

# SX7LQV LVDS SURFACE MOUNT VOLTAGE CONTROLLED CRYSTAL CLOCK OSCILLATOR

## FEATURES

- Standard miniature package
- Reduced jitter design without PLL multiplier circuit
- Superior phase noise
- Applications : SONET, xDSL, SDH, Set-top box,...

7.0 x 5.0 x 1.8 mm



| Item                                            | Specification                                                                                      |                                                                     |                   |                   |                |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------|-------------------|----------------|
| Frequency Range                                 | 10 MHz ~ 1450 MHz                                                                                  |                                                                     |                   |                   |                |
| Output Logic                                    | LVDS                                                                                               |                                                                     |                   |                   |                |
| Overall Frequency Stability *                   | ± 20 ppm ~ ± 100 ppm (see options)                                                                 |                                                                     |                   |                   |                |
| Operating Temperature Range                     | 0 ~ +70°C commercial application (see options)<br>-40 ~ +85°C industrial application (see options) |                                                                     |                   |                   |                |
| Supply Voltage Vdd                              | +2.5 V ±5%                                                                                         | +3.3 V ±10%                                                         |                   |                   |                |
| Supply Voltage Center                           | +1.25 V                                                                                            | +1.65 V                                                             |                   |                   |                |
| Control Voltage Range                           | 0.2 V to 2.3 V                                                                                     | 0.3 V to 3.0 V                                                      |                   |                   |                |
| Supply Current Idd                              | 15 ~ 30 mA max.                                                                                    |                                                                     |                   |                   |                |
| Output Voltage HIGH VOH                         | 1.43 V typ. ; 1.6 V max                                                                            |                                                                     |                   |                   |                |
| Output Voltage LOW VOL                          | 1.10 V typ. ; 0.9 V min.                                                                           |                                                                     |                   |                   |                |
| Output Load                                     | 50 ohm from each output                                                                            |                                                                     |                   |                   |                |
| Symmetry                                        | 45 / 55 %                                                                                          |                                                                     |                   |                   |                |
| Rise Time / Fall Time Fr / Ff                   | 0.4 ns max.                                                                                        |                                                                     |                   |                   |                |
| Tri-state Function                              | pin #2 = high or open<br>pin #2 = low                                                              | pin #4 - pin#5 ==> oscillation<br>pin #4 - pin#5 ==> high impedance |                   |                   |                |
| Start-up Time                                   | 3 ms typ. ; 10 ms max.                                                                             |                                                                     |                   |                   |                |
| Integrated Phase Jitter (12 kHz to 20 MHz band) | 0.6 ps typical                                                                                     |                                                                     |                   |                   |                |
| Phase Noise (typical)                           | Offset                                                                                             | Freq. 77.760 MHz                                                    | Freq. 156.250 MHz | Freq. 622.080 MHz | Freq. 1250 MHz |
|                                                 | 10 Hz                                                                                              | -74 dBc / Hz                                                        | -67 dBc / Hz      | -52 dBc / Hz      | -42 dBc / Hz   |
|                                                 | 100 Hz                                                                                             | -104 dBc / Hz                                                       | -92 dBc / Hz      | -82 dBc / Hz      | -81 dBc / Hz   |
|                                                 | 1 kHz                                                                                              | -121 dBc / Hz                                                       | -112 dBc / Hz     | -99 dBc / Hz      | -94 dBc / Hz   |
|                                                 | 10kHz                                                                                              | -130 dBc / Hz                                                       | -121 dBc / Hz     | -109 dBc / Hz     | -103 dBc / Hz  |
|                                                 | 100 kHz                                                                                            | -134 dBc / Hz                                                       | -124 dBc / Hz     | -114 dBc / Hz     | -105 dBc / Hz  |
| Frequency Pulling Range                         | standard ±90 ppm min. ; ±100 ppm min. ; ±150 ppm min. (see options)                                |                                                                     |                   |                   |                |
| Linearity                                       | 3% typical ; 10% max.                                                                              |                                                                     |                   |                   |                |
| Slope Polarity                                  | Positive (Increasing control voltage always increases output frequency)                            |                                                                     |                   |                   |                |
| Modulation Bandwidth                            | 10 kHz min. (-3 dB)                                                                                |                                                                     |                   |                   |                |
| Input Impedance                                 | 1MΩ typ.                                                                                           |                                                                     |                   |                   |                |
| Packing Unit                                    | 1000pcs / reel                                                                                     |                                                                     |                   |                   |                |
| Soldering Condition                             | 260 °C , 10 sec x2 max                                                                             |                                                                     |                   |                   |                |
|                                                 | Customer specifications on request                                                                 |                                                                     |                   |                   |                |

(\*) Includes initial tolerance @+25°C, stability over operating temperature, stability vs. load change, stability vs. supply change and one year aging

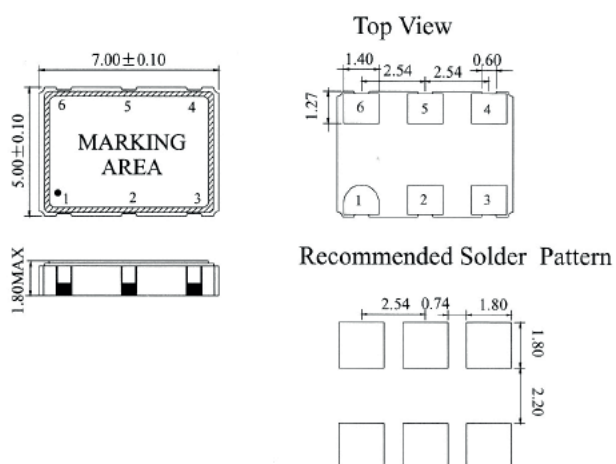
## OPTIONS & ORDERING INFORMATION

### SX7LQV

| Supply Voltage     | Operating Temp. *       | Overall Stability *   | Tri-state Function            | Package type              | Pulling *                  | Frequency in MHz                    |
|--------------------|-------------------------|-----------------------|-------------------------------|---------------------------|----------------------------|-------------------------------------|
| <b>33</b> = +3.3 V | <b>E</b> = 0° / +70°C   | <b>20</b> = ±20 ppm   | <b>E2</b> = Tri-state, pin #2 | <b>6P</b> = 6-pad version | <b>90</b> = ±90 ppm min.   | Please specify the frequency in MHz |
| <b>25</b> = +2.5 V | <b>F</b> = -20° / +70°C | <b>25</b> = ±25 ppm   |                               |                           | <b>100</b> = ±100 ppm min. |                                     |
|                    | <b>K</b> = -40° / +85°C | <b>30</b> = ±30 ppm   |                               |                           | <b>150</b> = ±150 ppm min. |                                     |
|                    |                         | <b>50</b> = ±50 ppm   |                               |                           |                            |                                     |
|                    |                         | <b>100</b> = ±100 ppm |                               |                           |                            |                                     |

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

## OUTLINE DIMENSIONS



### Pin Connections

#1 : Control Voltage  
#4 : Output

#2 : E/D  
#5 : Complementary Output

#3: GND  
#6: Vdd