Plug-In

Low Noise Amplifier

TO-1217LN+

50Ω 1200 to 1700 MHz

Generic photo used for illustration purposes only

CASE STYLE: QQ96

+RoHS Compliant

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

Features

- very low noise, 1.6 dB max.
- wideband, 1200 to 1700 MHz
- hermetic, TO-8 can

Applications

- military, hi-rel applications
- GPS
- mar sat
- communication systems

Low Noise Amplifier Electrical Specifications

MODEL NO.	FREQUENCY (MHz)		NOISE FIGURE (dB)	GAIN (dB)		MAXIMUM POWER (dBm)		INTERCEPT POINT (dBm)	VSWR (:1) Max.		DC POWER	
	f_L	f_U	Max.	Min.	Flatness Max.	Output (1 dB Compr.) Typ.	Input (no damage)	IP3 Typ.	In	Out	Volt (V) Nom.	Current (mA) Max.
TO-1217LN+	1200	1700	1.6	20	±1.0	+10	+13	+25	2.5	2.5	15	70

Noise Figure specified at room temperature, increases to 2 dB typical at +85°C

Open load is not recommended, potentially can cause damage.
With no load derate max input power by 20 dB

Pin Connections

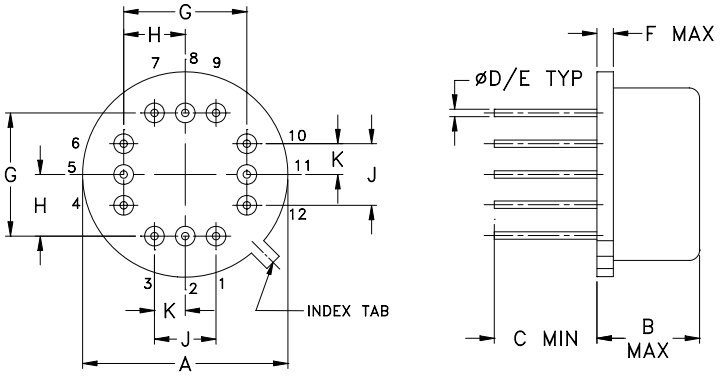
RF IN	5
RF OUT	11
DC	2
GROUND	1,3,4,6,7,8,9,10,12
CASE GROUND	1,3,4,6,7,8,9,10,12

Maximum Ratings

Operating Temperature	-54°C to 85°C
Storage Temperature	-55°C to 100°C
DC Voltage	+17V Max.

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

Outline Drawing



Outline Dimensions (inch / mm)

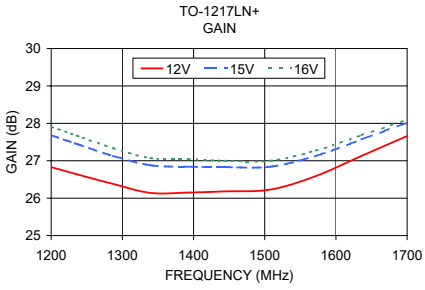
A	B	C	D	E	F	G	H	J	K	wt
.600	.250	.25	.016	.020	.04	.400	.200	.200	.100	grams
15.24	6.35	6.35	0.41	0.51	1.02	10.16	5.08	5.08	2.54	4.0

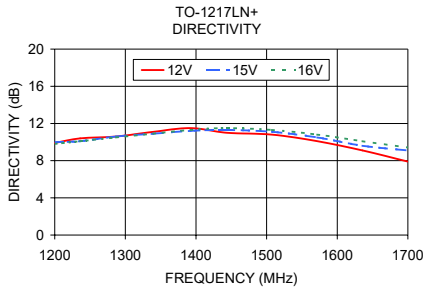
Notes

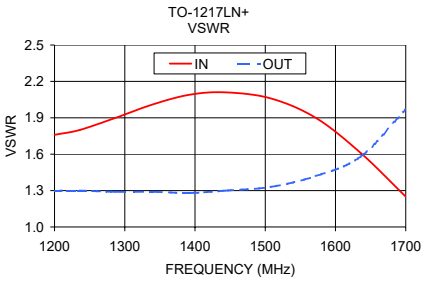
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document 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

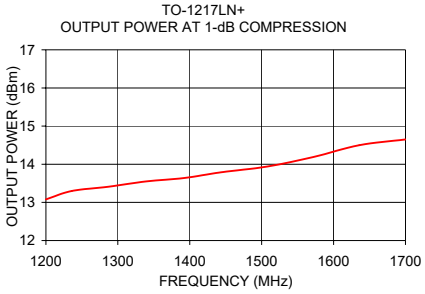
Typical Performance Data/Curves TO-1217LN+

