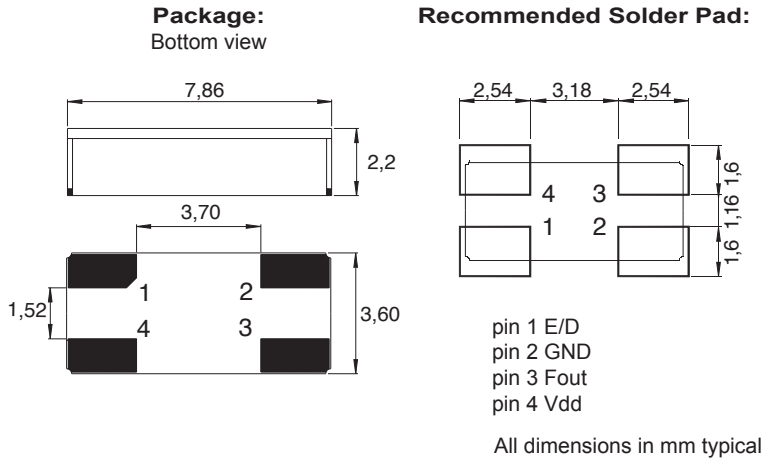




DIMENSIONS



SC cut quartz crystal
SMT Clock oscillator in ceramic package
Fundamental quartz mode frequency
Ultra low stability
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:

- Avionics
- Airbone equipments
- Fire fighter equipments

The MCSO1's are supplied on trays (91 pcs / tray)
For pick-and-place equipment, the parts are available in 16mm tapes with 250 parts min
1000 parts max

Frequency stability Over temperature range R = -10 to +150°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 50$	ppm
Frequency stability Over temperature range S = -10 to +175°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 100$	ppm
Frequency stability Over temperature range T = -10 to +210°C (see ordering info) Including 2)*	$\Delta F/F$	$\leq \pm 150$	ppm
Supply voltage $\pm 5\%$ 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 $\leq 30\text{MHz}$ For F=32.768 kHz rise & fall time $\leq 150\text{ns}$ (load 15pf 20% to 80%)		≤ 7	ns
Rise & fall time $\geq 30\text{MHz}$ for (load 15pf 10% to 90%)		≤ 3	ns
Level "0" & "1"		$<0.4>V_{dd}-0.5$	V
Start-up time	t	<5	ms
Load min / max		3/47	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 $\pm 5\%$ and over load min to max

TABLE 1: I_{dd}
(Without load)

Frequency	F=32 kHz	F=< 10MHz	≤ 30MHz	>30 to 100MHz
W=V _{dd} = 2.5V	< 300µA	< 2mA	< 3mA	< 15mA
V=V _{dd} = 3.3V	< 1mA	< 4mA	< 5mA	< 20mA
blank=V _{dd} = 5V	< 2mA	< 6mA	< 7mA	< 30mA

STANDARD FREQUENCIES:

Frequency «MHz»						
0.032768	3.6864	4	8	10	12	12.8
14.7456	16	20	24	40	48	
Other frequencies from 32 kHz up to 100 MHz on request						

ENVIRONMENTAL CHARACTERISTICS:

Storage temp. range	-65 to +125°C
Vibration resistance	10 to 2000Hz / 40g
Shocks resistance	10000g / 0.3ms / ½ sine

TERMINATIONS AND PROCESSING:

Reflow soldering	+260°C / 10s max
Package	Ceramic 8 x 4 x 2.2mm
Lids (on request)	Kovar
Lids (standard)	Ceramic (Kovar on version T)
Terminations option T3 on request (not available on T temperature range)	with tinned Ag/Cu/Zn
E/D option 1 on request Reaction time < 1µs	Pin 1 open → Pin 3 Clock H → Clock L → Low

- No power E/D function (pin 1) before V_{dd} is setting on
- E/D option not available for F < 500 kHz
- E/D option on request (very low consumption in disable mode).

PRODUCT DESCRIPTION AND ORDERING INFORMATION:

MCSO1ES K H V - S 20MHz E/D T3 XXX	
<p>blank = Ceramic lids K = Kovar lids</p> <p>H > 30MHz blank ≤ 30MHz</p> <p>W = V_{dd} 2.5V V = V_{dd} 3.3V blank = V_{dd} 5V</p> <p>R = -10 to 150°C S = -10 to 175°C T = -10 to 210°C X = custom</p> <p>Frequency _____</p>	<p>option 1 E/D enable / disable</p> <p>option 2 blank Au plated T3 = tinned</p> <p>customer spec N°</p>
<p>A unique part number will be generated for each product specification: i.e:</p> <p>20xxxx-EA00 xxx pcs (in ESD plastic tray)</p> <p>200xxx-ML00 xxx pcs (in tape & reel, any quantity)</p>	

All specifications subject to change without notice.



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