泰莱微波
Talent Microwave

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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

电气特性 Electrical Characteristics:

参数 Parameter		Min	Typ	Max	单位 Units
频率范围 Frequency range		18		40	GHz
小信号增益 Small Signal Gain		45	50		dB
增益平坦度 Gain Flatness			±3		dB
增益随温度变化量 Gain Variation Over Temperature (-40ºC~+70℃)			±3		dB
线性输出功率 Output P1dB		34	35		dBm
饱和输出功率 Output Psat		38	40		dBm
三阶交调系数 IM3@P1dB			15		dBc
RF开关速度 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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电气特性 Electrical Characteristics:

参数 Parameter	Min	Typ	Max	单位 Units
输入驻波 Input VSWR		1.5		2:1
直流电压 DC Voltage		28		V DC
直流电流 DC Supply Current		2	5	A
功率附加效率 Power Added Efficiency		10		%
阻抗 Impedance		50		Ohms

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机械特性 Mechanical Specifications:

参数 Parameter	指标 Value	单位 Units
输入/输出接口 Input /Output Connector	2.92mm Female/2.92mm Female	
尺寸 Size	65*170*24(Without heatsink) 140*175*79(With heatsink)	mm
重量 Weight	≤2.7(Without heatsink)	lbs

绝对最大值 Absolute Maximum Ratings:

参数 Parameter	指标 Value
供电偏置电压 Supply Bias Voltage	+36 V
输入功率 RF Input Power	-5 dBm
ESD灵敏度 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.

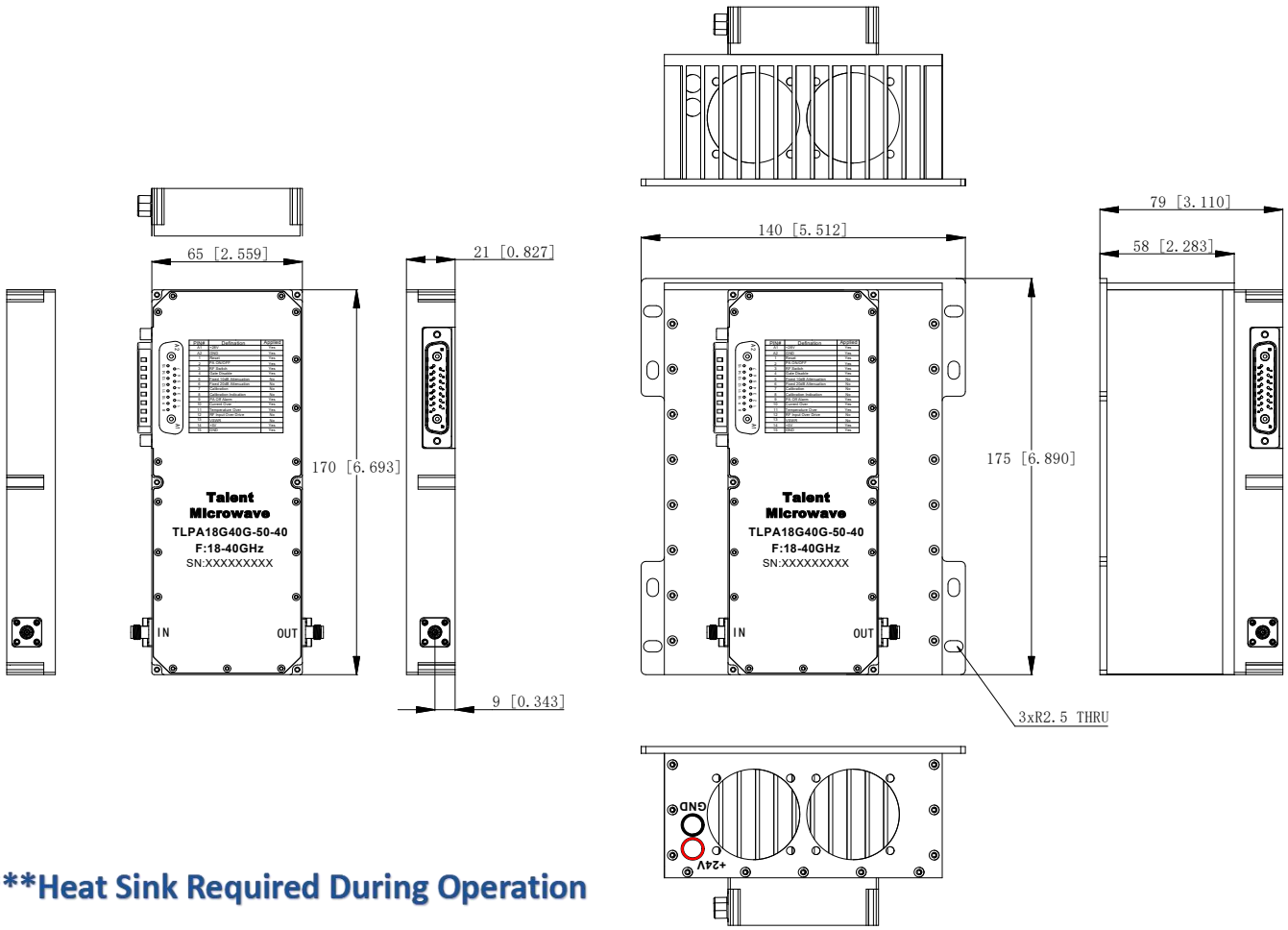
主要功能 Key Features:

