

Power Amplifier

0.1-20MHz/45dB Gain/45dBm Psat

Model: TLPA0.1M20M-45-45

TLPA0.1M20M-45-45 is a power amplifier with a minimum small signal gain of 45 dB and a minimum Psat of 45 dBm across the frequency range of 0.1 to 20 MHz. The DC power requirement for the amplifier is +28 VDC/3.5 A. The input and output port configuration offers coax adapter structure with SMA female.

Features:

- Frequency range: 0.1-20MHz
- Gain: 45dB Min
- Output Power Psat: 45dBm 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	0.1		20	MHz
Small Signal Gain	45	47		dB
Gain Flatness		±1	±2	dB
Output P1dB		42		dBm
Output Psat	45	45.5		dBm
Input VSWR		1.5	2.0	:1
DC Voltage		28	30	V DC
Static Current		2.5		A
Saturation Current		3.5	4	A
Impedance		50		Ohms

Mechanical Specifications:

Parameter	Value	Units
Input /Output Connector	SMA Female/SMA Female	
DC Power Supply Connector	D-SUB-9	
Size	154*94*20(Without Heatsink) 264*140*82(With Heatsink)	mm
Weight	500	g

Absolute Maximum Ratings:

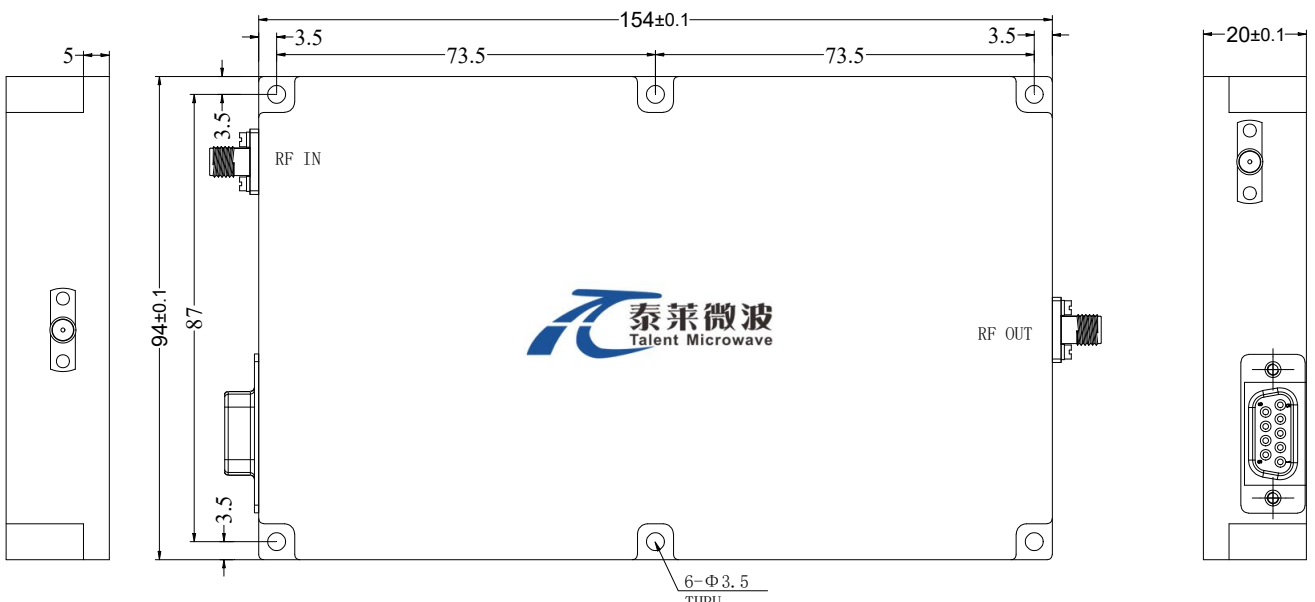
Parameter	Value
Supply Bias Voltage	+30 V
RF Input Power	+5 dBm
ESD sensitivity (HBm)	Class 0, passed 150V



Simple 220V System
Available SAC option

Outline Drawing:

Unit:mm; Tolerance:±0.1mm



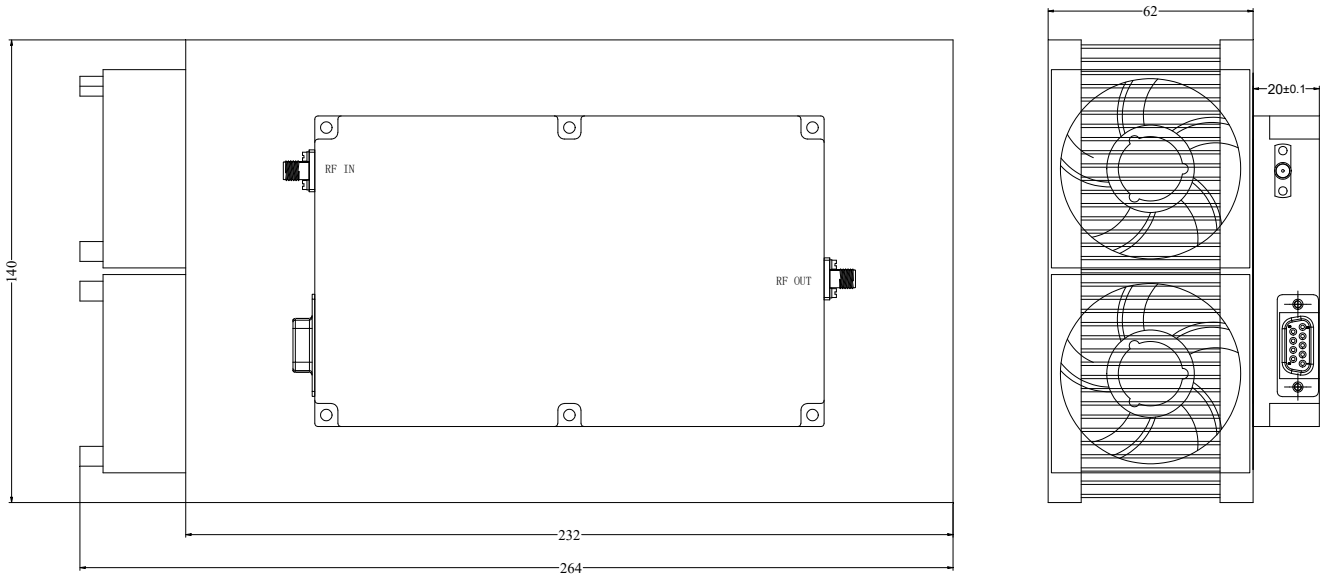
*****Heat Sink Required During Operation**



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

Outline Drawing:

Unit:mm; Tolerance:±0.1mm



DC Supply Connector (DSUB-9 Female):

Pin	Name	Function
1~3	VCC	Power supply positive,+26.0-30.0VDC
4~5	GND	Ground
6	NC	Not connected
7	Over Temperature	When the temperature of the case exceeds 85 °C, the power amplifier will turn off and this pin will be pulled high. If the temperature of case drops to 80 °C, the power amplifier will return to normal operation, and this pin will be pulled low.
8	NC	Not connected
9	EN	Amplifier Enable: TTL High (5V) (Internally Pulled-High) Amplifier Disable: Short to Ground.

Instruction Manual:

Power on	
1	Connect ground and RF input connector, the signal should be off at this time.
2	Connect the RF output port to the load (The VSWR of the load should be less than 3:1).
3	Connect the 28V power to D-SUB-9 connector, connect the 28V power supply to the fan.
4	Power up the power amplifier and fan. The power supply should not exceed 30V. The output should not be open or short circuit.
5	Turn on the RF signal and ensure that the input signal does not exceed 5dBm.

