

10W 500-2200MHz RF Power Amplifier

PPA-0522-40-30

Rev. C

Features

- High CW Power, 10Watts
- Linear WCDMA Power, 2 Watts
- High Power Gain, Typically 30dB
- Usable over 500 to 2200MHz
- High Efficiency, Typically 40%
- Portable and Compact
- Built-in Cooling System
- Optional Backup Battery Operation Capability



Description

Designed for general-purpose applications in the 500 to 2200 MHz range. This amplifier utilizes GaN HEMT technology that offers high efficiency, high gain and wide bandwidth capabilities making it ideal for linear and compressed applications.

This amplifier contains built-in cooling system including heat sink and 0.5W fan.

This amplifier includes an optional backup 24V Li-Ion rechargeable battery that allows up to 100 minutes 33dBm WCDMA operation with charging capability even during operation. Charging time is 2~3 hrs.

The amplifier is capable of handling up to 10:1 output VSWR @ P_{sat}

Applications

- Driver Amplifier
- AM Modulation
- FM Modulation
- Multi Carrier
- Outdoor
- Lab Testing
- Satellite
- GSM

Accessories

- Built-in cooling system including heat sink and 0.5W fan
- Built-in 24V Li-Ion backup rechargeable battery
- 60W AC-DC wall plug adapter
- 60cm SMA-SMA RG316DS shielded 50Ω coaxial cable

Typical RF Performance

Parameter	Symbol	Value	Unit
Small-signal Gain	G_0	30	dB
Input Return Loss	IRL	5	dB
Output Return Loss	ORL	11	dB
Power at 1dB point	P_{1dB}	35	dBm
Saturated Power	P_{sat}	39	dBm

Absolute Maximum Ratings

Rating	Symbol	Value	Unit
Supply Voltage	V_{sup}	28	V
Supply Current	I_{sup}	900	mA
RF Input Power	$P_{in,max}$	12	dBm
Operating Case Temperature	T_C	60	°C

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RF Characteristics (at 28VDC, 25°C, CW 50Ω System)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Frequency	BW	500	-	2200	MHz
Small-signal Gain	G ₀	27.75	30	35.74	dB
Input Return Loss	IRL	-	5	-	dB
Output Return Loss	ORL	-	11	-	dB
1dB-Compression Power	P _{1dB}	-	35	-	dBm
Saturated Power	P _{sat}	37	39	40*	dBm
Operating Voltage	V _{sup}	-	24	28	V
Operating Current	I _{sup}	-	500	900	mA
Quiescent Current (RF OFF)	I ₀	-	810**	-	mA
2 nd Harmonic @ P _{sat} , 550MHz	P _{H2}	-	-7.6	-	dBc
2 nd Harmonic @ P _{sat} , 1000MHz		-	-15.81	-	
2 nd Harmonic @ P _{sat} , 1500MHz		-	-19.05	-	
3 rd Harmonic @ P _{sat} , 550MHz	P _{H3}	-	-11.8	-	dBc
3 rd Harmonic @ P _{sat} , 1000MHz		-	-22.66	-	

Protection

Output Mismatch Stress	VSWR _{out}	-	-	10:1	-
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Environmental Characteristics

Operating Case Temperature	T _c	-	45	-	°C
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Mechanical Characteristics

Parameter	Description	Limit	Unit
Dimensions (LxWxH)	175x90x57	Maximum	mm
RF Connectors IN/OUT	SMA/SMA	-	-
DC Power Connector	Barrel Jack (2.1mm-5.5mm)	-	-
Weight	1200	Typical	gm
Cooling	Built-in Heat Sink Built-in 0.5W Fan		

