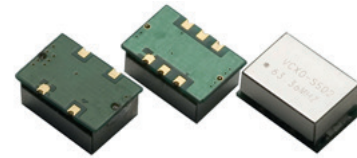


# SP2CVT HCMOS SURFACE MOUNT VCTCXO

## FEATURES

14.3 x 8.7 x 5.5 mm

- PCB based package with metal lid
- Wide frequency range
- 4 pad or 6 pad version
- Applications: Reference clock, Test equipment,...



| Item   | Specification                                      |                                      |                           |                                     |               |                   |          |
|--|--|--------------------------------------|---------------------------|-------------------------------------|---------------|-------------------|----------|
| Frequency Range                                  | 1.0 MHz to 200.0 MHz                               |                                      |                           |                                     |               |                   |          |
| Output Logic                                     | CMOS   |                                      |                           |                                     |               |                   |          |
| Supply Voltage V <sub>dd</sub> (see options)     | +3.3 V ±5%   |                                      | +5.0 V ±5%                |                                     |               |                   |          |
| Supply Current I <sub>dd</sub>                   | 40.0 mA max., frequency dependent                  |                                      |                           |                                     |               |                   |          |
| Frequency Tolerance                              | ±1.0 ppm max. at 25°C ±2°C (one hour after reflow) |                                      |                           |                                     |               |                   |          |
| Frequency Stability vs Temperature (see options) |  | ±0.5 ppm                             | ±1.0 ppm                  | ±1.5 ppm                            | ±2.0 ppm      | ±2.5 ppm          | ±3.0 ppm |
|  | 0° to +50°C  | o                                    | o                         | o                                   | o             | o                 | o        |
|  | -10° to +60°C                                      | ◇                                    | o                         | o                                   | o             | o                 | o        |
|  | -20° to +70°C                                      | x                                    | o                         | o                                   | o             | o                 | o        |
|  | -30° to +75°C                                      | x                                    | ◇                         | o                                   | o             | o                 | o        |
|  | -30° to +85°C                                      | x                                    | ◇                         | ◇                                   | o             | o                 | o        |
|  | -40° to +85°C                                      | x                                    | ◇                         | ◇                                   | o             | o                 | o        |
|  |  | o = available                        |                           | ◇ = please contact us               |               | x = not available |          |
| Frequency Stability vs Aging                     | ±1.0 ppm max. per year at 25°C                     |                                      |                           |                                     |               |                   |          |
| Frequency Stability vs Voltage Change            | ±0.3 ppm max., for a ±5% input voltage change      |                                      |                           |                                     |               |                   |          |
| Frequency Stability vs Load Change               | ±0.3 ppm max., for a ±10% load condition change    |                                      |                           |                                     |               |                   |          |
| Output Level                                     | VOH ≥ 0.9 V <sub>dd</sub>                          |                                      | VOL ≤ 0.1 V <sub>dd</sub> |                                     |               |                   |          |
| Output Load                                      | 15 pF  |                                      |                           |                                     |               |                   |          |
| Symmetry   | 45 / 55%   |                                      |                           |                                     |               |                   |          |
| Rise Time / Fall Time Fr / Ff                    | 10 ns max.   |                                      |                           |                                     |               |                   |          |
| Start-up Time                                    | 5 ms typ., 10 ms max.                              |                                      |                           |                                     |               |                   |          |
| Phase noise                                      | Offset / dBc / Hz (typical)                        | 10 Hz                                | 100 Hz                    | 1 kHz                               | 10 kHz        | 100 kHz           |          |
|  | 10.000 MHz   | -95 dBc / Hz                         | -130 dBc / Hz             | -140 dBc / Hz                       | -145 dBc / Hz | -150 dBc / Hz     |          |
|  | 20.000 MHz   | -80 dBc / Hz                         | -120 dBc / Hz             | -135 dBc / Hz                       | -140 dBc / Hz | -145 dBc / Hz     |          |
| Mechanical Frequency Tuning (see options)        | ±3.0 ppm min. tuning                               |                                      |                           |                                     |               |                   |          |
| Voltage Control Function (see options)           | <b>Control Voltage Range</b>                       | Center voltage +1.65 V, range ±1.35V |                           | Center voltage +2.50 V, range ±2.0V |               |                   |          |
|  | <b>Frequency Pulling Range</b>                     | ±5 ppm min. ~ ±10 ppm min.           |                           |                                     |               |                   |          |
|  | <b>Linearity</b>                                   | 10 % max.                            |                           |                                     |               |                   |          |
|  | <b>Slope Polarity</b>                              | Positive                             |                           |                                     |               |                   |          |
|  | <b>Input Impedance</b>                             | 10 kΩ min.                           |                           |                                     |               |                   |          |
| Packing Unit                                     | 800 pcs / reel                                     |                                      |                           |                                     |               |                   |          |
| Soldering Conditions                             | 260°C, 10 sec x2 max                               |                                      |                           |                                     |               |                   |          |
|  | <b>Customer specifications on request</b>          |                                      |                           |                                     |               |                   |          |

