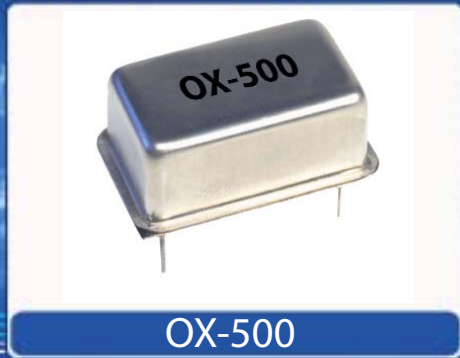


Helping Customers Innovate, Improve & Grow



### Features

- 4-Pin package
- Fast warm-up
- TCXO replacement for better short term stability
- Frequency Range, 7 MHz to 40 MHz
- Standard frequencies, 20 MHz (SC); 13 MHz (AT)

### Applications

- Base stations
- Test equipment
- Synthesizers
- Military communication equipment

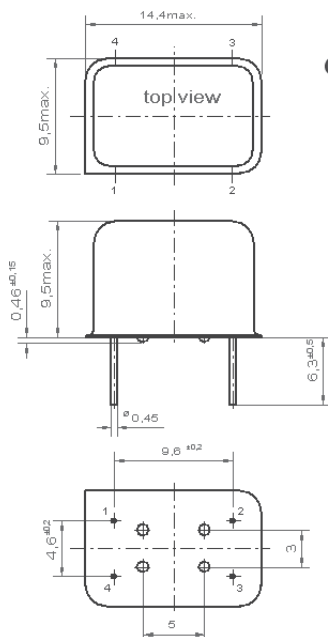
## Performance Specifications

| Frequency Stabilities <sup>1</sup> (AT-Cut Crystal-Standard - 7 to 20 MHz) |      |         |      |         |  |                      |
|--|------|---------|------|---------|--|----------------------|
| Parameter  | Min  | Typical | Max  | Units   | Condition  | Options <sup>5</sup> |
| vs. operating temperature range<br>(referenced to +25°C)                   | -100 |         | +100 | ppb     | -20 to +70°C   |                      |
|  | -250 |         | +250 | ppb     | -20 to +70°C   |                      |
|  | -250 |         | +250 | ppb     | -40 to +85°C   |                      |
| Initial tolerance  | -0.5 |         | +0.5 | ppm     | at time of shipment, nominal EFC<br>$V_s \pm 5\%$ static<br>Load $\pm 5\%$ static<br>after 30 days of operation<br>after 30 days of operation                |                      |
| vs. supply voltage change  | -40  |         | +40  | ppb     |  |                      |
| vs. load change  | -40  |         | +40  | ppb     |  |                      |
| vs. aging / day  | -20  |         | +20  | ppb     |  |                      |
| vs. aging / year   | -1   |         | +1   | ppm     |  |                      |
| Warm-up time   |      |         | 2    | minutes | to $\pm 200$ ppb of final frequency (1 hour reading) @ +25°C   |                      |
| Frequency Stabilities <sup>1</sup> (SC-Cut Crystal-Option - 20 to 40 MHz)  |      |         |      |         |  |                      |
| vs. operating temperature range<br>(referenced to +25°C)                   | -25  |         | +25  | ppb     | -20 to +70°C   |                      |
|  | -50  |         | +50  | ppb     | -40 to +85°C   |                      |
| Initial tolerance  | -0.2 |         | +0.2 | ppm     | at time of shipment, nominal EFC<br>$V_s \pm 5\%$ static<br>Load $\pm 5\%$ static<br>after 30 days of operation<br>$\leq 60$ MHz; after 30 days of operation |                      |
| vs. supply voltage change  | -20  |         | +20  | ppb     |  |                      |
| vs. load change  | -20  |         | +20  | ppb     |  |                      |
| vs. aging / day  | -5.0 |         | +5.0 | ppb     |  |                      |
| vs. aging / year   | -100 |         | +100 | ppb     |  |                      |
| Warm-up time   |      |         | 2    | minutes | to $\pm 100$ ppb of final frequency (1 hour reading) @ +25°C   |                      |

