

# NON-CATALOG

Surface Mount

# Voltage Controlled Oscillator

# JTOS-300P+

5V Tuning for PLL ICs 148 to 174 MHz



CASE STYLE: BK377

### Features

- low phase noise
- 5V tuning voltage range
- linear tuning characteristics
- aqueous washable

### Applications

- PLL circuitry
- measurement instrumentation
- frequency synthesizers

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

### Electrical Specifications

| FREQUENCY (MHz) |      | POWER OUTPUT (dBm) | TUNING VOLTAGE (V) |      | PHASE NOISE (dBc/Hz)               |       |        |         | PULLING pk-pk @ 12 dB (MHz) | PUSHING (MHz/V) | TUNING SENSITIVITY (MHz/V) | HARMONICS (dBc) |      | 3 dB MODULATION BANDWIDTH (MHz) | POWER SUPPLY |                   |  |
|-----------------|------|--------------------|--------------------|------|------------------------------------|-------|--------|---------|-----------------------------|-----------------|----------------------------|-----------------|------|---------------------------------|--------------|-------------------|--|
| Min.            | Max. | Typ.               | Min.               | Max. | SSB at offset frequencies:<br>Typ. |       |        |         | Typ.                        | Typ.            | Typ.                       | Typ.            | Max. | Typ.                            | Voltage (V)  | Current (mA) Max. |  |
|                 |      |                    |                    |      |                                    | 1 kHz | 10 kHz | 100 kHz | 1 MHz                       |                 |                            |                 |      |                                 |              |                   |  |
| 148             | 174  | +10                | 0.5                | 5.0  | -82                                | -102  | -122   | -142    | 1.0                         | 0.2             | 10-14                      | -27             | -20  | 0.12                            | 12           | 20                |  |

### Pin Connections

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

### Maximum Ratings

|                                      |                |
|--------------------------------------|----------------|
| Operating Temperature                | -55°C to 85°C  |
| Storage Temperature                  | -55°C to 100°C |
| Absolute Max. Supply Voltage (Vcc)   | 16V            |
| Absolute Max. Tuning Voltage (Vtune) | 7V             |
| All specifications                   | 50 ohm system  |

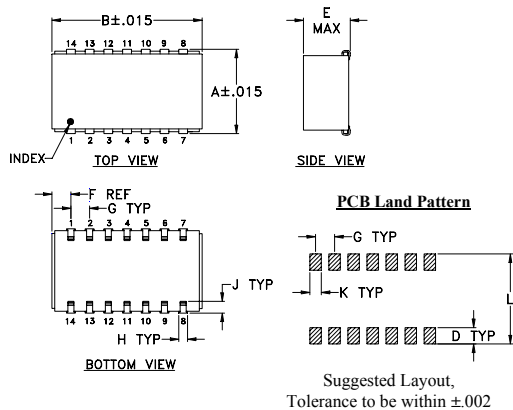
Permanent damage may occur if any of these limits are exceeded.

### Tape & Reel: F107

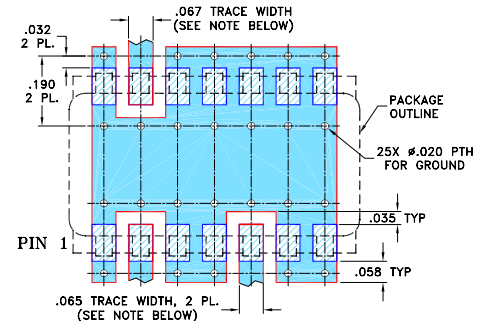
7" Reels with 10, 20, 50, 100 devices  
13" Reels with 200 devices

### Environmental Ratings: ENV65

### Outline Drawing



Demo Board MCL PIN: TB-04  
Suggested PCB Layout (PL-005)



### Outline Dimensions (inch/mm)

| A     | B     | C  | D    | E    | F    | G    | H    | J    | K    | L     | wt    |
|-------|-------|----|------|------|------|------|------|------|------|-------|-------|
| .505  | .800  | -- | .100 | .250 | .100 | .100 | .047 | .065 | .065 | .525  | grams |
| 12.83 | 20.32 | -- | 2.54 | 6.35 | 2.54 | 2.54 | 1.19 | 1.65 | 1.65 | 13.34 | 3.0   |