## OPTIONS & ORDERING INFORMATION

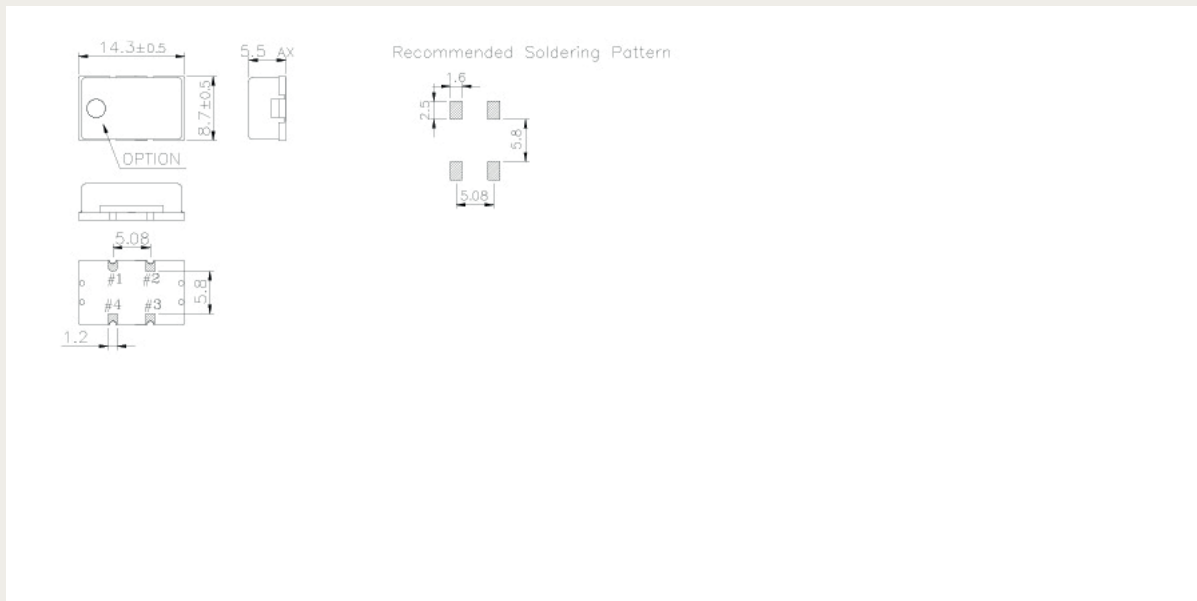
### SP2CVT

| Supply Voltage    | Operating Temp. *       | Temperature Stability* | Tri-state Function      | Package Type              | Pulling **               | Frequency in MHz                    | Mechanical Tuning                                       |
|-------------------|-------------------------|------------------------|-------------------------|---------------------------|--------------------------|-------------------------------------|---|
| <b>33</b> = +3.3V | <b>C</b> = 0° / +50°C   | <b>0.5</b> = ±0.5 ppm  | <b>F</b> = No Tri-state | <b>4P</b> = 4-pad version | <b>05</b> = ±5 ppm min.  | Please specify the frequency in MHz | <b>Blanc</b> = no trimmer<br><b>-T</b> = Trimmer option |
| <b>50</b> = +5.0V | <b>D</b> = -10° / +60°C | <b>1.0</b> = ±1.0 ppm  |                         | <b>6P</b> = 4-pad version | <b>10</b> = ±10 ppm min. |                                     |   |
|                   | <b>F</b> = -20° / +70°C | <b>1.5</b> = ±1.5 ppm  |                         |                           |                          |                                     |   |
|                   | <b>G</b> = -30° / +75°C | <b>2.0</b> = ±2.0 ppm  |                         |                           |                          |                                     |   |
