泰莱微波
Talent Microwave

Suzhou Talent Microwave,Inc
sales@talentmw.com
www.talentmw.com

Power Amplifier

18-40GHz/50dB Gain/50dBm Psat

Model: TLPA18G40G-50-40-A

TLPA18G40G-50-40-A is a power amplifier with a typical small signal gain of 50 dB and a nominal Psat of 40 dBm across the frequency range of 18 to 40 GHz. The DC power requirement for the amplifier is +28VDC/2 A. The input and output port configuration offers coax adapter structure with 2.92mm female.

Features:

- Frequency range: 18-40GHz
- Gain: 50dB Typ
- Output Power Psat: 40dBm Typ
- Protection: over temperature, over current, over drive, over VSWR protection
- 50 Ohm Matched Input / Output

Applications:

- Cellular
- PCN
- GSM
- ISM
- Lab Test

Electrical Characteristics:

Parameter		Min	Typ	Max	Units
Frequency range		18		40	GHz
Small Signal Gain		45	50		dB
Gain Flatness			±3		dB
Gain Variation Over Temperature (-40ºC~+70℃)			±3		dB
Output P1dB		34	35		dBm
Output Psat		38	40		dBm
IM3@P1dB			15		dBc
RF turn on/off Speed	On		100		ns
	Off		100		ns

Note: Talent reserves the right to make changes to the product(s) or information contained herein without notice.

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Electrical Characteristics:

Parameter	Min	Typ	Max	Units
Input VSWR		1.5		2:1
DC Voltage		28		V DC
DC Supply Current		2	5	A
Power Added Efficiency		10		%
Impedance		50		Ohms

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Mechanical Specifications:

Parameter	Value	Units
Input /Output Connector	2.92mm Female/2.92mm Female	
Size	65*170*24(Without heatsink) 140*175*79(With heatsink)	mm
Weight	≤2.7(Without heatsink)	lbs

Absolute Maximum Ratings:

Parameter	Value
Supply Bias Voltage	+36 V
RF Input Power	-5 dBm
ESD sensitivity (HBm)	Class 0, passed 150V



Simple 220V System
Available SAC option

*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.

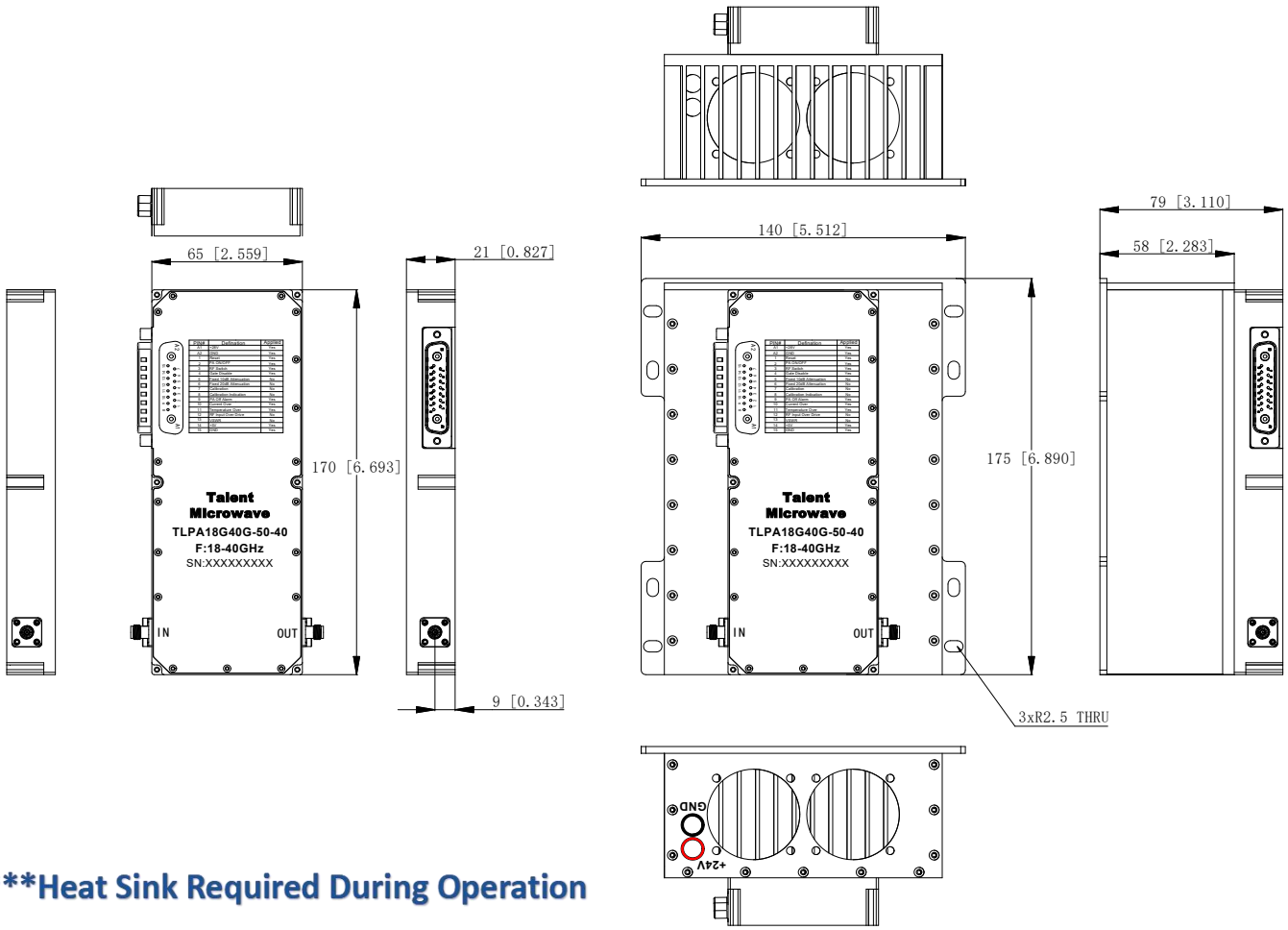
Key Features:

