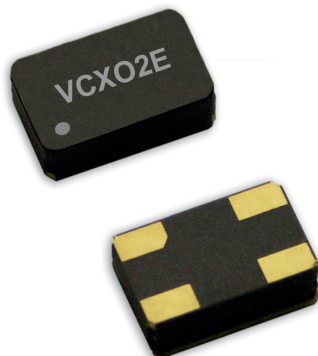


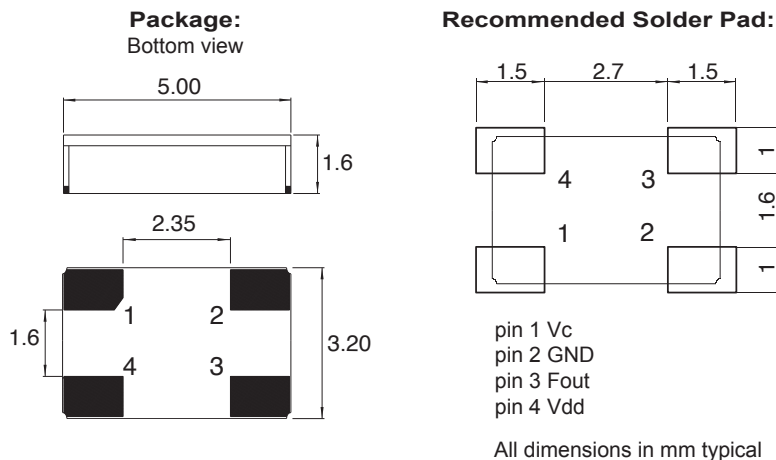
# VCXO2E family package 5×3.2 mm

**T range up to 210°C 5 to 40MHz**



**100% Leadfree, RoHScompliant:**

## DIMENSIONS



**SMT Voltage control 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**

## 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
- Airborne equipments
- Geothermal equipments
- Fire fighter equipments

The VCXO2E'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

| Absolute Frequency Pulling range APR<br>(Minimum frequency deviation including 2)*                              |              |                                                            |     |
|-----------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------|-----|
| Temperature range<br>B= -40 to 85°C<br>C= -55 to 125°C<br>R= -10 to 150°C<br>S= -10 to 175°C<br>T= -10 to 210°C | $\Delta F/F$ | $\pm 130$<br>$\pm 110$<br>$\pm 90$<br>$\pm 50$<br>$\pm 30$ | ppm |
| Supply voltage $\pm 5\%$ 1)*                                                                                    | Vdd          | 3.3                                                        | V   |
| Input current                                                                                                   | Idd          | see table 1                                                |     |
| Output signal                                                                                                   |              | HC-MOS compatible                                          |     |
| Symmetry at Vdd/2                                                                                               |              | 40 / 60                                                    | %   |
| Rise & fall time<br>(load 15pf 20% to 80%)                                                                      |              | $\leq 5$                                                   | 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

\* 2) APR is inclusive of frequency deviation due to stability  
 adjustment at +25°C,  
 long term aging 1 year  
 over supply voltage  $\pm 5\%$   
 over load min to max  
 frequency stability over T range

**TABLE 1: Idd  
(Without load)**

| Frequency    | F=< 10MHz | ≤ 20MHz | 40MHz  |
|--------------|-----------|---------|--------|
| V=Vdd = 3.3V | < 4mA     | < 5mA   | < 20mA |

**FREQUENCY CONTROLE RANGE:**

|                            |           |
|----------------------------|-----------|
| Vc (Voltage control range) | 0 to 3.3V |
| Response Slope             | positive  |
| frequency bandwich         | ≤10kHz    |
| Input impedance            | ≥100kohm  |

**STANDARD FREQUENCIES:**

| Frequency «MHz»              |        |      |    |
|------------------------------|--------|------|----|
| 10                           | 12.288 | 12.8 | 20 |
| 24                           | 24.576 | 25.6 |    |
| Other frequencies on request |        |      |    |

**ENVIRONMENTAL  
CHARACTERISTICS:**

|                                 |                         |
|---------------------------------|-------------------------|
| Storage temp. range             | -65 to +125°C           |
| Vibration resistance (survival) | 10 to 2000Hz / 80g      |
| Shocks resistance (survival)    | 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 (Kovar on version T) |
| Terminations option T3 on request<br>(not available on T temperature range) | with tinned Ag/Cu/Sn         |

**PRODUCT DESCRIPTION AND  
ORDERING INFORMATION:**

|                                                                                                                                                                                                                  |                |                                            |                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------|---------------------|
| <b>VCXO2E</b>                                                                                                                                                                                                    |                | <b>V - D 20MHz</b>                         | <b>T3 XXX</b>       |
| V                                                                                                                                                                                                                | = Vdd 3.3V     |                                            |                     |
| B                                                                                                                                                                                                                | = -40 to 85°C  |                                            |                     |
| C                                                                                                                                                                                                                | = -55 to 125°C |                                            |                     |
| R                                                                                                                                                                                                                | = -10 to 150°C |                                            |                     |
| S                                                                                                                                                                                                                | = -10 to 175°C |                                            |                     |
| T                                                                                                                                                                                                                | = -10 to 210°C |                                            |                     |
| X                                                                                                                                                                                                                | = custom       |                                            |                     |
| Frequency                                                                                                                                                                                                        |                |                                            |                     |
| A unique part number will be generated for each product specification<br>20xxxx-EA00                      xxx pcs (in ESD plastic tray)<br>200xxx-ML00                    xxx pcs (in tape & reel, any quantity) |                | option 2<br>blank Au plated<br>T3 = tinned | customer<br>spec N° |

All specifications subject to change without notice.



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