参数 Parameter	特点 Advantages
内置保护功能 Protection functions	1, Over TEM 2, Over current 3, Over drive 4, Over VSWR

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外形图 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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控制接口 Control Connector:

引脚 Pin	名称 Name	功能 Function	初始态 Initial State	描述 Description	应用 Applied
A1	VDD	供电	/	+28V 直流供电	Yes
A2	GND	地	/	地	Yes
1	Reset	控制	High	当施加低电平并释放后，PA 复位	Yes
2	PA On/Off	控制	Low	应用高电平时，开启放大器射频输出	Yes
3	RF switch	控制	Low	应用高电平时，关闭射频前端开关至终端	Yes
4	Gate disabled	控制	Low	应用高电平，将关断放大器的栅极	Yes
5	固衰10dB	控制	Low	应用高电平，启用 10dB 固定衰减	No
6	固衰 20dB	控制	Low	应用高电平，启用 20dB 固定衰减	No
7	校准	控制	Low	应用高电平，启用校准	No
8	校准指示	指示	Low	默认输出低电平；校准状态下输出高电平	No
9	PA关闭报警	指示	Low	当任意一项保护阈值触发时，该引脚锁存为高电平	Yes
10	过流	指示	Low	漏流超限，该引脚锁存为高电平	Yes
11	过温	指示	Low	放大器温度超限，该引脚锁存为高电平	Yes
12	过激励	指示	Low	输入信号超限，该引脚锁存为高电平	No
13	过驻波	指示	Low	输出驻波超限，该引脚锁存为高电平	No
14	+5V User	供电	+5V	+5V 直流参考源*	Yes
15	GND	地	地	地	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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使用说明 Instruction Manual:

开机 Power on	
1	连接地.
2	输入端、输出端接 50Ω 信号源/负载(输入、输出驻波比 VSWR<2:1).
3	接入电源.

关机 Power off	
1	关闭电源，断开正电源接线。
2	拆除射频连接线。
3	拆除接地线。

注意事项 Usage Precautions	
1	上电前，务必将放大器输入、输出端口可靠接至合格的 50Ω 负载。严禁放大器空载运行。
2	电源需能够为放大器提供充足电流，供电能力应不小于最大工作电流的 1.5 倍。
3	本系列放大器多数情况下可承受严重失配而不损坏，但不建议在恶劣负载条件下工作。若需要长时间在不良负载或未知负载下使用，应加装隔离器或环行器等外部器件对放大器进行保护。
4	插拔放大器输入、输出射频连线时，必须断电操作。
5	建议采取规范的静电放电（ESD）防护措施，防止器件性能劣化或功能失效。

温度环境 Environmental Conditions:

参数 Parameter	Min	Typ	Max	单位 Units
操作温度 Operating Temperature*	-40		+70	℃
存储温度 Non-operating Temperature*	-50		+10	℃
相对湿度 Relative humidity	100% RH at 35℃, 95%RH at 40℃			%
海拔 Altitude	10,000			feet
震动 Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
冲击 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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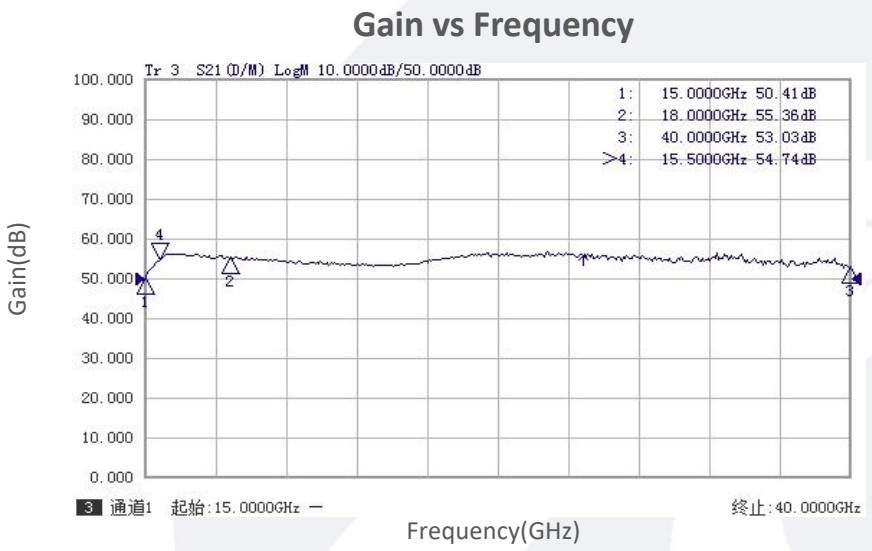
订货信息 Ordering Information:

标准型号 Base Number	描述 Description	版本号 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

随货配件 Components Included:

描述 Description	数量 Quantity
Power supply cable	1 PCS

典型曲线 Typical Performance Data(TEM=298K):