Parameter	Advantages
Protection functions	1, Over TEM 2, Over current 3, Over drive 4, Over VSWR

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Outline Drawing:

Unit:mm; Tolerance:±0.1mm



***Heat Sink Required During Operation

Notes:

1. Package Material: Copper, Aluminum.
2. Plating: Nickel.
3. All dimensions are in millimeters [inches].
4. Heat sink required during operation. If customer would like to use their own cooling method, please make sure the amplifier will operate under the specs that listed in page 2 of this datasheet.
5. Standard torque wrench must be used to secure RF connectors.

ESD Protection: Strictly adhere to ESD precautions to prevent electrostatic damage.

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Control Connector:

Pin	Name	Function	Initial State	Description	Applied
A1	VDD	Power Supply	/	+28V DC Supply Voltage	Yes
A2	GND	Ground	/	Ground	Yes
1	Reset	Control	High	Resets PA when logic Low is applied and released	Yes
2	PA On/Off	Control	Low	Applying logic High opens amplifier RF output	Yes
3	RF switch	Control	Low	Applying logic High turns OFF RF front-end switch to terminator	Yes
4	Gate disabled	Control	Low	Appling logic High disables gate of amplifiers	Yes
5	Fixed attenuation 10dB	Control	Low	Applying and holding logic High to enable 10dB fixed attenuation	No
6	Fixed Attenuation 20dB	Control	Low	Applying and holding logic High to enable 20dB fixed attenuation	No
7	Calibration	Control	Low	Applying logic High startup calibration	No
8	Calibration indication	Indicator	Low	Default output low level, output high level during calibration state	No
9	PA Off Alarm	Indicator	Low	Pin will be latched to logic High when any of the protection limit is reached	Yes
10	Current Over	Indicator	Low	Pin will be latched to logic High when drain current limit is reached	Yes
11	Temperature Over	Indicator	Low	Pin will be latched to logic High when amplifier is driven over temperature	Yes
12	RF Input Over Drive	Indicator	Low	Pin will be latched to logic High when input signal is over limit	No
13	VSWR	Indicator	Low	Pin will be latched to logic High when output reflection is over limit	No
14	+5V User	Power Supply	+5V	+5V DC is provided for reference*	Yes
15	GND	Ground	Ground	Ground	Yes

Notes:

- HIGH/LOW voltages are standard TTL signals 0V-1V = Low. 2V-5V = High.
- 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 200mA.

