MICRO CRYSTAL SWITZERLAND

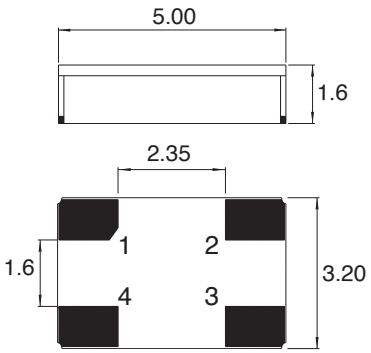
MCSO2E family package 5×3.2 mm

T range up to 210°C

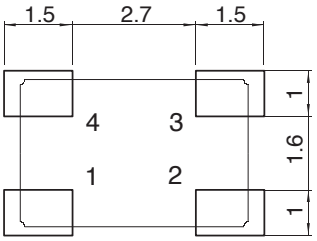
100% Leadfree, RoHScompliant:

DIMENSIONS

Package:
Bottom view



Recommended Solder Pad:



pin 1 E/D
pin 2 GND
pin 3 Fout
pin 4 Vdd

All dimensions in mm typical

SMT Clock oscillator in ceramic package
Fundamental quartz mode frequency
High shock and vibration resistance
Wide temperature range
Low aging
Ultra low MSL
Very fast start-up
Excellent solderability
Swiss made quality
Customer specification on request

Frequency stability included 1000h at Tmax

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

ELECTRICAL CHARACTERISTICS AT +25°C

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**	**ppm**
Frequency stability Over temperature range D = -55 to +175°C (see ordering info) Including 2)*	**ΔF/F**	**≤ ± 300**	**ppm**
Frequency stability Over temperature range G = -55 to +210°C (see ordering info) Including 2)*	**ΔF/F**	**≤ ± 400**	**ppm**
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 ≤ 20MHz For F=32.768 kHz rise & fall time ≤ 150ns (load 15pf 20% to 80%)		≤7	ns
Rise & fall time ≥ 20MHz for (load 15pf 10% to 90%)		≤3	ns
Level "0" & "1"		<0.4>Vdd-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 ±5% and over load min to max

TABLE 1: Idd
(Without load)

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

STANDARD FREQUENCIES:

Frequency «MHz»						
3.6864	4	8	10	12	12.8	14.7456
16	20	24	40	48		
Other frequencies from 10 kHz up to 100MHz 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 5 x 3.2 x 1.6mm
Lids	Ceramic
Terminations option T3 on request (not available on G 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 Vdd 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:

MCSO2E H V - D 20MHz E/D T3 XXX

H > 20MHz
blank ≤ 20MHz

W = Vdd 2.5V
V = Vdd 3.3V
blank = Vdd 5V

C = -55 to 125°C
E = -55 to 150°C
D = -55 to 175°C
G = -55 to 210°C
X = custom

Frequency

option 1 E/D
enable / disable

option 2
blank Au plasted
T3 = tinned

customer
spec N°

A unique part number will be generated for each product specification

20xxxx-EA00 xxx pcs (in ESD plastic tray)
200xxx-ML00 xxx pcs (in tape & reel, any quantity)

All specifications subject to change without notice.

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