

## HCMOS 14 pin DIL compatible, 'W' Group

- Through-hole package compatible with 14 pin DIL
- Frequency range: 200.01MHz to 800.0MHz
- Supply voltage 3.3 Volts
- Frequency stability from  $\pm 1\text{ppm}$  over  $-30$  to  $+75^\circ\text{C}$

### DESCRIPTION

EMW39T series TCXOs are packaged in a through-hole package, pin compatible with 14 pin DIL with trimmer. With squarewave (CMOS) output, tolerances are available from  $\pm 1.0\text{ppm}$  over  $-30^\circ$  to  $+75^\circ\text{C}$ . The part has a  $0.01\mu\text{F}$  decoupling capacitor built in.

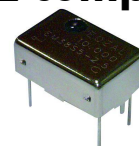
### SPECIFICATION

|                                |                                                                   |
|--------------------------------|-------------------------------------------------------------------|
| Product Series Code            | TCXO: EMW39T<br>VCTCXO: VEMW39T                                   |
| Frequency Range:               | 200.01MHz to 800.0MHz                                             |
| Output Waveform:               | Squarewave, HCMOS                                                 |
| Initial Calibration Tolerance: | $< \pm 2.0\text{ppm}$ at $+25^\circ \pm 2^\circ\text{C}$          |
| Standard Frequencies:          | 200.0, 204.8, 311.04, 400.0, 409.6 and 622.08MHz (Partial list)   |
| Mechanical Frequency Tuning:   | $\pm 3\text{ppm}$ minimum                                         |
| Operating Temperature Range:   | (see table)                                                       |
| Frequency Stability            | (see table)                                                       |
| vs. Ageing:                    | $\pm 1.0\text{ppm}$ max. first year                               |
| vs. Voltage Change:            | $\pm 0.3\text{ppm}$ max. $\pm 5\%$ change                         |
| vs. Load Change:               | $\pm 0.3\text{ppm}$ max. $\pm 10\%$ change                        |
| vs. Reflow (SMD type):         | $\pm 1.0\text{ppm}$ max. for one reflow (Measured after 24 hours) |
| Supply Voltage:                | +3.3 Volts                                                        |
| Output Logic Levels:           | Logic High: 90% Vdd min.<br>Logic Low: 10% Vdd max.               |
| Current Consumption:           | 65mA max. (Freq. dependant)                                       |
| Rise and Fall Times:           | 1.2ns typical                                                     |
| Duty Cycle:                    | 50% $\pm 5\%$                                                     |
| Start-up Time:                 | 5ms typical, 10ms max.                                            |
| Current Consumption:           | See table below                                                   |
| Output Load:                   | 15pF                                                              |
| Storage Temperature:           | $-55 \sim +125^\circ\text{C}$                                     |

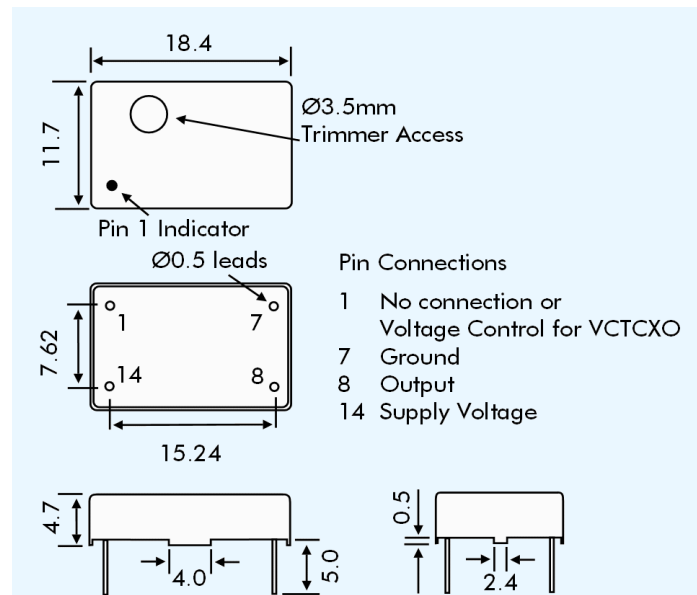
### FREQUENCY STABILITY

| Stability (ppm)                  | $\pm 0.5$ | $\pm 1.0$ | $\pm 1.5$ | $\pm 2.0$ | $\pm 2.5$ | $\pm 3.0$ |
|----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Temp. Range ( $^\circ\text{C}$ ) |           |           |           |           |           |           |
| 0 ~ +50                          | ✓         | ✓         | ✓         | ✓         | ✓         | ✓         |
| -10 ~ +60                        | ASK       | ✓         | ✓         | ✓         | ✓         | ✓         |
| -20 ~ +70                        | X         | ✓         | ✓         | ✓         | ✓         | ✓         |
| -30 ~ +75                        | X         | ✓         | ✓         | ✓         | ✓         | ✓         |
| -40 ~ +85                        | X         | X         | X         | ASK       | ASK       | ✓         |

✓ = available, x = not available, ASK = call Technical Sales



### EMW39T - OUTLINES AND DIMENSIONS



### VEMW39T VOLTAGE CONTROL SPECIFICATION

|                       |                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Control Voltage:      | Standard = $+1.5 \pm 1.0\text{Volts}$ for all input voltages. (Contact technical sales if $+2.5 \pm 2.0\text{Volts}$ is required.) |
| Frequency Deviation:  | $\pm 6.0\text{ppm}$ min. ( $V_{\text{con}} = +4.5\text{V} \pm 1.0\text{V}$ )                                                       |
| Slope Polarity:       | Positive (increase of control voltage increases output frequency.)                                                                 |
| Input Impedance:      | 2M $\Omega$ minimum                                                                                                                |
| Modulation Bandwidth: | 25kHz minimum                                                                                                                      |
| Linearity:            | $\pm 10\%$ maximum                                                                                                                 |

### SSB PHASE NOISE at $25^\circ\text{C}$

| Offset                                 | 10Hz | 100Hz | 1kHz | 10kHz | 100kHz |
|----------------------------------------|------|-------|------|-------|--------|
| Part = EMW39T33 at 622.080MHz (dBc/Hz) | -50  | -77   | -102 | -115  | -108   |

### PART NUMBERING SCHEDULE

|                                                        |                                   |
|--------------------------------------------------------|-----------------------------------|
| Example:                                               | <b>EMW39T33-409.60-2.5/-30+75</b> |
| Series Description                                     | TCXO = EMW39T                     |
| VCTCXO = VEMW39T                                       |                                   |
| Supply Voltage                                         | 33 = 3.3 VDC                      |
| Frequency (MHz)                                        | 409.60                            |
| Stability over OTR ( $\pm\text{ppm}$ )                 | 2.5                               |
| Operating Temperature Range (OTR) ( $^\circ\text{C}$ ) | -30+75                            |
| Lower and upper limits                                 |                                   |