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Instruction Manual:

Power on	
1	Connect ground.
2	Connect input and output with 50 Ohm source/load. (Input and Output VSWR < 2:1)
3	Connect positive supp.

Power off	
1	Turn off power supply and remove positive supply Connection.
2	Remove RF Connection.
3	Remove ground.

Usage Precautions	
1	Ensure that the amplifier input and output ports are safely terminated into a proper 50Ω load before turning on the power. Never operate the amplifier without a load.
2	Power supply must be able to provide adequate current for the amplifier. Power supply should be able to provide 1.5 times the maximum current.
3	In most cases, talent amplifiers will withstand severe mismatches without damage. However, operation with poor loads is discouraged. If prolonged operation with poor or unknown loads is expected, an external device such as an isolator or circulator should be used to protect the amplifier.
4	Ensure that the power is off when connecting or disconnecting the input or output of the amp.
5	Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

Environmental Conditions:

Parameter	Min	Typ	Max	Units
Operating Temperature*	-40		+70	℃
Non-operating Temperature*	-50		+10	℃
Relative humidity	100% RH at 35℃, 95%RH at 40℃			%
Altitude	10,000			feet
Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

*Note: For a wider temperature range, please consult the manufacturer.

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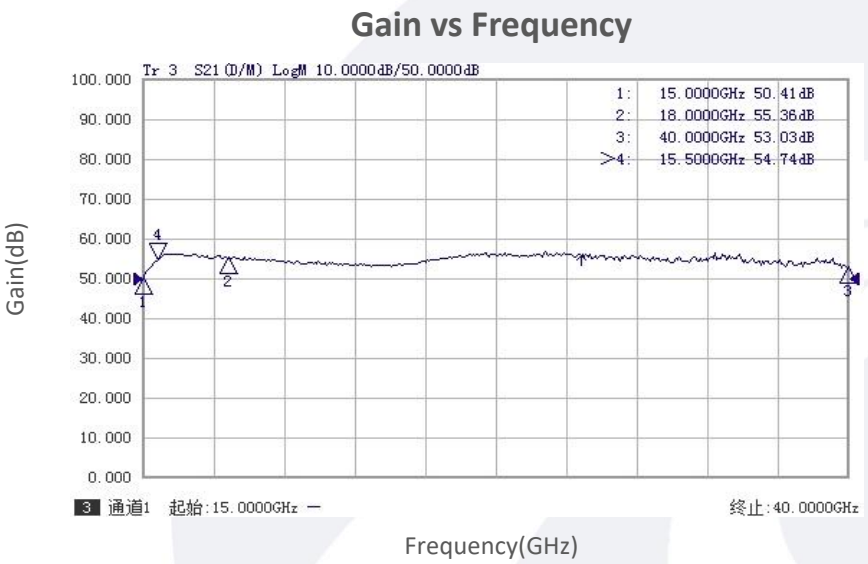
Ordering Information:

Base Number	Description	Revision
TLPA18G40G-50-40-A	Power amplifier 18-40GHz, Gain:50dB,Psat:40dBm,+28V DC,Without Heatsink	Rev.1.0
TLPA18G40G-50-40-A-HS	Power amplifier 18-40GHz, Gain:50dB,Psat:40dBm,+28V DC,With Heatsink	Rev.1.0

Components Included:

Description	Quantity
Power supply cable	1 PCS

Typical Performance Data(TEM=298K):

