

## Features

- Solid State Power Amplifier
- Small Signal Gain 50dB Typical
- Output Saturation Power 45dBm Typical
- Supply Voltage +28 VDC
- 50 Ohm Matched



## Typical Applications

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

RF Microwave & VSAT  
Fiber Optics

Parameter	Min.	Typ.	Max.	Units
Frequency Range	26.5		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 VSWR		1.5		: 1
Output 1dB Compression Point (P1dB)		43		dBm
Saturated Output Power (Psat)	43.5	45		dBm
Supply Current (Vcc=+28V)		8.5	15	A
Power Added Efficiency (PAE)		10		%
Turn On/Off Speed (Switch Disable)	ON		100	ns
	OFF		100	ns
Turn On/Off Speed (Drain Disable)	ON		50	us
	OFF		200	us
Turn On/Off Speed (Gate Disable)	ON		2000	us
	OFF		100	us

weight	Net	120 Max. ounces	Impedance	50ohms
	Including Heat sink	222.4 Max. ounces		
Input / Output Connectors	Input 2.92mm-Female/ Output WR28 (E-Plane) (H-Plane available with adapter)		Material	Copper
Finish	Nickel Plated		Package Sealing	Epoxy Sealed (Standard)
				Hermetically Sealed (Optional)

**Absolute Maximum Ratings**

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

**Biassing Up Procedure**

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +28V biasing

**Power OFF Procedure**

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

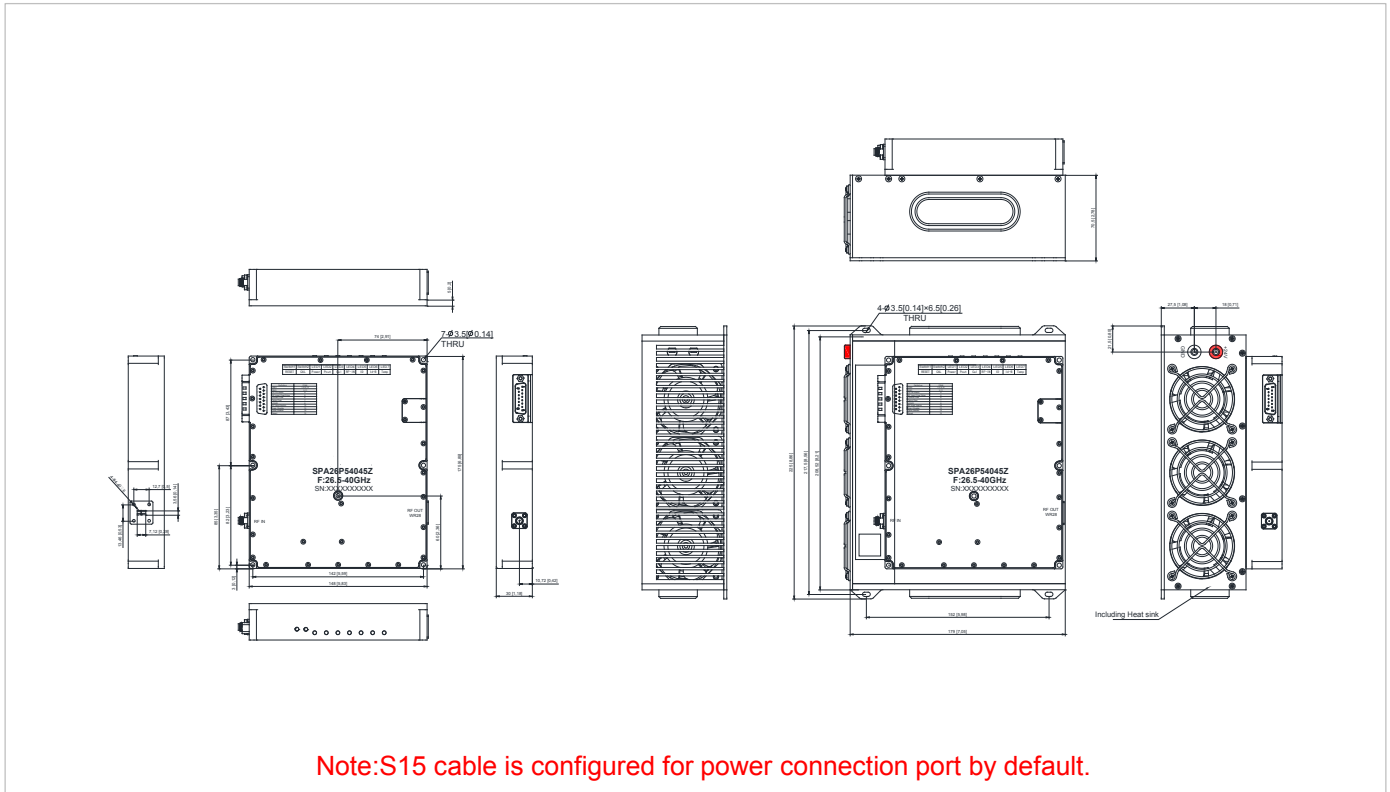
**Environmental Specifications**

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)  
