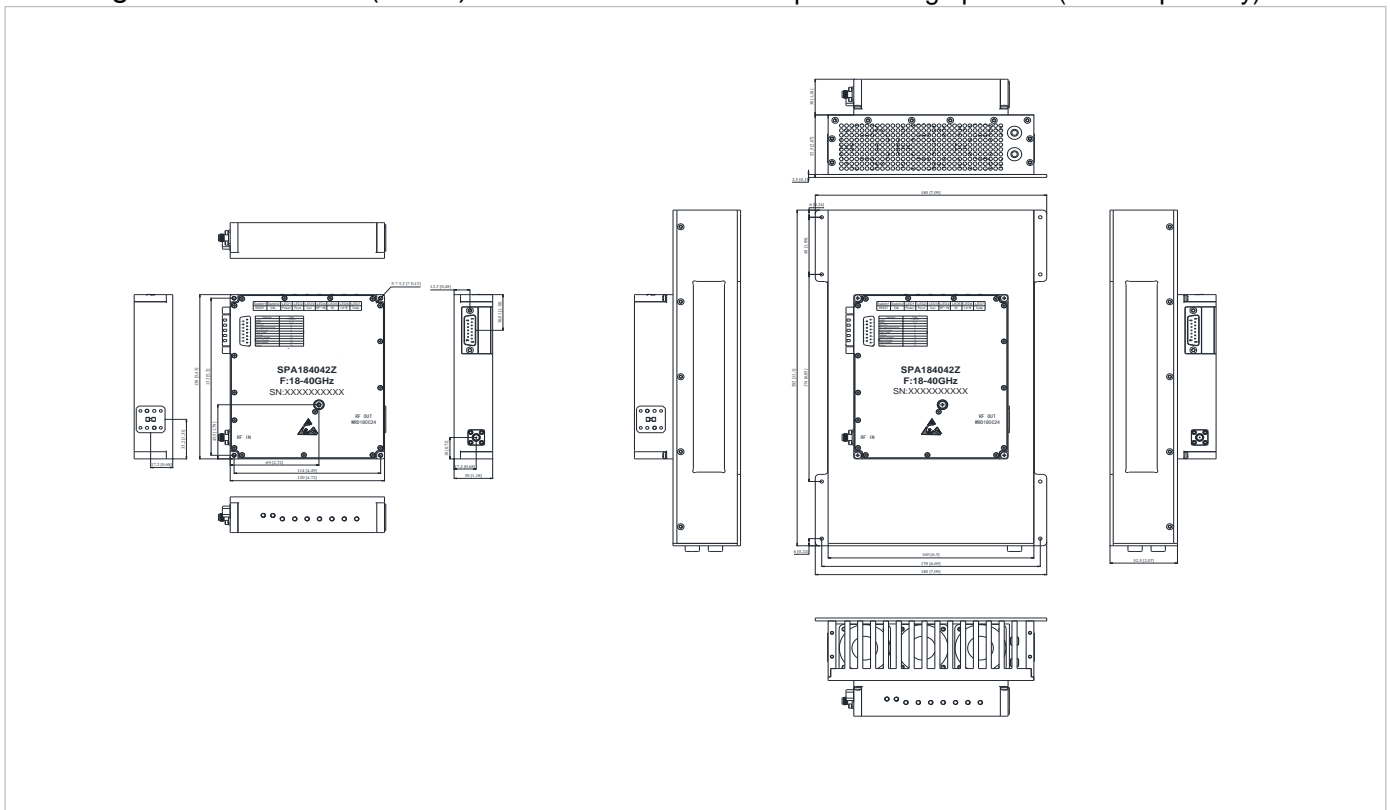
Environmental Specifications

Operational Temperature	-40°C~+70°C(Case Temperature)
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 ±0.2(0.008)

S15 cable is configured for power connection port by default
Heat Sink required during operation(Sold Separately)



Packing List

ID	Description	QTY
1	Fig a. S15 cable	1
2	Fig b. Coaxial adapter (SWGCA1840Z) (Consulting sales)	0



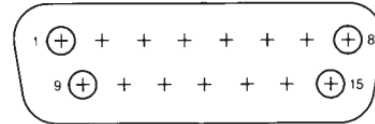
Fig a.



Fig b.