* P_{sat} reaches 40dBm at 28VDC supply

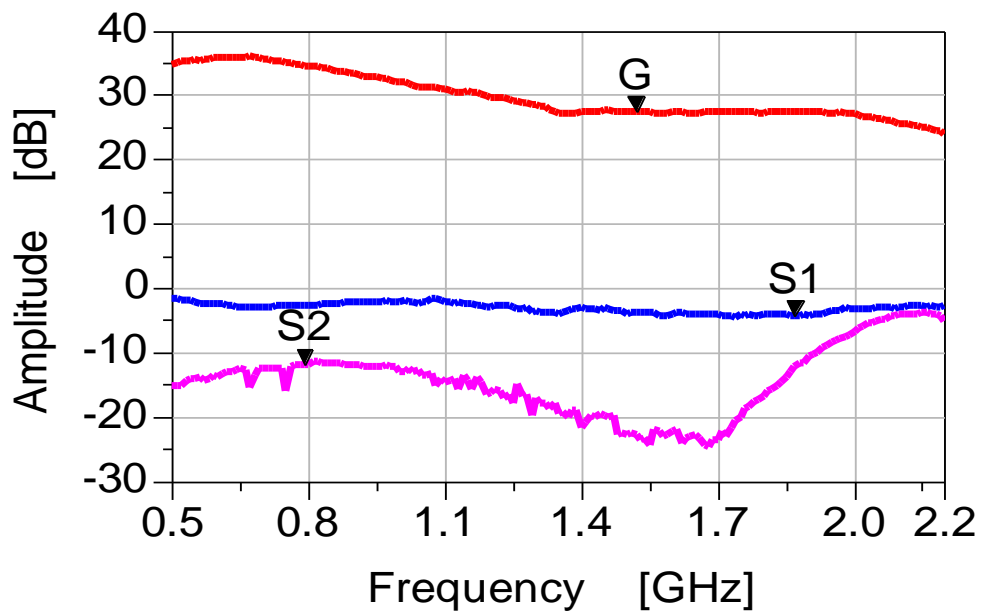
** I_{DQ} accommodates the built-in fan current

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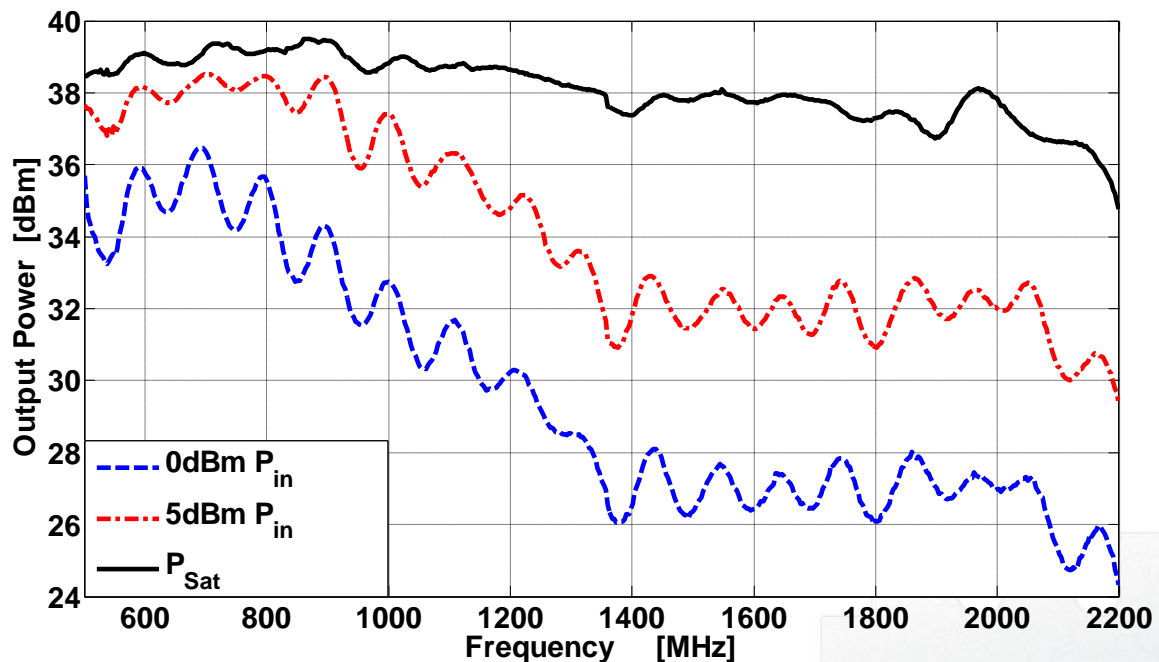
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Typical Gain & Return Loss Performance (24VDC)



CW Broadband Output Power (24VDC)

