

Coaxial Voltage Controlled Oscillator

ZOS-300+

Dual Output 150 to 280 MHz

Features

- octave bandwidth
- linear tuning
- excellent harmonic suppression, -27 dBc typ.
- rugged shielded case
- protected by US Patent, 6,943,629

Applications

- auxiliary output freq. monitoring
- load insensitive source



CASE STYLE: BR386

| | |
|------------|----------|
| Connectors | Model |
| SMA | ZOS-300+ |

+RoHS Compliant

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

Electrical Specifications

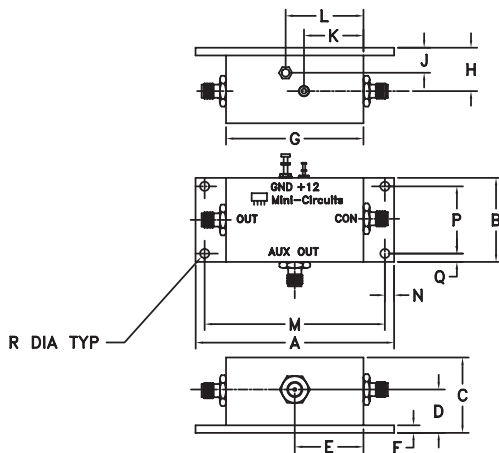
| FREQUENCY (MHz) | | POWER OUTPUT (dBm) Typ. | | TUNING VOLTAGE (V) | | PHASE NOISE (dBc/Hz) SSB at offset frequencies: Typ. | | | PULLING (MHz) pk-pk (open/short) | PUSHING (MHz/V) Typ. | TUNING SENSITIVITY (MHz/V) Typ. | HARMONICS (dBc) Typ. Max. | | 3 dB MODULATION BANDWIDTH (MHz) Typ. | DC OPERATING POWER | |
|-----------------|------|-------------------------|------|--------------------|------|--|---------|-------|----------------------------------|----------------------|---------------------------------|---------------------------|------|--------------------------------------|-------------------------|-------------------|
| Min. | Max. | Main | Aux. | Min. | Max. | 10 kHz | 100 kHz | 1 MHz | Typ. | Typ. | Typ. | Typ. | Max. | Typ. | V _{cc} (volts) | Current (mA) Max. |
| 150 | 280 | +9 | -13 | 1 | 16 | -103 | -123 | -142 | 0.017 | 0.50 | 11 | -27 | -20 | 0.1 | 12 | 140 |

Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -55°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| Absolute Max. Supply Voltage (V _{cc}) | +16V |
| Absolute Max. Tuning Voltage (V _{tune}) | +18V |

all specifications: 50 ohm system
Permanent damage may occur if any of these limits are exceeded.

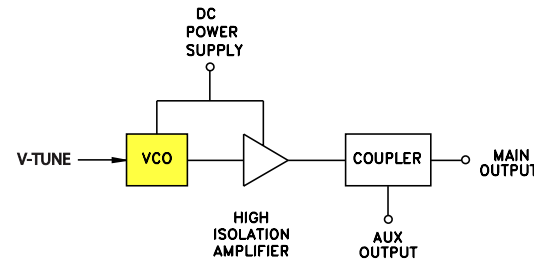
Outline Drawing



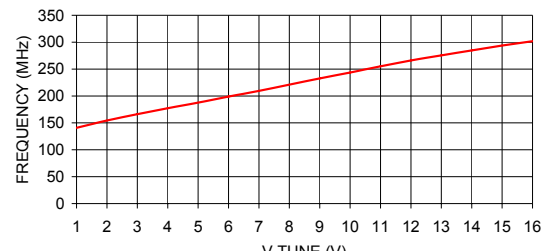
Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | wt |
|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|------|------|-------|
| 3.25 | 1.38 | 1.25 | .71 | 1.13 | .125 | 2.25 | .71 | .41 | .98 | 1.28 | 2.950 | .15 | 1.100 | .14 | .150 | grams |
| 82.55 | 35.05 | 31.75 | 18.03 | 28.70 | 3.18 | 57.15 | 18.03 | 10.41 | 24.89 | 32.51 | 74.93 | 3.81 | 27.94 | 3.56 | 3.81 | 180 |