Protection Connector Table

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

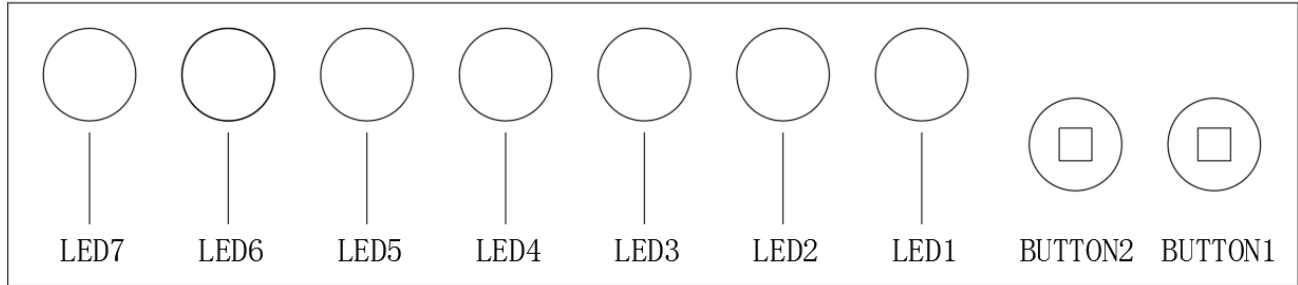


Pin #	Name	Function	Initial State	Description	Applied
1,2,9,10	VDD	Power Supply	+28V	+28V DC is supply Voltage	Yes
3,11	GND	Ground	GND	Ground	Yes
4	PA_OFF	Indicator	LOW	Amplifier working state, high level is off	Yes
5	RF Input Over Drive	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	Yes
6	Over Current	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached	Yes
7	Over Temp	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	Yes
8	VSWR	/	LOW	Pin will be latched to logic HIGH when output reflection is over limit	No
12	Switch Disable	Control	LOW	Applying logic HIGH disconnect RF signal of amplifiers	Yes
13	Drain Disable	Control	LOW	Applying logic HIGH disable drains of amplifiers	Yes
14	Gate Disable	Control	LOW	Applying logic HIGH disable gates of amplifiers	Yes
15	Reset	Control	HIGH	Resets PA when logic LOW is applied and released	Yes

Notes:

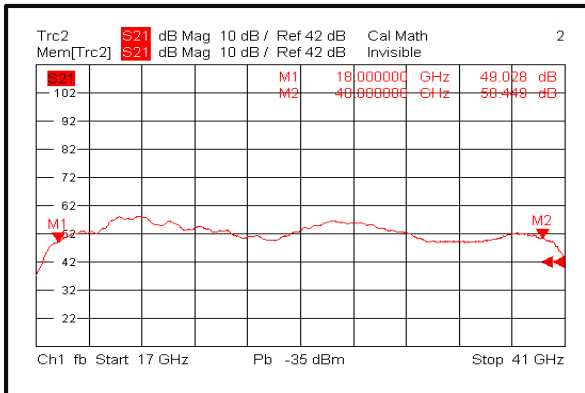
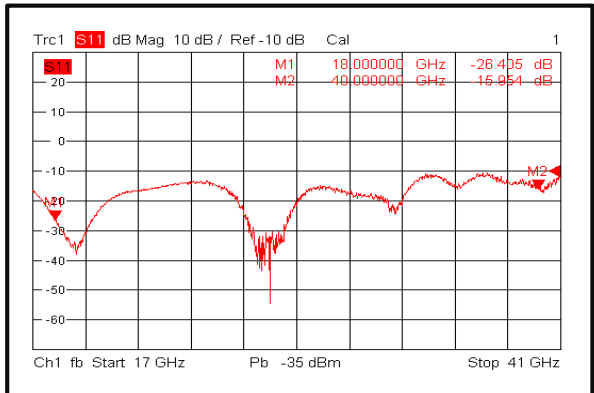
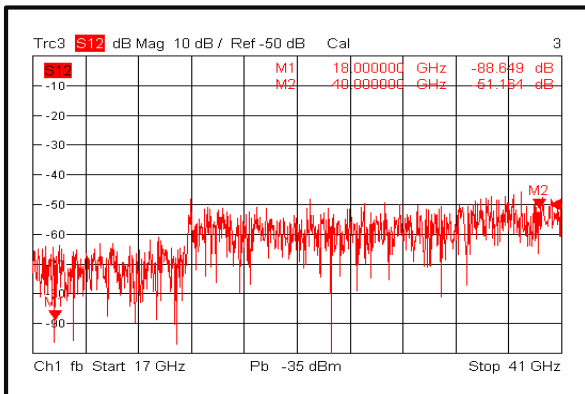
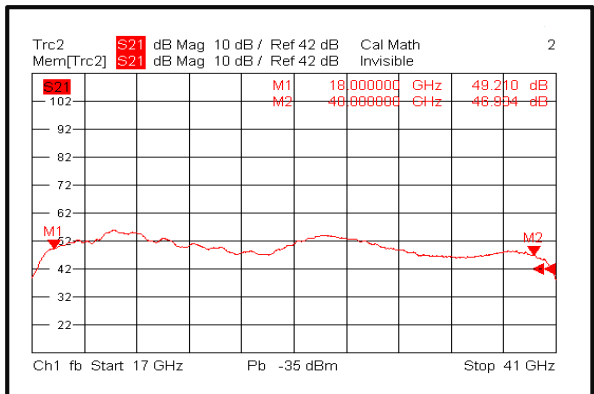
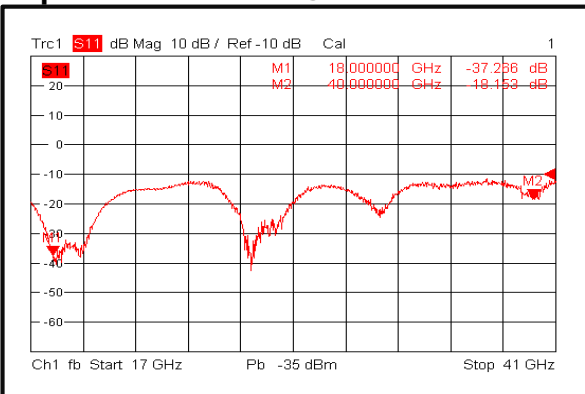
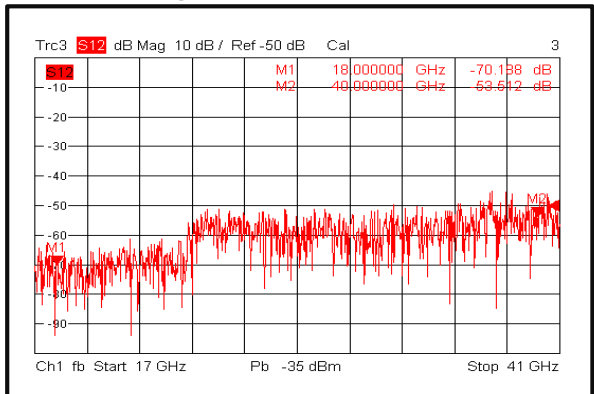
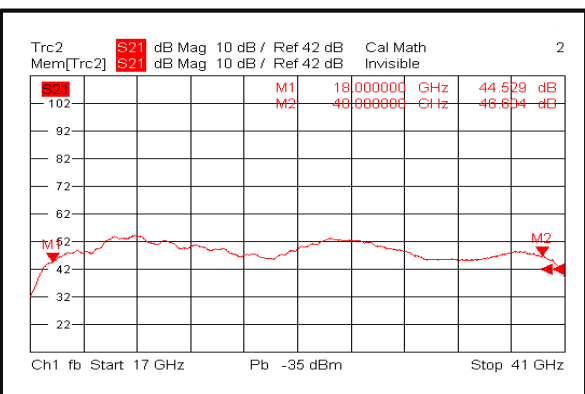
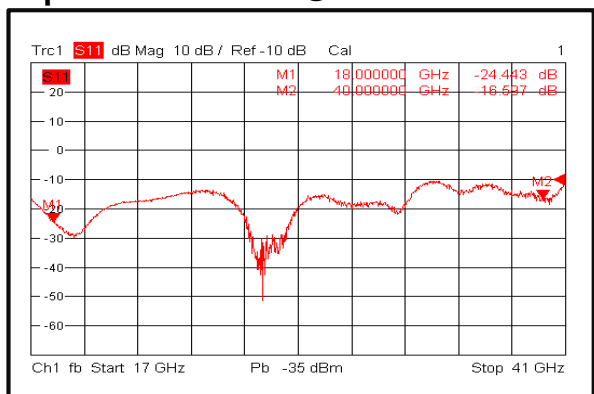
- HIGH/LOW voltages are standard TTL signals 0V~0.8V = LOW. 2.8V~5V = HIGH. Input current is 10uA.
- Matching connector and cable will be shipped with the product.
- Applied=Yes means the feature is included. Applied=No means the feature is not included with this model.
- Indicator output signals can source 24mA.

