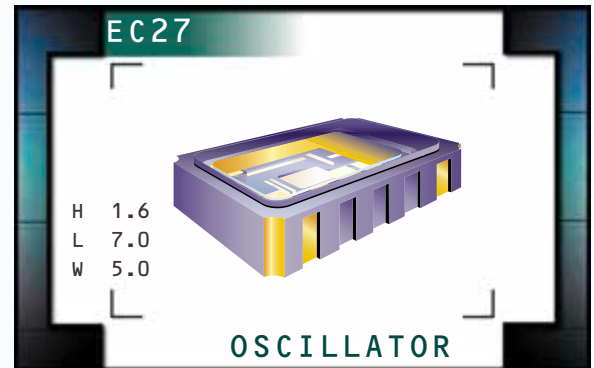


# EC27 Series

- HCMOS output
- 2.5V Supply Voltage
- Ceramic 4-pad SMD package
- Stability to 20ppm
- Available on Tape and Reel



## NOTES

### ELECTRICAL SPECIFICATIONS

|                                                        |                                                                     |                                                                                                                                                                                                             |
|--------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Frequency Range (<math>F_o</math>)</b>              |                                                                     | 1.544MHz to 50.000MHz                                                                                                                                                                                       |
| <b>Operating Temperature Range (OTR)</b>               | $\pm 100\text{ppm}, \pm 50\text{ppm}, \text{ or } \pm 25\text{ppm}$ | $0^\circ\text{C to } 70^\circ\text{C}$ or $-40^\circ\text{C to } 85^\circ\text{C}$                                                                                                                          |
|                                                        | $\pm 20\text{ppm}$                                                  | $0^\circ\text{C to } +70^\circ\text{C}$                                                                                                                                                                     |
| <b>Storage Temperature Range (STR)</b>                 |                                                                     | $-55^\circ\text{C to } 125^\circ\text{C}$                                                                                                                                                                   |
| <b>Supply Voltage (<math>V_{DD}</math>)</b>            |                                                                     | $2.5V_{DC} \pm 10\%$                                                                                                                                                                                        |
| <b>Input Current (<math>I_{DD}</math>)</b>             | $\leq 24.000\text{MHz}$                                             | 10mA Maximum                                                                                                                                                                                                |
|                                                        | $> 24.000\text{MHz}$                                                | 20mA Maximum                                                                                                                                                                                                |
| <b>Frequency Tolerance/Stability</b>                   |                                                                     | Inclusive of Operating Temperature Range, Supply Voltage, and Load<br>$\pm 100\text{ppm}, \pm 50\text{ppm}, \pm 25\text{ppm}, \text{ or } \pm 20\text{ppm}$ ( $0^\circ\text{C to } +70^\circ\text{C}$ only) |
| <b>Output Voltage Logic High (<math>V_{OH}</math>)</b> |                                                                     | 90% of $V_{DD}$ Minimum                                                                                                                                                                                     |
| <b>Output Voltage Logic Low (<math>V_{OL}</math>)</b>  |                                                                     | 10% of $V_{DD}$ Maximum                                                                                                                                                                                     |
| <b>Rise Time / Fall Time (<math>T_R/T_F</math>)</b>    | $\leq 24.000\text{MHz}$ 10% to 90% of Waveform                      | 6 nSeconds Maximum                                                                                                                                                                                          |
|                                                        | $> 24.000\text{MHz}$ 10% to 90% of Waveform                         | 4 nSeconds Maximum                                                                                                                                                                                          |
| <b>Duty Cycle (SYM)</b>                                |                                                                     | at 50% of Waveform<br>$50 \pm 10(\%)$ (Standard) or $50 \pm 5(\%)$ (Optional)                                                                                                                               |
| <b>Load Drive Capability (<math>C_{LOAD}</math>)</b>   |                                                                     | 15pF HCMOS Load Maximum                                                                                                                                                                                     |
| <b>Pin 1 Tri-State Input Voltage</b>                   | No Connection                                                       | Enables Output                                                                                                                                                                                              |
|                                                        | $V_{IH}: \geq 90\% \text{ of } V_{DD}$                              | Enables Output                                                                                                                                                                                              |
|                                                        | $V_{IL}: \leq 10\% \text{ of } V_{DD}$                              | Disables Output: High Impedance                                                                                                                                                                             |
| <b>Aging (at <math>25^\circ\text{C}</math>)</b>        |                                                                     | $\pm 5\text{ppm/year}$ Maximum                                                                                                                                                                              |
| <b>Start Up Time (<math>T_S</math>)</b>                |                                                                     | 10 mSeconds Maximum                                                                                                                                                                                         |
| <b>Period Jitter: Absolute</b>                         |                                                                     | $\pm 100\text{pSeconds}$ Maximum                                                                                                                                                                            |
| <b>Period Jitter: One Sigma</b>                        |                                                                     | $\pm 25\text{pSeconds}$ Maximum                                                                                                                                                                             |

|                                |                        |                |                    |                 |               |                    |
|--------------------------------|------------------------|----------------|--------------------|-----------------|---------------|--------------------|
| MANUFACTURER<br>ECLIPTEK CORP. | CATEGORY<br>OSCILLATOR | SERIES<br>EC27 | PACKAGE<br>CERAMIC | VOLTAGE<br>2.5V | CLASS<br>OS52 | REV. DATE<br>09/00 |
|--------------------------------|------------------------|----------------|--------------------|-----------------|---------------|--------------------|