Power off	
1	Turn off RF signal.
2	Disconnect the power supply to the amplifier and fan.
3	Disconnect the RF output load.
4	Disconnect the RF connectors

Environmental Conditions:

Parameter	Min	Typ	Max	Units
Operating Temperature*	-40		+50	°C
Non-operating Temperature*	-50		+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			

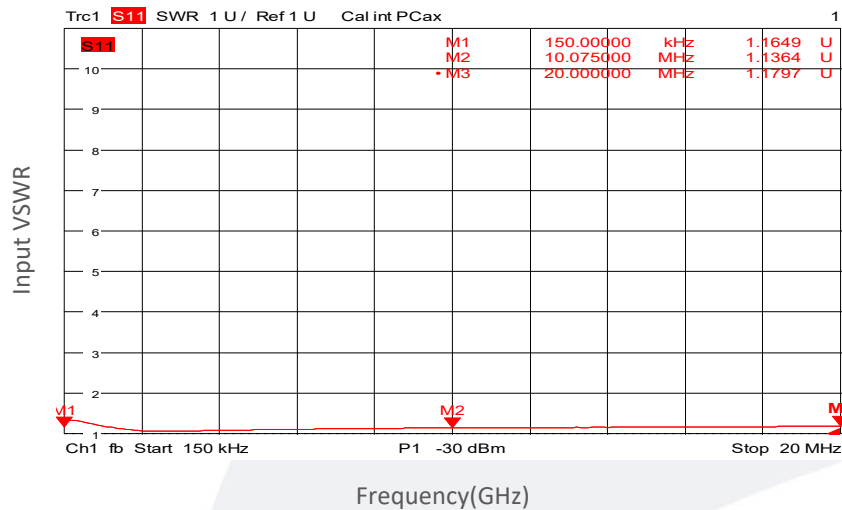
*Note: For a wider temperature range, please consult the manufacturer.

Ordering Information:

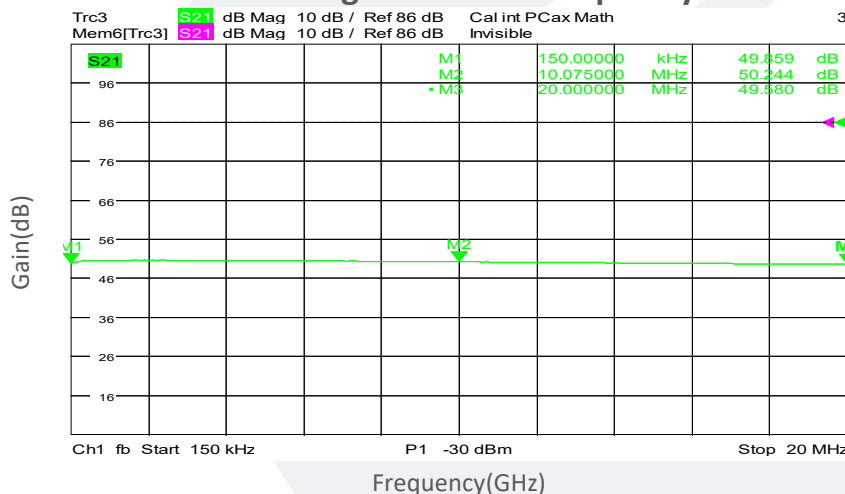
Base Number	Description	Revision
TLPA0.1M20M-45-45	Power amplifier 0.1-20MHz, Gain:45dB, Psat:45dBm, +28V DC, Without Heatsink	Rev.1.0
TLPA0.1M20M-45-45-HS	Power amplifier 0.1-20MHz, Gain:45dB, Psat:45dBm, +28V DC, With Heatsink	Rev.1.0

Typical Performance Data:

