

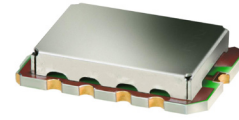
# Low Noise Amplifier

## TAMP-362GLN+

50Ω 3300 to 3600 MHz

### The Big Deal

- Ultra Low Noise Figure, 0.9 dB typ.
- High Output IP3, 29 dBm typ.
- Integrated Bias Matching and Stabilization Circuits



CASE STYLE: JQ1382

### Product Overview

The TAMP-362GLN+ (RoHS compliant) utilizes advanced E-PHEMT technology in a 2-stage low noise amplifier design built into a shielded case (size: .591"x.394"x.118"). The drop-in module offers ultra low noise figure and high output IP3 with good input and output return loss over the entire frequency range and without the need of external matching components.

### Key Features

Feature	Advantages
Ultra Low NF	With typ. 0.9 dB NF, the TAMP-362GLN+ enables greater sensitivity for receiver applications. It includes all matching and stability circuits making this Drop-in LNA module a turn-key solution for ensuring low system sensitivity in demanding applications.
High Output IP3	At +29 dBm IP3, in combination with its low noise performance, the TAMP-242GLN+ can improve a systems' spur-free dynamic range which is often the critical driver in many receiver applications.
Well Matched input/ output ports	With typical input & output VSWR of 1.3:1, the TAMP-362GLN+ can be used in cascade with many 50 Ohm components and maintain minimal interaction or reflections.
Max Input Power, +15dBm	Ruggedized design operates up to input powers of +15dBm without the need of an external limiter.
Drop-in Module	Eliminates the need for designers to optimize low noise transistor bias and matching circuitry. The TAMP-362GLN+ provides the outstanding combined performance and does not require any external elements. The case PCB area is smaller than most LNA transistor designs with external circuitry.
Metal Case	Provides a protective enclosure improving handling robustness in addition to shielding the sensitive high gain devices from close by circuitry.
Unconditionally stable	No adverse effects due to reactive loads at the input and output ports avoiding potential instability which can be a critical requirement when integrating high gain, high frequency devices on an open PCB assembly.

#### Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
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Surface Mount

# Low Noise Amplifier

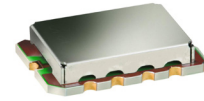
## TAMP-362GLN+

50Ω

3300 to 3600 MHz

### Features

- Ultra low noise figure, 0.9 dB typ.
- Output power, up to +16 dBm typ.
- Good output IP3, 29 dBm typ.
- Good VSWR, 1.3:1 typ.
- Unconditionally stable



CASE STYLE: JQ1382

### Applications

- WiMAX
- Defence system radar
- Base station transceiver, tower mounted amplifier, repeater
- General purpose low noise amplifier

**+RoHS Compliant**  
 The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		3300		3600	MHz
Noise Figure	3300 - 3600		0.9	1.2	dB
Gain	3300 - 3600	18	20		dB
Gain Flatness	3300 - 3600		± 0.3	± 0.6	dB
Output Power at 1dB compression	3300 - 3600	13	16		dBm
Output third order intercept point (OIP3)	3300 - 3600		29		dBm
Input VSWR	3300 - 3600		1.3		:1
Output VSWR	3300 - 3600		1.3		:1
DC Supply Voltage			5.0		V
DC Supply Current			100	140	mA

### Pin Connections

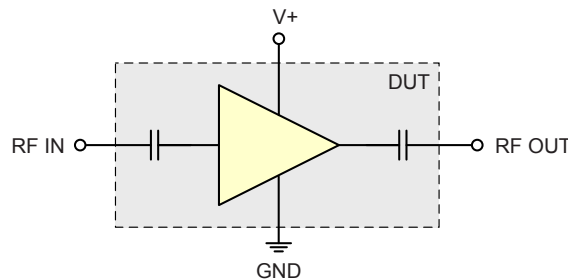
RF IN	10
RF OUT	5
V+	7
GROUND	1,2,3,4,6,8,9,11

### Maximum Ratings

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Operating Voltage	5.5 V
Input RF Power (no damage)	+15 dBm
Power Consumption	800 mW

Permanent damage may occur if any of these limits are exceeded.