electrical schematic



ZOS-300+ FREQUENCY vs. TUNING VOLTAGE



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



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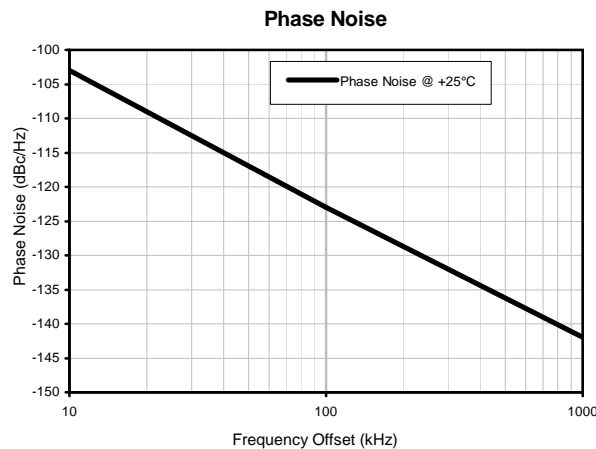
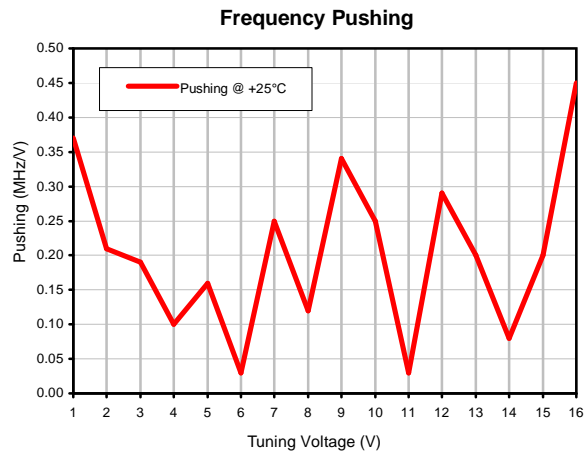
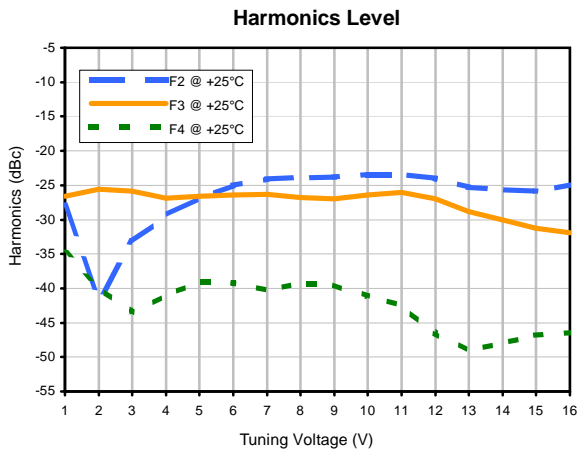
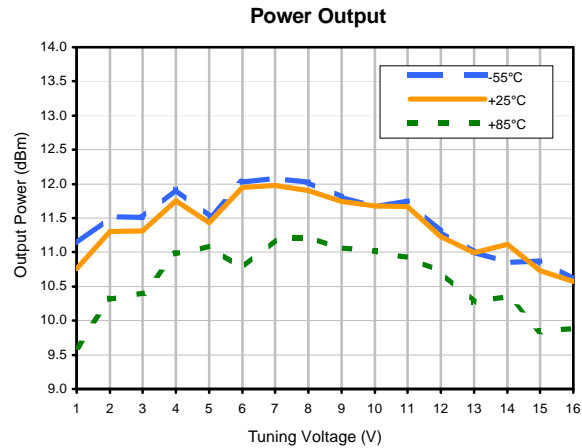
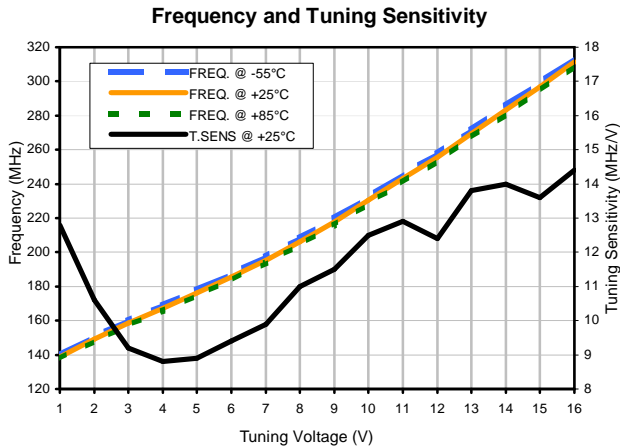
Typical Performance Data

