

OVEN CONTROLLED CRYSTAL OSCILLATORS

QEO SV DIL & SMD series



DIL & SMD SERIES

QEO SV

The DIL & SMD OCXO series provides both small size and high performance.

The frequency stability of the DIL14 OCXO is as high as 5.10^{-7} from -20°C to 75°C in a standard package size with standoffs (Model QEO SV 93).

The SMD OCXO QEO SV 51 and QEO SV 94 are the best compromise between size and performance. Their very fast warm-up rate gives a frequency stability better than 10^{-8} within 45 seconds. They are fully compatible with standard forced air or IR reflow soldering profiles up to 260°C during 10 seconds.

High stability
Low ageing
Low package size

Applications

GSM pico and micro base station
WCDMA
Stratum III requirements
LMDS
Network access: ADSL

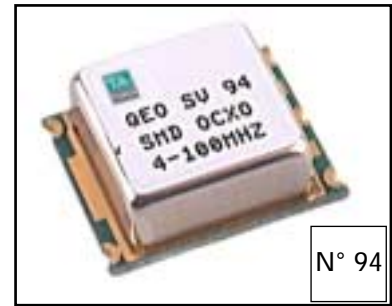
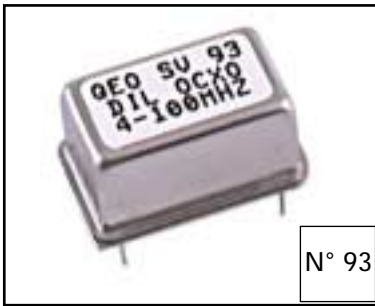
| Performance range | |
|-----------------------|--|
| Parameters | Available range |
| Frequency | 4 to 100 MHz |
| Thermal stability | 2.10^{-8} to 5.10^{-7} |
| Operating temperature | -40°C to $+85^{\circ}\text{C}$ |
| Supply voltage | from $+3.3\text{V}$ to $+12\text{V}$ |
| Tuning voltage | up to $\pm 10\text{V}$ |
| Package size (mm) | N°93: 20.2x12.6x10 N°51: 20x20x14 N°94: 25x22x10 |

*We welcome your
custom specifications*

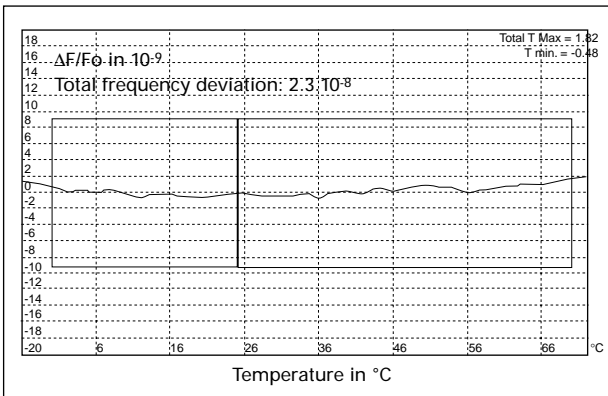
Features

Standard DIL & SMD OCXO specifications

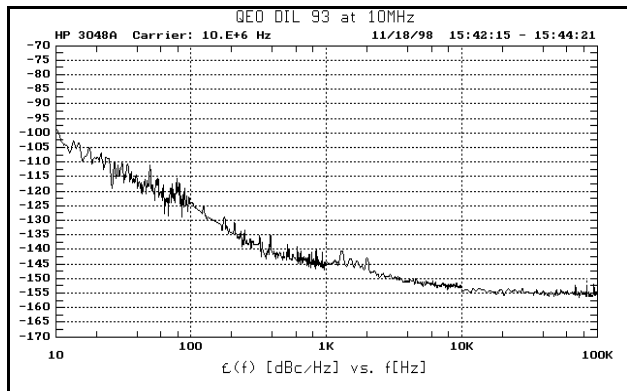
| Frequency in MHz | Package size | Supply voltage V | Temperature range $^{\circ}\text{C}$ | Frequency stability vs. temp. range | Ageing per day | Ageing per year | Output | Power at start-up | Power at 25°C |
|------------------|--------------|------------------|--------------------------------------|-------------------------------------|----------------|-----------------|---------|-------------------|-------------------------------|
| 5 | 93 | 5 | -30 ; 70 | 2.10^{-7} | 1.10^{-9} | 3.10^{-7} | HCMOS | 2 W | 0.7 W |
| 8.192 | 93 | 12 | -40 ; 80 | 2.10^{-7} | 1.10^{-9} | 3.10^{-7} | HCMOS | 2 W | 0.7 W |
| 10 | 93 | 5 | 0 ; 50 | 1.10^{-7} | 1.10^{-9} | 3.10^{-7} | HCMOS | 2 W | 0.5 W |
| 10 | 93 | 5 | -30 ; 70 | 2.10^{-7} | 1.10^{-9} | 3.10^{-7} | HCMOS | 2 W | 0.7 W |
| 13 | 94 | 5 | -10 ; 70 | 4.10^{-8} | 1.10^{-9} | 3.10^{-7} | HCMOS | 2 W | 0.7 W |
| 13 | 51 | 6.2 | 0 ; 70 | 3.10^{-7} | 1.10^{-9} | 1.10^{-7} | SINUS | 2 W | 0.6 W |
| 16.384 | 93 | 12 | -40 ; 75 | 3.10^{-7} | 1.10^{-9} | 3.10^{-7} | HCMOS | 2 W | 0.7 W |
| 19.44 | 94 | 5 | 0 ; 70 | 1.10^{-7} | 3.10^{-9} | 5.10^{-7} | LVC MOS | 3 W | 1 W |
| 20 | 93 | 5 | -30 ; 70 | 2.10^{-7} | 1.10^{-9} | 3.10^{-7} | HCMOS | 2 W | 0.7 W |
| 26 | 51 | 9 | -10 ; 75 | 3.10^{-8} | 1.10^{-9} | 1.10^{-7} | HCMOS | 2 W | 0.7 W |
| 52 | 51 | 5 | 0 ; 70 | 3.10^{-7} | 5.10^{-9} | 5.10^{-7} | LVC MOS | 2,5 W | 1 W |
| 61.44 | 51 | 9 | -10 ; 85 | 2.10^{-8} | 5.10^{-9} | 1.10^{-7} | LVC MOS | 4.5 W | 2 W |
| 100 | 93 | 5 | 0 ; 50 | 1.10^{-7} | 5.10^{-9} | 3.10^{-7} | MCMOS | 3 W | 1 W |



