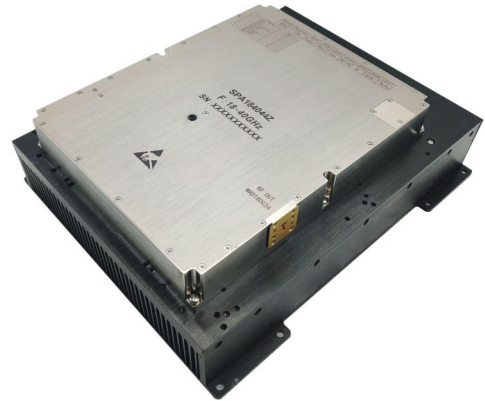


SALUKI TECHNOLOGY INC. Wide Band Solid State Power Amplifier 18GHz-40GHz

Features

- Solid State Power Amplifier
- Small Signal Gain 50dB Typical
- Output Saturation Power 44dBm Typical
- Supply Voltage +28 VDC
- 50 Ohm Matched Input / Output



Typical Applications

- Wireless Infrastructure
- Test and measurement Instrument
- Fiber Optics

RF Microwave & VSAT

5G communication

Parameter		Min.	Typ.	Max.	Units
Frequency Range		18		40	GHz
Small Signal Gain		45	50		dB
Gain Flatness			±6.0		dB
Gain Variation Over Temperature (-40°C to +70°C)			±3.0		dB
Input Return Loss			10		dB
Output 1dB Compression Point (P1dB)			42		dBm
Saturated Output Power (Psat)		42.5	44		dBm
RF ON/OFF Speed (IDQ on)			50		ns
Isolation S12			-50		dB
Supply Current (Vcc=+28V)			10	15	A
Power Added Efficiency (PAE)			10		%
Turn On/Off Speed (Switch Disable)	ON		250		ns
	OFF		200		ns
Turn On/Off Speed (Drain Disable)	ON		5		us
	OFF		250		us
Turn On/Off Speed (Gate Disable)	ON		2000		us
	OFF		100		us

Weight	Net	166Max. ounces	Impedance	50ohms
	Including Heat sink	272 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. Wide Band Solid State Power Amplifier 18GHz-40GHz

Absolute Maximum Ratings

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

Biassing 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 positive supply and make sure power supply can handle max current.

Power OFF Procedure

Step 1	Turn off power supply
Step 2	Remove positive supply Connection
Step 3	Remove RF Connection
Step 4	Remove ground