| V TUNE | TUNE SENS (MHz/V) | FREQUENCY (MHz) | | | POWER OUTPUT (dBm) | | | HARMONICS (dBc) | | | FREQ. PUSH (MHz/V) | FREQ OFFSET (KHz) | PHASE NOISE (dBc/Hz) |
|-----------|-------------------------|--------------------|-------|-------|-----------------------|-------|-------|-----------------|-------|-------|--------------------------|-------------------------|----------------------------|
| | | -55°C | +25°C | +85°C | -55°C | +25°C | +85°C | F2 | F3 | F4 | | | |
| 1.0 | 12.80 | 140.0 | 138.7 | 137.5 | 11.13 | 10.76 | 9.62 | -27.9 | -26.6 | -34.9 | 0.37 | 10 | -103 |
| 2.0 | 10.60 | 150.8 | 149.4 | 148.0 | 11.52 | 11.30 | 10.31 | -41.6 | -25.6 | -39.8 | 0.21 | 100 | -123 |
| 3.0 | 9.20 | 160.1 | 158.6 | 157.1 | 11.51 | 11.31 | 10.40 | -33.2 | -25.9 | -43.5 | 0.19 | 1000 | -142 |
| 4.0 | 8.80 | 169.0 | 167.2 | 165.9 | 11.93 | 11.75 | 10.98 | -29.4 | -26.9 | -41.0 | 0.10 | | |
| 5.0 | 8.90 | 177.9 | 176.1 | 174.7 | 11.53 | 11.43 | 11.09 | -26.9 | -26.6 | -39.1 | 0.16 | | |
| 6.0 | 9.40 | 187.4 | 185.5 | 183.8 | 12.02 | 11.95 | 10.76 | -25.0 | -26.4 | -39.2 | 0.03 | | |
| 7.0 | 9.90 | 197.4 | 195.4 | 193.7 | 12.08 | 11.98 | 11.19 | -24.1 | -26.3 | -40.3 | 0.25 | | |
| 8.0 | 11.00 | 208.4 | 206.3 | 204.4 | 12.02 | 11.90 | 11.22 | -23.9 | -26.8 | -39.3 | 0.12 | | |
| 9.0 | 11.50 | 220.0 | 217.8 | 216.0 | 11.81 | 11.74 | 11.06 | -23.8 | -27.0 | -39.5 | 0.34 | | |
| 10.0 | 12.50 | 232.4 | 230.3 | 228.4 | 11.66 | 11.68 | 11.02 | -23.4 | -26.4 | -41.1 | 0.25 | | |
| 11.0 | 12.90 | 245.7 | 243.2 | 240.9 | 11.75 | 11.67 | 10.92 | -23.4 | -26.0 | -42.5 | 0.03 | | |
| 12.0 | 12.40 | 257.8 | 255.6 | 253.6 | 11.30 | 11.23 | 10.72 | -24.0 | -27.0 | -46.5 | 0.29 | | |
| 13.0 | 13.80 | 271.7 | 269.4 | 267.2 | 11.00 | 10.99 | 10.27 | -25.3 | -28.8 | -49.0 | 0.20 | | |
| 14.0 | 14.00 | 286.0 | 283.3 | 280.9 | 10.85 | 11.12 | 10.35 | -25.7 | -30.0 | -48.0 | 0.08 | | |
| 15.0 | 13.60 | 299.5 | 296.9 | 294.5 | 10.87 | 10.73 | 9.84 | -25.9 | -31.3 | -46.8 | 0.20 | | |
| 16.0 | 14.40 | 313.7 | 311.3 | 309.0 | 10.61 | 10.57 | 9.89 | -24.9 | -31.9 | -46.4 | 0.45 | | |

