

Frequency Mixer

SCM-2500NL+ SCM-2500NL

Level 7 (LO Power +7 dBm) 500 to 2500 MHz



Units are not marked with NL suffix

CASE STYLE: YY101

Maximum Ratings

| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 50mW |
| IF Current | 40mA |

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

Pin Connections

| | |
|--------|-----------|
| LO | 1 |
| RF | 8 |
| IF | 3 |
| GROUND | 2,4,5,6,7 |

Features

- low conversion loss, 5.88 dB typ.
- wide bandwidth, 500 to 2500 MHz
- high L-R isolation, 35 dB typ.

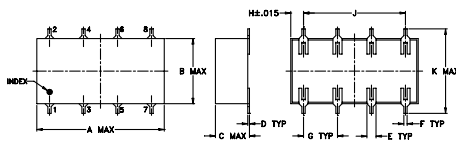
Applications

- UHF
- cellular
- satellite distribution
- GPS/PCS

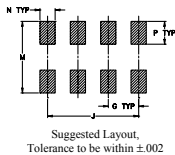
+RoHS Compliant

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

Outline Drawing



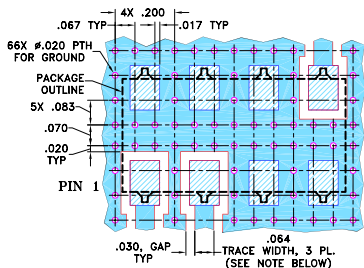
PCB Land Pattern



Outline Dimensions (inch)

| A | B | C | D | E | F | G |
|-------|-------|-------|-------|------|------|-------|
| .75 | .38 | .20 | .010 | .050 | .020 | .200 |
| 19.05 | 9.65 | 5.08 | 0.25 | 1.27 | 0.51 | 5.08 |
| H | J | K | M | N | P | wt |
| .075 | .600 | .450 | .470 | .100 | .150 | grams |
| 1.91 | 15.24 | 11.43 | 11.94 | 2.54 | 3.81 | 1.6 |

Demo Board MCL P/N: TB-171 Suggested PCB Layout (PL-130)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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

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

Electrical Specifications

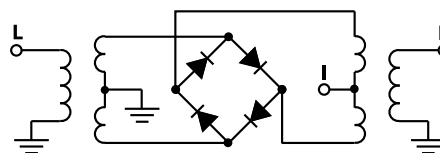
| FREQUENCY (MHz) | CONVERSION LOSS (dB) | LO-RF ISOLATION (dB) | | LO-IF ISOLATION (dB) | | IP3 at center band (dBm) | | | | |
|-----------------|----------------------|----------------------|------|----------------------|------|--------------------------|----|----|----|----|
| | | Typ. | Min. | Typ. | Min. | | | | | |
| 500-2500 | DC-500 | 5.88 | .08 | 6.9 | 10 | 36 | 22 | 18 | 12 | 13 |

1 dB COMP: +1 dBm typ.
m= mid band [2f_L to f_U/2]