 (Excl Heat Sink)

Heat Sink required during operation(Sold Separately)



**Packing List**

ID	Description	QTY
1	Fig a. Fan adapter	1
2	Fig b. S15 cable	1
3	Fig c. Waveguide to coaxial adapter (SWGCA2640Z) (Consulting sales)	0
4	Fig d. Waveguide to coaxial adapter(Consulting sales)	0



**Fig a.**



**Fig b.**



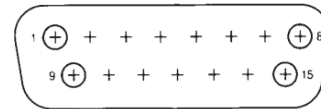
**Fig c.**



**Fig d.**

**Interface Connector**

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

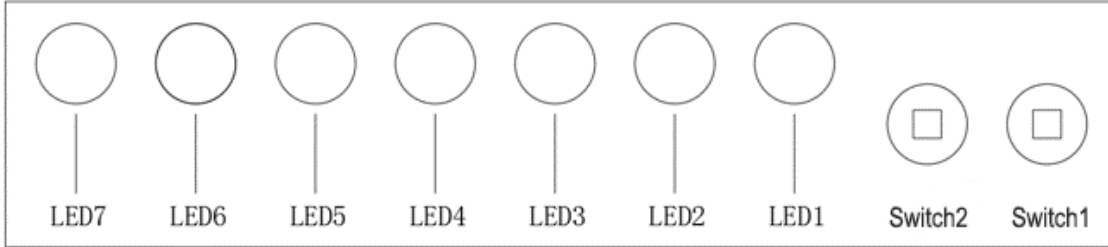


PIN #	NAME	FUNCTION	Initial State	Description	Applied
1,2, 9,10	VDD	Power Supply	+28V	+28V DC Supply Voltage	Yes
3,11	GND	Ground	GND	Ground	Yes
4	PA Off Alarm	Indicator	LOW	Pin will be latched to logic HIGH when any of the protection limit is reached	Yes
5	RF Input Over Drive	Indicator	LOW	Pin will be latched to logic HIGH when input signal is over limit	Yes
6	Current Over	Indicator	LOW	Pin will be latched to logic HIGH when drain current limit is reached or current imbalance	Yes
7	Temp Over	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	RF Input Switch	Control	LOW	Applying logic HIGH turns OFF RF front-end switch to terminator	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 for five more seconds and released	Yes

Notes:

- HIGH/LOW voltages are standard TTL signals 0.0V-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.
- 5V reference supply can source 700mA.
- Indicator output signals can source 24mA.

