

5V Tuning for PLL IC's 3726 to 3787 MHz

### Features

- low phase noise
- low pulling
- low pushing
- aqueous washable

### Applications

- wireless communications
- industrial communications



CASE STYLE: CK1113  
PRICE: \$19.95 ea. QTY (5-49)

**+RoHS Compliant**

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

### Electrical Specifications

| MODEL NO.      | FREQ. (MHz) |      | POWER OUTPUT (dBm) | PHASE NOISE dBc/Hz SSB at offset frequencies, kHz |      |      |      | TUNING |                   |                     |               | NON HARMONIC SPURIOUS (dBc) | HARMONICS (dBc)                 |      | PULLING pk-pk @ 12 dB (MHz) | PUSHING (MHz/V) | DC OPERATING POWER |      |      |
|----------------|-------------|------|--------------------|---|------|------|------|--------|-------------------|---------------------|---------------|-----------------------------|---------------------------------|------|-----------------------------|-----------------|--------------------|------|------|
|                | Min.        | Max. |                    | Typ.  | 1    | 10   | 100  | 1000   | VOLTAGE RANGE (V) | SENSITIVITY (MHz/V) | PORT CAP (pF) |                             | 3 dB MODULATION BANDWIDTH (MHz) | Typ. |                             |                 | Typ.               | Typ. | Typ. |
| ROS-3787C-119+ | 3726        | 3787 | +1.5               | -78   | -104 | -125 | -147 | 0.5    | 4.5               | 35-55               | 15            | 80                          | -90                             | -16  | -10                         | 2.4             | 0.2                | 5    | 45   |

### Pin Connections

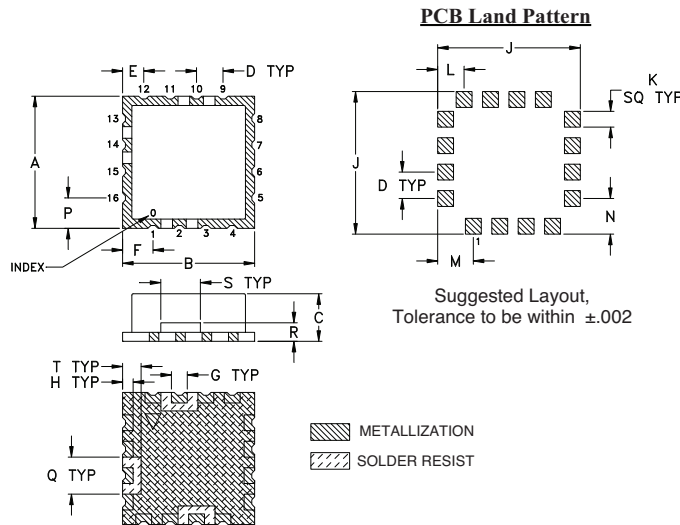
|        |                                |
|--------|--------------------------------|
| RF OUT | 10                             |
| VCC    | 14                             |
| V-TUNE | 2                              |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

### Maximum Ratings

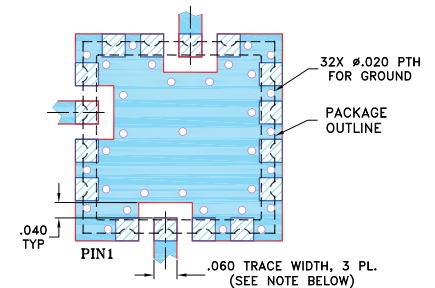
|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 6V             |
| Absolute Max. Tuning Voltage (Vtune) | 7V             |
| All specifications                   | 50 ohm system  |

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

### Outline Drawing



### Demo Board MCL P/N: TB-10 Suggested PCB Layout (PL-012)



#### NOTES:

- TRACE WIDTH IS SHOWN FOR FR4 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 BOARD IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
■ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Outline Dimensions (inch/mm)