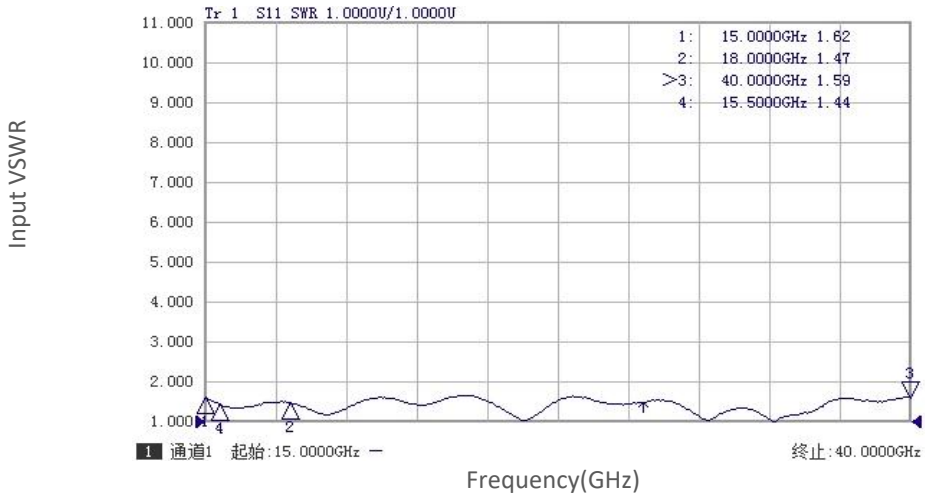


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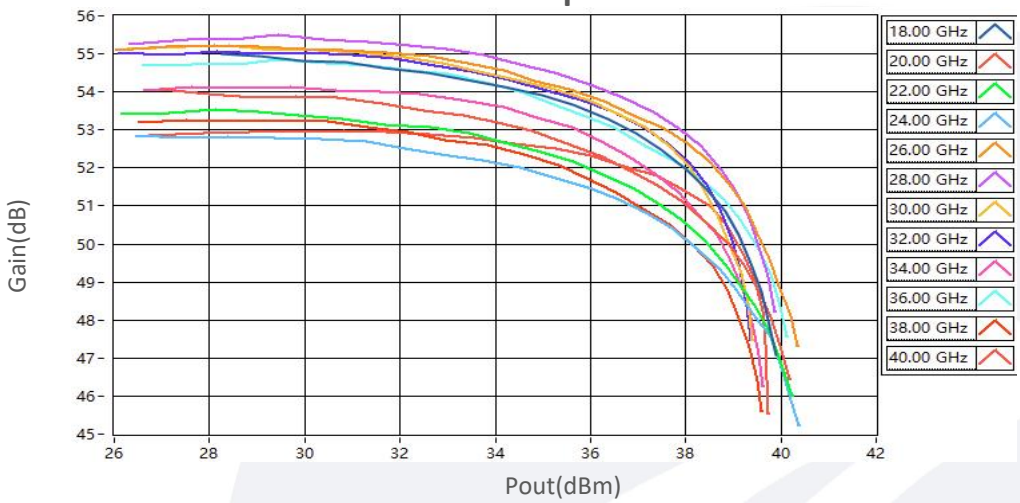
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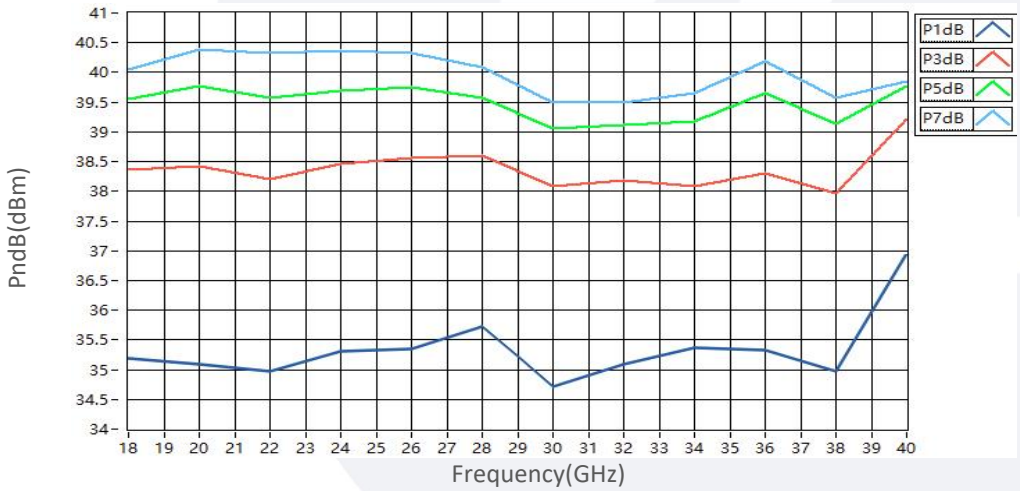
Input VSWR vs Frequency