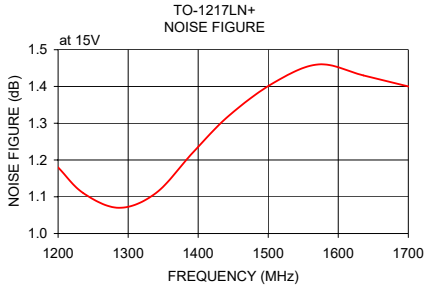
FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR (:1)		NOISE FIGURE (dB)	POUT at 1 dB COMPR. (dBm)
	12V	15V	16V	12V	15V	16V	IN	OUT	15V	15V
1200.00	26.83	27.68	27.91	9.90	10.00	9.80	1.76	1.30	1.18	13.08
1236.00	26.64	27.45	27.67	10.40	10.10	10.10	1.80	1.30	1.11	13.30
1287.00	26.38	27.13	27.34	10.60	10.60	10.50	1.90	1.29	1.07	13.41
1339.60	26.14	26.88	27.07	11.10	10.90	10.90	2.01	1.29	1.11	13.55
1392.30	26.15	26.84	27.04	11.50	11.20	11.30	2.09	1.28	1.22	13.64
1443.60	26.18	26.83	27.00	11.00	11.30	11.50	2.11	1.30	1.32	13.79
1507.70	26.23	26.84	27.00	10.80	11.10	11.30	2.06	1.33	1.41	13.94
1571.80	26.59	27.13	27.27	10.10	10.50	10.80	1.90	1.42	1.46	14.19
1635.90	27.13	27.57	27.68	9.10	9.60	10.10	1.61	1.58	1.43	14.50
1700.00	27.66	28.02	28.10	7.90	9.10	9.40	1.25	1.97	1.40	14.65











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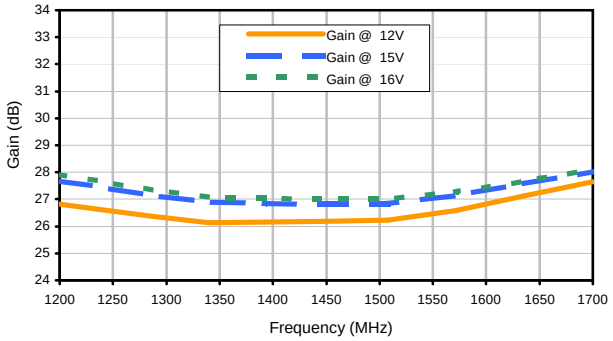
Low Noise Amplifier TO-1217LN+

Typical Performance Data

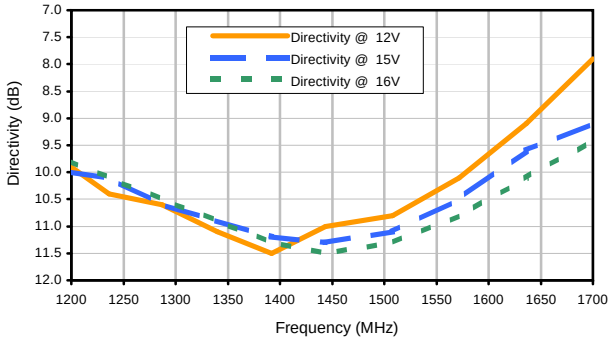
FREQUENCY (MHz)	GAIN (dB)			DIRECTIVITY (dB)			VSWR IN (:1)	VSWR OUT (:1)	NOISE FIGURE (dB)	Pout at 1dB Comp. (dBm)
	12V	15V	16V	12V	15V	16V	15V	15V	15V	15V
1200.0	26.83	27.68	27.91	9.90	10.00	9.80	1.76	1.30	1.18	13.08
1236.0	26.64	27.45	27.67	10.40	10.10	10.10	1.80	1.30	1.11	13.30
1287.0	26.38	27.13	27.34	10.60	10.60	10.50	1.90	1.29	1.07	13.41
1339.6	26.14	26.88	27.07	11.10	10.90	10.90	2.01	1.29	1.11	13.55
1392.3	26.15	26.84	27.04	11.50	11.20	11.30	2.09	1.28	1.22	13.64
1443.6	26.18	26.83	27.00	11.00	11.30	11.50	2.11	1.30	1.32	13.79
1507.7	26.23	26.84	27.00	10.80	11.10	11.30	2.06	1.33	1.41	13.94
1571.8	26.59	27.13	27.27	10.10	10.50	10.80	1.90	1.42	1.46	14.19
1635.9	27.13	27.57	27.68	9.10	9.60	10.10	1.61	1.58	1.43	14.50
1700.0	27.66	28.02	28.10	7.90	9.10	9.40	1.25	1.97	1.40	14.65

