



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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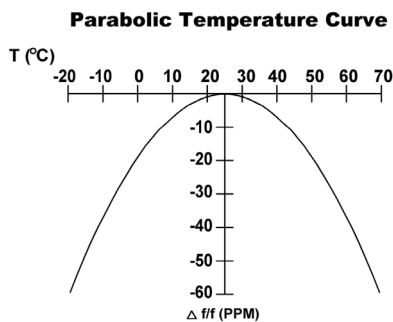
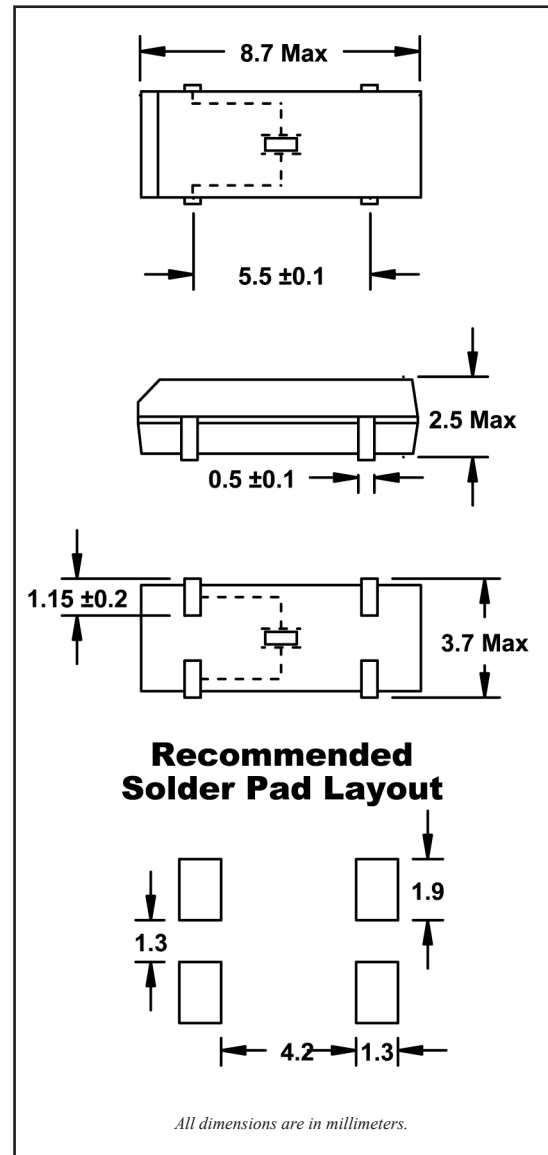


## FEATURES

- 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 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) 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

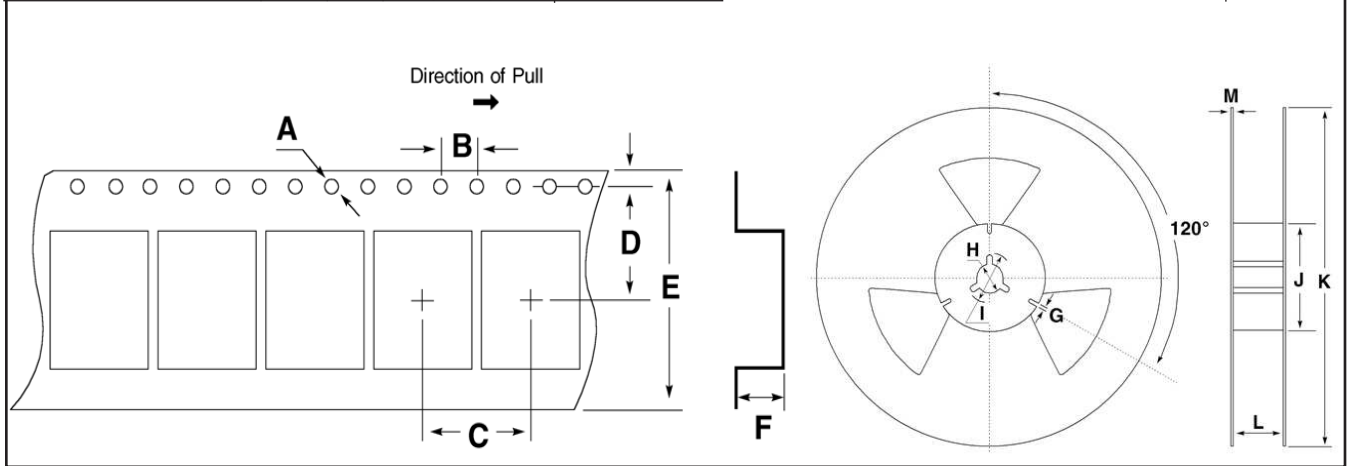


# SMD Tuning Fork

# 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 E=20ppm	Stability I=-0.04 PPM / (Δ°C) <sup>2</sup>	Load Capacitance B=6pF H=12.5pF	Operating Temperature M=-40~+85°C	Frequency



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