MICRO CRYSTAL SWITZERLAND

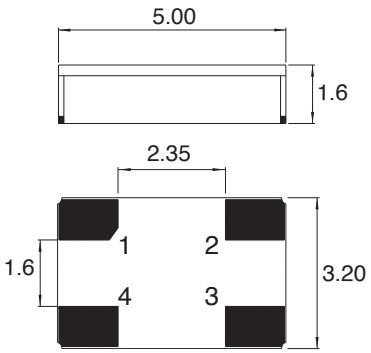
MCSO2 family package 5×3.2 mm

From 10 kHz up to 225 MHz

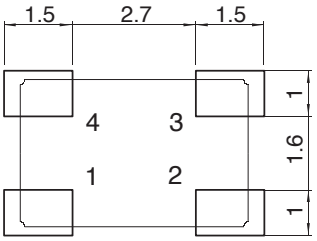
100% Leadfree, RoHScompliant:

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

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
- Remote control
- Security application
- Radio Transceiver
- Microprocessor clocks

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 (see orderding info) Including: adjustment at 25°C long term aging 10 years over supply voltage ±5% over load min to max	**ΔF/F**	**≤ ± 100**	**ppm**
Frequency stability version T Over temperature range (see ordering info) Including: adjustment at +25°C long term aging 1 year over supply voltage ±5% over load min to max	**ΔF/F**	**≤ ± 50**	**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 (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

TABLE 1: Idd
(Without load)

Frequency	Fz 32 kHz	F=< 10MHz	≤ 20MHz	>20 to 160MHz
W =Vdd = 2.5V	< 300µA	< 2mA	< 3mA	< 25mA
V =Vdd = 3.3V	< 1mA	< 4mA	< 5mA	< 30mA
blank =Vdd = 5V	< 2mA	< 6mA	< 7mA	< 40mA

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 225 MHz on request						

ENVIRONMENTAL CHARACTERISTICS:

Storage temp. range	-55 to +125°C
Vibration resistance	10 to 2000Hz / 20g
Shocks no resistance	5000g / 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	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:

MCSO2 H V T - C 20MHz E/D T3 XXX

H > 20MHz
blank ≤ 20MHz

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

T = +50ppm
blank = ±100ppm

A = 0 to 70°C
B = -40 to 85°C
C = -55 to 125°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.

MICRO CRYSTAL SWITZERLAND

Micro Crystal AG
Mühlestrasse 14
CH-2540 Grenchen
Switzerland

Tel. +41 32 655 82 82
Fax +41 32 655 82 83
sales@microcrystal.com
www.microcrystal.com