# Performance Specifications

| Supply Voltage (Vs)        |                            |         |       |        |                            |                     |
|----------------------------|----------------------------|---------|-------|--------|----------------------------|---------------------|
| Parameter                  | Min                        | Typical | Max   | Units  | Condition                  |                     |
| Supply voltage (standard)  | 3.135                      | 3.3     | 3.465 | VDC    |                            |                     |
| Power consumption          |                            |         | 2.0   | Watts  | during warm-up             |                     |
|                            |                            |         | 0.65  | Watts  | steady state @ +25°C       |                     |
| RF Output                  |                            |         |       |        |                            |                     |
| Signal [standard]          | HCMOS                      |         |       |        |                            |                     |
| Load                       |                            | 15      |       | pF     |                            |                     |
| Signal Level (Vol)         |                            |         | 0.4   | VDC    | with Vs=3.3V and 15pF Load |                     |
| Signal Level (Voh)         | 2.4                        |         |       | VDC    | with Vs=3.3V and 15pF Load |                     |
| Duty Cycle                 | 45                         |         | 55    | %      | @ (Voh-Vol)/2              |                     |
| Frequency Tuning (EFC)     |                            |         |       |        |                            |                     |
| Tuning Range               | Fixed OCXO; No adjust      |         |       |        | Option <sup>5</sup>        |                     |
| Tuning Range               | ±5.0                       |         | ±12   | ppm    |                            | with AT cut crystal |
|                            | ±1.0                       |         | ±3    | ppm    |                            | with SC cut crystal |
| Linearity                  | 10%                        |         |       |        |                            |                     |
| Tuning Slope               | Positive                   |         |       |        |                            |                     |
| Control Voltage Range      | 0.0                        | 1.4     | 2.8   | VDC    | with Vs=3.3V               |                     |
| Additional Parameters      |                            |         |       |        |                            |                     |
| Phase Noise <sup>3</sup>   |                            |         | -     | dBc/Hz | 1 Hz                       | @ 10MHz             |
|                            |                            |         | -     | dBc/Hz | 10 Hz                      |                     |
|                            |                            |         | -     | dBc/Hz | 100 Hz                     |                     |
|                            |                            |         | -     | dBc/Hz | 1 kHz                      |                     |
|                            |                            |         | -     | dBc/Hz | 10 kHz                     |                     |
| Weight                     |                            |         | 6.0   | g      |                            |                     |
| Processing & Packing       | Handling & Processing Note |         |       |        |                            |                     |
| Absolute Maximum Ratings   |                            |         |       |        |                            |                     |
| supply voltage (Vs)        |                            |         | 5.5   | V      | with Vs=3.3VDC             |                     |
| Output Load                |                            |         | 50    | pF     |                            |                     |
| Operable Temperature Range | -55                        |         | +85   | °C     |                            |                     |
| Storage Temperature Range  | -55                        |         | +125  | °C     |                            |                     |

# Outline Drawing / Enclosure



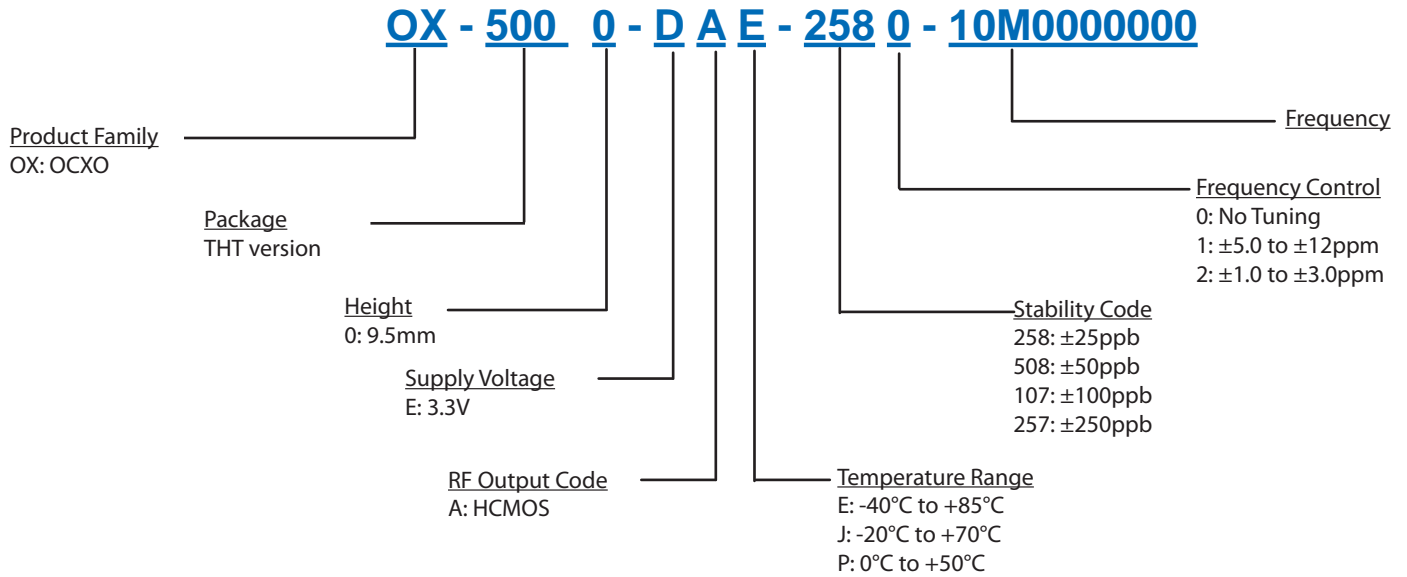
G279

Dimensions in mm

| OX-500     |                |
|------------|----------------|
| Height "H" | Pin Length "L" |
| 9.5        | 5.85min.       |

| Pin Connections |  |
|-----------------|--|
| 1               | Electronic Frequency Control Input (EFC) |
| 7               | Ground (Case)                            |
| 8               | RF Output                                |
| 14              | Supply Voltage Input                     |

## Ordering Information



**Notes:**

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).
3. Phase noise degrades with increasing output frequency.
4. Subject to technical modification.
5. Contact factory for availability.

## For Additional Information, Please Contact

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