Environmental Specifications

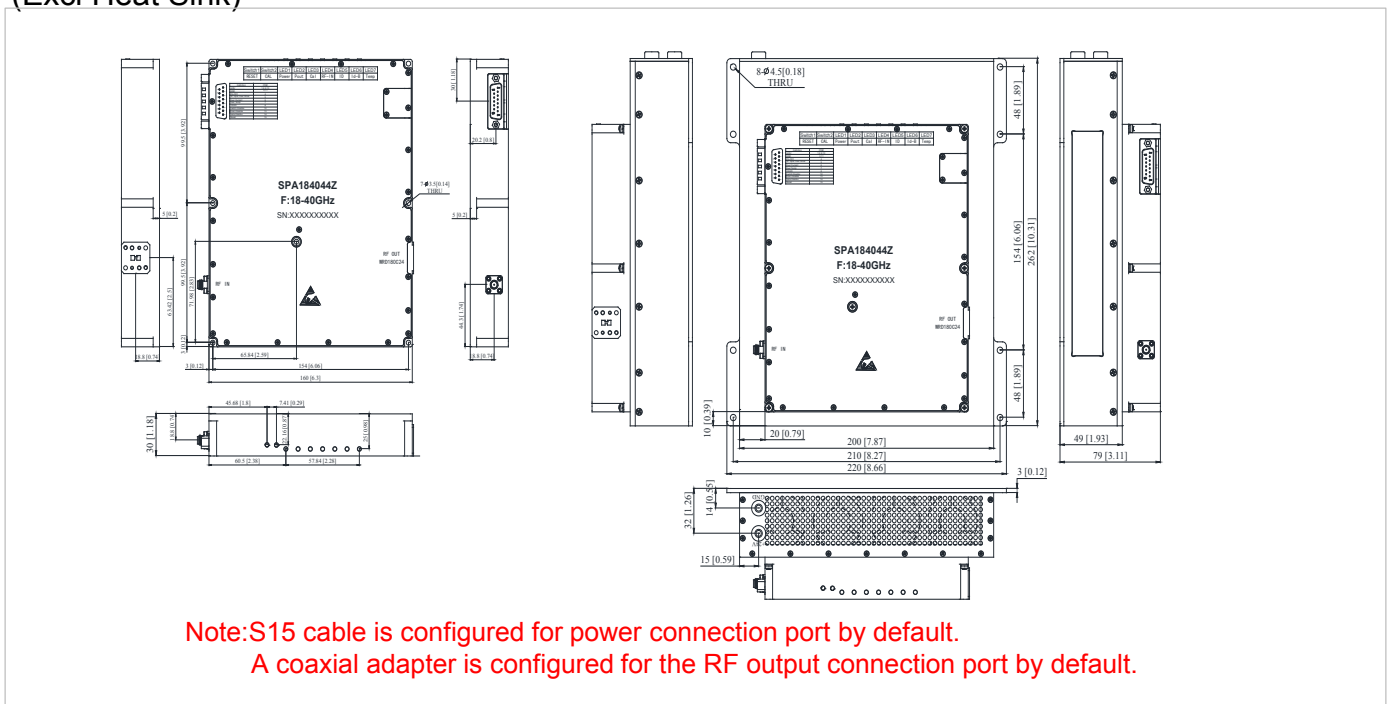
Operational Temperature	-40°C~+70°C(Case Temperature)
Storage Temperature	-50°C~+105°C
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100%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

*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)
Housing Tolerances ± 0.1 (0.004)
(Excl Heat Sink)

Heat Sink required during operation(Sold Separately)



SALUKI TECHNOLOGY INC. Wide Band Solid State Power Amplifier 18GHz-40GHz

Packing List

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



Fig a.

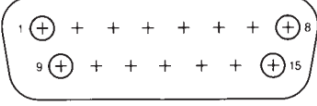


Fig b.



Fig c.

Interface Connector

<p>Male D-Sub is on the housing The mating Female part number: 172-E15-203R001</p>	
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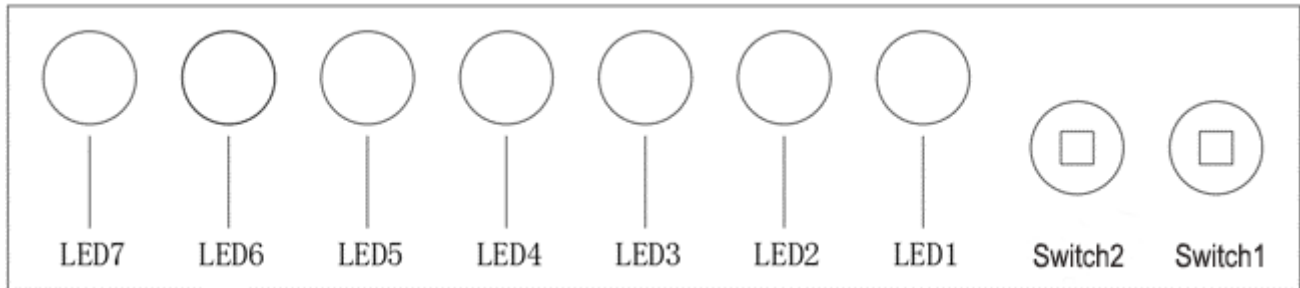
PIN #	NAME	FUNCTION	Initial State	Description	Applied
1,2,9,10	VDD	Power Supply	+28V	+28V DC Supply Voltage	Yes
3,11	GND	Ground	GND	Ground	Yes
4	PA_OFF	Indicator	LOW	Amplifier working state, high level is off	Yes
5	RF Input Over Drive	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	Yes
6	Over Current	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached or current imbalance	Yes
7	Over Temp	Indicator	LOW	Pin will be latched to logic HIGH when amplifier is driven over temperature	Yes
8	VSWR	Indicator	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 0 to 0.8V = LOW. 2.8V to 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.