Gain vs Output Power



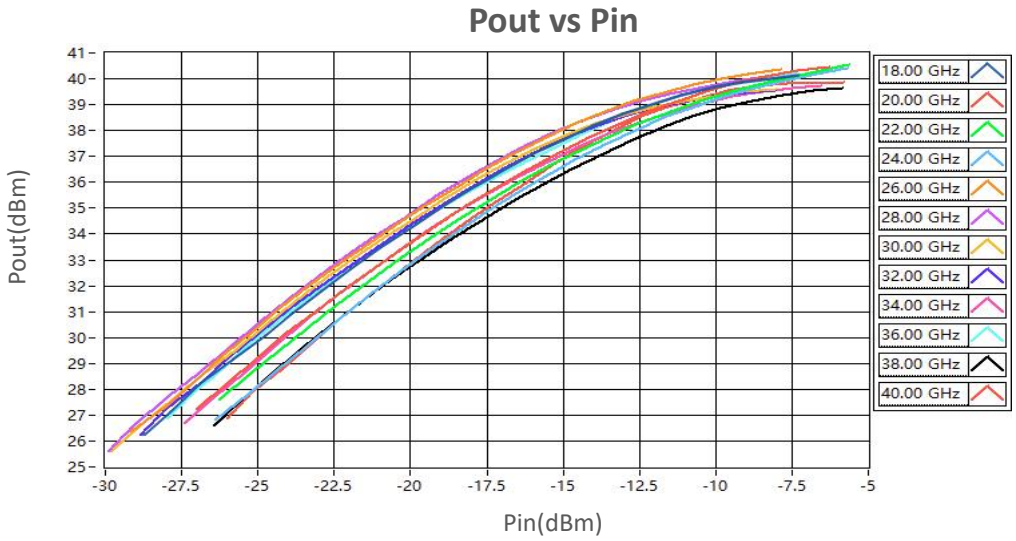
PndB vs Frequency

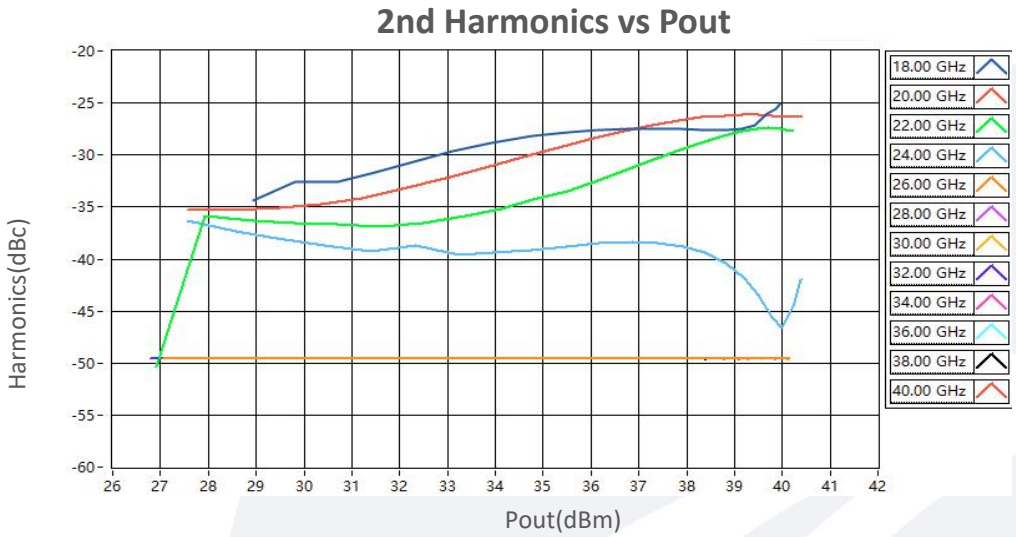


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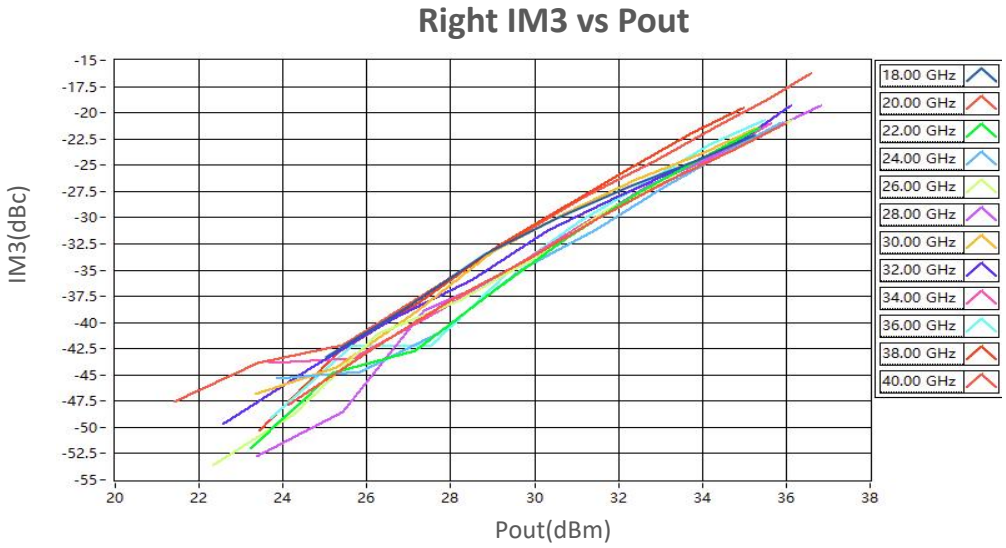


