

5V Tuning for PLL IC's 740 to 860 MHz

### Features

- Low Phase Noise
- Low Pushing
- Aqueous washable

### Applications

- Wireless communications
- Industrial Microwave & RF



CASE STYLE: CK605  
PRICE: \$19.95 ea. QTY (5-49)

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

*The +Suffix has been added in order to identify 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-860-319+ | 740         | 860  | +6                 | -82   | -110 | -130 | -150 | 0.25   | 5                 | 32 - 50             | 35            | 50                              | -90                         | -17             | -10  | 1.3                        | 0.3             | 5                  | 30   |

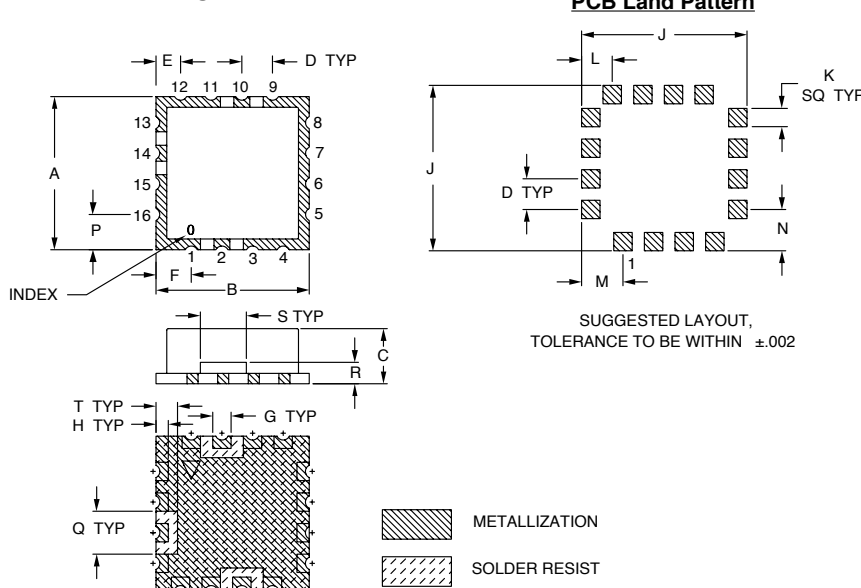
### Pin Connections

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

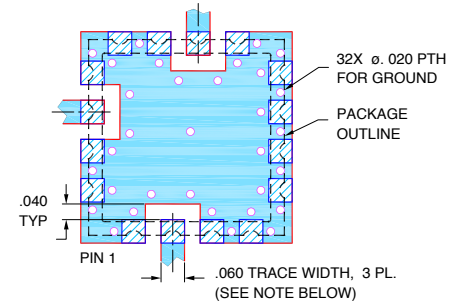
### Maximum Ratings

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

### Outline Drawing



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



- NOTES:**
1. TRACE WIDTH IS SHOWN FOR RF4 WITH DIELECTRIC THICKNESS .030" ± .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

