

# Low Noise Amplifier

ZQLSC-2400

50Ω

1400 to 2400 MHz

## Features

- High reliability balanced design
- Noise Figure, 0.9 dB typ.
- Built-in alarm monitoring
- TTL alarm output, green/red alarm status LED
- Voltage regulated/protected DC input

## Applications

- Low noise receiver
- Digital cellular base stations
- TDMA, CDMA, GSM



Case Style: GZ1067

| Connectors | Model      | Price        | Qty.  |
|------------|------------|--------------|-------|
| SMA        | ZQLSC-2400 | \$295.00 ea. | (1-9) |

## Electrical Specifications at 25°C

| Parameter                          | Condition (MHz) | Min. | Typ. | Max. | Units |
|------------------------------------|-----------------|------|------|------|-------|
| Frequency Range                    |                 | 1400 |      | 2400 | MHz   |
| Noise Figure                       | 1400 - 1850     | —    | 0.8  | 1.15 | dB    |
|                                    | 1850 - 2000     | —    | 0.9  | 1.25 |       |
|                                    | 2000 - 2400     | —    | 1.1  | 1.65 |       |
| Gain                               | 1400 - 1850     | 13.5 | 17   | —    | dB    |
|                                    | 1850 - 2000     | 12.5 | 15.6 | —    |       |
|                                    | 2000 - 2400     | 10.5 | 13.2 | —    |       |
| Gain Flatness                      | 1400 - 1850     | —    | ±1.0 | ±2.5 | dB    |
|                                    | 1850 - 2000     | —    | ±0.5 | ±1.0 |       |
|                                    | 2000 - 2400     | —    | ±1.5 | ±2.0 |       |
| Output Power at 1dB compression    | 1400 - 1850     | 17   | 19   | —    | dBm   |
|                                    | 1850 - 2000     | 17   | 20.5 | —    |       |
|                                    | 2000 - 2400     | 17   | 20   | —    |       |
| Output third order intercept point | 1400 - 1850     | —    | 37   | —    | dBm   |
|                                    | 1850 - 2000     | —    | 35   | —    |       |
|                                    | 2000 - 2400     | —    | 34   | —    |       |
| Input VSWR                         | 1400 - 1850     | —    | 1.7  | —    | :1    |
|                                    | 1850 - 2000     | —    | 1.5  | —    |       |
|                                    | 2000 - 2400     | —    | 1.6  | —    |       |
| Output VSWR                        | 1400 - 1850     | —    | 1.6  | —    | :1    |
|                                    | 1850 - 2000     | —    | 1.6  | —    |       |
|                                    | 2000 - 2400     | —    | 1.9  | —    |       |
| DC Supply Voltage <sup>1</sup>     | 1400 - 2400     | —    | 24   | —    | V     |
| Supply Current                     | 1400 - 2400     | —    | —    | 185  | mA    |

1. Other voltages available in the 6.5 to 60V range. please contact factory.

## 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](http://www.minicircuits.com/MCLStore/terms.jsp)

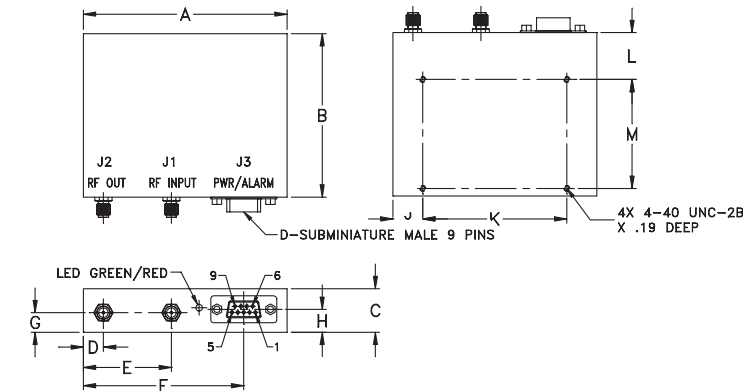


Maximum Ratings

| Parameter                  | Ratings                                    |
|----------------------------|--------------------------------------------|
| Operating Temperature      | -40°C to 70°C case<br>-40° to 60°C ambient |
| Storage Temperature        | -55°C to 100°C                             |
| DC Voltage                 | +18V min, +36V max                         |
| Input RF Power (no damage) | +10 dBm                                    |

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     | L     | M     | wt    |
|-------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| 3.75  | 3.00  | .80   | .37  | 1.62  | 2.95  | .36  | .42   | .55   | 2.650 | .86   | 2.000 | grams |
| 95.25 | 76.20 | 20.32 | 9.40 | 41.15 | 74.93 | 9.14 | 10.67 | 13.97 | 67.31 | 21.84 | 50.80 | 280.0 |

Pin Connections

|                                     |       |
|-------------------------------------|-------|
| RF input                            | J1    |
| RF output                           | J2    |
| DC power input                      | 5     |
| TTL alarm output                    | 1     |
| Ground to test alarm, normally open | 7*,9* |
| No connection                       | 3,6,8 |
| Ground                              | 2,4   |
| Case ground                         | 2,4   |

\*Grounding Pin 7 will sink 75mA of current through Pin 7 creating a high-current alarm condition inside the amplifiers. A red LED and TTL high output will occur. Pin 7 floats at +4.3V typ. when open.

\*Grounding Pin 9 will sink 2mA of current through pin 9 and creating a low-current alarm condition inside the amplifier. A red LED and TTL high output will occur. Pin 9 floats at about +0.6V typ. when open.

