Frequency Technology

### SX3KF

# 32.768 kHz SURFACE MOUNT CRYSTAL CLOCK OSCILLATOR

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### **FEATURES**

3.2 x 2.5 x 1.2 mm

- - Ultra Miniature package , 3.2x2.5mmFeatured by tuning fork crystal
  - Ultra low μA current consumption



| Item                                | Specification  |               |                          |                            |  |  |  |
|-------------------------------------|--|---------------|--------------------------|----------------------------|--|--|--|
| Frequency Range                     | 32.768 kHz   |               |                          |                            |  |  |  |
| Output Logic                        | CMOS   |               |                          |                            |  |  |  |
| Frequency tolerance                 | + 30 ppm ~ - 10 ppm  |               |                          |                            |  |  |  |
| Frequency stability                 | +10 ppm to -120 ppm (-20°C to +70°C)<br>+10 ppm to -150 ppm (-40°C to +85°C) |               |                          |                            |  |  |  |
| Frequency vs. Supply voltage change | ± 0.5 ppm max. ( Vdd = +1.5V to +5.5V )                                      |               |                          |                            |  |  |  |
| Operating Temperature Range         | -40°C to +85°C   |               |                          |                            |  |  |  |
| Supply Voltage Vdd                  | +1.5V to +5.5V   |               |                          |                            |  |  |  |
| Supply Current Idd                  | 1.5 μA max at Vdd +3.3V  |               |                          |                            |  |  |  |
| Output Level                        | VOH ≥ 0.9 Vdd  | VOL ≤ 0.1 Vdd |                          |                            |  |  |  |
| Output Load                         | 15 pF  |               |                          |                            |  |  |  |
| Symmetry                            | 40 / 60 %  |               |                          |                            |  |  |  |
| Rise Time / Fall Time Fr/Ff         | 200 ns max   |               |                          |                            |  |  |  |
| Tri-state function                  | pin #1 = high or open<br>pin #1 = low  |               | pin #3 ==><br>pin #3 ==> | oscillation high impedance |  |  |  |
| Start-up Time                       | 1 sec. max.  |               |                          |                            |  |  |  |
| Aging                               | ± 5 ppm max for first year   |               |                          |                            |  |  |  |
| Packing Unit                        | 1000pcs / reel   |               |                          |                            |  |  |  |
| Soldering Condition                 | 260°C, 10 sec x2 max   |               |                          |                            |  |  |  |
|                                     | Customer specifications on request   |               |                          |                            |  |  |  |

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

#### **OPTIONS & ORDERING INFORMATION**

| SX3KF |                     |                  |                    |             | 32.768 kHz       |
|-------|---------------------|------------------|--------------------|-------------|------------------|
|       | Supply Voltage      | Operating Temp.  | Tri-state Function | Output Load | Frequency in kHz |
|       | E15 = +1.5V to 5.5V | K = -40° / +85°C | E = Tri-state      | H = 30 pF   |                  |





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# **OUTLINE DIMENSIONS**