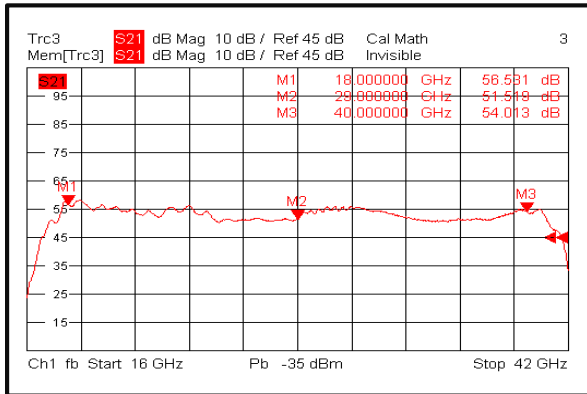
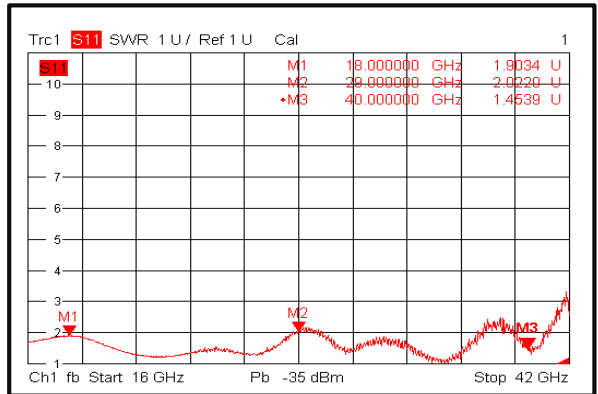
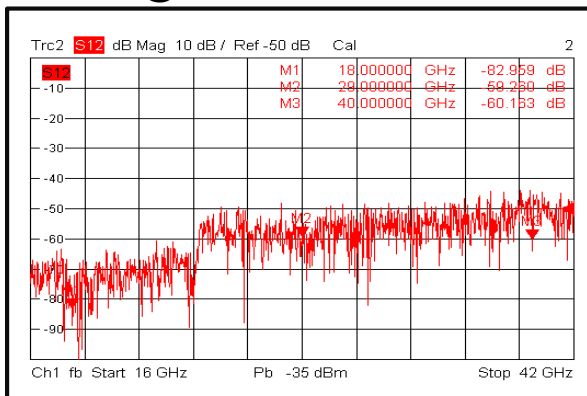
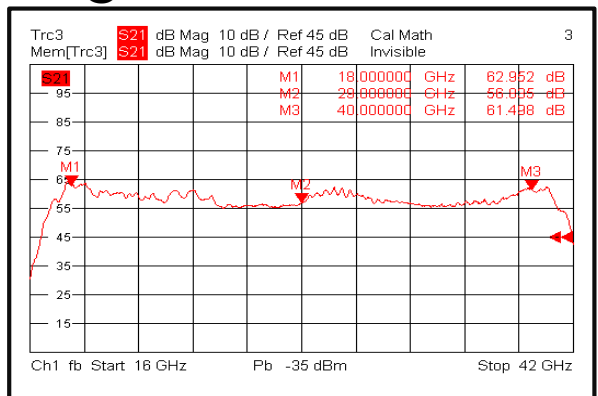
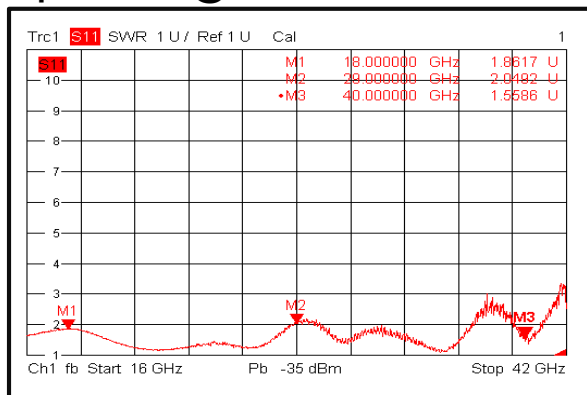
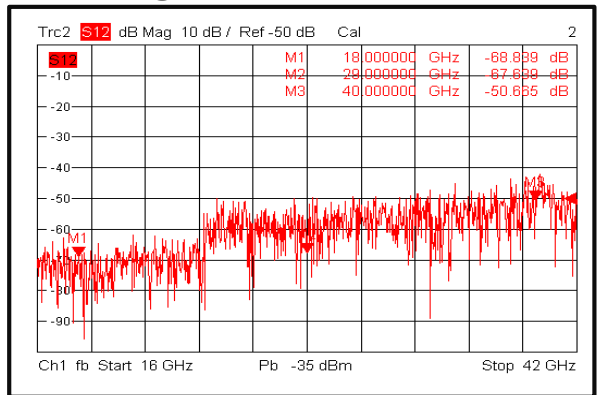
SALUKI TECHNOLOGY INC. Wide Band Solid State Power Amplifier 18GHz-40GHz