Alarm Status Panel

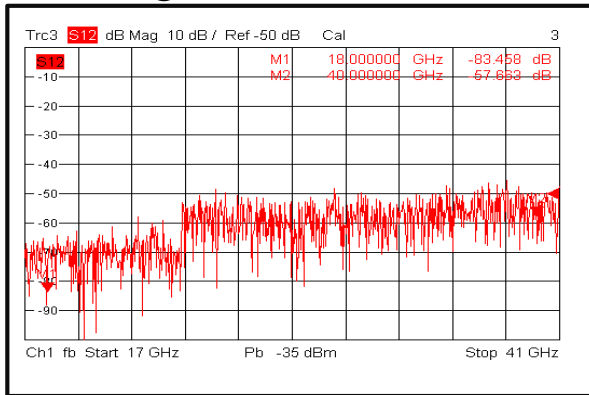


	Name	Function	Initial State	Description	Applied
BUTTON 1	Reset	Control		Manual reset button to reset PA	Yes
BUTTON 2	Calibration	Control		Manual calibration button to correct PA	Yes
LED 1	Power	Indicator	GREEN Color	Power supply normal indicator*	Yes
LED 2	RF ON/OFF	Indicator	GREEN Color	RF output status indicator. PA will shut down and latch this LED to a <u>RED</u> color when any protection is triggered*	Yes
LED 3	Calibration State	Indicator	GREEN Color	Calibration status indicator. The red light indicates that calibration is required. The indicator will flash during calibration*	Yes
LED 4	RF Input Over Drive	Indicator	GREEN Color	PA will shut down and latch this LED to a <u>RED</u> color when input signal is over limit *	Yes
LED 5	Over Current	Indicator	GREEN Color	PA will shut down and latch this LED to a <u>RED</u> color when current limit is reached *	Yes
LED 6	ID-Balance	Indicator	GREEN Color	PA will shut down and latch this LED to a <u>RED</u> color when an imbalance in the drain current of the combining branches occurs *	Yes
LED 7	Over Temp	Indicator	GREEN Color	PA will shut down and latch this LED to a <u>RED</u> color when driven over temperature *	Yes

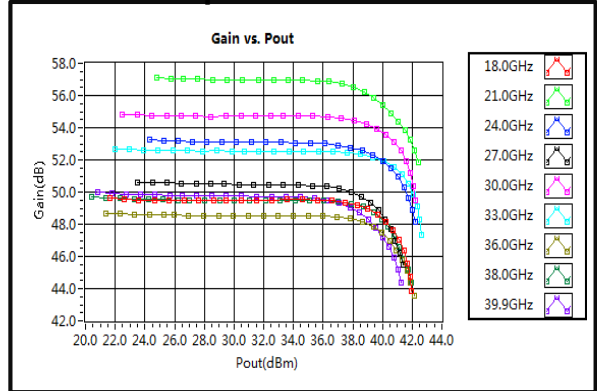
*LED needs to be manually reset to initial state by pressing RESET button

