

5V Tuning for PLL IC's 4150 to 4300 MHz

### Features

- low phase noise
- low pushing
- aqueous washable



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

### Applications

- wireless communications
- radio altimetry
- wireless microphones

**+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) | SENSI- TIVITY (MHz/V) | PORT CAP (pF) |                             | 3 dB MODULATION BANDWIDTH (MHz) | Typ. |                            |                 | Max.               | Typ. | Typ. |
| ROS-4300-1PH19+ | 4150        | 4300 | +4.5               | -62   | -90 | -112 | -132 | 0.5    | 5                 | 58-97                 | 16            | 330                         | -90                             | -26  | -18                        | 6               | 2.5                | 5    | 35   |

### Pin Connections

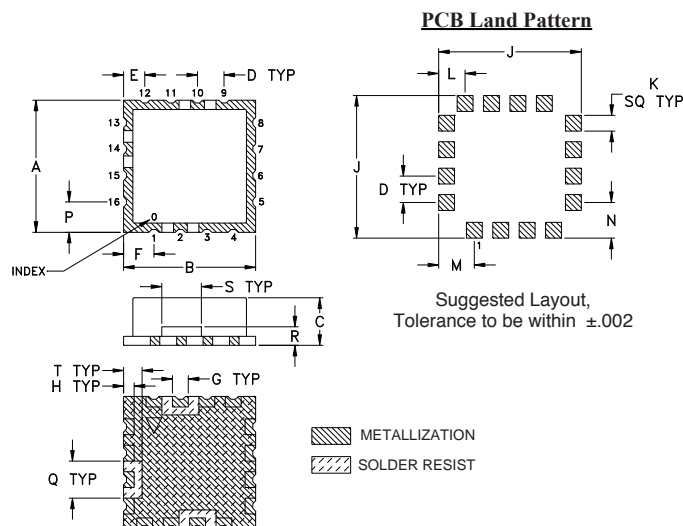
|        |                                |
|--------|--------------------------------|
| RF OUT | 10                             |
| VCC    | 14                             |
| V-TUNE | 2                              |
| GROUND | 1,3,4,5,6,7,8,9,11,12,13,15,16 |

### Maximum Ratings

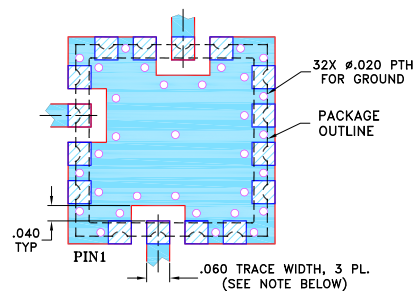
|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 6V             |
| Absolute 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 BOTTOM 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  | .180 | .100 | .080 | .115 | .060 | .040 | .540  | .060 | .100 | .135 | .135 | .115 | .140 | .070 | .150 | .070 |   | grams |
| 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   |