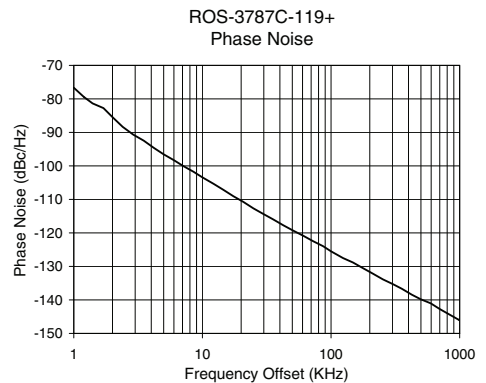
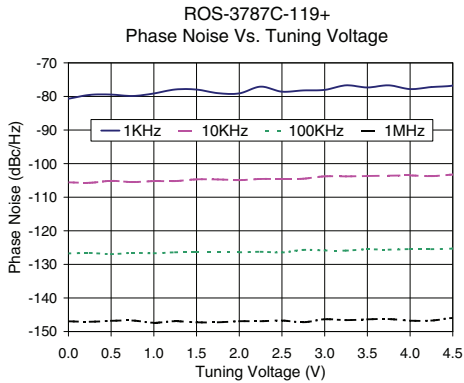
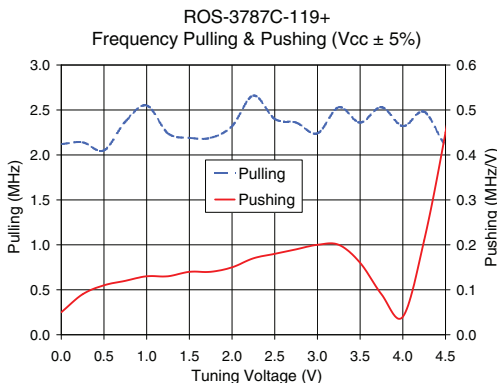
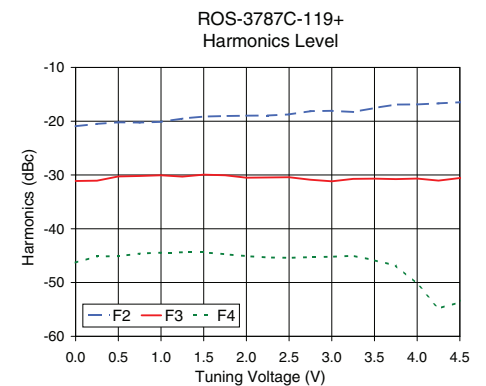
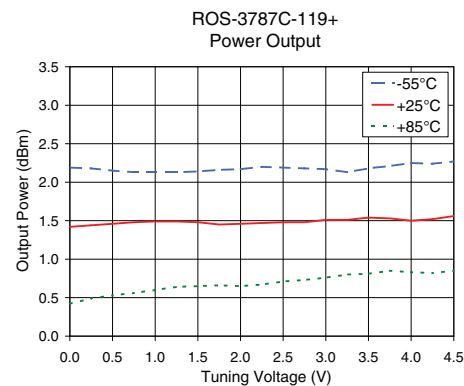
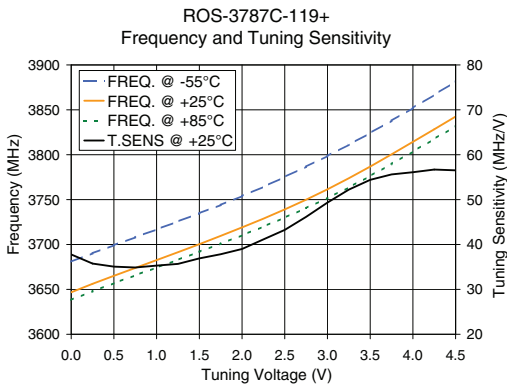
|       |       |      |      |      |      |      |      |       |      |      |      |      |      |      |      |      |      |       |
|-------|-------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|-------|
| A     | B     | C    | D    | E    | F    | G    | H    | J     | K    | L    | M    | N    | P    | Q    | R    | S    | T    | wt.   |
| .500  | .500  | .220 | .100 | .080 | .115 | .060 | .040 | .540  | .060 | .100 | .135 | .135 | .115 | .140 | .070 | .150 | .070 | grams |
| 12.70 | 12.70 | 5.59 | 2.54 | 2.03 | 2.92 | 1.52 | 1.02 | 13.72 | 1.52 | 2.54 | 3.43 | 3.43 | 2.92 | 3.56 | 1.78 | 3.81 | 1.78 | 1.2   |

