

Power Amplifier

20-520MHz/50dB Gain/50dBm Psat

Model: TLPA20M520M-50-50-SSPA

TLPA20M520M-50-50-SSPA is a power amplifier with a minimum small signal gain of 50 dB and a minimum Psat of 50 dBm across the frequency range of 20 to 520 MHz. The DC power requirement for the amplifier is +28 VDC/8 A. The input port configuration offers coax adapter structure with SMA female and output port configuration offers coax adapter structure with N Female.

Features:

- Frequency range: 20-520MHz
- Gain: 50dB Min
- Output Power Psat: 50dBm Min
- Good Power and Gain Flatness
- 50 Ohm Matched Input / Output

Applications:

- Cellular
- PCN
- GSM
- ISM
- Lab Test

Electrical Characteristics:

Parameter	Min	Typ	Max	Units
Frequency range	20		520	MHz
Small Signal Gain	50	52		dB
Gain Flatness		±1.0	±1.5	dB
Noise Figure			10	dB
Output P1dB		48		dBm
OIP3 2-Tone @ 37dBm/Tone, 100KHz Spacing		56		dBm
Output Psat	50	51		dBm
Harmonics @Pout=100W		-15		dBc
Spurious			-60	dBc
Input VSWR		1.5	2.0	:1
DC Voltage	+26	+28	+30	V DC
Current Consumption@Pout=100W		8	12	A
Switching Time @10kHz TTL		1		us
Impedance		50		Ohms

Mechanical Specifications:

Parameter	Value	Units
Input /Output Connector	SMA Female/N Female	
DC Bias	D-SUB 9-PIN, Male	
Size	180*115*25(Without heatsink) 264*140*87(With heatsink)	mm
Weight	1100	g

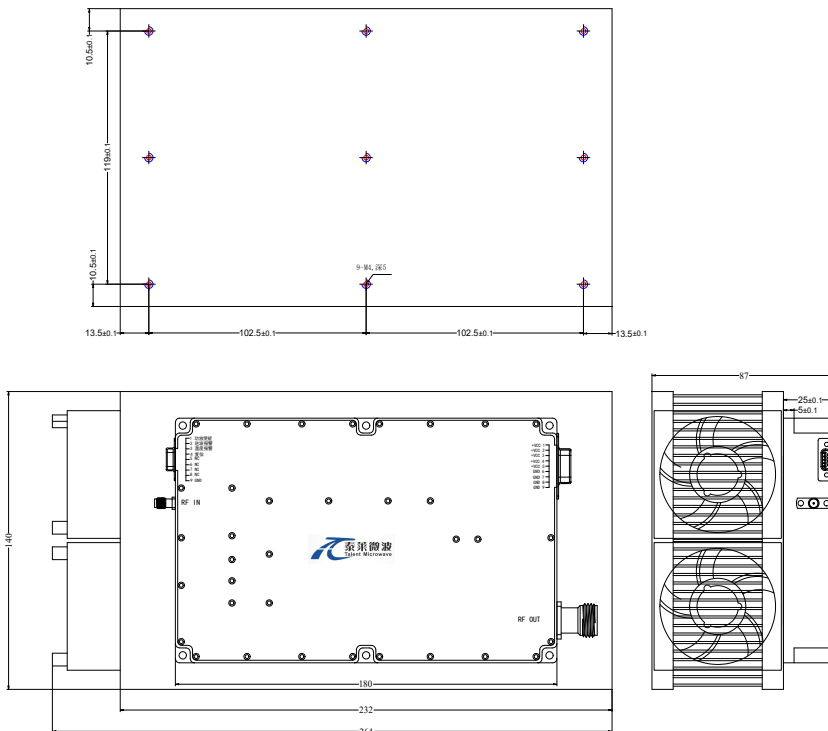
Absolute Maximum Ratings:

Parameter	Value
Supply Bias Voltage	+10 V
RF Input Power	TBD
ESD sensitivity (HBm)	Class 0, passed 150V



Outline Drawing:

Unit:mm



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

DC Supply Connector(DSUB-9 Female):