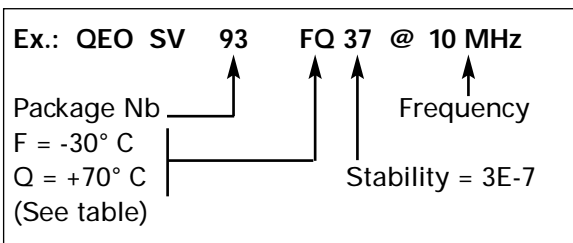
Frequency stability vs. temperature range at 26 MHz



Typical phase noise at 10 MHz



How to order?



| Low temp. value | Code | High temp. value | Code |
|-----------------|------|------------------|------|
| -40° C | D | +50° C | M |
| -30° C | F | +60° C | O |
| -20° C | H | +70° C | Q |
| -10° C | J | +75° C | R |
| -5° C | K | +80° C | S |
| 0° C | L | +85° C | T |

Please mention Output signal Waveform (Sine, HCMOS, LVCMOS, LVDS, ...)

Standard DIL & SMD OCXO specifications

| Frequency in MHz | Phase noise | | | | | Frequency stability vs. | | Tuning range ± | Reference |
|------------------|-------------|--------|-------|--------|-------|-------------------------|---------------------|----------------|---------------------------|
| | 10 Hz | 100 Hz | 1 kHz | 10 kHz | Floor | 5% supply | 5% load | | |
| 5 | -100 | -125 | -145 | -150 | -155 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 93 FQ27 @5MHz |
| 8.192 | -110 | -130 | -140 | -145 | -150 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 93 DS27 @8.192MHz |
| 10 | -100 | -125 | -145 | -150 | -155 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 93 LM17 @10MHz |
| 10 | -100 | -125 | -145 | -150 | -155 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 93 FQ27 @10MHz |
| 13 | -100 | -125 | -140 | -145 | -145 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 94 JQ48 @13MHz |
| 13 | -100 | -125 | -140 | -145 | -145 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 51 LQ37 @13MHz |
| 16.384 | -30 | -120 | -130 | -140 | -145 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 93 DS27 @16.384MHz |
| 19.44 | -100 | -125 | -140 | -145 | -150 | <1.10 ⁻⁸ | <1.10 ⁻⁸ | 10 ppm | QEO SV 94LQ17@19.44MHz |
| 20 | -100 | -125 | -140 | -145 | -150 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 93 FQ27 @20MHz |
| 26 | -100 | -125 | -140 | -145 | -145 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | >3 ppm | QEO SV 51 JR38 @26MHz |
| 52 | -85 | -110 | -130 | -130 | -135 | <1.10 ⁻⁸ | <1.10 ⁻⁸ | 5 ppm | QEO SV 51LQ37@52MHz |
| 61.44 | -95 | -110 | -120 | -130 | -135 | <5.10 ⁻⁹ | <5.10 ⁻⁹ | 2 ppm | QEO SV 51 JT28@61.44MHz |
| 100 | -85 | -110 | -115 | -120 | -125 | <5.10 ⁻⁸ | <5.10 ⁻⁸ | 5 ppm | QEO SV 93LM17@100MHz |