

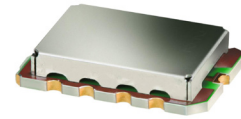
Low Noise Amplifier

TAMP-242GLN+

50Ω 1710 to 2400 MHz

The Big Deal

- Ultra Low Noise Figure, 0.85 dB typ.
- High IP3, 36 dBm typ.
- High Gain, 30 dB typ.
- Integrated Bias Matching and Stabilization Circuits



CASE STYLE: JQ1382

Product Overview

The TAMP-242GLN+ (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 gain 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 only 0.85 dB NF, the TAMP-242GLN+ 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 +36 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.
High Gain	With a high gain of 30 dB, this amplifier can minimize receiver NF degradation due to components losses or NF of the 2nd stage device following the TAMP-242GLN+.
Power In at 1dB Comp.: -9dBm typ. Input no damage, +17dBm	Provides a good safety margin against damage or saturation from unwanted high power RF signals present at the input to a receiver.
Well Matched input/ output ports	With typical input VSWR of 1.25:1 and output VSWR of 1.40:1, the TAMP-242GLN+ 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-242GLN+ 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

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Surface Mount

Low Noise Amplifier

TAMP-242GLN+

50Ω

1710 to 2400 MHz

Features

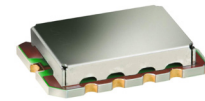
- Ultra low noise figure, 0.85 dB typ.
- High gain, 30 dB typ.
- Output power, up to +20 dBm typ.
- Good output IP3, 36 dBm typ.
- Good VSWR, 1.3:1 typ.
- Unconditionally stable

Applications

- Base station transceiver, tower mounted amplifier, repeater
- WCDMA
- TD SCDMA
- PCS Rx / PCS Tx
- General purpose low noise amplifier

Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		1710		2400	MHz
Noise Figure	1710 - 1880		0.80	1.00	dB
	1850 - 1990		0.80	1.00	
	1990 - 2200		0.85	1.05	
	2200 - 2400		0.90	1.15	
Gain	1710 - 1880	28.0	31.0		dB
	1850 - 1990	28.0	30.5		
	1990 - 2200	27.0	30.0		
	2200 - 2400	26.0	28.5		
Gain Flatness	1710 - 1880		± 0.45	± 0.90	dB
	1850 - 1990		± 0.45	± 0.90	
	1990 - 2200		± 0.60	± 1.20	
	2200 - 2400		± 0.50	± 1.00	
Output Power at 1dB compression	1710 - 1880	17.5	19.5		dBm
	1850 - 1990	18.0	20.0		
	1990 - 2200	18.5	20.0		
	2200 - 2400	19.0	20.5		
Output third order intercept point (OIP3)	1710 - 1880		36		dBm
	1850 - 1990		36		
	1990 - 2200		36		
	2200 - 2400		36		
Input VSWR	1710 - 1880		1.5		:1
	1850 - 1990		1.3		
	1990 - 2200		1.2		
	2200 - 2400		1.2		
Output VSWR	1710 - 1880		1.5		:1
	1850 - 1990		1.4		
	1990 - 2200		1.4		
	2200 - 2400		1.4		
DC Supply Voltage			5.0		V
DC Supply Current			120	150	mA



CASE STYLE: JQ1382

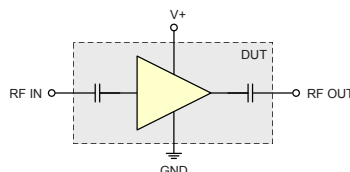
+RoHS Compliant

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

Pin Connections

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

Simplified Schematic



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)	+17 dBm
Power Consumption	825 mW

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

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

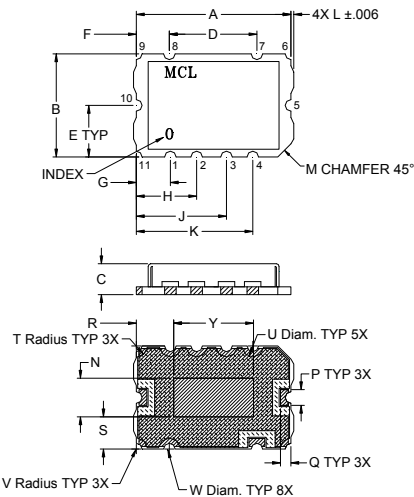
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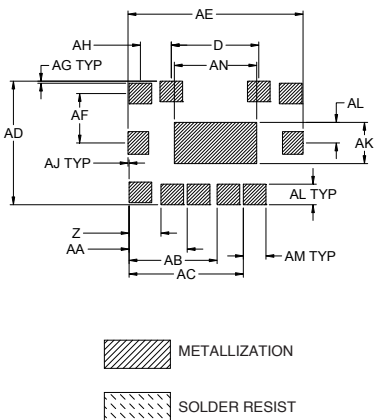
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TAMP-242GLN+
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Outline Drawing



PCB Land Pattern

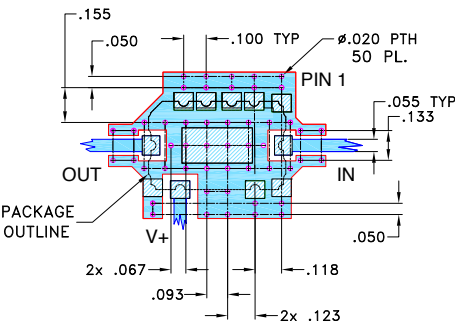


Outline Dimensions (inch)