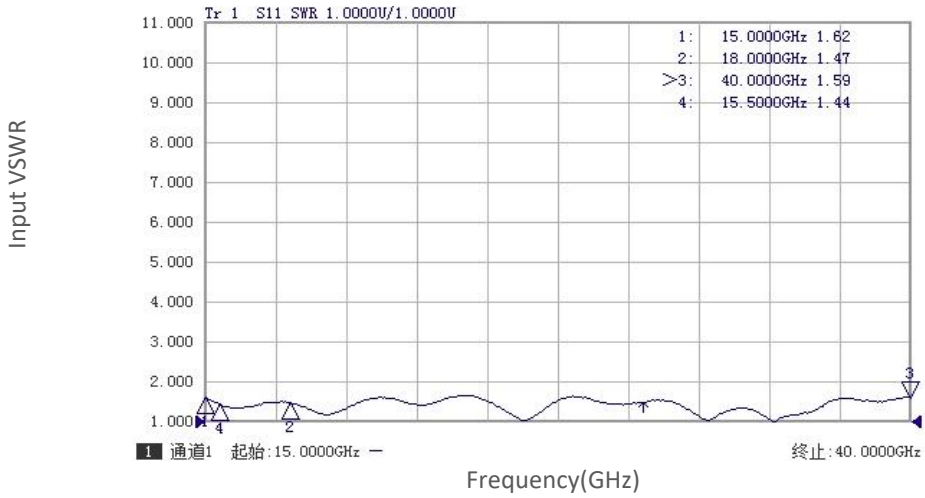


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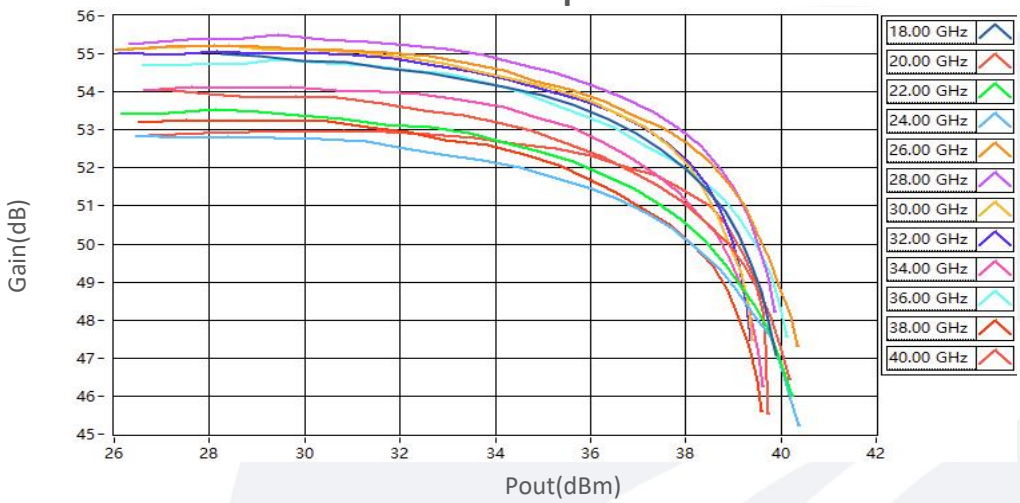
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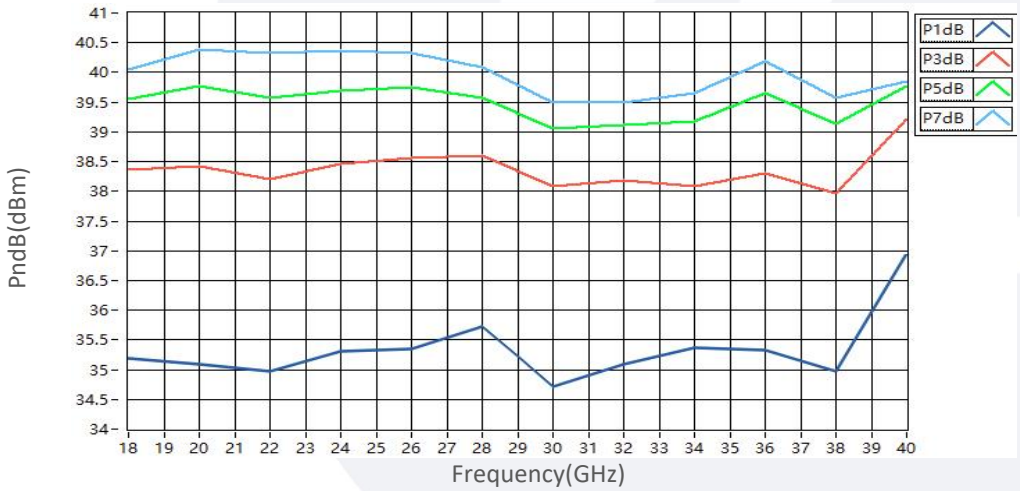
Input VSWR vs Frequency