#### 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)

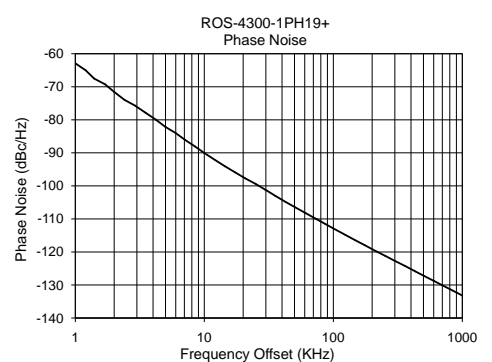
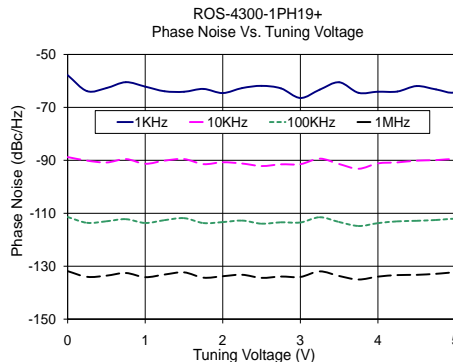
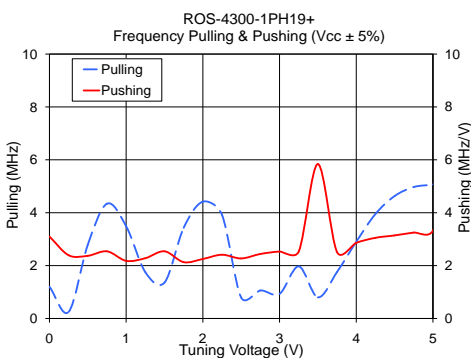
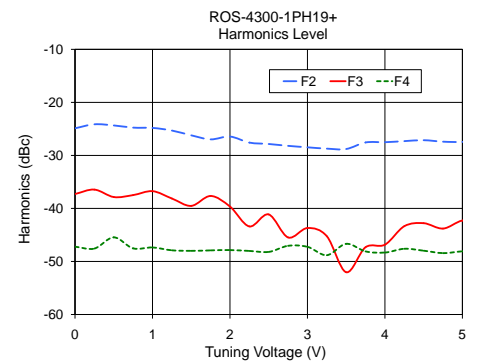
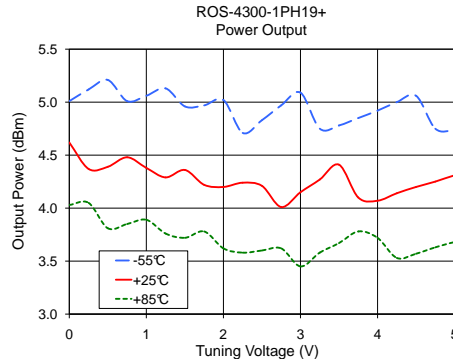
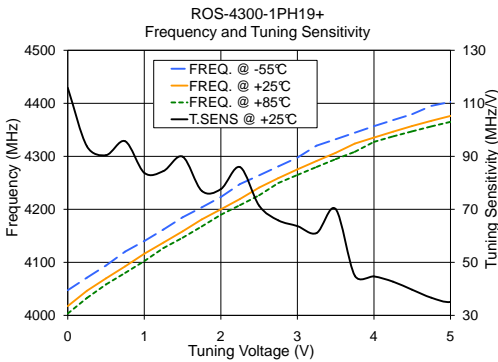