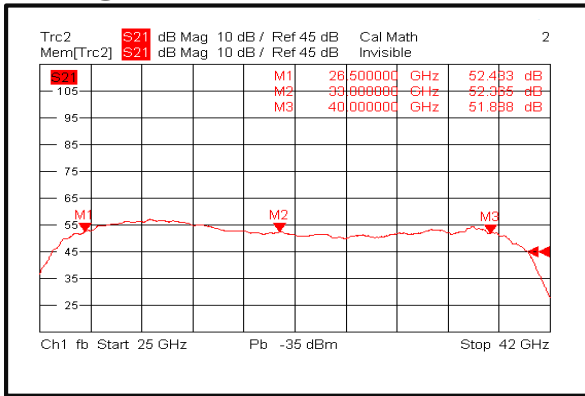
**Alarm Status Panel**



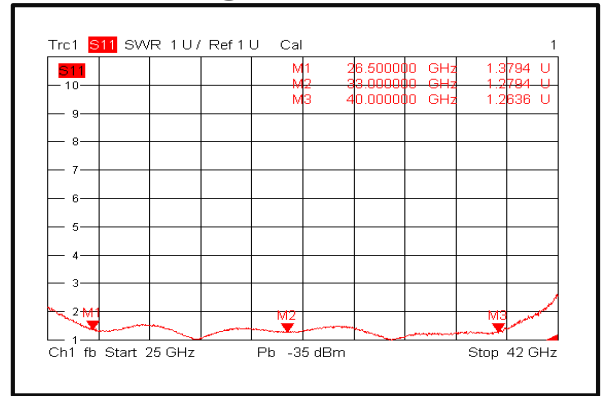
	Name	Function	Initial State	Description	Applied
BUTTON1	Reset	Control		Manual reset button to reset PA	Yes
BUTTON2	Calibration	Control		Manual calibration button to correct PA	Yes
LED 1	Power	Indicator	GREEN Color	Power supply normal indicator	Yes
LED 2	RF ON/OFF	Indicator	GREEN Color	RF output status 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