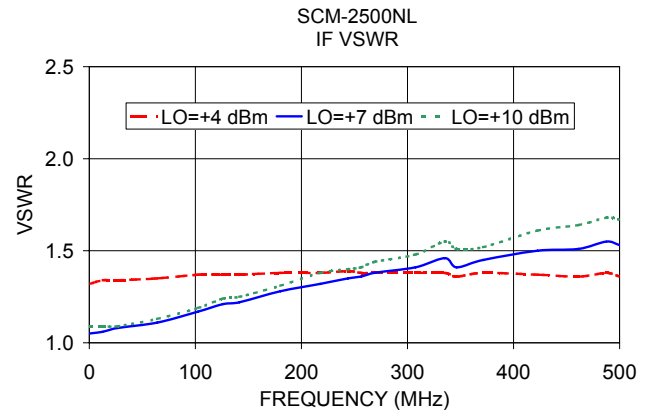
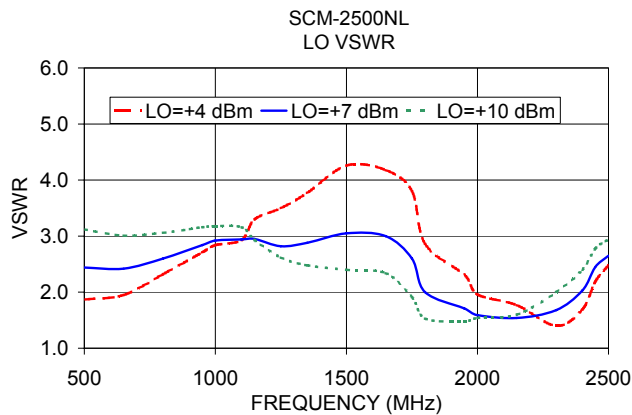
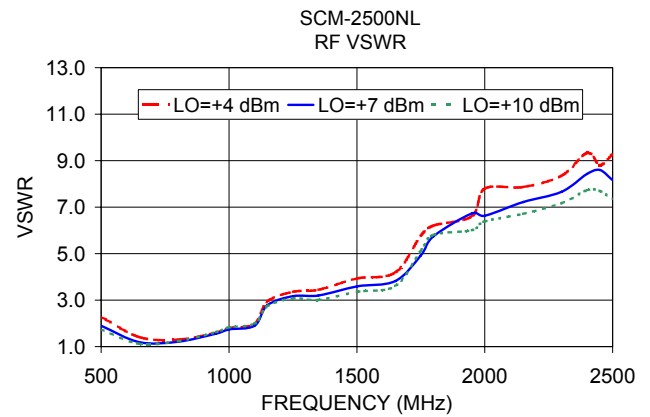
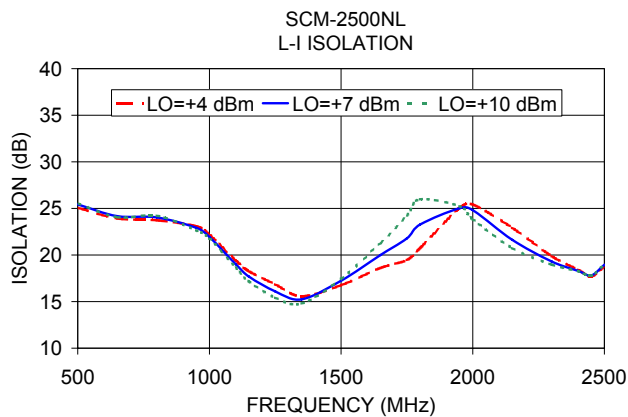
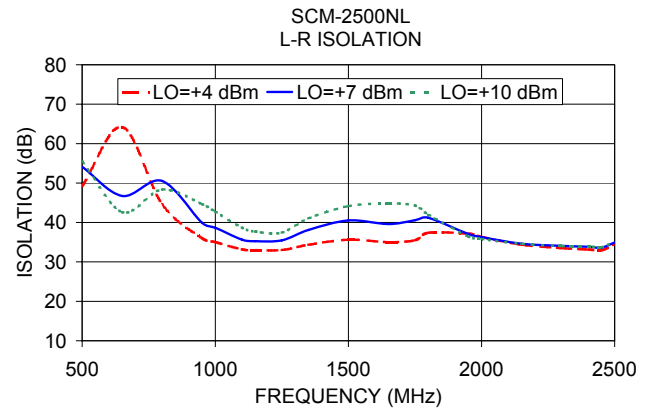
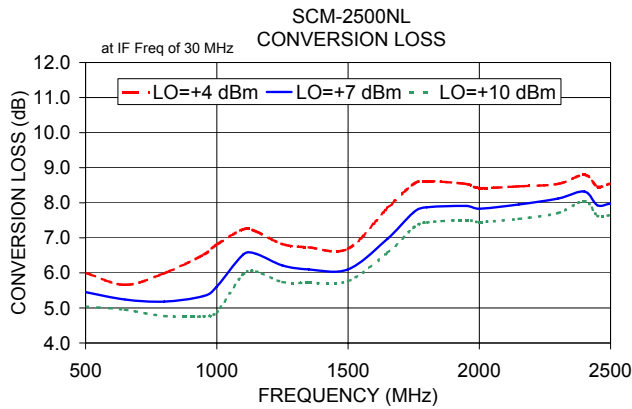
Typical Performance Data

| Frequency (MHz) | | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|-----------------|---------|----------------------|--------------------|--------------------|-------------------|-------------------|
| RF | LO | LO +7dBm | LO +7dBm | LO +7dBm | LO +7dBm | LO +7dBm |
| 500.00 | 530.00 | 5.45 | 54.10 | 25.42 | 1.90 | 2.44 |
| 650.00 | 680.00 | 5.24 | 46.72 | 24.17 | 1.19 | 2.42 |
| 800.00 | 830.00 | 5.18 | 50.53 | 24.04 | 1.21 | 2.60 |
| 950.00 | 980.00 | 5.34 | 39.92 | 22.92 | 1.56 | 2.84 |
| 1000.00 | 1030.00 | 5.61 | 38.68 | 21.93 | 1.74 | 2.92 |
| 1100.00 | 1070.00 | 6.52 | 35.67 | 19.02 | 1.90 | 2.94 |
| 1150.00 | 1120.00 | 6.54 | 35.25 | 17.69 | 2.78 | 2.95 |
| 1250.00 | 1220.00 | 6.21 | 35.47 | 16.09 | 3.17 | 2.82 |
| 1350.00 | 1320.00 | 6.10 | 38.09 | 15.24 | 3.20 | 2.88 |
| 1500.00 | 1470.00 | 6.10 | 40.51 | 17.24 | 3.59 | 3.05 |
| 1650.00 | 1620.00 | 6.97 | 39.61 | 20.00 | 3.82 | 3.00 |
| 1750.00 | 1720.00 | 7.73 | 40.56 | 21.79 | 4.92 | 2.60 |
| 1800.00 | 1770.00 | 7.87 | 41.20 | 23.27 | 5.75 | 2.00 |
| 1950.00 | 1920.00 | 7.91 | 37.08 | 25.03 | 6.73 | 1.71 |
| 2000.00 | 1970.00 | 7.83 | 36.28 | 24.82 | 6.63 | 1.59 |
| 2150.00 | 2120.00 | 7.95 | 34.61 | 21.63 | 7.22 | 1.54 |
| 2300.00 | 2270.00 | 8.12 | 34.07 | 19.31 | 7.66 | 1.68 |
| 2400.00 | 2370.00 | 8.32 | 33.85 | 18.30 | 8.43 | 2.03 |
| 2450.00 | 2420.00 | 7.93 | 33.63 | 17.81 | 8.60 | 2.45 |
| 2500.00 | 2470.00 | 7.98 | 34.92 | 18.95 | 8.16 | 2.65 |

Electrical Schematic



Performance Charts



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