Alarm Status Panel



	Name	Function	Initial State	Description	Applied
Switch1	Reset	Control		Manual reset button to reset PA	Yes
Switch2	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

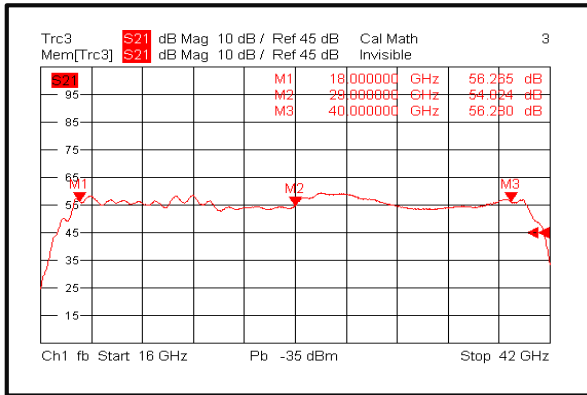
*LED needs to be manually reset to initial state by pressing RESET button

SALUKI TECHNOLOGY INC. Wide Band Solid State Power Amplifier 18GHz-40GHz
Gain@+25°C

Input VSWR@+25°C

Isolation@+25°C

Gain@-40°C

Input VSWR@-40°C

Isolation@-40°C


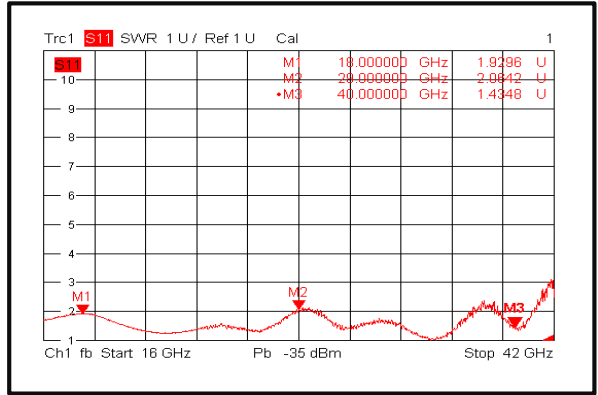
Note: Small signal VNA measurements include attenuators to protect equipment