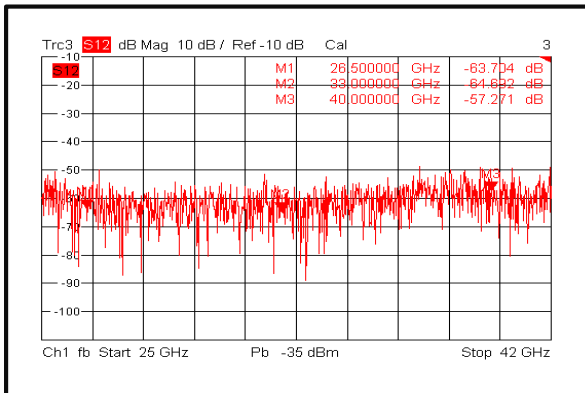
Gain @ +25°C



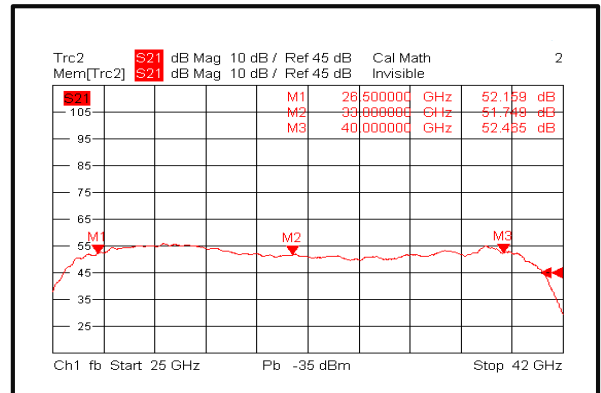
Input VSWR @+25°C



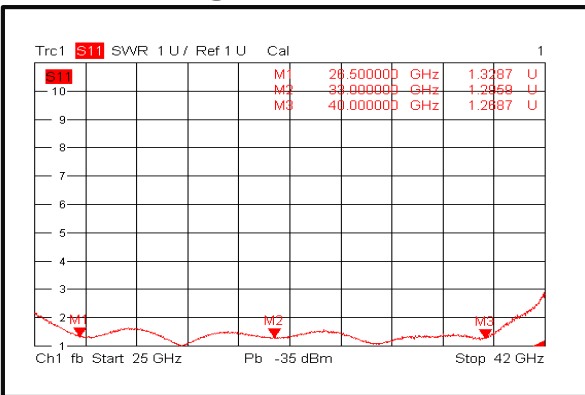
Isolation @ +25°C



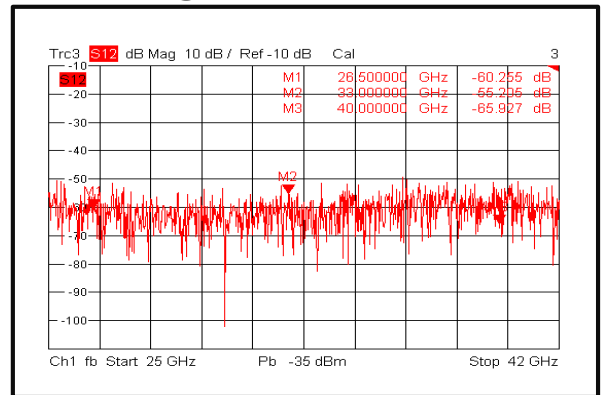
Gain @ -40°C



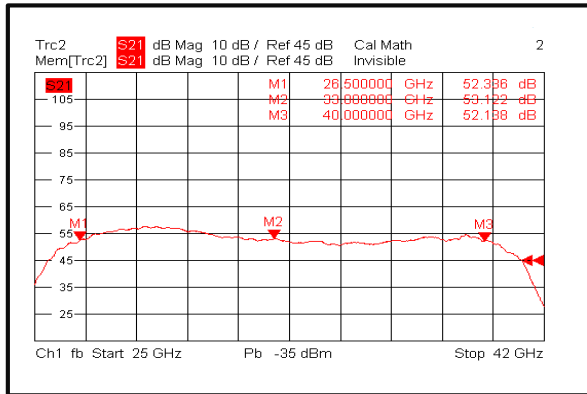
Input VSWR @ -40°C



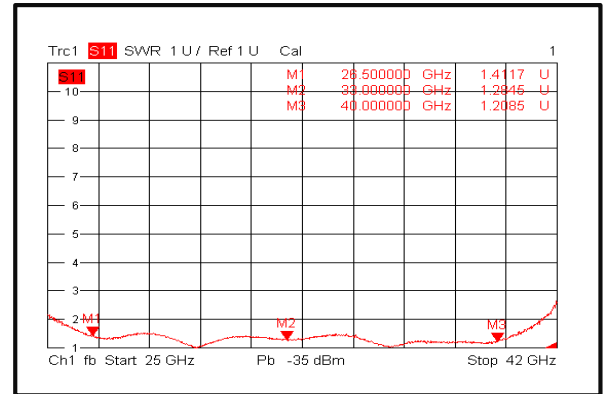
Isolation @ -40°C



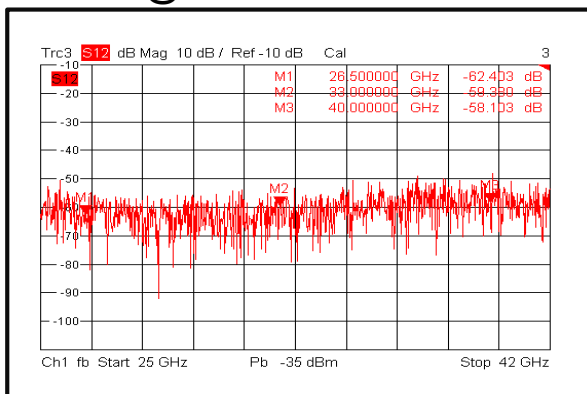
Gain @ +70°C



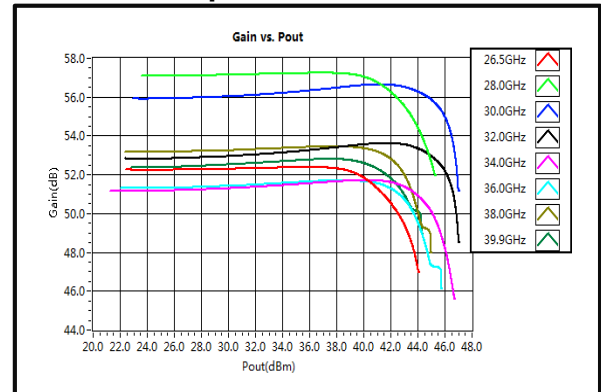
Input VSWR @ +70°C