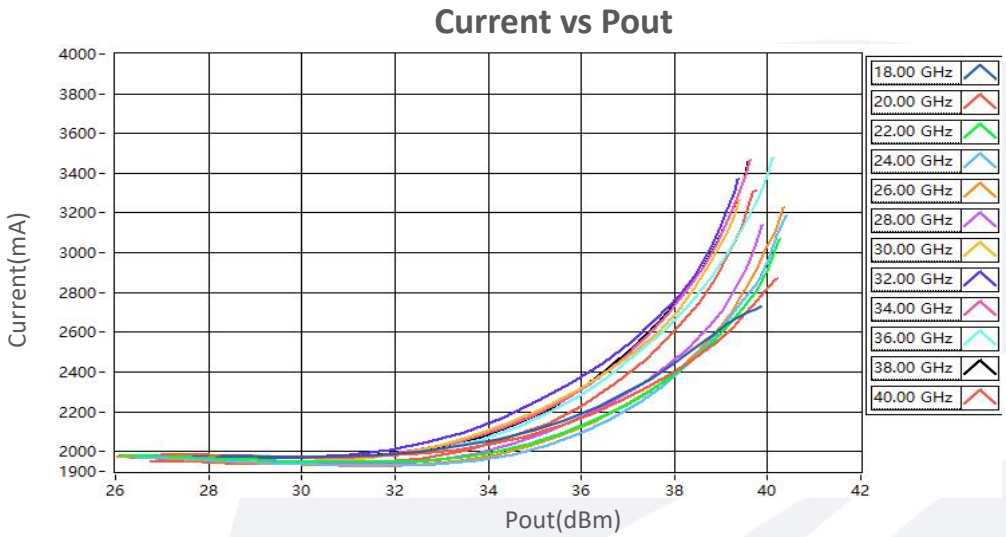


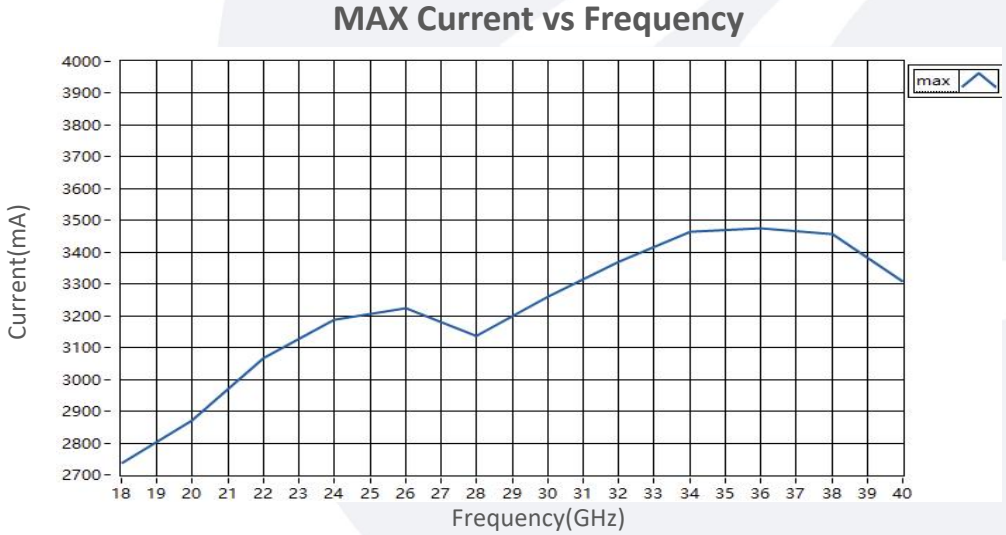
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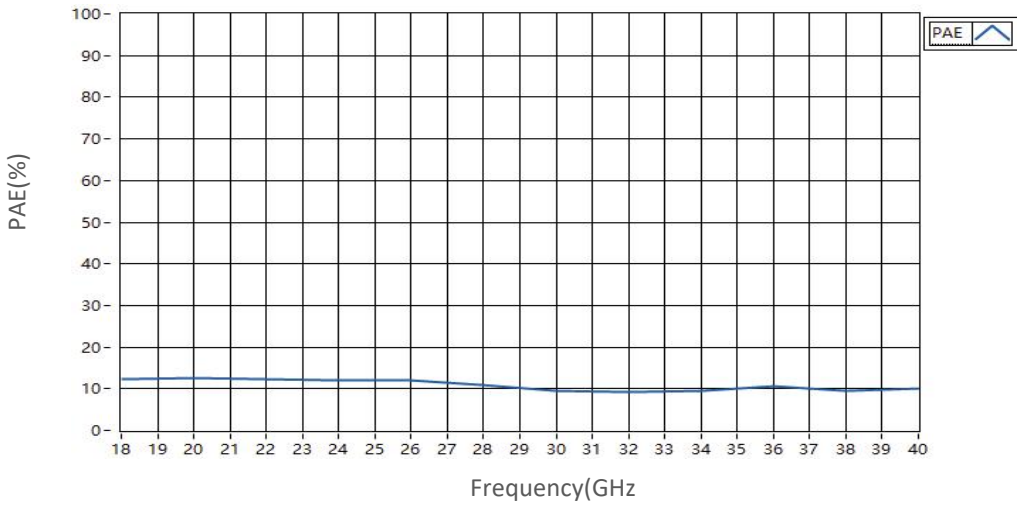