Gain vs Output Power



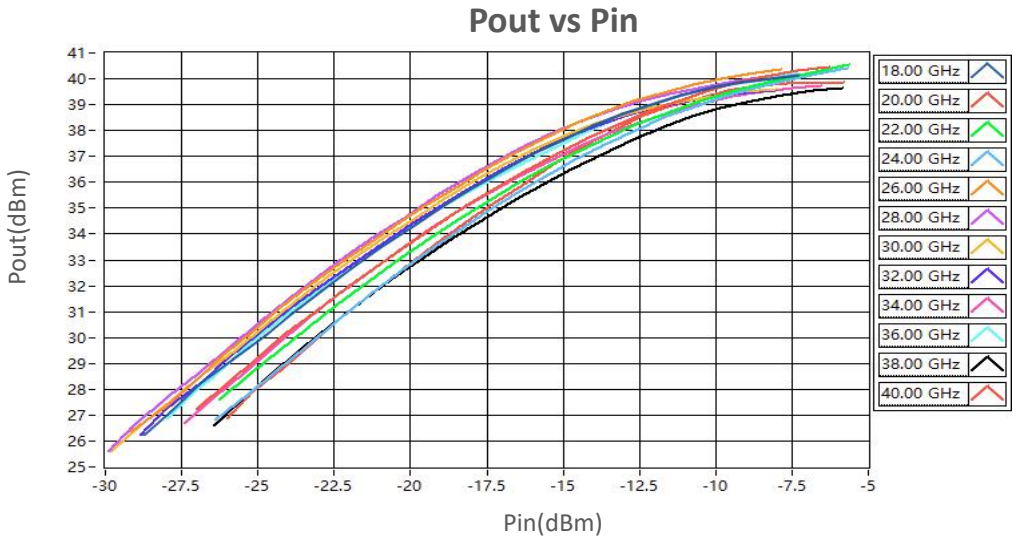
PndB vs Frequency

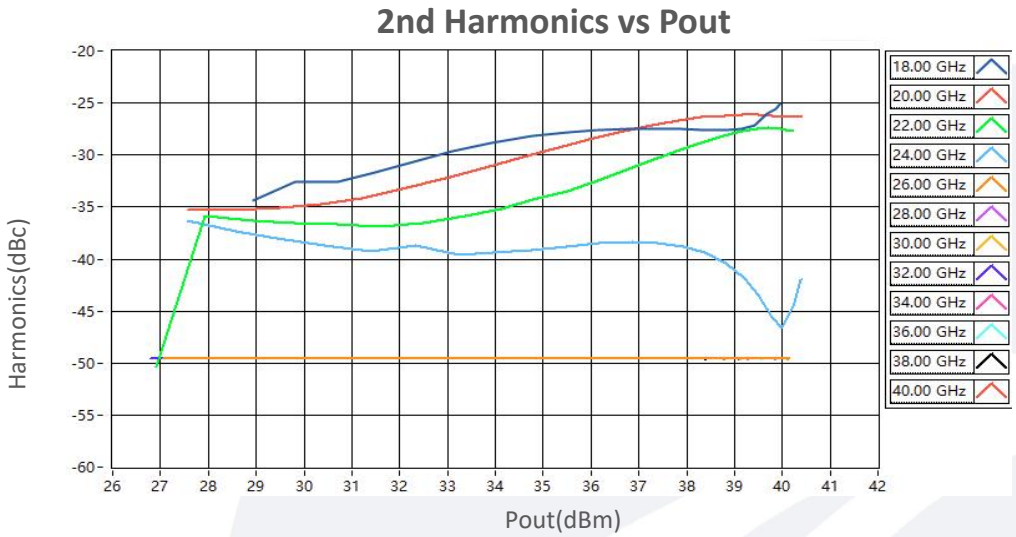