|                   | <b>H</b> = -30° / +85°C | <b>2.5</b> = ±2.5 ppm  |                         |                           |                          |                                     |   |
|                   | <b>K</b> = -40° / +85°C | <b>3.0</b> = ±3.0 ppm  |                         |                           |                          |                                     |   |

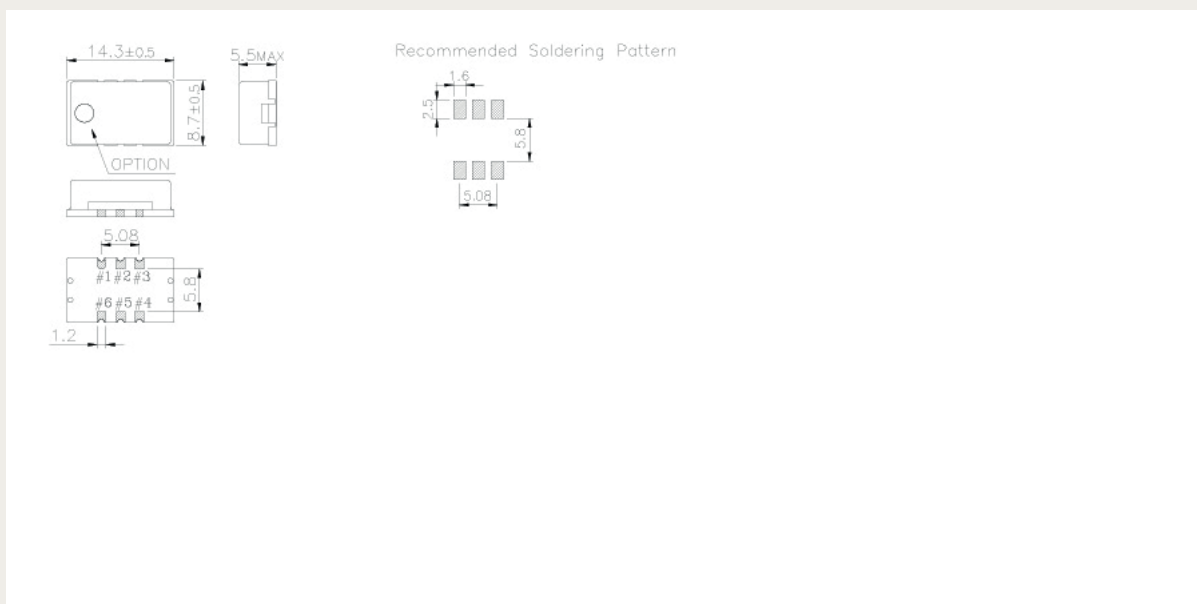
(\*) Note : Not all combinations are possible, please consult us.

(\*\*) Other pulling range is available on customer specification.

# OUTLINE DIMENSIONS



|                        |                             |                 |                    |                 |
|------------------------|-----------------------------|-----------------|--------------------|-----------------|
| <b>Pin Connections</b> | <b>#1</b> : Control voltage | <b>#2</b> : GND | <b>#3</b> : Output | <b>#4</b> : Vdd |
|------------------------|-----------------------------|-----------------|--------------------|-----------------|



|                        |                             |                |                 |
|------------------------|-----------------------------|----------------|-----------------|
| <b>Pin Connections</b> | <b>#1</b> : Control voltage | <b>#2</b> : NC | <b>#3</b> : GND |
|                        | <b>#4</b> : Output          | <b>#5</b> : NC | <b>#6</b> : Vdd |