### Notes

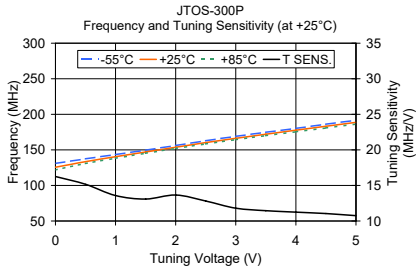
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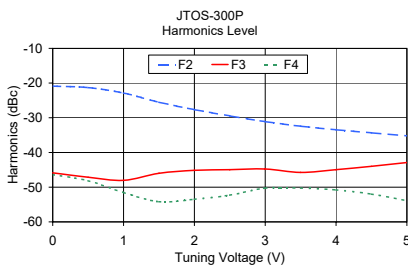
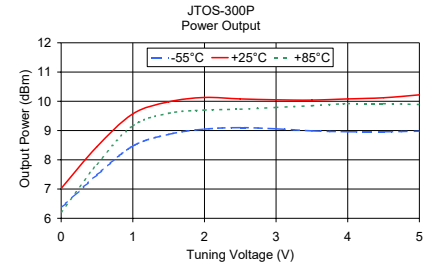
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## Performance Data & Curves

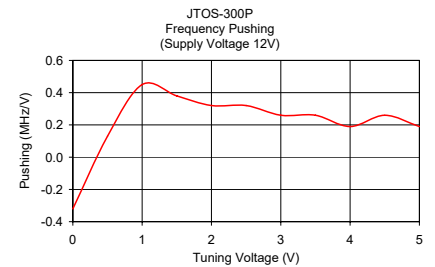
## JTOS-300P+



| V TUNE | TUNING SENS. (MHz/V) | FREQUENCY (MHz) |        |        | POWER OUTPUT (dBm) |       |       |
|--------|----------------------|-----------------|--------|--------|--------------------|-------|-------|
|        |                      | -55°C           | +25°C  | +85°C  | -55°C              | +25°C | +85°C |
| 0.00   | 16.26                | 130.97          | 125.58 | 121.94 | 6.36               | 7.02  | 6.21  |
| 0.50   | 15.16                | 137.44          | 133.44 | 130.82 | 7.48               | 8.45  | 7.85  |
| 1.00   | 13.58                | 143.41          | 140.40 | 138.32 | 8.47               | 9.57  | 9.16  |
| 1.50   | 13.09                | 149.57          | 147.01 | 145.24 | 8.87               | 9.98  | 9.59  |
| 2.00   | 13.65                | 156.17          | 153.67 | 152.09 | 9.05               | 10.13 | 9.70  |
| 2.50   | 12.81                | 162.85          | 160.26 | 158.44 | 9.10               | 10.08 | 9.73  |
| 3.00   | 11.80                | 169.07          | 166.24 | 164.40 | 9.06               | 10.05 | 9.79  |
| 3.50   | 11.45                | 174.77          | 172.00 | 170.06 | 8.99               | 10.04 | 9.85  |
| 4.00   | 11.24                | 180.29          | 177.66 | 175.50 | 8.96               | 10.08 | 9.92  |
| 4.50   | 11.05                | 186.11          | 183.22 | 180.88 | 8.96               | 10.12 | 9.92  |
| 5.00   | 10.75                | 191.68          | 188.65 | 186.34 | 8.98               | 10.22 | 9.89  |



| V TUNE | HARMONICS (dBc) |        |        | FREQ. PUSHING (MHz/V) |
|--------|-----------------|--------|--------|-----------------------|
|        | F2              | F3     | F4     |                       |
| 0.00   | -20.87          | -45.87 | -46.37 | -0.32                 |
| 0.50   | -21.30          | -47.14 | -48.14 | 0.13                  |
| 1.00   | -22.87          | -48.04 | -51.54 | 0.45                  |
| 1.50   | -25.50          | -46.00 | -54.17 | 0.38                  |
| 2.00   | -27.65          | -45.15 | -53.48 | 0.32                  |
| 2.50   | -29.45          | -44.95 | -52.29 | 0.32                  |
| 3.00   | -31.10          | -44.77 | -50.27 | 0.26                  |
| 3.50   | -32.42          | -45.76 | -50.26 | 0.26                  |
| 4.00   | -33.45          | -44.95 | -50.79 | 0.19                  |
| 4.50   | -34.33          | -43.99 | -51.99 | 0.26                  |
| 5.00   | -35.22          | -42.89 | -53.89 | 0.19                  |



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