

5V Tuning for PLL IC's 410 to 470 MHz



Features

- Linear tuning characteristics
- Low phase noise
- Low pulling
- Low pushing
- Aqueous washable

Applications

- Wireless communications
- Industrial microwave & RF
- Defense communications & radar
- Public mobile & private land mobile

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) | SENSI-TIVITY (MHz/V) | PORT CAP (pF) | 3 dB MODULATION BANDWIDTH (MHz) | | Typ. | Typ. | | | Typ. | Typ. |
| ROS-470-819+ | 410 | 470 | +6.3 | -85 | -114 | -135 | -155 | 0.5 | 5 | 25-30 | 63 | 30 | -90 | -26 | -15 | 0.4 | 1 | 5 | 35 |

Pin Connections

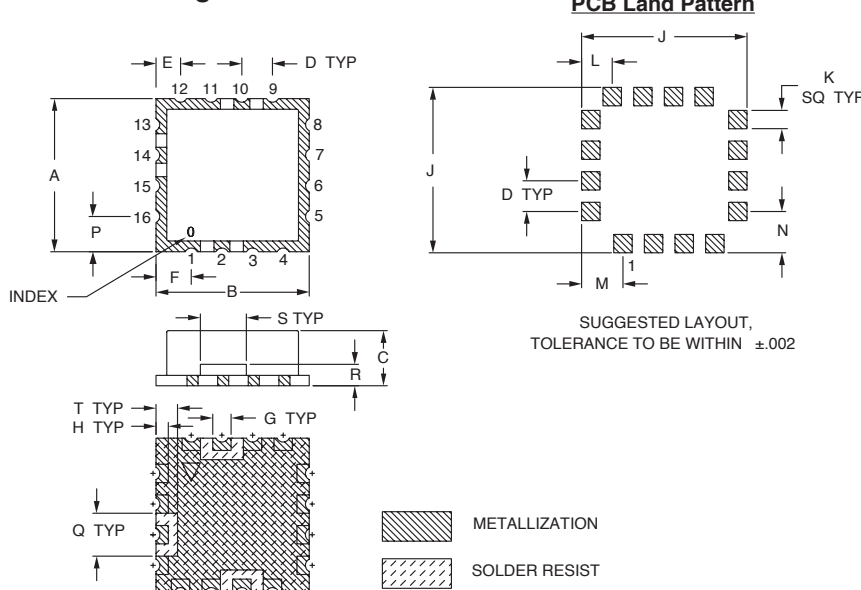
| | |
|--------|--------------------------------|
| RF OUT | 10 |
| VCC | 14 |
| V-TUNE | 2 |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

Maximum Ratings

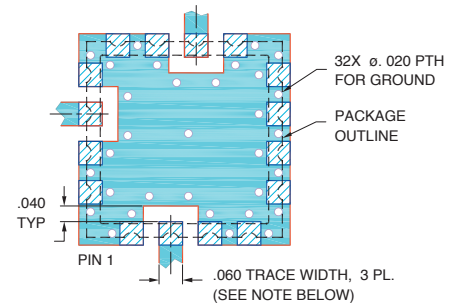
| | |
|--------------------------------------|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc) | 6.5V |
| Absolute Max. Tuning Voltage (Vtune) | 7.0V |
| All specifications | 50 ohm system |

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:**
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 |



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

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-Circuit's 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.

REV. OR
M122533
EDR-9078F1
RAV
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Performance Data & Curves*