### Simplified Schematic



### ESD Rating

Human Body Model (HBM): Class 1A (250 V to < 500 V) in accordance with ANSI/ESD STM 5.1 - 2001

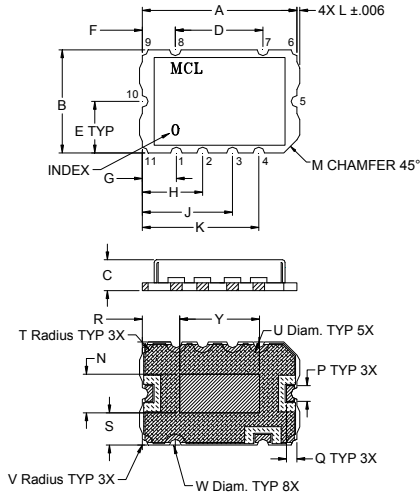
Machine Model (MM): Class M1 (40 V) in accordance with ANSI/ESD STM 5.2 - 1999

#### Notes

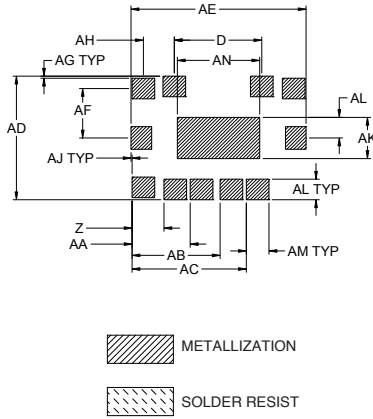
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## Outline Drawing



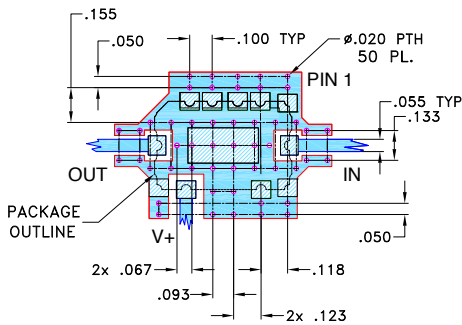
## PCB Land Pattern



## Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U		
.591	.394	.118	.335	.197	.126	.130	.230	.344	.445	.011	.050	.148	.060	.040	.143	.123	.042	.084		
15.0	10.0	3.0	8.5	5.0	3.2	3.3	5.85	8.75	11.3	.28	1.27	3.75	1.52	1.02	3.63	3.13	1.07	2.13		
V	W	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN			wt.	
.022	.044	.305	.122	.222	.337	.437	.472	.669	.189	.008	.118	.004	.158	.079	.087	.315			grams	
.56	1.12	7.75	3.1	5.65	8.55	11.1	12.0	17.0	4.8	.20	3.0	.10	4.0	2.0	2.2	8.0			0.8	

## Demo Board MCL P/N: TB-468+ Suggested PCB Layout (PL-293)



### NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002; COPPER 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