Input VSWR vs Frequency



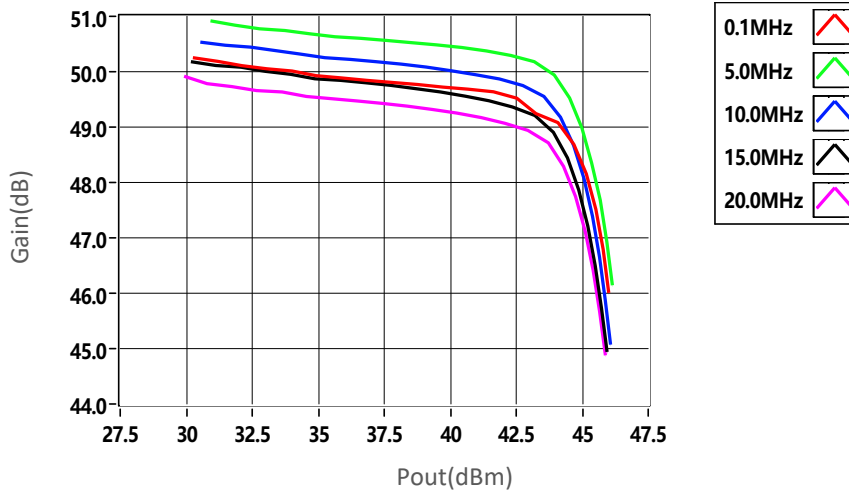
Small Signal Gain vs Frequency



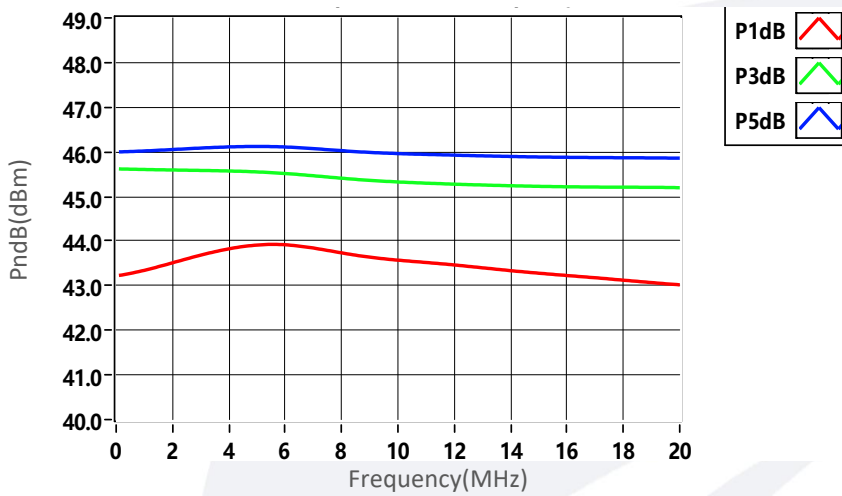
Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

Typical Performance Data:

