

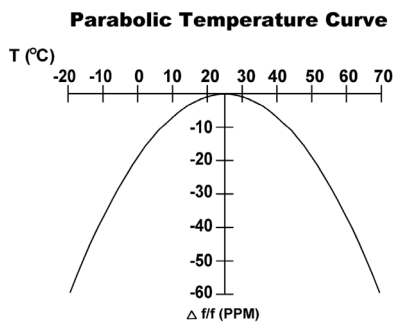
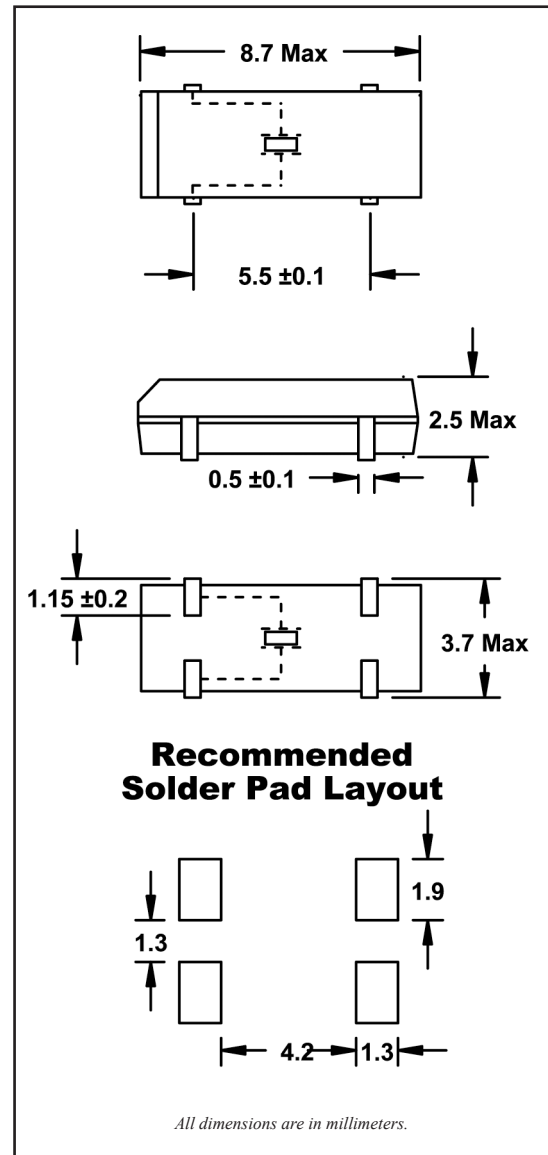


## FEATURES

- Miniature Package
- 2.5mm Height
- Long Term Stability
- Tape and Reel (3,000 pcs. STD)

| • SPECIFICATIONS                               |                                       |
|--|---------------------------------------|
| PARAMETERS                                     | MAX (unless otherwise noted)          |
| Frequency                                      | 32.768 kHz                            |
| Frequency Tolerance @ 25°C                     | ±20 PPM                               |
| Frequency Stability<br>Temperature Coefficient | -0.04 PPM / (Δ°C) <sup>2</sup>        |
| Temperature Range                              |                                       |
| Turnover (T <sub>O</sub> )                     | +20°C ~ +30°C                         |
| Operating (T <sub>OPR</sub> )                  | -40°C ~ +85°C                         |
| Storage (T <sub>STG</sub> )                    | -55°C ~ +125°C                        |
| Equivalent Series Resistance (R <sub>S</sub> ) | 50 kΩ                                 |
| Load Capacitance (C <sub>L</sub> )             | 12.5 pF (Standard)<br>6 pF (Optional) |
| Insulation Resistance @ 100VDC                 | 500 MΩ Min                            |
| Drive Level                                    | 1.0 μW                                |
| Aging per year                                 | ±3 PPM                                |
| Termination Finish                             | 100% Sn                               |
| RoHS Compliant                                 | Yes                                   |

All specifications subject to change without notice.