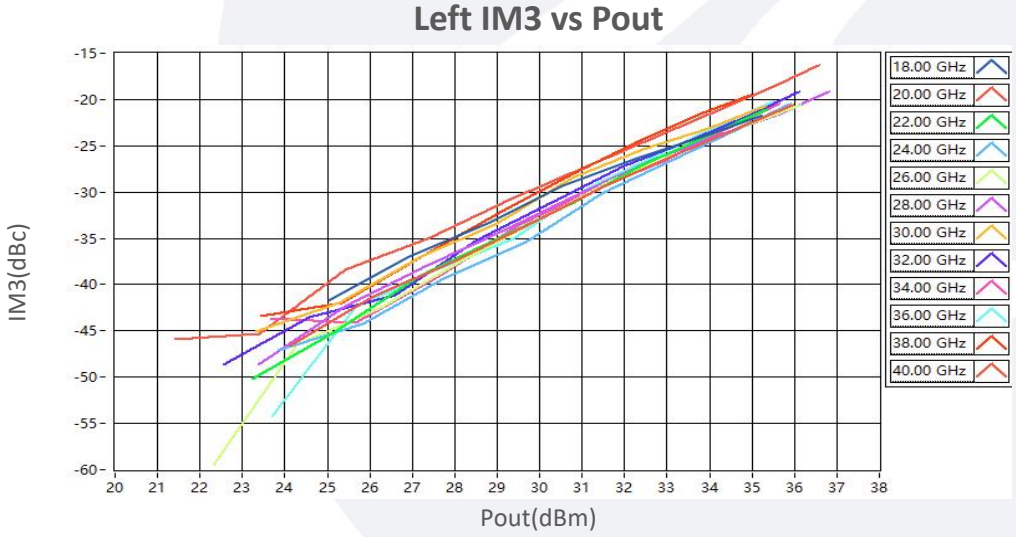
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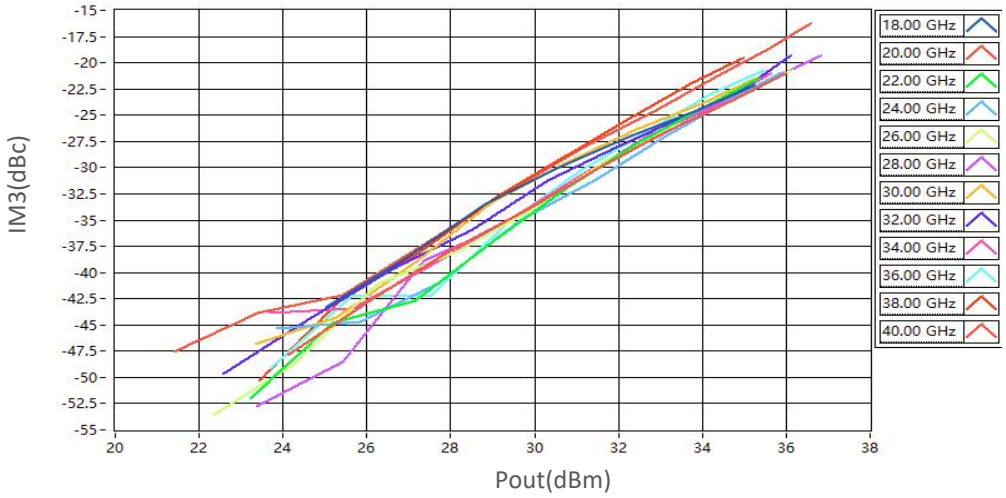