Typical Performance Curves

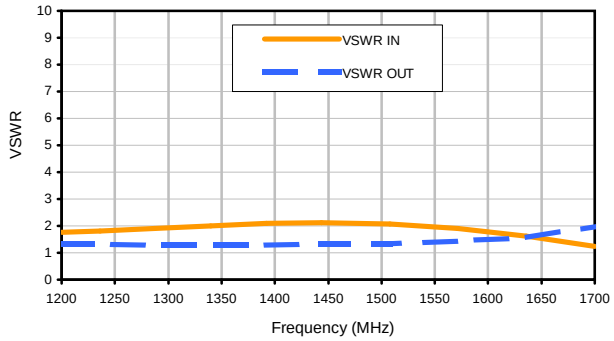
Gain



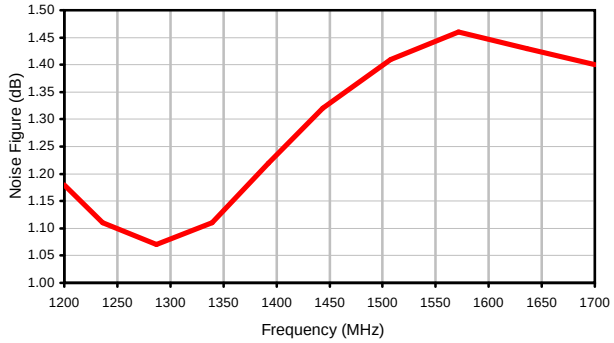
Directivity



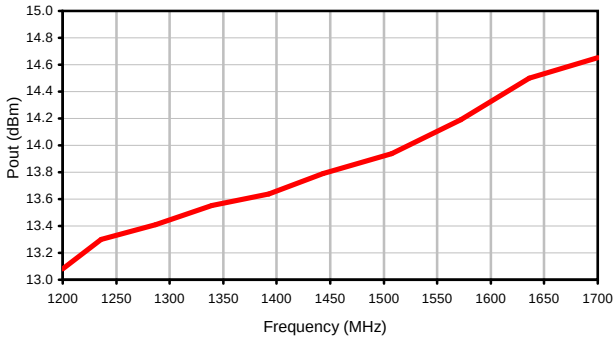
VSWR @ 15V



Noise Figure @ 15V



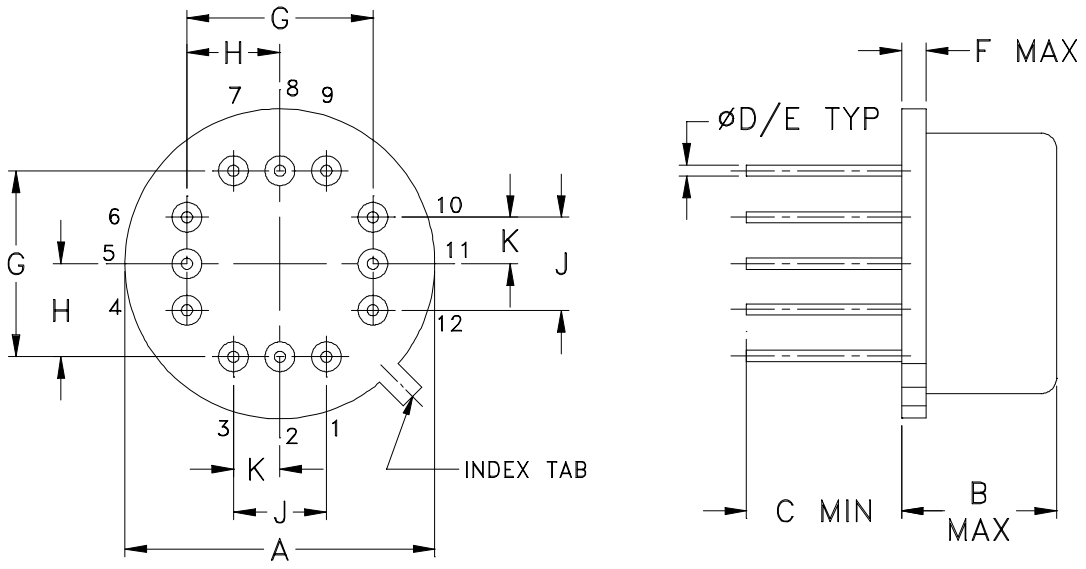
Pout at 1dB Compression @ 15V



Case Style QQ

QQ95
QQ96

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT. GRAM
QQ95	.500 (12.70)	.250 (6.35)	.25 (6.35)	.016 (.41)	.020 (.51)	.04 (1.02)	.300 (7.62)	.150 (3.81)	.150 (3.81)	.075 (1.91)	3.5
QQ96	.600 (15.24)						.400 (10.16)	.200 (5.08)	.200 (5.08)	.100 (2.54)	4.0

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .03; 3 Pl. ± .015

Notes:

1. Header material: Kovar.
   Pin material: Kovar.
   Cover material: Nickel.
2. Pin finish: Gold plate 25 µ inches (.64 microns) min.
3. For pin designations see specification data sheet.
4. Pin numbers do not apper on unit, for reference only.

Mini-Circuits®
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Environmental Specifications ENV36

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-54° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 10 cycles	MIL-STD-202, Method 107, Condition A, except +100°C & 10 cycles
Constant Acceleration	5000g, Y1 axis	MIL-STD-883, Method 2001, Condition A, except Y1 axis only
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D