# Performance Data & Curves\*

# ROS-4300-1PH19+

| 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 4225 MHz (dBc/Hz) |
|--------|-------------------|-----------------|--------|--------|--------------------|-------|-------|----------|-----------------|-------|-------|--------------------|------------------|---------------------------------|-------|--------|--------|-------------------|----------------------------------|
|        |                   | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |          | F2              | F3    | F4    |                    |                  | 1kHz                            | 10kHz | 100kHz | 1MHz   |                   |                                  |
| 0.00   | 115.82            | 4047.3          | 4017.4 | 4003.5 | 5.01               | 4.62  | 4.03  | 29.10    | -24.9           | -37.3 | -47.2 | 3.10               | 1.20             | -57.81                          | -88.8 | -111.4 | -131.9 | 1.0               | -62.90                           |
| 0.50   | 90.41             | 4094.1          | 4069.8 | 4058.4 | 5.21               | 4.39  | 3.81  | 29.07    | -24.3           | -37.9 | -45.5 | 2.37               | 2.79             | -62.69                          | -90.8 | -113.0 | -133.6 | 2.0               | -71.55                           |
| 0.75   | 95.68             | 4120.3          | 4092.4 | 4080.1 | 5.01               | 4.48  | 3.85  | 29.03    | -24.8           | -37.5 | -47.5 | 2.54               | 4.34             | -60.47                          | -89.5 | -112.2 | -132.6 | 3.5               | -77.85                           |
| 1.00   | 83.74             | 4140.1          | 4116.3 | 4102.4 | 5.06               | 4.38  | 3.89  | 29.02    | -24.8           | -36.8 | -47.4 | 2.18               | 3.49             | -62.15                          | -91.3 | -113.7 | -134.1 | 6.0               | -84.02                           |
| 1.25   | 84.42             | 4161.9          | 4137.2 | 4126.9 | 5.13               | 4.29  | 3.76  | 29.00    | -25.3           | -38.1 | -47.9 | 2.28               | 1.75             | -63.91                          | -90.1 | -112.6 | -133.2 | 8.5               | -88.11                           |
| 1.50   | 89.86             | 4185.0          | 4158.4 | 4146.4 | 4.96               | 4.36  | 3.72  | 28.98    | -26.2           | -39.5 | -48.0 | 2.54               | 1.36             | -64.10                          | -89.5 | -111.8 | -132.3 | 10.0              | -90.04                           |
| 1.75   | 76.98             | 4203.6          | 4180.8 | 4167.6 | 4.97               | 4.22  | 3.78  | 28.98    | -27.0           | -37.7 | -47.9 | 2.13               | 3.43             | -63.01                          | -91.4 | -113.7 | -134.3 | 20.8              | -97.74                           |
| 2.00   | 77.63             | 4223.3          | 4200.1 | 4189.8 | 5.02               | 4.20  | 3.62  | 28.96    | -26.5           | -39.7 | -47.9 | 2.25               | 4.42             | -64.58                          | -90.7 | -113.3 | -133.8 | 35.5              | -103.00                          |
| 2.25   | 85.93             | 4247.6          | 4219.5 | 4207.8 | 4.71               | 4.24  | 3.58  | 28.94    | -27.6           | -43.4 | -48.0 | 2.41               | 3.92             | -62.69                          | -91.2 | -112.8 | -133.2 | 60.7              | -108.20                          |
| 2.50   | 71.38             | 4264.1          | 4241.0 | 4226.4 | 4.83               | 4.21  | 3.60  | 28.93    | -27.9           | -41.1 | -48.2 | 2.27               | 0.79             | -61.87                          | -92.2 | -113.9 | -134.4 | 86.7              | -111.54                          |
| 2.75   | 65.85             | 4280.8          | 4258.8 | 4249.5 | 4.97               | 4.01  | 3.62  | 28.95    | -28.2           | -45.5 | -47.1 | 2.44               | 1.06             | -62.81                          | -91.5 | -113.4 | -133.9 | 100.0             | -112.89                          |
| 3.00   | 63.68             | 4297.4          | 4275.3 | 4264.8 | 5.09               | 4.15  | 3.45  | 28.94    | -28.5           | -43.7 | -47.3 | 2.53               | 0.93             | -66.43                          | -91.5 | -113.5 | -134.1 | 123.9             | -114.82                          |
| 3.25   | 61.05             | 4320.0          | 4291.2 | 4279.8 | 4.75               | 4.27  | 3.58  | 28.93    | -28.7           | -45.2 | -48.8 | 2.53               | 1.97             | -63.30                          | -89.4 | -111.5 | -132.0 | 177.0             | -118.04                          |
| 3.50   | 70.10             | 4332.0          | 4306.4 | 4294.6 | 4.78               | 4.41  | 3.67  | 28.91    | -28.8           | -52.0 | -46.7 | 5.84               | 0.80             | -60.50                          | -91.4 | -113.3 | -133.7 | 211.6             | -119.67                          |
| 3.75   | 44.97             | 4344.5          | 4324.0 | 4308.5 | 4.85               | 4.10  | 3.78  | 28.94    | -27.6           | -47.3 | -48.1 | 2.51               | 1.76             | -64.49                          | -93.2 | -114.8 | -135.0 | 302.4             | -122.77                          |
| 4.00   | 44.68             | 4356.8          | 4335.2 | 4327.2 | 4.92               | 4.07  | 3.72  | 28.94    | -27.5           | -46.8 | -48.3 | 2.86               | 2.90             | -64.07                          | -91.2 | -113.7 | -133.9 | 361.5             | -124.28                          |
| 4.25   | 42.72             | 4368.3          | 4346.4 | 4337.6 | 5.00               | 4.14  | 3.53  | 28.93    | -27.3           | -43.4 | -47.6 | 3.05               | 3.95             | -64.00                          | -90.8 | -113.1 | -133.4 | 507.5             | -127.29                          |
| 4.50   | 39.66             | 4379.5          | 4357.1 | 4347.0 | 5.06               | 4.20  | 3.57  | 28.92    | -27.1           | -42.8 | -48.0 | 3.14               | 4.63             | -61.93                          | -90.1 | -112.9 | -133.3 | 606.7             | -128.84                          |
| 4.75   | 36.65             | 4395.0          | 4367.0 | 4356.4 | 4.75               | 4.25  | 3.63  | 28.90    | -27.4           | -43.8 | -48.4 | 3.25               | 4.97             | -63.21                          | -89.9 | -112.5 | -132.9 | 712.4             | -130.24                          |
| 5.00   | 35.05             | 4402.6          | 4376.1 | 4365.0 | 4.74               | 4.31  | 3.68  | 28.89    | -27.5           | -42.3 | -48.1 | 3.32               | 5.07             | -64.27                          | -89.5 | -112.1 | -132.4 | 1000.0            | -133.19                          |

\*at 25°C unless mentioned otherwise



### 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)