SALUKI TECHNOLOGY INC. Wide Band Solid State Power Amplifier 18GHz-40GHz

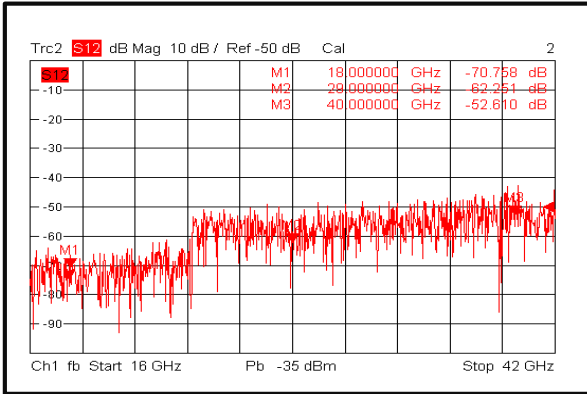
Gain@+70°C



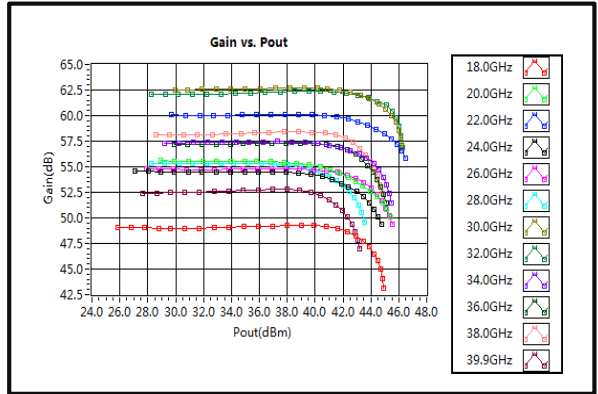
Input VSWR@+70°C



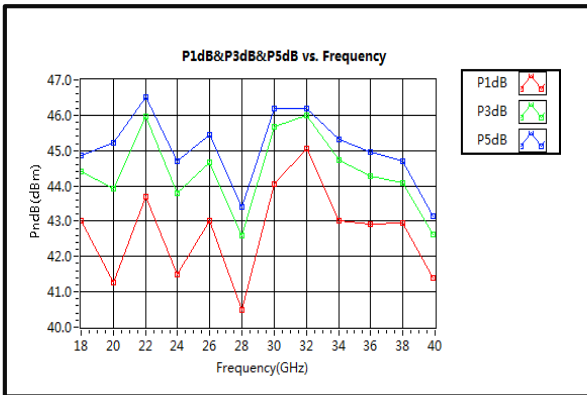
Isolation@+70°C



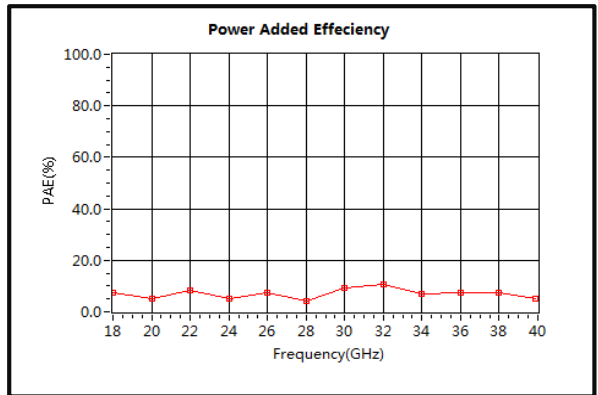
Gain vs. Output Power CW



PndB vs. Frequency CW



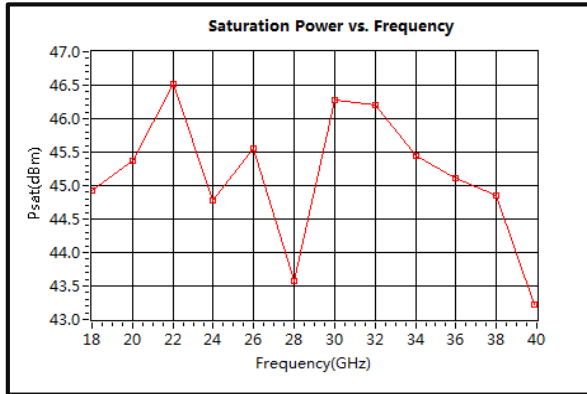
Power Added Efficiency CW



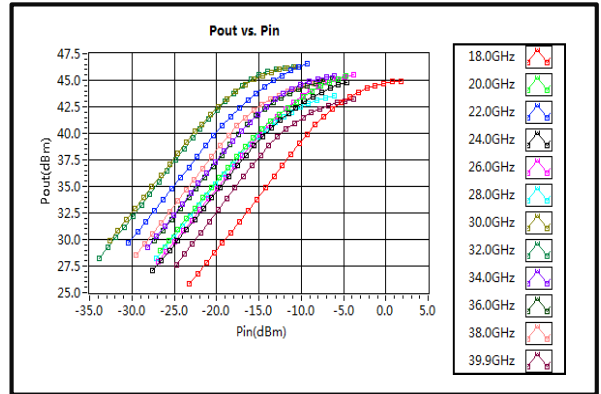
Note: Small signal VNA measurements include attenuators to protect equipment