### Outline Dimensions (inch/mm)

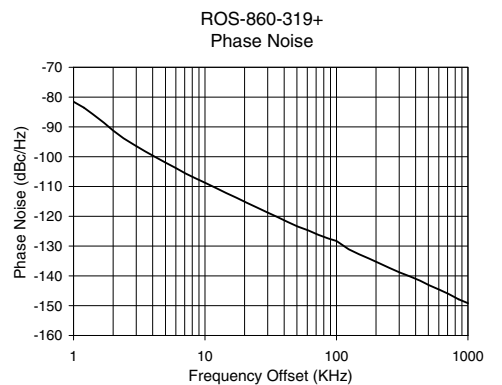
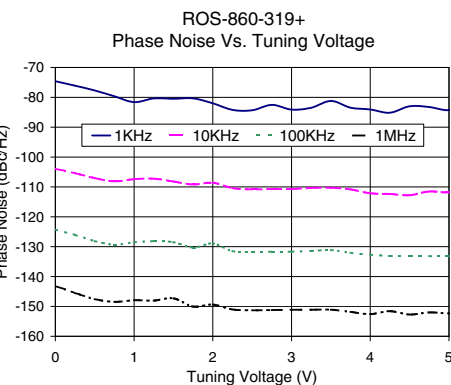
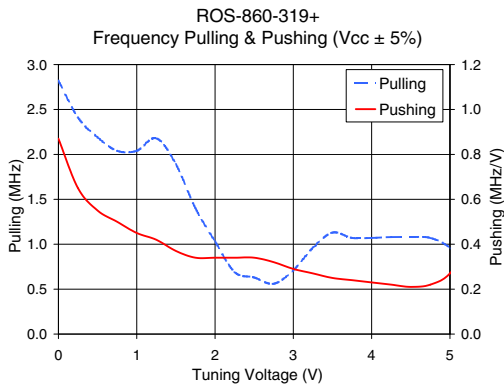
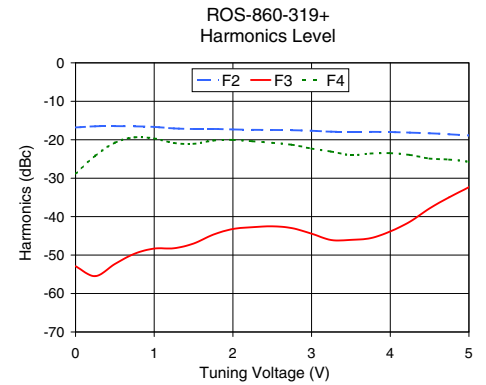
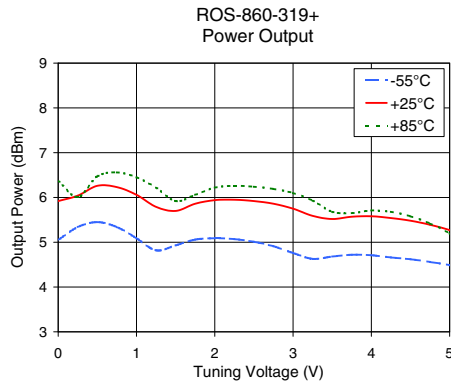
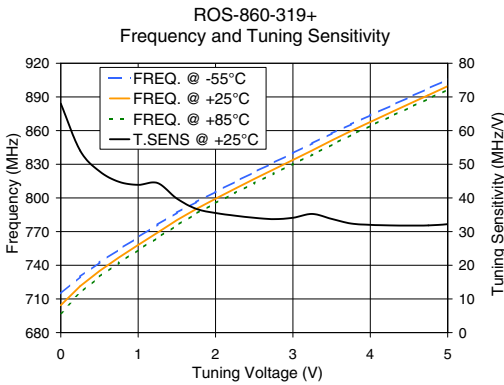
| A     | B     | C    | D    | E    | F    | G    | H    | J     | K    | L    | M    | N    | P    | Q    | R    | S    | T    | wt.   |
|-------|-------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|-------|
| .500  | .500  | .180 | .100 | .080 | .115 | .060 | .040 | .540  | .060 | .100 | .135 | .135 | .115 | .140 | .070 | .150 | .070 | grams |
| 12.70 | 12.70 | 4.57 | 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 | 1.0   |