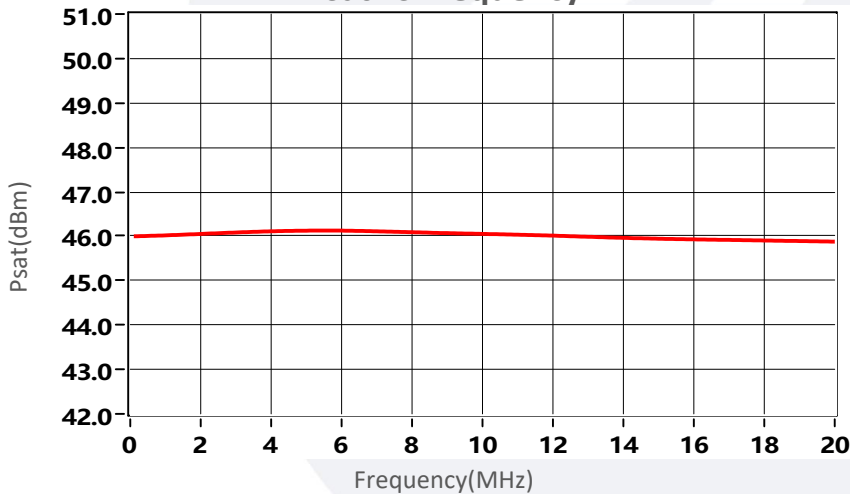
Gain vs Output Power



PndB vs Frequency



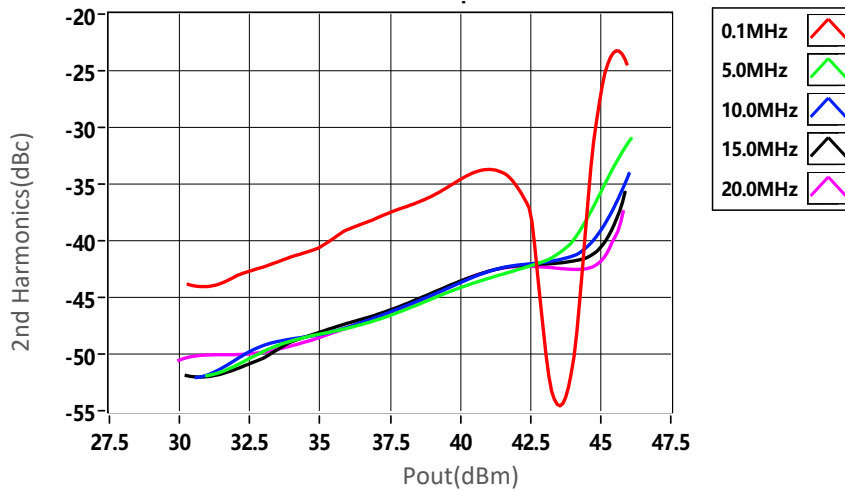
Psat vs Frequency



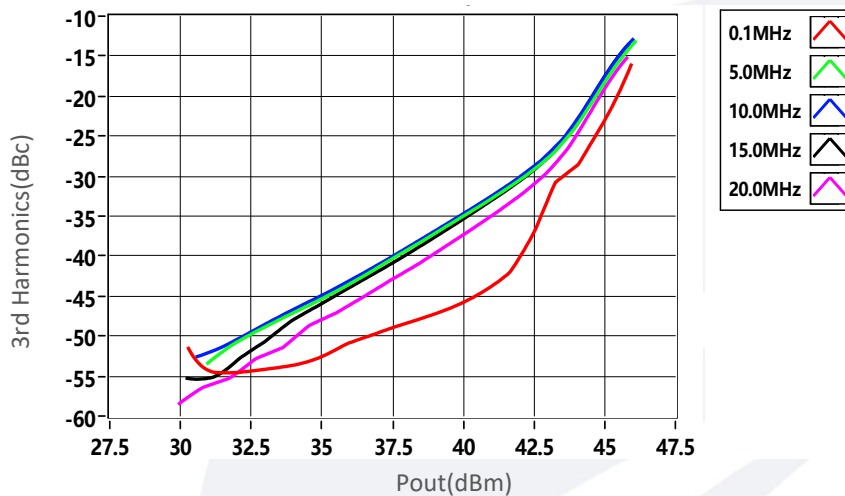
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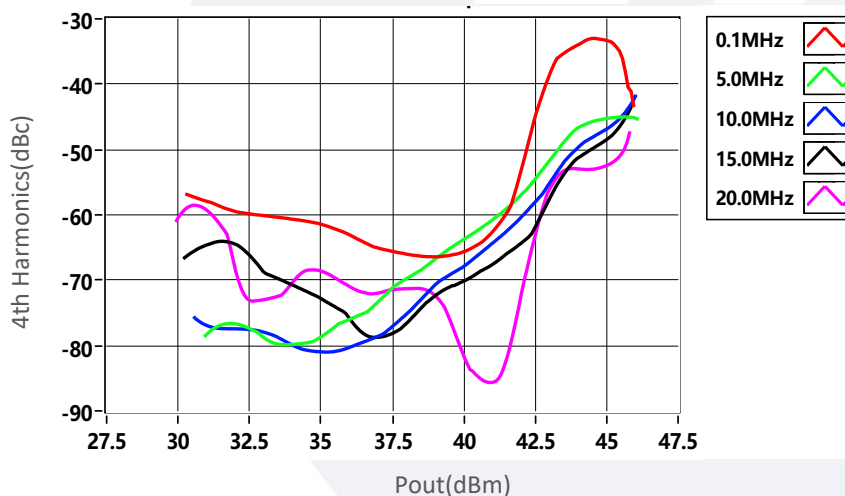
2nd Harmonics vs Output Power



3rd Harmonics vs Output Power



4th Harmonics vs Output Power



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