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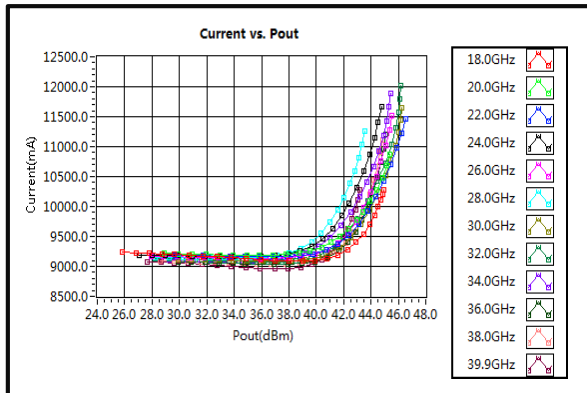
Saturation Power vs. Frequency CW



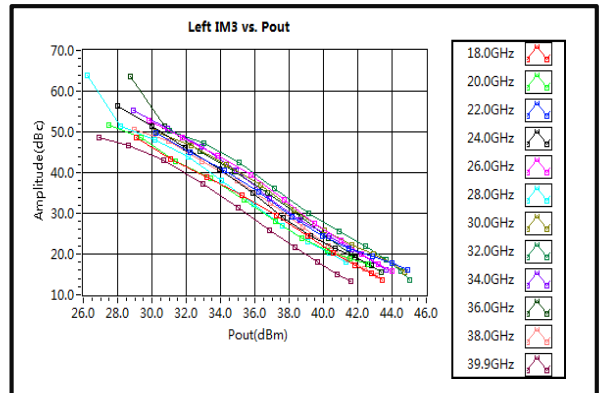
Pout vs. Pin



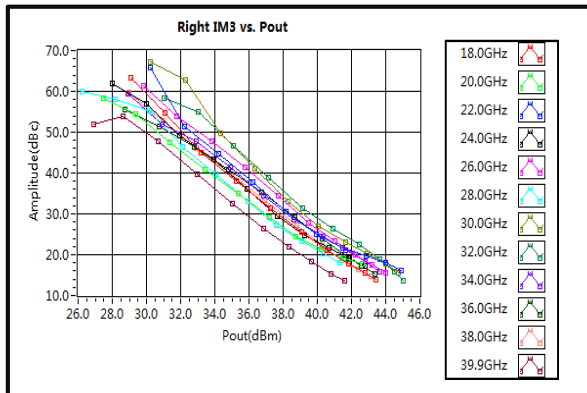
Current vs. Pout



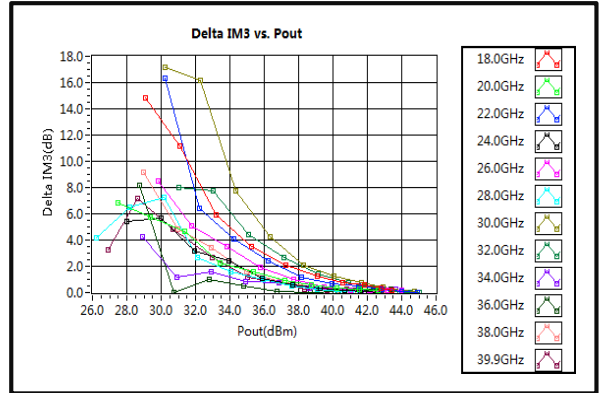
Left IM3 vs. Pout



Right IM3 vs. Pout

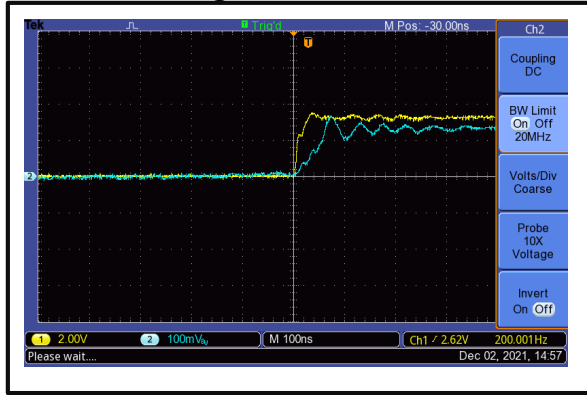


Delta IM3 vs. Pout



SALUKI TECHNOLOGY INC. Wide Band Solid State Power Amplifier 18GHz-40GHz

The Switching Rise Time is 250 ns

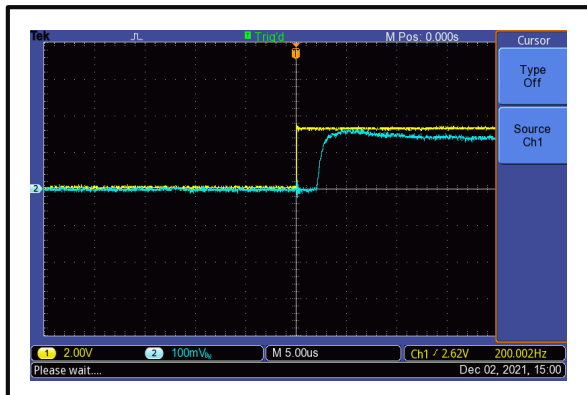


Switch control port: D-sub 15 PIN #12(RF_Switch_Off).