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


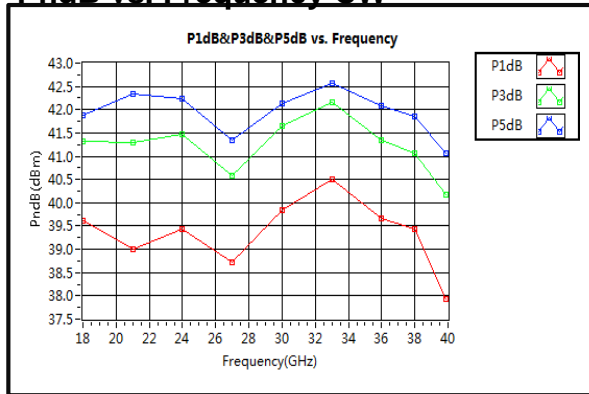
Isolation @ +70°C



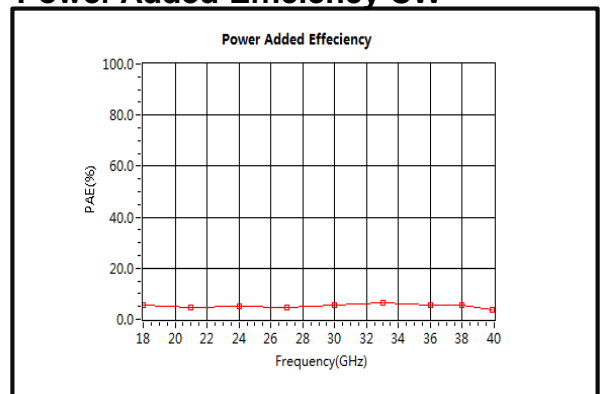
Gain vs. Output Power



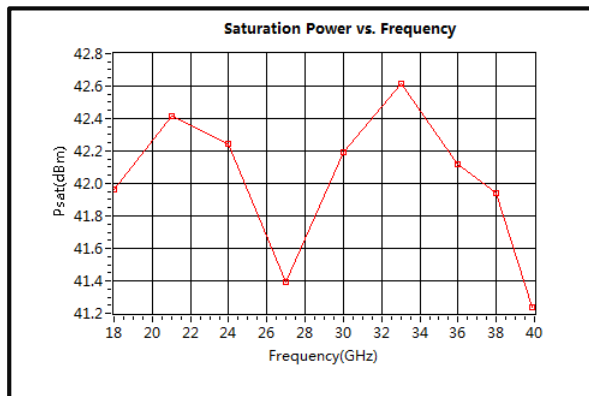
PndB vs. Frequency CW



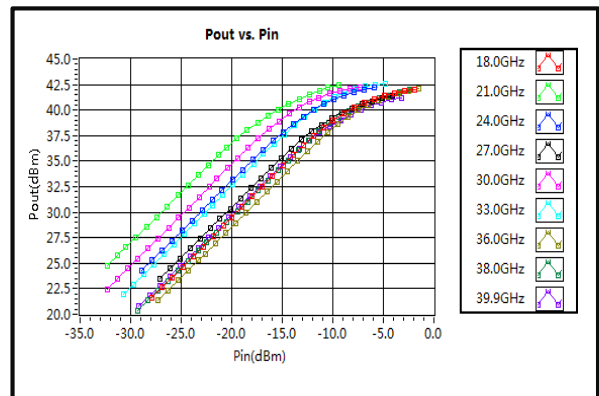
Power Added Efficiency CW



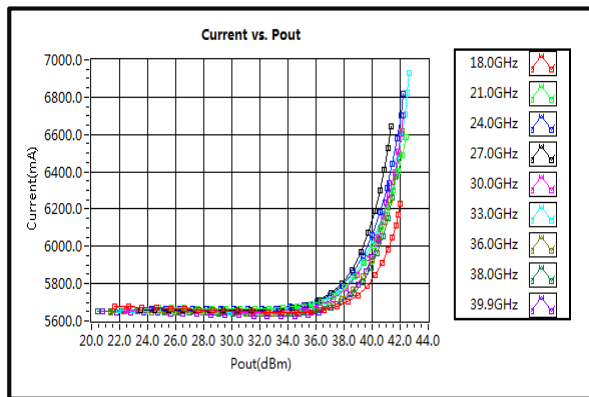
Saturation Power vs. Frequency CW



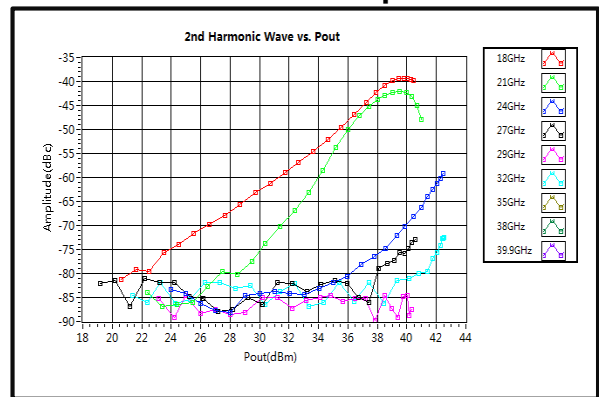
Pout vs. Pin



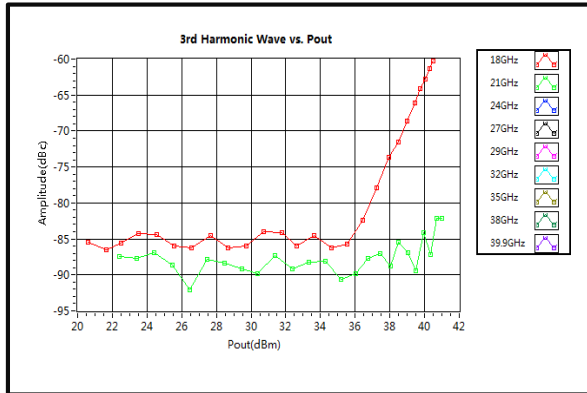
Current vs. Pout



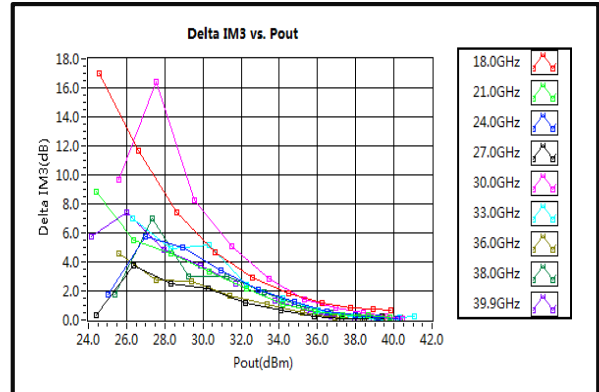