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

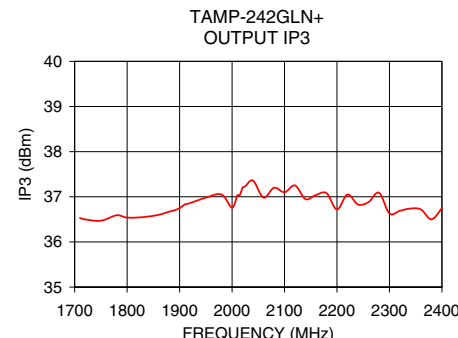
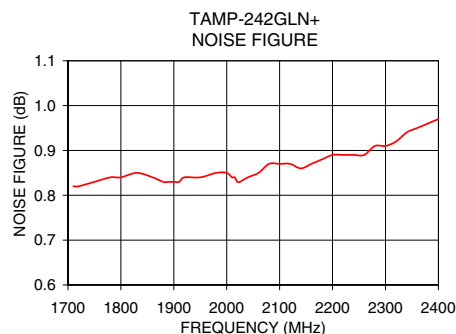
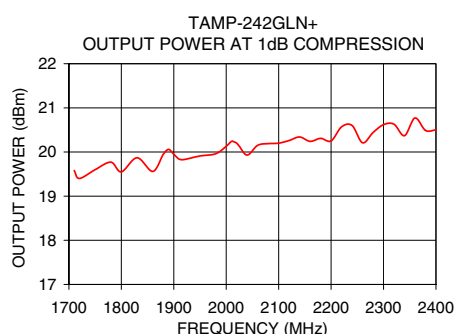
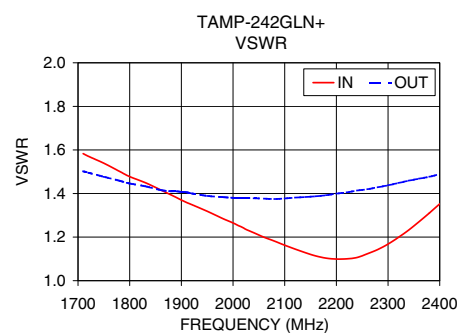
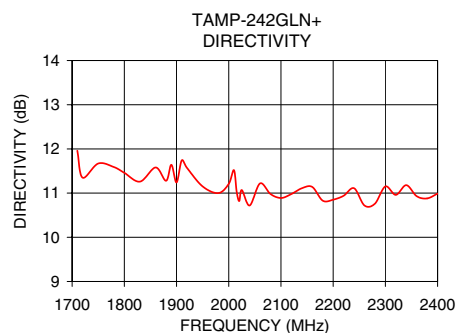
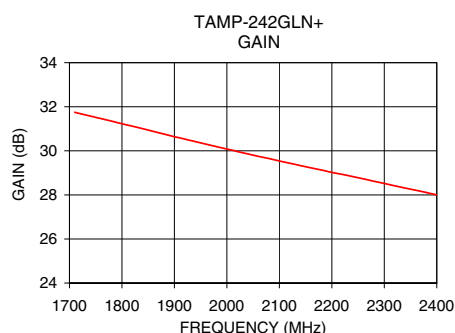
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FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR IN (:1)	VSWR OUT (:1)	NOISE FIGURE (dB)	P. OUT @ 1dB COMPR. (dBm)	OUTPUT IP3 (dBm)
1710.00	31.75	11.96	1.58	1.50	0.82	19.58	36.53
1750.00	31.52	11.67	1.54	1.48	0.83	19.60	36.47
1800.00	31.23	11.46	1.48	1.45	0.84	19.55	36.54
1830.00	31.06	11.26	1.45	1.43	0.85	19.87	36.55
1860.00	30.88	11.58	1.42	1.42	0.84	19.56	36.60
1900.00	30.64	11.24	1.37	1.41	0.83	19.95	36.75
1950.00	30.36	11.15	1.32	1.39	0.84	19.91	36.98
2000.00	30.08	11.21	1.26	1.38	0.85	20.13	36.76
2040.00	29.86	10.72	1.22	1.38	0.84	19.93	37.36
2060.00	29.75	11.22	1.20	1.38	0.85	20.15	36.98
2100.00	29.54	10.89	1.16	1.38	0.87	20.20	37.10
2140.00	29.33	11.11	1.13	1.38	0.86	20.34	36.95
2180.00	29.13	10.83	1.10	1.39	0.88	20.31	37.08
2200.00	29.02	10.85	1.10	1.40	0.89	20.25	36.72
2260.00	28.73	10.72	1.12	1.42	0.89	20.21	36.88
2300.00	28.52	11.15	1.17	1.44	0.91	20.62	36.63
2320.00	28.41	10.96	1.20	1.45	0.92	20.63	36.69
2360.00	28.21	10.93	1.27	1.47	0.95	20.77	36.72
2380.00	28.11	10.88	1.31	1.48	0.96	20.49	36.50
2400.00	28.00	10.99	1.35	1.49	0.97	20.50	36.75



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