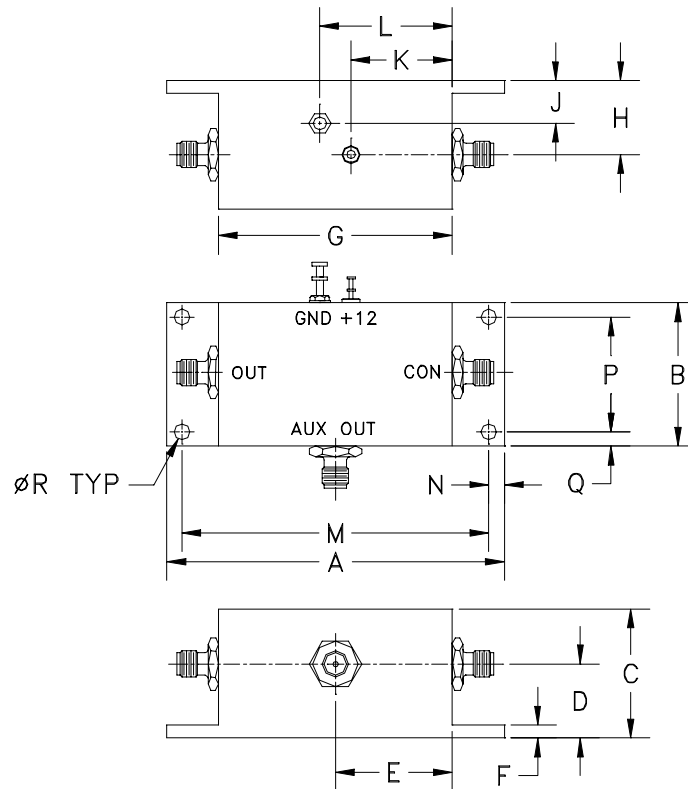
Voltage Controlled Oscillator

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Typical Performance Data



Outline Dimensions



| CASE # | A | B | C | D | E | F | G | H | J | K | L |
|--------|-----------------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|----------------|----------------|-----------------|
| BR386 | 3.25 (82.55) | 1.38 (35.05) | 1.25 (31.75) | .71 (18.03) | 1.13 (28.70) | .125 (3.18) | 2.25 (57.15) | .71 (18.03) | .41 (10.41) | .98 (24.89) | 1.28 (32.51) |

| CASE # | M | N | P | Q | R | WT. GRAM |
|--------|------------------|---------------|------------------|---------------|----------------|----------|
| BR386 | 2.950 (74.93) | .15 (3.81) | 1.100 (27.94) | .14 (3.56) | .150 (3.81) | 180 |

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|----------------------------|--|--------------------------------------|
| Operating Temperature | -55° to 85°C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C Ambient Environment | Individual Model Data Sheet |
| Barometric Pressure | 100,000 Feet | MIL-STD-202, Method 105, Condition D |
| Humidity | 90% RH, 65°C Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103 |
| Thermal Shock | -65° to 125°C, 5 cycles | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18) | MIL-STD-202, Method 213, Condition I |