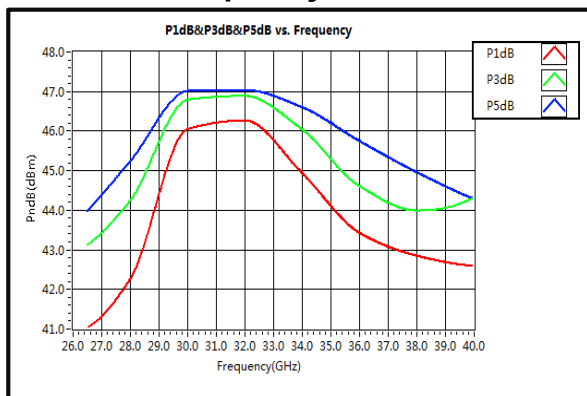
Isolation @ +70°C



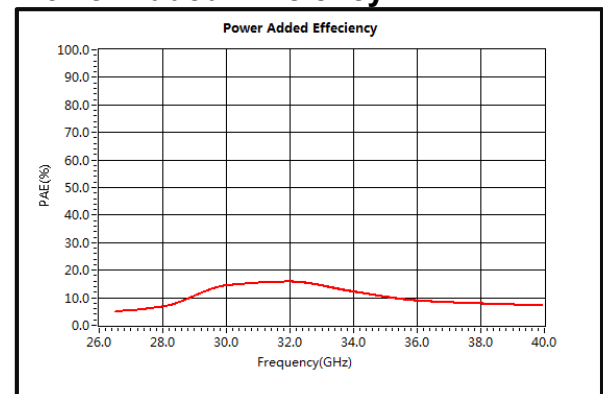
Gain vs. Output Power



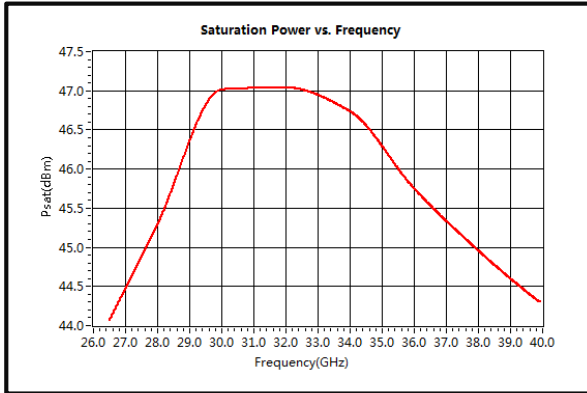
PndB vs. Frequency



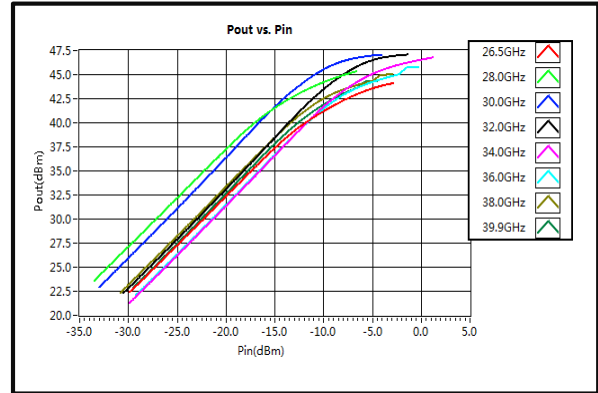
Power Added Efficiency



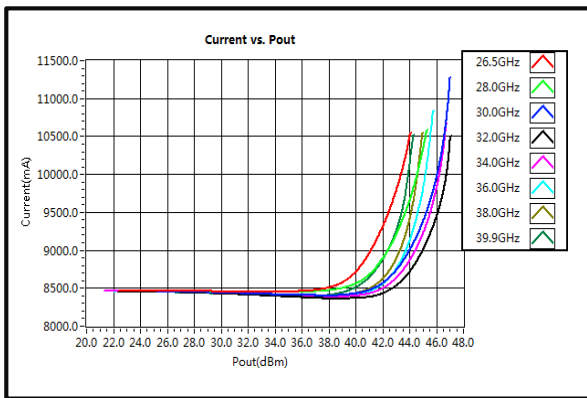
Saturation Power vs. Frequency



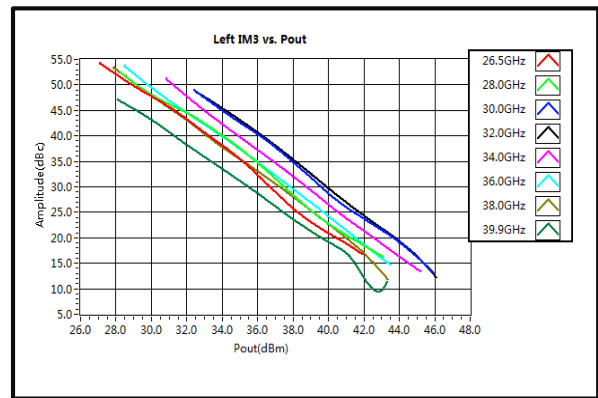
Pout vs. Pin



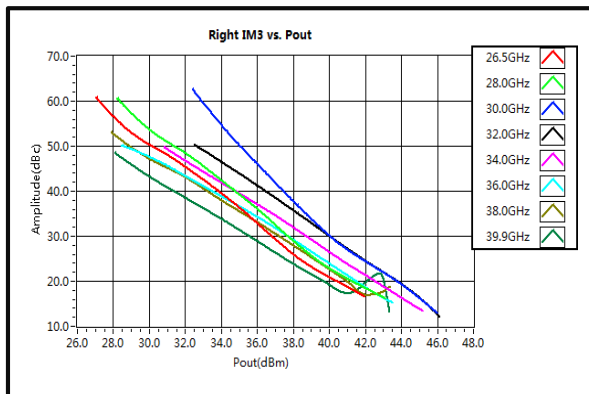
Current vs. Pout



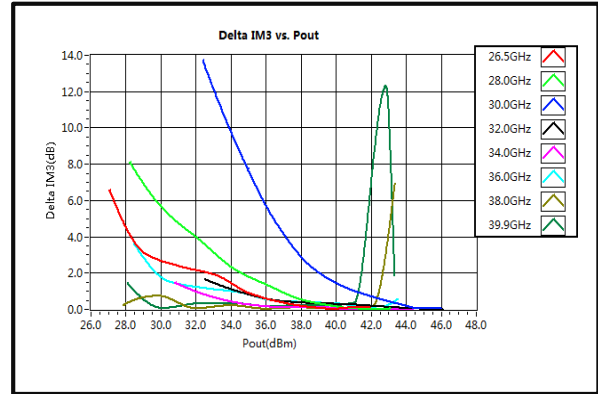
