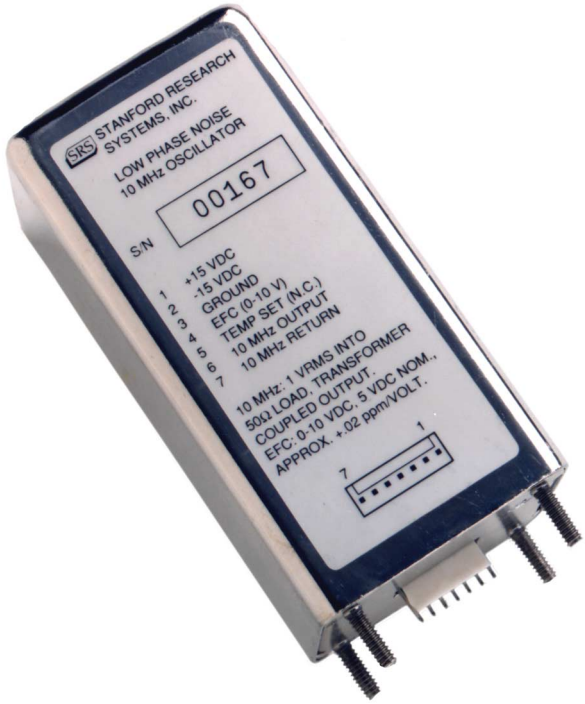
Frequency Standards

SC10 — 10 MHz high-stability ovenized quartz oscillator



SC10 Ovenized Quartz Oscillator

- **SC-cut crystal for low phase noise**
- **2×10^{-12} Allan variance (1 s)**
- **Low aging ($<2 \times 10^{-10}$/day)**
- **+15 or +24 VDC operation**
- **Flexible electronic frequency control**

The SC10 is a high-stability, ovenized 10 MHz quartz oscillator that combines excellent phase noise, Allan variance, and aging characteristics. Using an SC-cut crystal for lowest phase noise characteristics, and an innovative electronic double oven temperature controller to minimize temperature gradients, the SC10 achieves a one second Allan variance of 2×10^{-12} and an aging rate of only 2×10^{-10}, making it ideal for virtually any precision timing application.

Convenient Options

A number of options can be specified to match the SC10's performance to your requirements. +15 or +24 VDC operation can be specified, and the output is available on SMA, SMB, and SMC connectors, or on a single pin. Aging, noise, temperature stability, and operating temperature range can all be separately specified in one of three grades so you only pay for the performance you need. Electronic fine tuning (EFC) is available with a number of tuning ranges and slopes.

Grade Dependent Specifications

	J	K	A
Frequency	10 MHz	10 MHz	10 MHz
Aging (per day)	$<1 \times 10^{-9}$	$<5 \times 10^{-10}$	$<2 \times 10^{-10}$
Allan var. (1s)	$<1 \times 10^{-11}$	$<5 \times 10^{-12}$	$<2 \times 10^{-12}$
Phase noise (per Hz)			
10 Hz	< –120 dBc	< –125 dBc	< –130 dBc
100 Hz	< –150 dBc	< –150 dBc	< –150 dBc
1 kHz	< –158 dBc	< –158 dBc	< –158 dBc
10 kHz	< –158 dBc	< –158 dBc	< –158 dBc
Temp. range (°C)	0 to 50	–20 to 50	–55 to 75
Temp. stability (over temp. range)	$<2 \times 10^{-9}$	$<1 \times 10^{-9}$	$<5 \times 10^{-10}$
Power			
Warm-up	8 W	8 W	12 W
25 °C	3 W	3 W	3 W

Output

Output level	1 Vrms into 50 Ω (+13 dBm)
Output accuracy	±5 %
Output waveform	Sine wave
Harmonic distortion	< –60 dBc

Tuning

Mech. tuning range	Greater than ±3 Hz
EFC range and slope	
Option 1	0 to 10 V, 5 V nominal, +0.5 Hz/V
Option 2	0 to 10 V, 5 V nominal, –0.5 Hz/V
Option 3	–10 to 10 V, 0 V nominal, +0.25 Hz/V
Option 4	–10 to 10 V, 0 V nominal, –0.25 Hz/V
Option 5	–5 to 5 V, 0 V nominal, +0.5 Hz/V
Option 6	–5 to 5 V, 0 V nominal, –0.5 Hz/V
Option 7	0 to 6 V, 3 V nominal, +0.75 Hz/V
Option 8	0 to 6 V, 3 V nominal, –0.75 Hz/V

General

Output connector	Pin, SMA, SMB, or SMC
Supply voltage	+15 VDC or +24 VDC
Size	2" × 2" × 4" (WDH)
Weight	1 lbs.
Warranty	One year parts and labor on defects in materials and workmanship

Ordering Information

SC10-VS-E-T-S-N-A-CON

VS	15 for +15 VDC operation, 24 for +24 VDC operation
E	1 to 8 specifying the EFC range and slope (see specifications)
T	J, K, or A per the required temperature range
S	J, K, or A per the required stability vs. ambient temperature
N	J, K, or A per the required noise level (Allan variance and phase noise)
A	J, K, or A per the required daily aging rate
CON	10 MHz connector types: Pin, SMA, SMB, or SMC

Price Modifiers

$250 (Base Price)

Multiply price by:
1.0 for each J grade option specified
1.2 for each K grade option specified
1.4 for each A grade option specified

Add $10 for SMA, SMB, or SMC connectors

For order quantities of:	Multiply price by:
1 to 4	× 1.5
5 to 9	× 1.4
10 to 24	× 1.3
25 to 49	× 1.2
50 to 99	× 1.1
>100	× 1.0