2nd Harmonic Wave Output Power



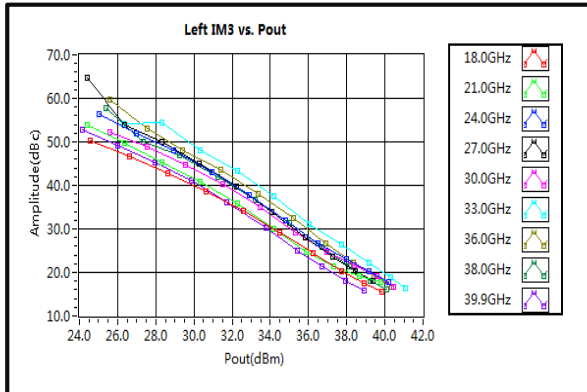
3rd Harmonic Wave Output Power



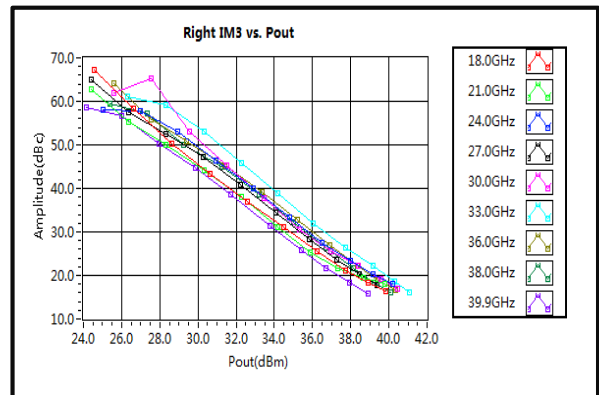
Delta IM3 vs. Pout



Left IM3 vs. Pout



Right IM3 vs. Pout

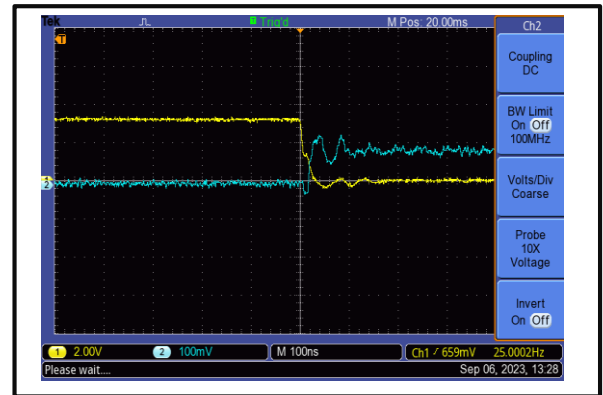


The Switching Rise Time is 100 ns @+25°C

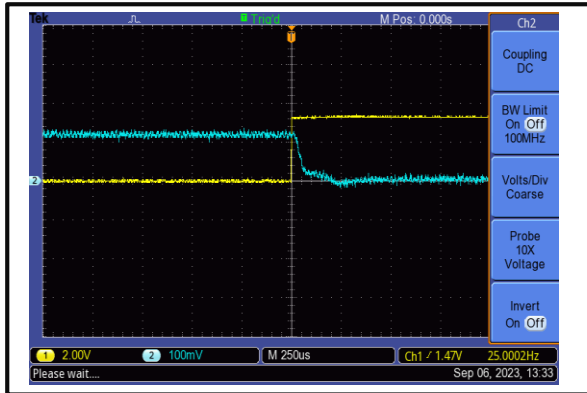


Switch control port: D-sub 15 PIN #12(RF_Switch_Off) .
The yellow curve is the switch control signal, the blue curve is RF output envelope.

The Switching Fall Time is 100 ns @+25°C

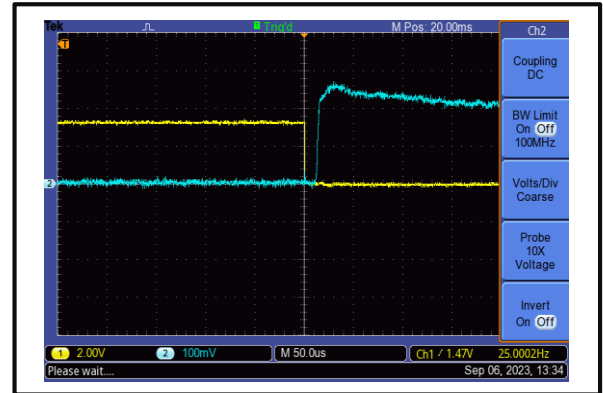


The Drain-Enable Rise Time is 50 us @+25°C