## PART NUMBERING GUIDE

**EC27 00 ET TS - 30.000M TR**

### FREQUENCY TOLERANCE / STABILITY

00=±100ppm Maximum (Standard)  
45=±50ppm Maximum, 25=±25ppm Maximum  
20=±20ppm Maximum

### OPERATING TEMPERATURE RANGE

Blank=0°C to 70°C (Standard)  
ET=-40°C to 85°C

### PACKAGING OPTIONS

Blank=Bulk (Standard)  
TR=Tape and Reel

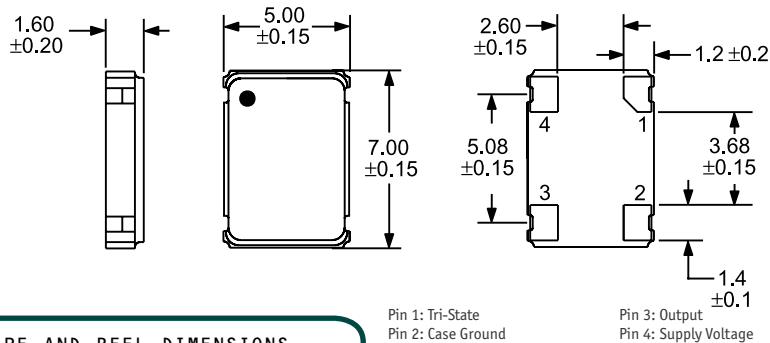
### FREQUENCY

### DUTY CYCLE

Blank=50 ±10(%) (Standard)  
T=50 ±5(%)

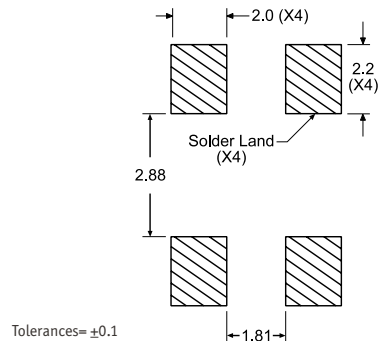
### MECHANICAL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



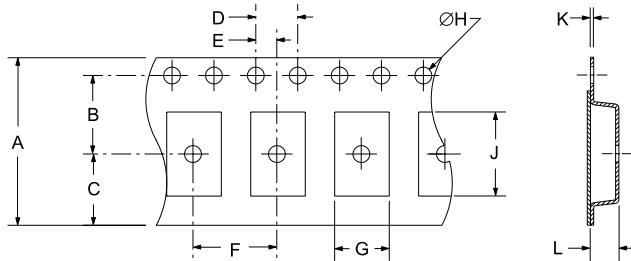
### SUGGESTED SOLDER PAD LAYOUT

ALL DIMENSIONS IN MILLIMETERS

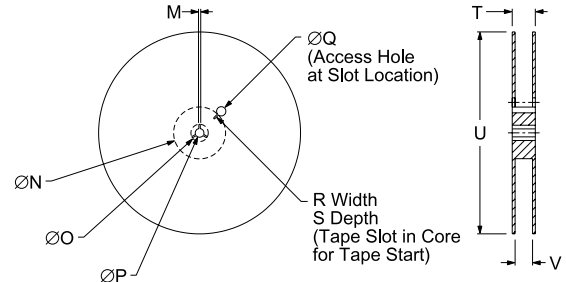


### TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



| TAPE | A        | B         | C       | D       | E    |
|------|----------|-----------|---------|---------|------|
|      | 16±.3-.1 | 7.5±.1    | 6.75±.1 | 4±.1    | 2±.1 |
| F    | G        | H         | J       | K       | L    |
| 8±.1 | B0*      | 1.5 ±.1-0 | A0*     | .3 ±.05 | K0*  |



| REEL    | M       | N        | O        | P        | Q        |
|---------|---------|----------|----------|----------|----------|
|         | 1.5 MIN | 50 MIN   | 20.2 MIN | 13±.2    | 40 MIN   |
| R       | S       | T        | U        | V        | QTY/REEL |
| 2.5 MIN | 10 MIN  | 22.4 MAX | 360 MAX  | 16.4±2-0 | 1,000    |

\*Compliant to EIA 481A

### ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| Characteristic     | Specification                                                         |
|--------------------|-----------------------------------------------------------------------|
| Seal Integrity     | Bubble test in Perfluorocarbon at +125°C ±5°C for 60 seconds minimum. |
| Solderability      | Sn63 Solder dip at +230°C ±5°C for 5 seconds/95% coverage.            |
| Marking Permanency | 10 Strokes with brush after 1 minute soak in solvent, 3 times.        |
| Shock              | Random drop on hard wooden plate 3 times from a height of 50cm.       |
| Thermal Shock      | 300 Cycles from -55°C to +125°C, 5 minute dwell                       |

### MARKING SPECIFICATIONS

Line 1: ECLIPTEK

Line 2: XX.XXX M

Frequency in MHz (5 Digits Maximum + Decimal)

Line 3: XX Y ZZ

Week of Year

Last Digit of Year

Ecliptek Manufacturing Identifier

| MANUFACTURER   | CATEGORY   | SERIES | PACKAGE | VOLTAGE | CLASS | REV. # DATE |
|----------------|------------|--------|---------|---------|-------|-------------|
| ECLIPTEK CORP. | OSCILLATOR | EC27   | CERAMIC | 2.5V    | 0552  | 09/00       |