ROS-470-819+

| 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 440 MHz (dBc/Hz) |
|--------|-------------------|-----------------|-------|-------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|--------|--------|--------|-------------------|---------------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | | F2 | F3 | F4 | | | 1kHz | 10kHz | 100kHz | 1MHz | | |
| 0.00 | 34.24 | 372.1 | 369.0 | 367.4 | 6.18 | 5.87 | 5.02 | 24.29 | -21.2 | -41.1 | -37.1 | 0.55 | 0.51 | -80.8 | -107.5 | -127.9 | -148.0 | 1.0 | -85.43 |
| 0.50 | 34.46 | 389.3 | 386.1 | 384.9 | 6.54 | 6.51 | 5.70 | 24.51 | -21.4 | -42.9 | -32.8 | 1.91 | 0.75 | -81.5 | -110.9 | -133.0 | -152.5 | 2.0 | -95.18 |
| 0.75 | 32.17 | 397.5 | 394.7 | 393.3 | 6.66 | 6.51 | 5.75 | 24.57 | -22.0 | -43.5 | -32.7 | 1.93 | 0.78 | -81.7 | -111.5 | -133.9 | -153.6 | 3.5 | -102.95 |
| 1.00 | 30.38 | 405.7 | 402.8 | 401.0 | 6.76 | 6.47 | 5.79 | 24.63 | -22.6 | -43.2 | -32.7 | 1.55 | 0.63 | -82.9 | -111.8 | -134.6 | -153.8 | 6.0 | -108.72 |
| 1.25 | 29.14 | 413.5 | 410.4 | 408.4 | 6.85 | 6.45 | 5.83 | 24.68 | -23.4 | -41.7 | -32.6 | 1.32 | 0.50 | -83.7 | -113.3 | -135.1 | -154.7 | 8.5 | -112.63 |
| 1.50 | 27.97 | 420.9 | 417.7 | 415.5 | 6.93 | 6.47 | 5.90 | 24.72 | -24.0 | -40.4 | -32.7 | 1.19 | 0.40 | -85.6 | -114.2 | -136.0 | -155.1 | 10.0 | -114.37 |
| 1.75 | 27.59 | 428.2 | 424.7 | 422.4 | 6.93 | 6.58 | 5.98 | 24.73 | -24.8 | -39.9 | -32.9 | 1.09 | 0.30 | -86.1 | -115.4 | -136.6 | -156.2 | 20.8 | -121.98 |
| 2.00 | 28.73 | 435.3 | 431.6 | 429.2 | 7.06 | 6.55 | 5.98 | 24.75 | -24.7 | -41.6 | -32.2 | 1.03 | 0.20 | -84.7 | -113.7 | -135.1 | -155.2 | 35.5 | -126.83 |
| 2.25 | 27.61 | 442.0 | 438.7 | 436.1 | 7.16 | 6.31 | 5.89 | 24.87 | -25.3 | -38.3 | -32.8 | 0.92 | 0.08 | -83.4 | -114.1 | -135.7 | -155.5 | 60.7 | -130.70 |
| 2.50 | 26.99 | 448.8 | 445.6 | 442.8 | 6.87 | 6.27 | 5.91 | 24.93 | -26.5 | -36.6 | -33.6 | 0.92 | 0.07 | -85.3 | -114.3 | -136.1 | -156.0 | 86.7 | -134.53 |
| 2.75 | 26.55 | 455.6 | 452.4 | 449.4 | 6.71 | 6.27 | 5.96 | 24.98 | -27.4 | -35.5 | -34.4 | 0.96 | 0.16 | -84.1 | -114.0 | -136.4 | -155.2 | 100.0 | -135.64 |
| 3.00 | 26.18 | 462.4 | 459.0 | 456.0 | 6.59 | 6.26 | 5.99 | 25.03 | -27.9 | -34.7 | -34.7 | 1.01 | 0.25 | -82.8 | -114.3 | -135.8 | -155.5 | 148.1 | -139.17 |
| 3.25 | 25.73 | 469.0 | 465.6 | 462.4 | 6.47 | 6.24 | 6.01 | 25.08 | -28.7 | -34.1 | -35.6 | 1.07 | 0.32 | -84.1 | -113.8 | -135.5 | -154.9 | 177.0 | -140.74 |
| 3.50 | 25.22 | 475.6 | 472.0 | 468.7 | 6.35 | 6.21 | 6.01 | 25.13 | -29.3 | -33.6 | -36.2 | 1.13 | 0.39 | -84.9 | -113.5 | -134.9 | -154.5 | 211.6 | -142.21 |
| 3.75 | 24.67 | 481.9 | 478.3 | 474.9 | 6.23 | 6.18 | 6.00 | 25.18 | -29.7 | -32.7 | -36.8 | 1.20 | 0.44 | -86.7 | -113.4 | -134.5 | -154.3 | 302.4 | -144.89 |
| 3.90 | 24.32 | 485.7 | 482.0 | 478.5 | 6.16 | 6.16 | 5.99 | 25.21 | -30.1 | -32.6 | -37.0 | 1.24 | 0.46 | -84.9 | -113.0 | -134.0 | -153.7 | 361.5 | -146.73 |
| 4.25 | 23.49 | 494.2 | 490.5 | 486.8 | 6.02 | 6.09 | 5.95 | 25.28 | -30.6 | -32.2 | -37.6 | 1.33 | 0.49 | -85.3 | -112.5 | -133.4 | -153.0 | 507.5 | -149.63 |
| 4.50 | 22.86 | 500.1 | 496.4 | 492.6 | 5.91 | 6.03 | 5.91 | 25.33 | -30.8 | -32.0 | -38.1 | 1.38 | 0.49 | -87.2 | -112.1 | -132.5 | -152.8 | 606.7 | -151.28 |
| 4.75 | 22.21 | 505.9 | 502.1 | 498.2 | 5.81 | 5.98 | 5.86 | 25.39 | -31.1 | -31.4 | -38.6 | 1.43 | 0.47 | -82.5 | -110.8 | -132.1 | -152.2 | 851.6 | -153.90 |
| 5.00 | 21.54 | 511.5 | 507.6 | 503.6 | 5.71 | 5.92 | 5.81 | 25.44 | -31.3 | -31.2 | -38.5 | 1.47 | 0.43 | -83.8 | -110.7 | -131.5 | -151.4 | 1000.0 | -155.11 |

*at 25°C unless mentioned otherwise

