

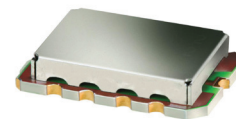
Low Noise Amplifier

TAMP-362LN+

50Ω 3300 to 3600 MHz

The Big Deal

- Ultra Low Noise Figure, 0.9 dB typ.
- Low Current, 20mA at +5V
- Good VSWR, 1.3:1 typ.
- Integrated Bias Matching and Stabilization Circuits



CASE STYLE: JQ1382

Product Overview

The TAMP-362LN+ (RoHS compliant) utilizes advanced HJ-FET technology in a single 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 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-362LN+ 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.
Low Current, 20mA typ.	At only 20mA, the TAMP-362LN+ is ideal for applications with limited available power or densely packed applications where thermal and power management is critical.
Well Matched input/ output ports	With typical input & output VSWR of 1.3:1, the TAMP-362LN+ can be used in cascade with many 50 Ohm components and maintain minimal interaction or reflections.
Drop-in Module	Eliminates the need for designers to optimize low noise transistor bias and matching circuitry. The TAMP-362LN+ 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.



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IF/RF MICROWAVE COMPONENTS

For detailed performance specs
& shopping online see web site

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.

Surface Mount

Low Noise Amplifier

TAMP-362LN+

50Ω

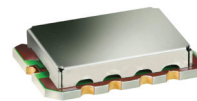
3300 to 3600 MHz

Features

- Ultra Low noise figure, 0.9 dB typ.
- Output power, up to +11 dBm typ.
- Good output IP3, 25 dBm typ.
- Low current consumption
- Good VSWR, 1.3:1 typ.
- Unconditionally stable

Applications

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



CASE STYLE: JQ1382
PRICE: \$10.95 ea. QTY (5-49)

+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	10	12		dB
Gain Flatness	3300 - 3600		± 0.4	± 0.8	dB
Output Power at 1dB compression	3300 - 3600	9	11		dBm
Output third order intercept point (OIP3)	3300 - 3600		25		dBm
Input VSWR	3300 - 3600		1.3		:1
Output VSWR	3300 - 3600		1.3		:1
DC Supply Voltage			5.0		V
DC Supply Current			20	30	mA

Pin Connections

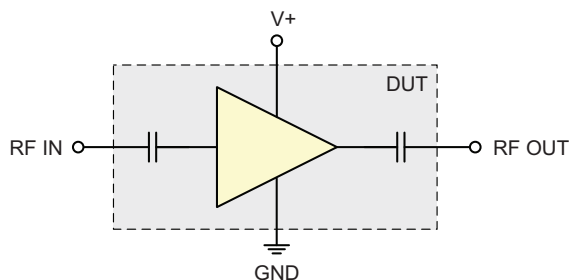
RF IN	10
RF OUT	5
V+	7
GROUND	1,2,3,4,6,8,9,11

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)	0 dBm
Power Consumption	165 mW

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

Simplified Schematic



ESD Rating

Human Body Model (HBM): Class 0 (< 250 V) in accordance with EIAJ-ED-4701

Machine Model (MM): Class M1 (<100 V) in accordance with EIAJ-ED-4701

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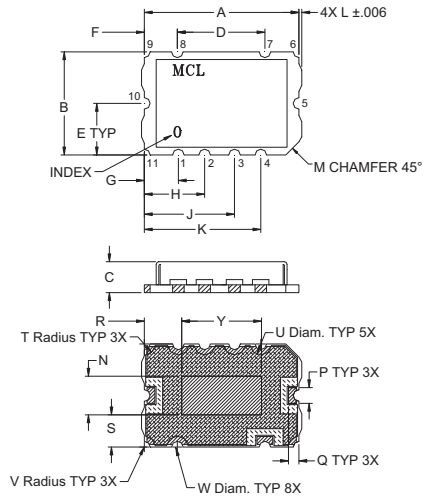
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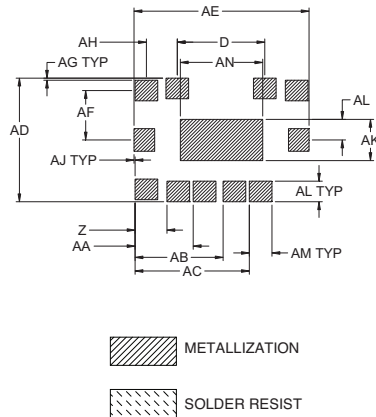
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TAMP-362LN+
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Outline Drawing



PCB Land Pattern

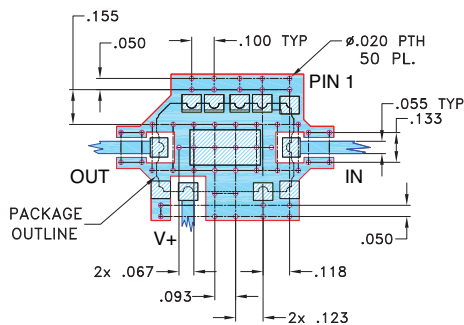


Outline Dimensions (inch mm)

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:

1. 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.
2. 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

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	12.24	7.33	1.32	1.49	0.99	11.22	23.96
3320.00	12.23	7.26	1.28	1.45	0.94	11.02	24.44
3340.00	12.19	7.25	1.25	1.42	0.80	10.96	24.45
3360.00	12.15	7.22	1.23	1.39	0.86	11.19	24.75
3380.00	12.10	7.26	1.22	1.36	0.85	11.17	24.33
3400.00	12.06	7.26	1.21	1.32	0.88	10.92	24.78
3420.00	12.03	7.21	1.22	1.30	0.82	10.96	24.47
3440.00	11.97	7.23	1.25	1.28	0.77	11.04	24.74
3460.00	11.91	7.26	1.28	1.26	0.84	10.87	24.75
3480.00	11.85	7.27	1.31	1.25	0.92	10.85	24.94
3470.00	11.88	7.28	1.30	1.26	0.85	10.83	24.94
3480.00	11.85	7.27	1.31	1.25	0.92	10.85	24.94
3490.00	11.82	7.28	1.33	1.24	0.96	10.97	24.84
3500.00	11.79	7.32	1.34	1.23	0.92	11.01	24.88
3510.00	11.75	7.36	1.37	1.22	0.93	11.04	24.72
3520.00	11.71	7.40	1.39	1.22	0.95	10.96	24.92
3540.00	11.64	7.45	1.45	1.21	0.89	10.74	24.94
3560.00	11.58	7.51	1.51	1.22	0.91	10.69	25.13
3580.00	11.51	7.56	1.55	1.22	0.86	10.79	25.06
3600.00	11.44	7.57	1.59	1.22	0.87	10.87	25.23