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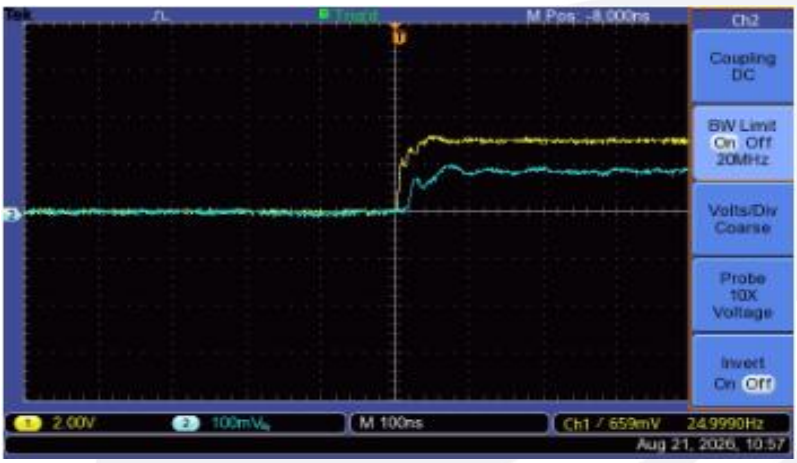
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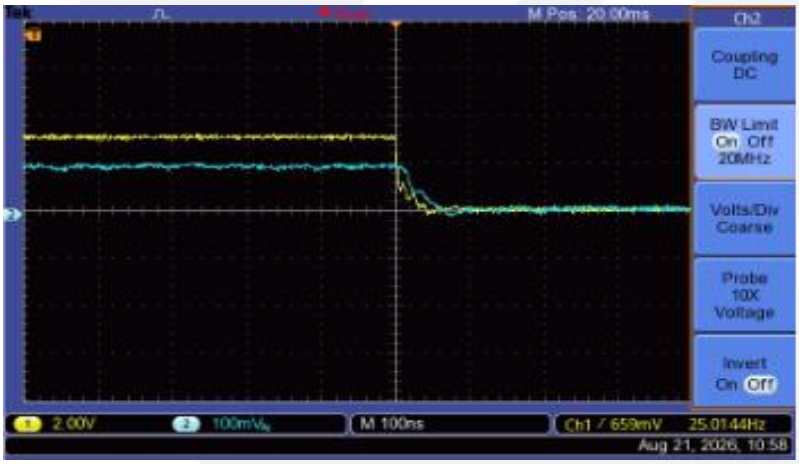
PAE vs Frequency



RF Switch On Time is 50ns



RF Switch Off Time is 50ns

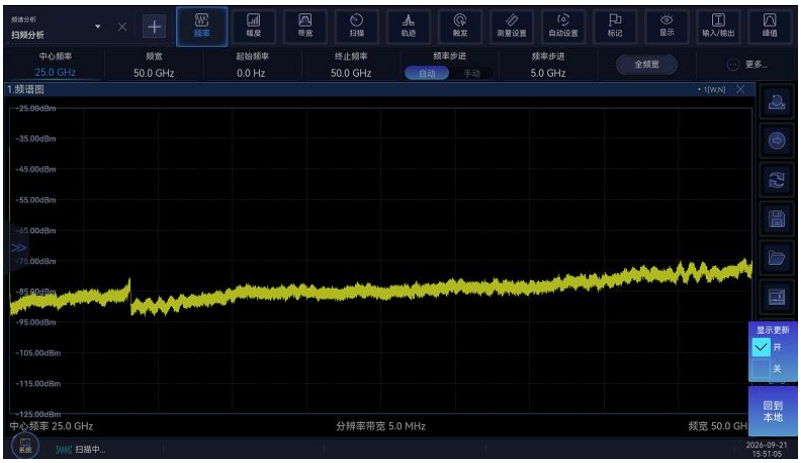


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典型曲线 Typical Performance Data(TEM=298K):

Output Noise Floor



Power Supply Spurs



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