# Performance Data & Curves\*

# ROS-3787C-119+

| V TUNE | TUNE SENS (MHz/V) | FREQUENCY (MHz) |        |        | POWER OUTPUT (dBm) |       |       | Icc (mA) | HARMONICS (dBc) |       |       | FREQ. PUSH (MHz/V) | FREQ. PULL (MHz) | PHASE NOISE (dBc/Hz) at offsets |        |        |        | FREQ OFFSET (KHz) | PHASE NOISE at 3756 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|----------------------------------|
|        |                   | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz  | 100kHz | 1MHz   |                   |                                  |
| 0.00   | 37.79             | 3680.8          | 3646.7 | 3638.3 | 2.19               | 1.42  | 0.42  | 37.70    | -20.9           | -31.1 | -46.3 | 0.05               | 2.12             | -80.7                           | -105.6 | -126.7 | -146.9 | 1.0               | -76.67                           |
| 0.25   | 35.76             | 3690.2          | 3656.2 | 3647.9 | 2.18               | 1.44  | 0.49  | 37.71    | -20.5           | -31.1 | -45.1 | 0.09               | 2.14             | -79.5                           | -105.7 | -126.6 | -147.1 | 2.0               | -85.45                           |
| 0.50   | 35.07             | 3699.2          | 3665.1 | 3656.9 | 2.15               | 1.46  | 0.53  | 37.72    | -20.2           | -30.3 | -45.1 | 0.11               | 2.05             | -79.4                           | -105.1 | -126.9 | -146.8 | 3.5               | -92.46                           |
| 0.75   | 34.88             | 3708.1          | 3673.9 | 3665.6 | 2.13               | 1.48  | 0.56  | 37.73    | -20.3           | -30.2 | -44.6 | 0.12               | 2.37             | -79.9                           | -105.5 | -126.6 | -146.7 | 6.0               | -98.31                           |
| 1.00   | 35.30             | 3716.8          | 3682.6 | 3674.3 | 2.13               | 1.49  | 0.60  | 37.74    | -20.1           | -30.1 | -44.4 | 0.13               | 2.55             | -79.1                           | -105.2 | -126.7 | -147.4 | 8.5               | -101.73                          |
| 1.25   | 35.69             | 3725.7          | 3691.4 | 3683.0 | 2.13               | 1.49  | 0.64  | 37.75    | -19.5           | -30.3 | -44.4 | 0.13               | 2.24             | -77.9                           | -105.2 | -126.4 | -146.9 | 10.0              | -103.42                          |
| 1.50   | 36.90             | 3734.8          | 3700.3 | 3691.9 | 2.14               | 1.48  | 0.65  | 37.77    | -19.1           | -29.9 | -44.4 | 0.14               | 2.19             | -78.0                           | -104.7 | -126.4 | -147.3 | 20.8              | -110.75                          |
| 1.75   | 37.84             | 3744.0          | 3709.6 | 3700.9 | 2.16               | 1.45  | 0.66  | 37.78    | -19.1           | -30.1 | -44.7 | 0.14               | 2.19             | -79.0                           | -104.7 | -126.4 | -147.2 | 35.5              | -115.97                          |
| 2.00   | 39.00             | 3753.9          | 3719.0 | 3710.3 | 2.17               | 1.46  | 0.65  | 37.80    | -19.0           | -30.5 | -45.1 | 0.15               | 2.32             | -79.1                           | -104.9 | -126.4 | -146.9 | 60.7              | -120.84                          |
| 2.25   | 41.15             | 3764.2          | 3728.8 | 3719.9 | 2.20               | 1.47  | 0.67  | 37.81    | -18.9           | -30.5 | -45.3 | 0.17               | 2.66             | -77.1                           | -104.6 | -126.2 | -146.9 | 86.7              | -123.96                          |
| 2.50   | 43.26             | 3775.1          | 3739.1 | 3729.9 | 2.19               | 1.48  | 0.71  | 37.81    | -18.7           | -30.4 | -45.4 | 0.18               | 2.40             | -78.6                           | -104.6 | -126.5 | -146.7 | 100.0             | -125.50                          |
| 2.75   | 46.15             | 3786.7          | 3749.9 | 3740.5 | 2.18               | 1.48  | 0.73  | 37.82    | -18.1           | -30.9 | -45.3 | 0.19               | 2.36             | -78.2                           | -104.5 | -125.7 | -147.2 | 148.1             | -128.83                          |
| 3.00   | 49.33             | 3798.6          | 3761.4 | 3751.6 | 2.17               | 1.51  | 0.76  | 37.82    | -18.1           | -31.2 | -45.2 | 0.20               | 2.24             | -78.1                           | -103.8 | -125.8 | -146.3 | 211.6             | -132.16                          |
| 3.25   | 52.23             | 3811.2          | 3773.8 | 3763.5 | 2.13               | 1.51  | 0.80  | 37.83    | -18.3           | -30.7 | -45.0 | 0.20               | 2.53             | -76.7                           | -103.8 | -125.9 | -146.6 | 355.1             | -136.66                          |
| 3.50   | 54.40             | 3824.2          | 3786.8 | 3776.3 | 2.18               | 1.54  | 0.81  | 37.85    | -17.5           | -30.7 | -45.9 | 0.16               | 2.36             | -77.3                           | -103.7 | -125.5 | -146.4 | 424.5             | -138.43                          |
| 3.75   | 55.61             | 3837.8          | 3800.4 | 3789.7 | 2.21               | 1.53  | 0.85  | 37.88    | -16.9           | -30.8 | -46.9 | 0.09               | 2.53             | -76.7                           | -103.6 | -125.6 | -146.3 | 498.5             | -139.81                          |
| 4.00   | 56.10             | 3852.1          | 3814.3 | 3803.6 | 2.25               | 1.50  | 0.83  | 37.91    | -16.9           | -30.7 | -50.3 | 0.04               | 2.32             | -77.8                           | -103.5 | -125.5 | -146.8 | 595.9             | -141.03                          |
| 4.25   | 56.70             | 3866.7          | 3828.3 | 3817.6 | 2.24               | 1.52  | 0.82  | 37.92    | -16.7           | -31.0 | -54.8 | 0.21               | 2.48             | -77.2                           | -103.7 | -125.5 | -146.7 | 982.3             | -145.91                          |
| 4.50   | 56.52             | 3881.5          | 3842.5 | 3831.6 | 2.27               | 1.56  | 0.85  | 37.93    | -16.5           | -30.6 | -53.7 | 0.45               | 2.11             | -76.8                           | -103.3 | -125.3 | -146.0 | 1000.0            | -146.04                          |

\*at 25°C unless mentioned otherwise



For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

IF/RF MICROWAVE COMPONENTS

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