Pin	Name	Function
1	+28V	Power supply positive +26.0-30.0VDC
2	+28V	Power supply positive +26.0-30.0VDC
3	+28V	Power supply positive +26.0-30.0VDC
4	+28V	Power supply positive +26.0-30.0VDC
5	+28V	Power supply positive +26.0-30.0VDC
6	GND	Power supply negative
7	GND	Power supply negative
8	GND	Power supply negative
9	GND	Power supply negative

Monitor and Control Interface(J30J-9 Female):

Pin	Name	Function
1	EN	A high (or suspended) level turns on the power amplifier, and a low level turns it off
2	Over VSWR	When the external VSWR of the power amplifier output is greater than 5, the power amplifier is turned off, and this pin will output a high level. When the external VSWR is less than 5, this pin outputs a low level.
3	Over TEM	When the temperature of the case exceeds 70 °C, the power amplifier will turn off and this pin will be pulled high. If the temperature of case drops to 60 °C, the power amplifier will return to normal operation, and this pin will be pulled low.
4	Reset	When the power amplifier triggers standing wave protection, the power amplifier will shut down and enter a state lock. Giving this pin a low pulse of 10us will restart the power amplifier. Only standing wave protection can be reset.
5	Power control	The control voltage input terminal of the voltage-controlled attenuation ranges from 0 to 7V, with an attenuation range of 30dB to 0dB. From 2 to 7V, the attenuation is from 10 dB to 0 dB.
6	NC	No internal connection

Monitor and Control Interface(J30J-9 Female):

Pin	Name	Function
7	NC	No internal connection
8	NC	No internal connection
9	GND	Ground

Environmental Conditions:

Parameter	Min	Typ	Max	Units
Operating Temperature*	-20		+50	°C
Non-operating Temperature*	-30		+60	°C
Relative humidity		95		%
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			

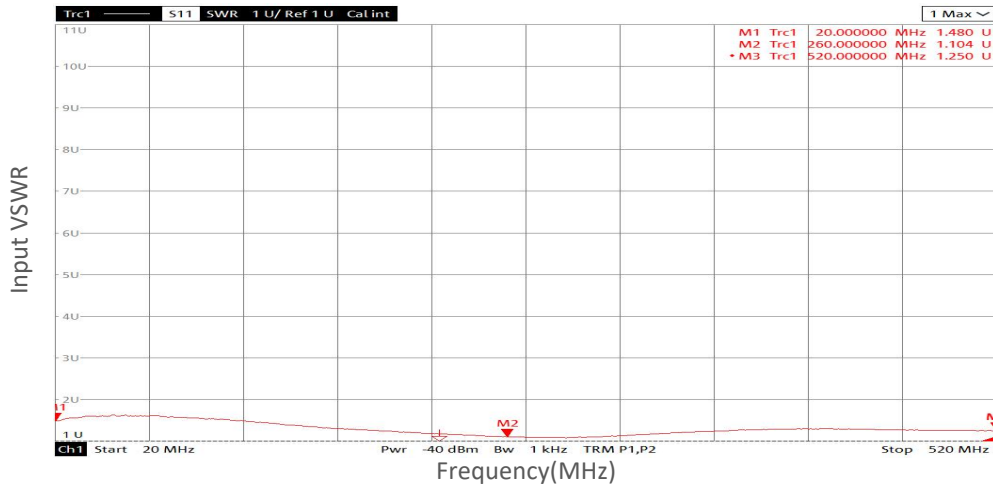
*Note: For a wider temperature range, please consult the manufacturer.