# Performance Data & Curves\*

# ROS-860-319+

| 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 795 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|---------------------------------|
|        |                   | -55°C           | +25°C | +85°C | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz  | 100kHz | 1MHz   |                   |                                 |
| 0.00   | 68.05             | 714.8           | 704.4 | 697.3 | 5.05               | 5.92  | 6.37  | 21.56    | -16.8           | -52.9 | -28.9 | 0.87               | 2.82             | -74.6                           | -103.9 | -124.2 | -143.2 | 1.0               | -81.56                          |
| 0.25   | 54.06             | 729.8           | 721.4 | 715.4 | 5.34               | 6.04  | 6.01  | 21.79    | -16.5           | -55.5 | -24.2 | 0.65               | 2.41             | -76.1                           | -105.4 | -126.1 | -145.5 | 2.0               | -91.24                          |
| 0.50   | 47.92             | 742.4           | 734.9 | 729.8 | 5.45               | 6.26  | 6.47  | 22.22    | -16.5           | -52.3 | -20.8 | 0.55               | 2.19             | -77.7                           | -107.0 | -128.1 | -147.6 | 3.5               | -98.20                          |
| 0.75   | 44.80             | 754.0           | 746.9 | 742.2 | 5.34               | 6.23  | 6.56  | 22.39    | -16.5           | -49.6 | -19.4 | 0.50               | 2.04             | -79.7                           | -108.1 | -129.3 | -148.5 | 6.0               | -103.80                         |
| 1.00   | 43.88             | 765.0           | 758.1 | 753.6 | 5.09               | 6.06  | 6.45  | 22.36    | -16.7           | -48.3 | -19.7 | 0.45               | 2.04             | -81.6                           | -107.4 | -128.6 | -147.9 | 8.5               | -107.30                         |
| 1.25   | 44.42             | 776.2           | 769.1 | 764.5 | 4.82               | 5.79  | 6.22  | 22.15    | -17.1           | -48.2 | -20.9 | 0.42               | 2.18             | -80.4                           | -107.2 | -128.2 | -148.1 | 10.0              | -108.73                         |
| 1.50   | 39.82             | 786.9           | 780.2 | 775.6 | 4.93               | 5.70  | 5.92  | 22.19    | -17.2           | -47.0 | -21.1 | 0.37               | 1.89             | -80.5                           | -108.2 | -128.5 | -147.3 | 20.8              | -115.47                         |
| 1.75   | 36.76             | 796.4           | 790.1 | 786.0 | 5.06               | 5.86  | 6.06  | 22.59    | -17.2           | -44.7 | -20.2 | 0.34               | 1.40             | -80.4                           | -109.2 | -130.3 | -150.0 | 35.5              | -120.25                         |
| 2.00   | 35.53             | 805.5           | 799.3 | 795.4 | 5.09               | 5.94  | 6.22  | 22.86    | -17.3           | -43.2 | -20.1 | 0.34               | 1.03             | -82.0                           | -108.6 | -128.9 | -149.4 | 60.7              | -124.71                         |
| 2.50   | 34.10             | 822.9           | 816.9 | 813.1 | 5.01               | 5.92  | 6.24  | 23.03    | -17.5           | -42.5 | -20.8 | 0.34               | 0.63             | -84.3                           | -110.8 | -131.7 | -151.3 | 86.7              | -127.44                         |
| 2.75   | 33.71             | 831.4           | 825.4 | 821.7 | 4.91               | 5.86  | 6.19  | 22.99    | -17.5           | -43.0 | -21.3 | 0.32               | 0.56             | -82.5                           | -110.7 | -131.7 | -151.2 | 100.0             | -128.30                         |
| 3.00   | 34.11             | 839.9           | 833.8 | 830.1 | 4.76               | 5.75  | 6.10  | 22.87    | -17.7           | -44.4 | -22.3 | 0.29               | 0.71             | -84.1                           | -110.7 | -131.7 | -151.1 | 148.1             | -132.72                         |
| 3.25   | 35.24             | 848.7           | 842.4 | 838.6 | 4.63               | 5.59  | 5.93  | 22.66    | -17.9           | -46.1 | -23.1 | 0.27               | 0.96             | -83.5                           | -110.3 | -131.4 | -151.1 | 177.0             | -134.19                         |
| 3.50   | 33.77             | 857.4           | 851.2 | 847.3 | 4.68               | 5.52  | 5.68  | 22.63    | -17.9           | -46.0 | -24.0 | 0.25               | 1.13             | -81.2                           | -110.3 | -131.1 | -151.1 | 211.6             | -135.76                         |
| 3.75   | 32.40             | 865.6           | 859.6 | 856.0 | 4.72               | 5.57  | 5.65  | 22.83    | -17.9           | -45.6 | -23.6 | 0.24               | 1.07             | -83.5                           | -110.8 | -132.0 | -151.8 | 302.4             | -138.85                         |
| 4.00   | 32.00             | 873.7           | 867.7 | 864.2 | 4.71               | 5.58  | 5.71  | 22.97    | -18.0           | -43.9 | -23.5 | 0.23               | 1.07             | -84.1                           | -112.1 | -132.7 | -152.6 | 361.5             | -140.16                         |
| 4.25   | 31.85             | 881.7           | 875.7 | 872.2 | 4.66               | 5.54  | 5.68  | 23.02    | -18.2           | -41.3 | -24.0 | 0.22               | 1.08             | -85.2                           | -112.4 | -133.1 | -151.6 | 507.5             | -143.16                         |
| 4.50   | 31.78             | 889.6           | 883.7 | 880.3 | 4.62               | 5.48  | 5.58  | 23.02    | -18.3           | -37.9 | -24.9 | 0.21               | 1.08             | -83.0                           | -112.8 | -133.2 | -152.7 | 606.7             | -144.64                         |
| 4.75   | 31.84             | 897.5           | 891.6 | 888.3 | 4.56               | 5.39  | 5.42  | 22.97    | -18.6           | -35.0 | -25.2 | 0.22               | 1.07             | -83.3                           | -111.5 | -133.2 | -152.0 | 851.6             | -147.90                         |
| 5.00   | 32.21             | 905.5           | 899.6 | 896.4 | 4.49               | 5.27  | 5.20  | 22.89    | -18.9           | -32.3 | -25.8 | 0.27               | 0.96             | -84.3                           | -111.9 | -133.2 | -152.3 | 1000.0            | -149.15                         |

\*at 25°C unless mentioned otherwise



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