Left IM3 vs. Pout



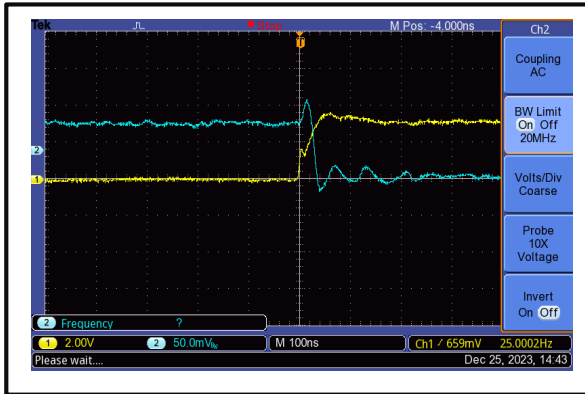
Right IM3 vs. Pout



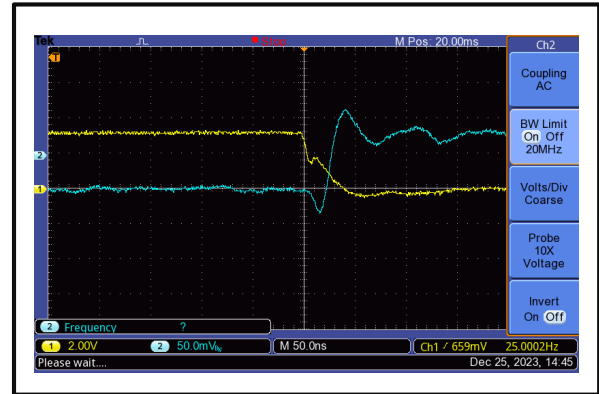
Delta IM3 vs. Pout



**The Switching Rise Time is 100 ns**

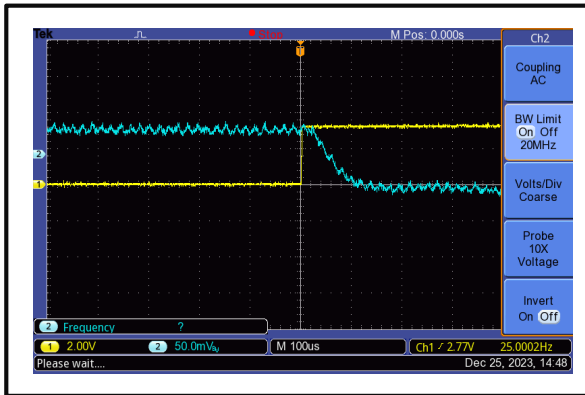


**The Switching Fall Time is 100 ns**

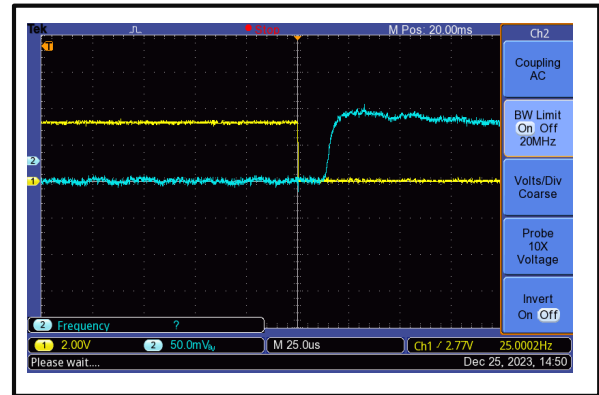


Switch control port: D-sub 15 PIN #12(Switch Disable).  
The yellow curve is the switch control signal, the blue curve is RF output envelope.

