

# 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  $-20^{\circ}\text{C}$  to  $75^{\circ}\text{C}$  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  $260^{\circ}\text{C}$  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

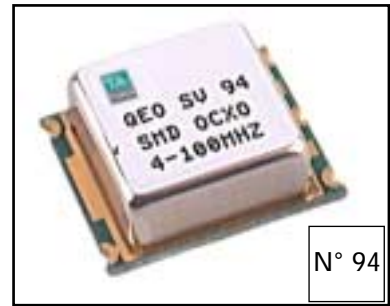
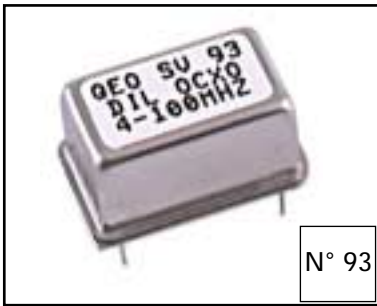
Performance range	
Parameters	Available range
Frequency	4 to 100 MHz
Thermal stability	$2.10^{-8}$ to $5.10^{-7}$
Operating temperature	$-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$
Supply voltage	from $+3.3\text{V}$ to $+12\text{V}$
Tuning voltage	up to $\pm 10\text{V}$
Package size (mm)	N°93: 20.2x12.6x10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

*We welcome your custom specifications*

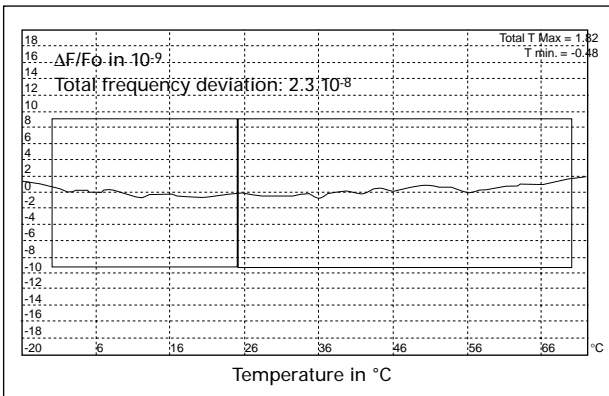
### Features

#### Standard DIL & SMD OCXO specifications

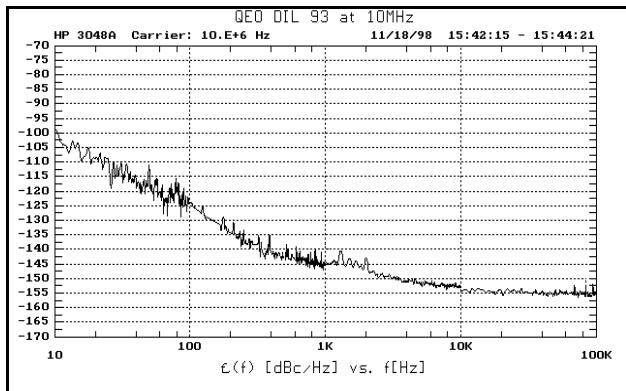
Frequency in MHz	Package size	Supply voltage V	Temperature range $^{\circ}\text{C}$	Frequency stability vs. temp. range	Ageing per day	Ageing per year	Output	Power at start-up	Power at $25^{\circ}\text{C}$
5	93	5	-30 ; 70	$2.10^{-7}$	$1.10^{-9}$	$3.10^{-7}$	HCMOS	2 W	0.7 W
8.192	93	12	-40 ; 80	$2.10^{-7}$	$1.10^{-9}$	$3.10^{-7}$	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



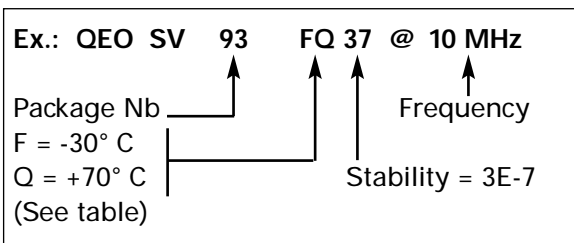
**Frequency stability vs. temperature range at 26 MHz**



**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 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 93 FQ27 @5MHz
8.192	-110	-130	-140	-145	-150	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 93 DS27 @8.192MHz
10	-100	-125	-145	-150	-155	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 93 LM17 @10MHz
10	-100	-125	-145	-150	-155	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 93 FQ27 @10MHz
13	-100	-125	-140	-145	-145	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 94 JQ48 @13MHz
13	-100	-125	-140	-145	-145	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 51 LQ37 @13MHz
16.384	-30	-120	-130	-140	-145	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 93 DS27 @16.384MHz
19.44	-100	-125	-140	-145	-150	<1.10 <sup>-8</sup>	<1.10 <sup>-8</sup>	10 ppm	QEO SV 94LQ17@19.44MHz
20	-100	-125	-140	-145	-150	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 93 FQ27 @20MHz
26	-100	-125	-140	-145	-145	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	>3 ppm	QEO SV 51 JR38 @26MHz
52	-85	-110	-130	-130	-135	<1.10 <sup>-8</sup>	<1.10 <sup>-8</sup>	5 ppm	QEO SV 51LQ37@52MHz
61.44	-95	-110	-120	-130	-135	<5.10 <sup>-9</sup>	<5.10 <sup>-9</sup>	2 ppm	QEO SV 51 JT28@61.44MHz
100	-85	-110	-115	-120	-125	<5.10 <sup>-8</sup>	<5.10 <sup>-8</sup>	5 ppm	QEO SV 93LM17@100MHz