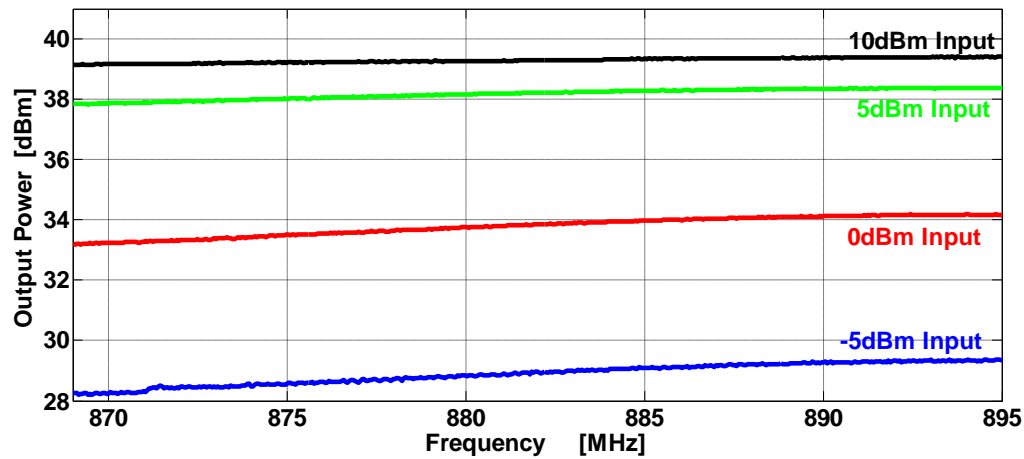


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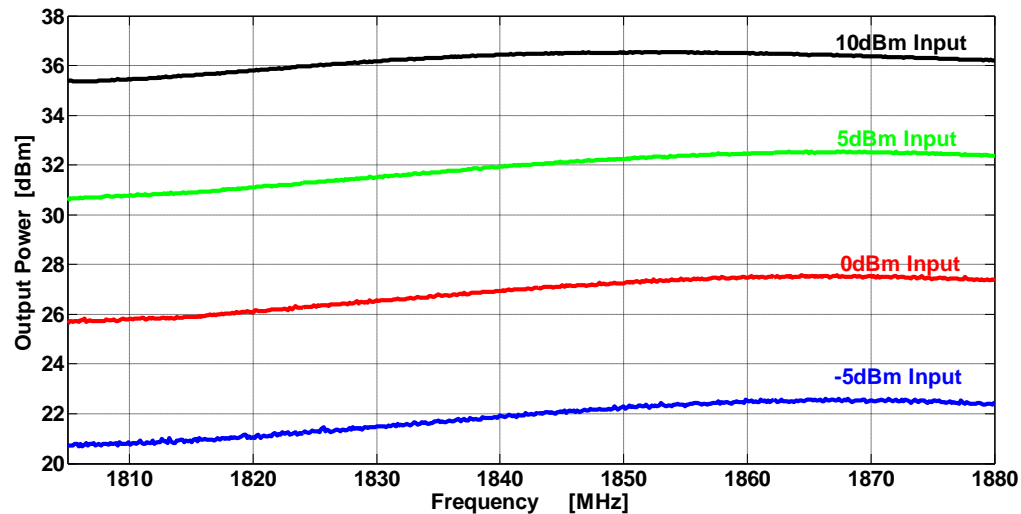
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Rev. C

CW Power Response @ 800MHz, 24VDC



CW Power Response @ 1800MHz, 24VDC

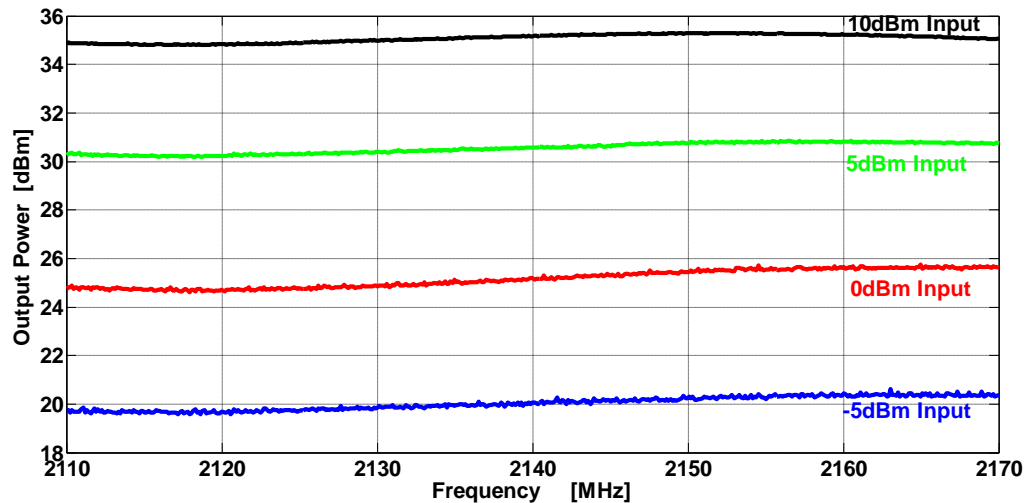


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CW Power Response @ 2100MHz, 24VDC



Linear 2W WCDMA Power Response @ 24VDC