**The Drain-Enable Rise Time is 200 us**

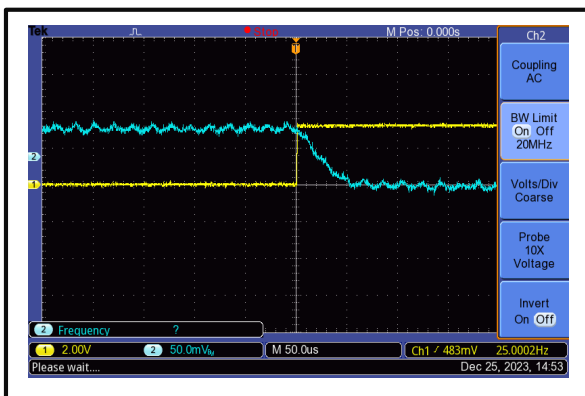


**The Drain-Disable Fall Time is 50 us**

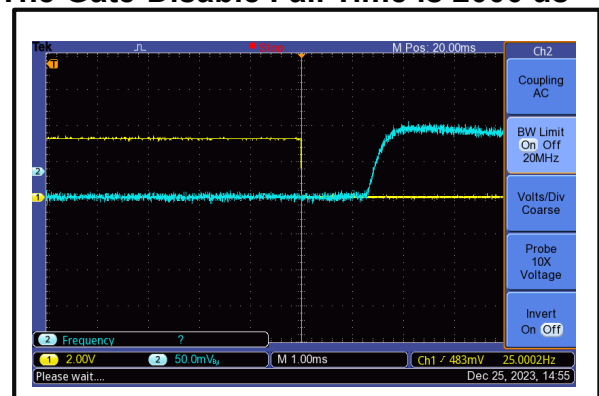


The drain control port: D-sub 15 PIN #13 (Drain Disable).  
The yellow curve is the drain control signal, the blue curve is RF output envelope.

**The Gate-Enable Rise Time is 100 us**



**The Gate-Disable Fall Time is 2000 us**



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

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