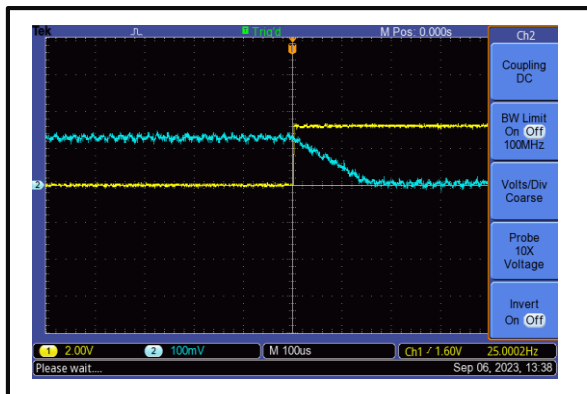


The drain control port: D-sub 15 PIN #13 (Drain_OFF) .
The yellow curve is the drain control signal, the blue curve is RF output envelope.

The Drain-Disable Fall Time is 50 us @+25°C

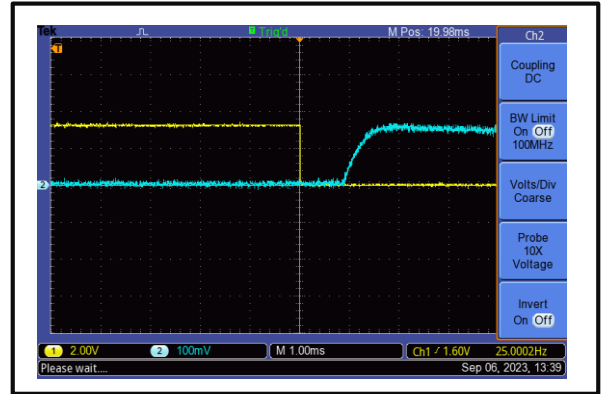


The Gate-Enable Rise Time is 100 us @+25°C



The gate control port: D-sub 15 PIN #14 (GATE_OFF) .
The yellow curve is the gate control signal, the blue curve is RF output envelope.

The Gate-Enable Fall Time is 1000 us @+25°C



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