Alarm Functions

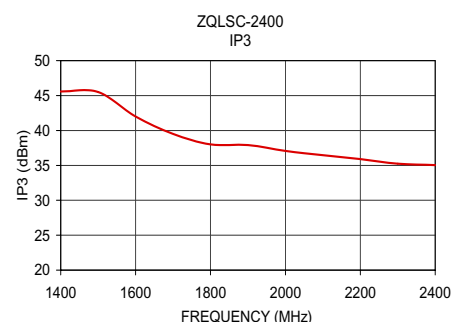
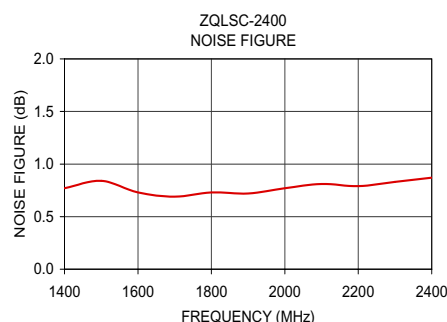
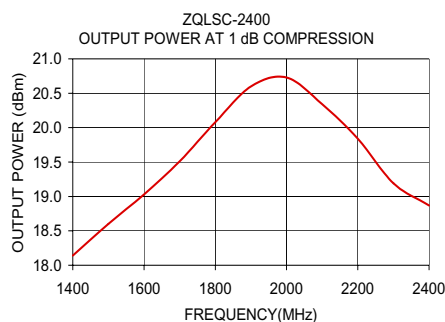
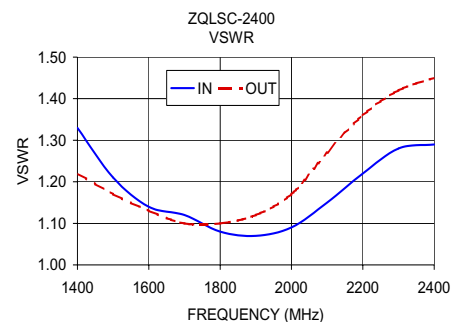
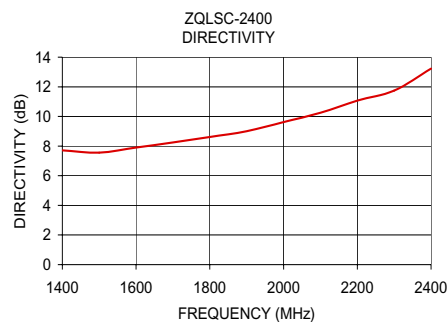
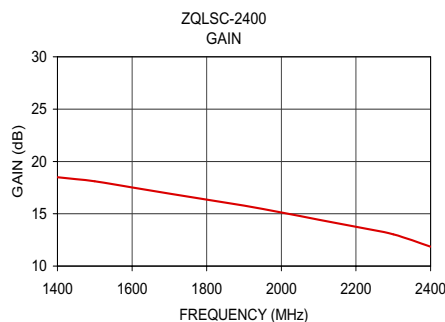
|                       |                                       |
|-----------------------|---------------------------------------|
| Normal:               | TTL low output (0 to 0.8V), green LED |
| Alarm:                | TTL high output (4 to 5V), red LED    |
| DC & alarm connector: | 9-pin male D-sub                      |

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](http://www.minicircuits.com/MCLStore/terms.jsp)



| FREQUENCY<br>(MHz) | GAIN<br>(dB) | DIRECTIVITY<br>(dB) | VSWR<br>(:1)<br>24V |      | POUT at<br>1 dB COMPR.<br>(dBm) | IP3<br>(dBm) | NOISE<br>FIGURE<br>(dB) |
|--------------------|--------------|---------------------|---------------------|------|---------------------------------|--------------|-------------------------|
|                    | 24V          | 24V                 | IN                  | OUT  | 24V                             | 24V          | 24V                     |
| 1400.00            | 18.49        | 7.71                | 1.33                | 1.22 | 18.14                           | 45.58        | 0.77                    |
| 1500.00            | 18.10        | 7.56                | 1.21                | 1.17 | 18.60                           | 45.50        | 0.84                    |
| 1600.00            | 17.52        | 7.90                | 1.14                | 1.13 | 19.03                           | 42.00        | 0.73                    |
| 1700.00            | 16.92        | 8.25                | 1.12                | 1.10 | 19.51                           | 39.51        | 0.69                    |
| 1800.00            | 16.35        | 8.61                | 1.08                | 1.10 | 20.08                           | 38.02        | 0.73                    |
| 1900.00            | 15.78        | 9.00                | 1.07                | 1.12 | 20.60                           | 37.91        | 0.72                    |
| 2000.00            | 15.12        | 9.62                | 1.09                | 1.17 | 20.73                           | 37.08        | 0.77                    |
| 2100.00            | 14.43        | 10.25               | 1.15                | 1.27 | 20.34                           | 36.47        | 0.81                    |
| 2200.00            | 13.75        | 11.07               | 1.22                | 1.36 | 19.84                           | 35.91        | 0.79                    |
| 2300.00            | 13.03        | 11.75               | 1.28                | 1.42 | 19.19                           | 35.23        | 0.83                    |
| 2400.00            | 11.86        | 13.23               | 1.29                | 1.45 | 18.87                           | 35.05        | 0.87                    |



## Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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](http://www.minicircuits.com/MCLStore/terms.jsp)