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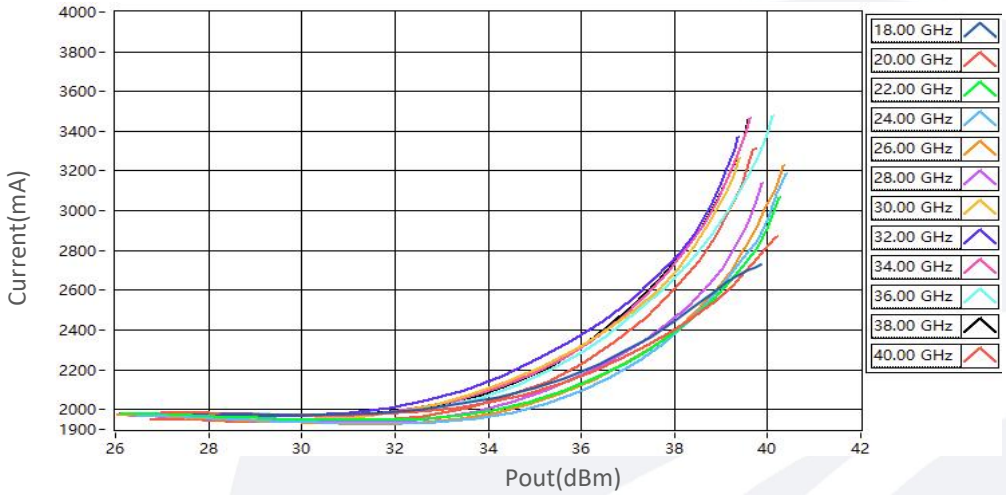
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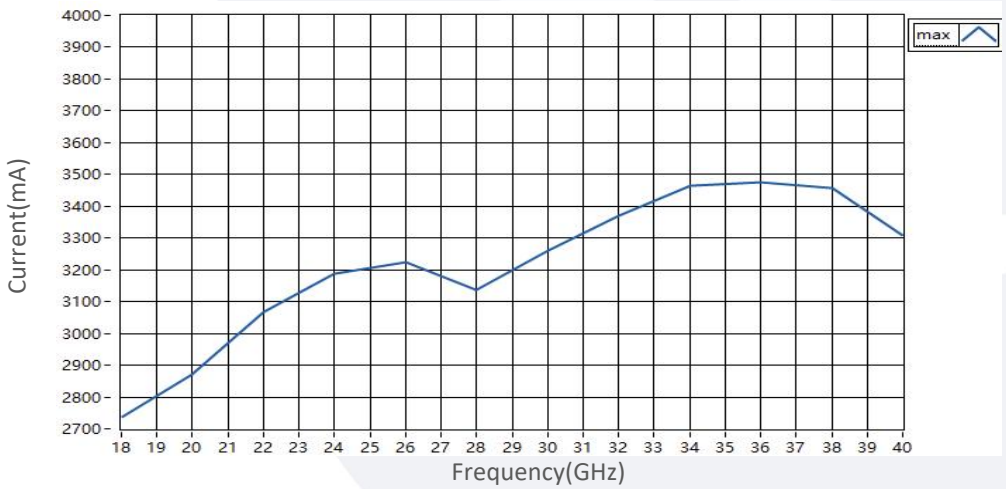
Right IM3 vs Pout