The yellow curve is the switch control signal, the blue curve is RF output envelope.

The Switching Fall Time is 200 ns

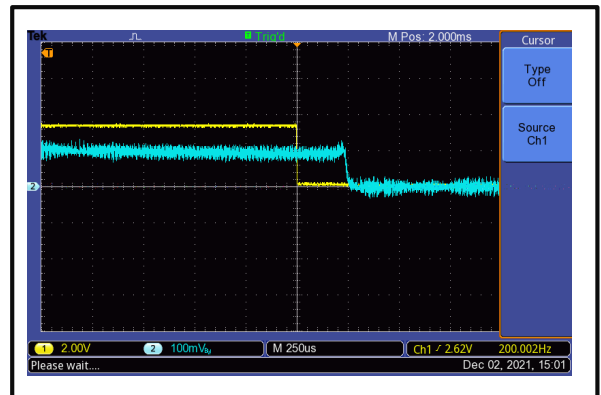


The Drain-Disable Rise Time is 5 us

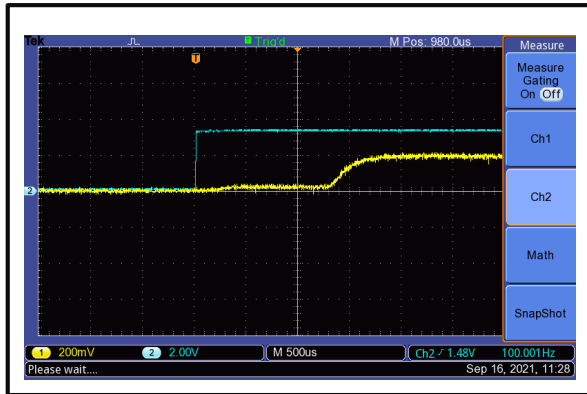


Note: the TDD control port: D-sub 15 PIN #13 (Drain_OFF).
The blue curve is the TDD control signal, the yellow curve is RF output envelope.

The Drain-Disable Fall Time is 250 us

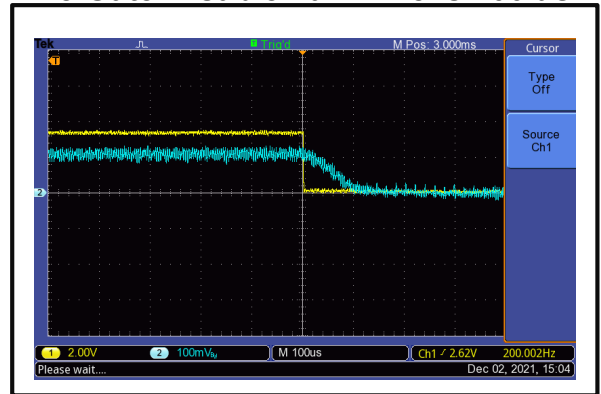


The Gate-Disable Rise Time is 2000 us



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

The Gate-Disable Fall Time is 100 us



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