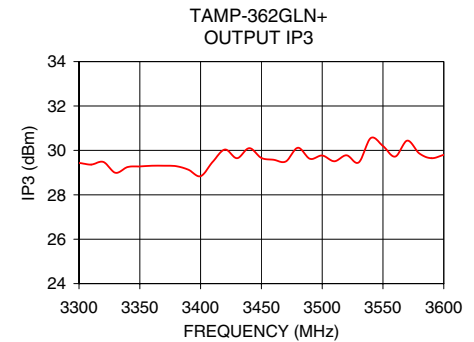
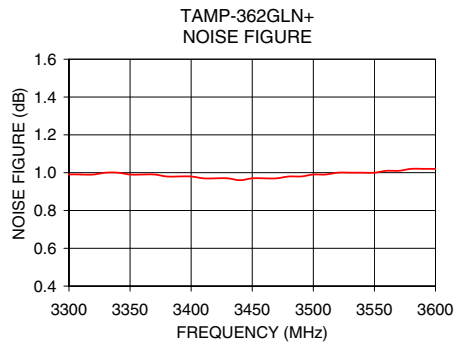
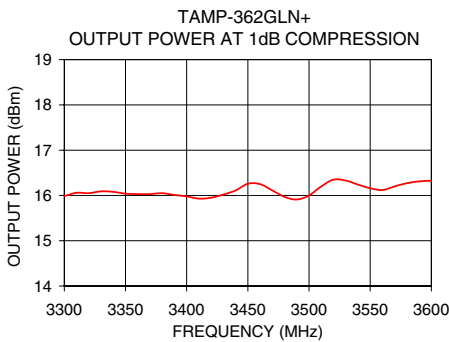
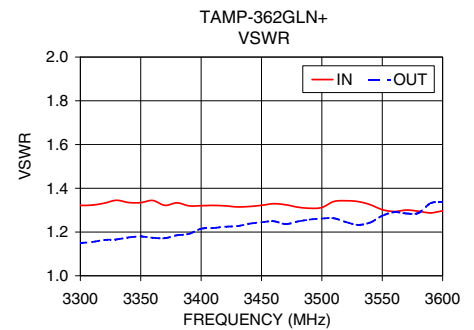
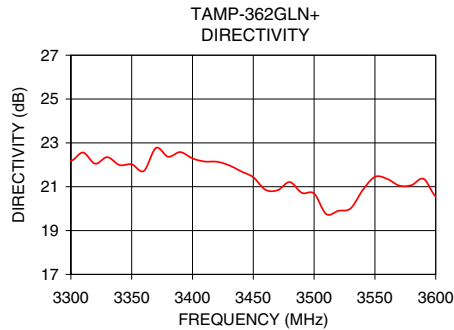
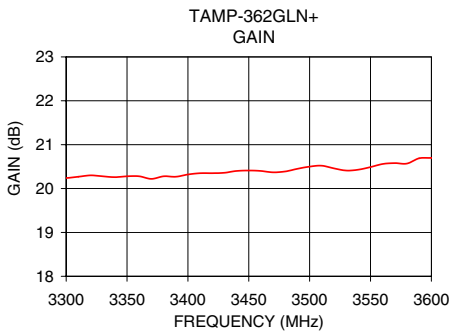
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

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FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR IN (:1)	VSWR OUT (:1)	NOISE FIGURE (dB)	P. OUT @ 1dB COMPR. (dBm)	OUTPUT IP3 (dBm)
3300.00	20.24	22.19	1.32	1.15	0.99	15.99	29.43
3320.00	20.30	22.05	1.33	1.16	0.99	16.05	29.48
3330.00	20.28	22.35	1.35	1.17	1.00	16.09	28.99
3350.00	20.28	22.02	1.33	1.18	0.99	16.04	29.28
3360.00	20.28	21.72	1.34	1.17	0.99	16.03	29.31
3380.00	20.28	22.37	1.33	1.19	0.98	16.05	29.29
3400.00	20.32	22.29	1.32	1.21	0.98	15.98	28.84
3410.00	20.35	22.15	1.32	1.22	0.97	15.93	29.49
3430.00	20.36	21.98	1.31	1.23	0.97	16.02	29.65
3450.00	20.41	21.43	1.32	1.24	0.97	16.26	29.66
3470.00	20.37	20.84	1.32	1.24	0.97	16.11	29.50
3480.00	20.39	21.21	1.31	1.25	0.98	15.97	30.12
3500.00	20.50	20.69	1.31	1.26	0.99	16.00	29.77
3520.00	20.46	19.90	1.34	1.25	1.00	16.35	29.78
3530.00	20.41	20.01	1.34	1.23	1.00	16.33	29.46
3550.00	20.49	21.45	1.30	1.27	1.00	16.16	30.20
3560.00	20.56	21.36	1.29	1.29	1.01	16.12	29.72
3580.00	20.57	21.07	1.30	1.29	1.02	16.27	29.86
3590.00	20.69	21.36	1.29	1.33	1.02	16.31	29.65
3600.00	20.70	20.55	1.30	1.34	1.02	16.32	29.80



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