Current vs Pout



MAX Current vs Frequency

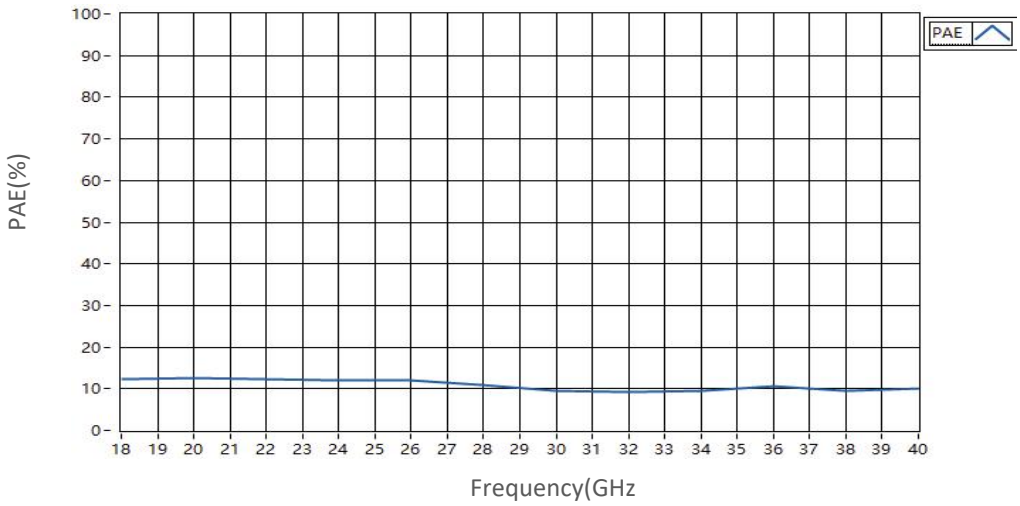


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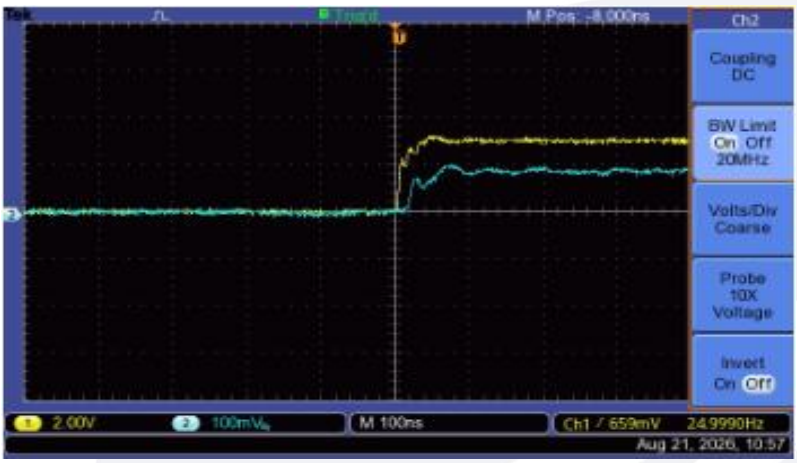
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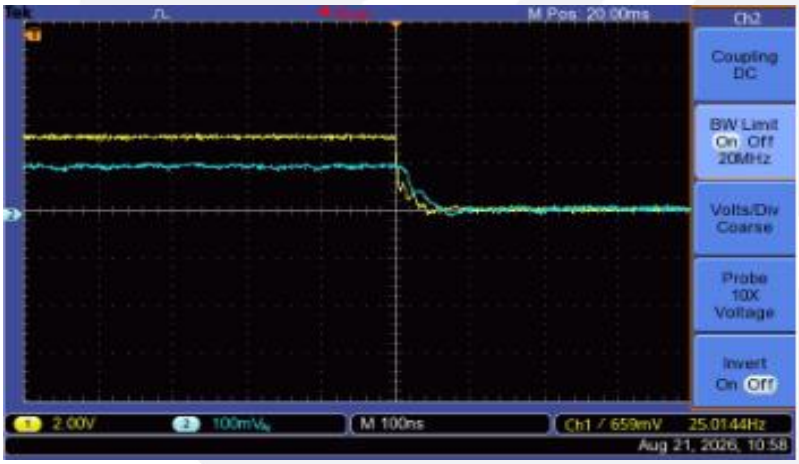
PAE vs Frequency



RF Switch On Time is 50ns



RF Switch Off Time is 50ns

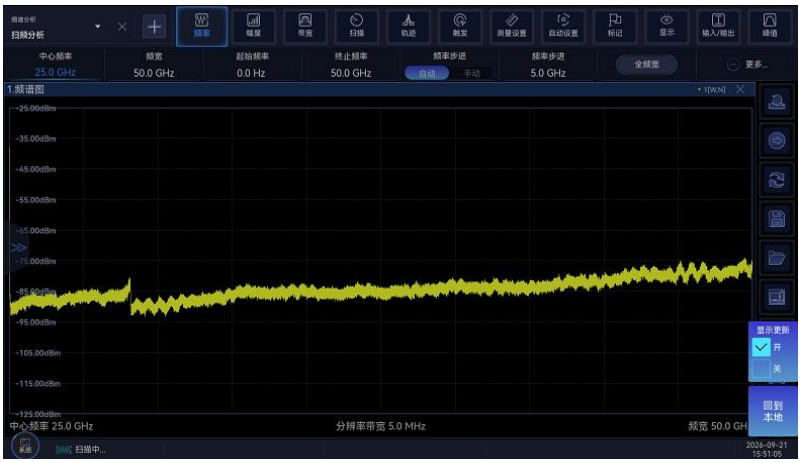


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Typical Performance Data(TEM=298K):

Output Noise Floor



Power Supply Spurs



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