To determine frequency stability, use parabolic curvature (K).  
For example: What is stability at 45°C?

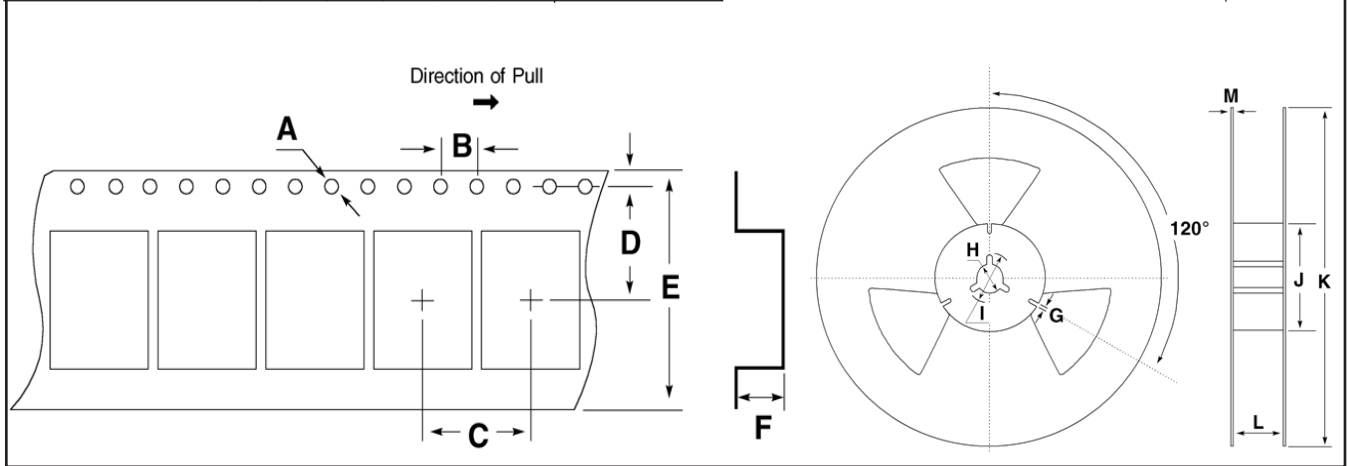
- 1) Change in T (°C) = 45-25 = 20°C
- 2) Change in frequency =  $-0.04 \text{ PPM} \cdot (\Delta C)^2$   
=  $-0.04 \text{ PPM} \cdot (20)^2$   
= -16.0 PPM



# SMD Tuning Fork

**KFSR**  
(former FSRLF)  
**DATASHEET**

| • TAPE SPECIFICATIONS (millimeters) |      |     |     |     |      |     | • REEL SPECIFICATIONS (millimeters) |       |     |     |     |         |      |      |     |
|-------------------------------------|------|-----|-----|-----|------|-----|-------------------------------------|-------|-----|-----|-----|---------|------|------|-----|
| MODEL                               | A    | B   | C   | D   | E    | F   | STD Reel QTY                        | MODEL | G   | H   | I   | J       | K    | L    | M   |
| KFSR                                | ∅1.5 | 4.0 | 8.0 | 7.5 | 16.0 | 2.7 | 3,000                               | KFSR  | 2.0 | ∅13 | ∅21 | ∅50/100 | ∅330 | 16.4 | 2.0 |



**Available Options & Part Identification for  
Crystal Model Number KFSR**

F KFSR E I H M 0.32768

|          |              |                      |   |                                       |                                      |                |
|----------|--------------|----------------------|---|---------------------------------------|--------------------------------------|----------------|
| <b>F</b> | <b>KFSR</b>  | <b>E</b>             | <b>I</b>                                      | <b>H</b>                              | <b>M</b>                             | <b>0.32768</b> |
| FOX      | Model Number | Tolerance<br>E=20ppm | Stability<br>I=-0.04 PPM / (Δ°C) <sup>2</sup> | Load Capacitance<br>B=6pF<br>H=12.5pF | Operating Temperature<br>M=-40~+85°C | Frequency      |



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