

MCSO2EL very low consumption 32.768 kHz

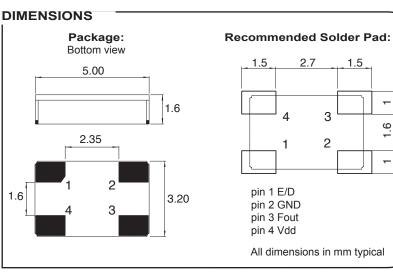
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1.6

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T range up to 200°C





SMT Clock oscillator in ceramic package

Fundamental quartz mode frequency High shock and vibration resistance Wide temperature range Low aging **Ultra low internal MSL** Very fast start-up **Excellent solderability** Swiss made quality Customer specification on request

Frequency stability included 1000h at Tmax

ELECTRICAL CHARACTERISTICS AT +25°C

DESCRIPTION:

This SMD oscillator in ceramic package has been specially designed for surface mount using infrared, vapor phase or epoxy techniques.

APPLICATIONS:

- Downhole and Well drilling equipments
- Avionics
- Airbone equipments
- Geothermal equipments
- Fire fighter equipments

The MCSO2's are supplied on trays (128 pcs / tray) For pick-and-place equipment, the parts are available in 12mm tapes with 250 parts min

1000 parts min

Frequency stability Over temperature range C = -55 to +125°C (see ordering info) Including 2)*	ΔF/F	≤±100	ppm
Frequency stability Over temperature range E = -55 to +150°C (see ordering info) Including 2)*	ΔF/F	≤±150	
Frequency stability Over temperature range D = -55 to +175°C (see ordering info) Including 2)*	ΔF/F	≤±300	
Frequency stability Over temperature range G = -55 to +200°C (see ordering info) Including 2)* 3)*	ΔF/F	≤±400	
Supply voltage ± 5% 1)*	Vdd	2.5 / 3.3 / 5	V
Input current	Idd	see table 1	
Output signal		HC-MOS compatible	
Symmetry at Vdd/2		40 / 60	%
Rise & fall time (load 15pf 20% to 80%)		25	ns
Level "0" & "1"	1	<0.4>Vdd-0.5	V
Start-up time	t	<5	ms
Load min / max		3/27	pF

* 1) C = 47nF ceramic must be connected between GND & Vdd Operable over 2.3 to 5.5V

* 2) adjustment at +25°C, long term aging 1000h at Tmax ordered over supply voltage ±5% and over load min to max

* 3) Only available with Supply voltage 5V

TABLE 1: Idd (With load 10pF)

ENVIRONMENTAL CHARACTERISTICS:

TERMINATIONS AND PROCESSING:

 Frequency
 F=32 kHz

 W=Vdd = 2.5V
 < 100μA</td>

 V=Vdd = 3.3V
 < 110μA</td>

 blank=Vdd = 5V
 < 120μA</td>

STANDARD FREQUENCIES:

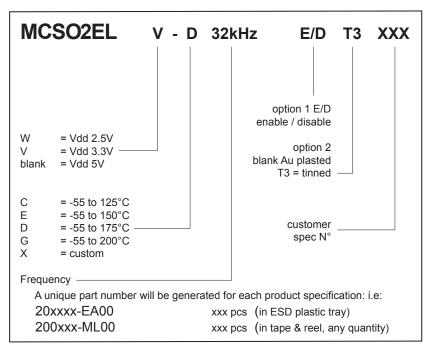
Frequency «kHz»	
32.768	
Other frequencies from up to 50 kHz on request	

Storage temp. range	-65 to +125°C
Vibration resistance survival	10 to 2000Hz / 80g
Shocks resistance survival	10000g / 0.3ms / ½ sine

Reflow soldering	+260°C / 10s max		
Package	Ceramic 5 x 3.2 x 1.6mm		
Lids	Ceramic (Kovar on version G)		
Terminations option T3 on request (not available on G temperature range)	with tinned Ag/Cu/Sn		
E/D option 1 on request Reaction time < 5mS	$\begin{array}{ccc} \mbox{Pin 1 open} \rightarrow \mbox{Pin 3 Clock} \\ \mbox{H} & \rightarrow & \mbox{Clock} \\ \mbox{L} & \rightarrow & \mbox{Low} \end{array}$		

- No power E/D function (pin 1) before Vdd is setting on

- Disable option (consumption $\leq 5\mu A$).



All specifications subject to change without notice.

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PRODUCT DESCRIPTION AND

ORDERING INFORMATION:



A COMPANY OF THE SWATCH GROUP