Ordering Information:

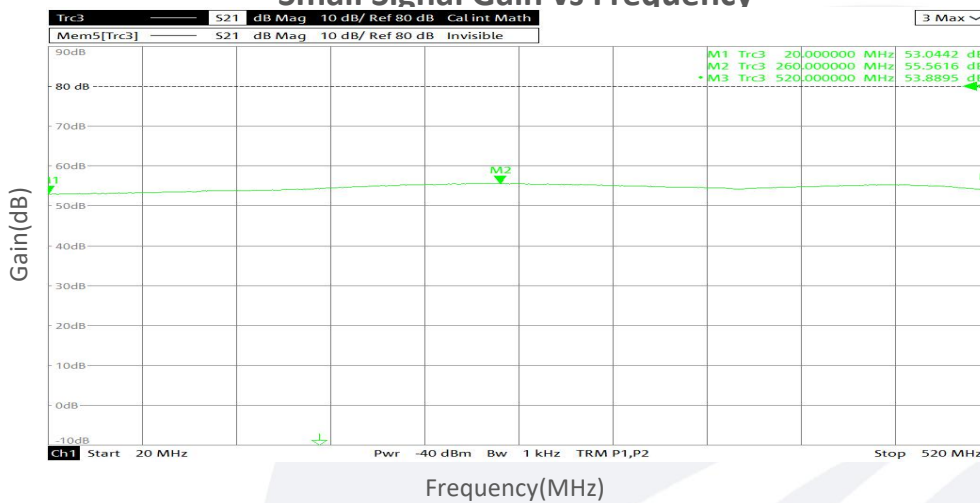
Base Number	Description	Revision
TLPA20M520M-50-50-SSPA	Power amplifier 20-520MHz, Gain:50dB,Psat:50dBm,+28V DC,Without Heatsink	Rev.1.1
TLPA20M520M-50-50-SSPA-HS	Power amplifier 20-520MHz, Gain:50dB,Psat:50dBm,+28V DC,With Heatsink	Rev.1.1

Typical Performance Data:

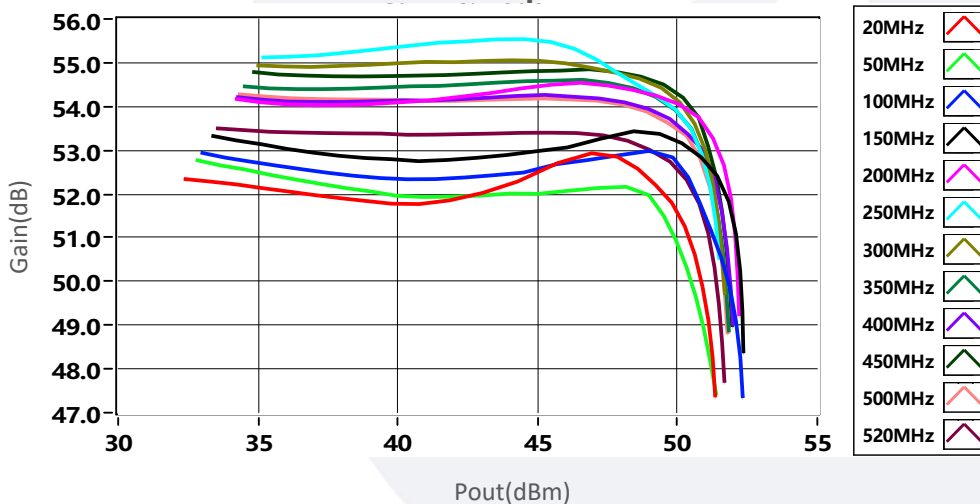
Input VSWR vs Frequency



Small Signal Gain vs Frequency



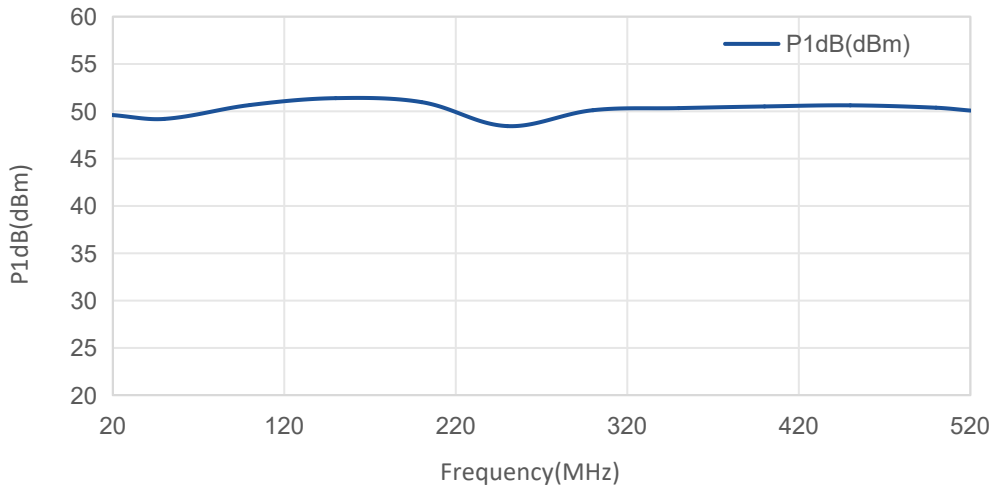
Gain vs Output Power



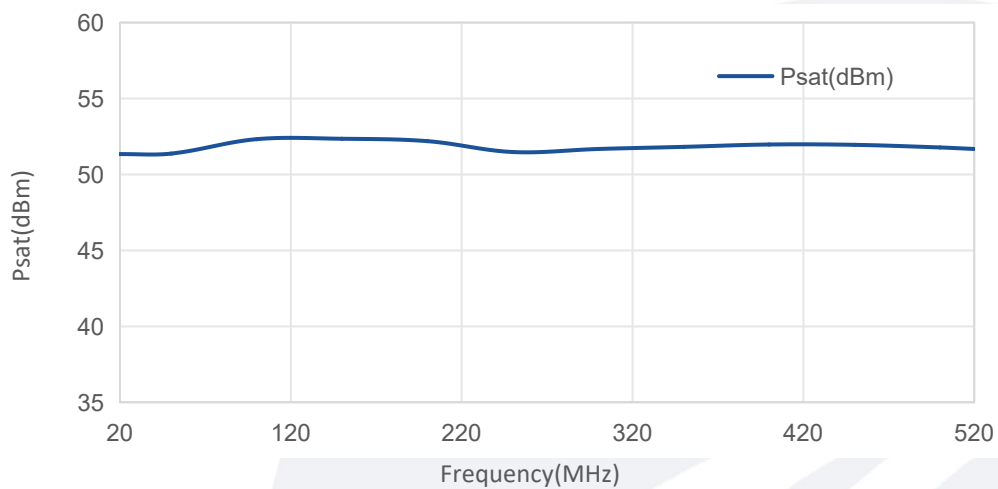
Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

Typical Performance Data:

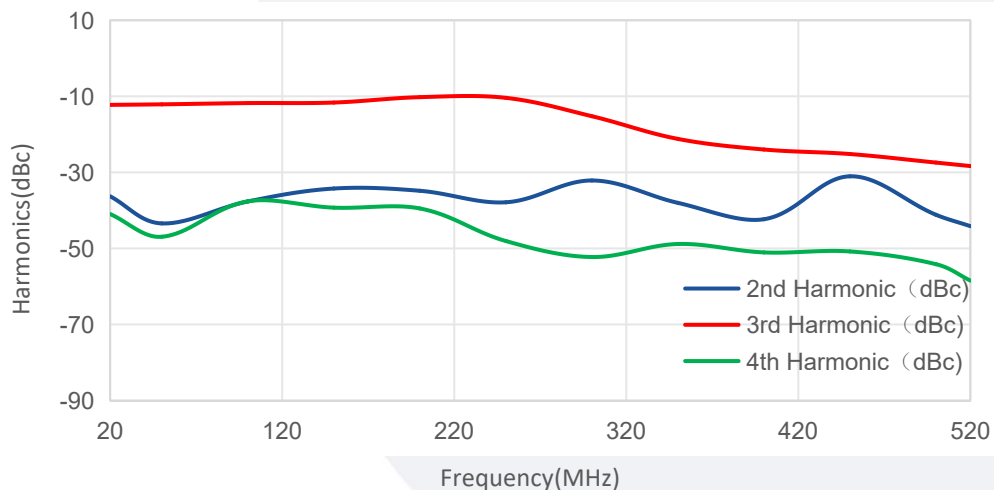
P1dB vs Frequency



Psat vs Frequency



Harmonics vs Frequency



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