



# 3.2 x 1.5mm Auto Grade Crystal K13A

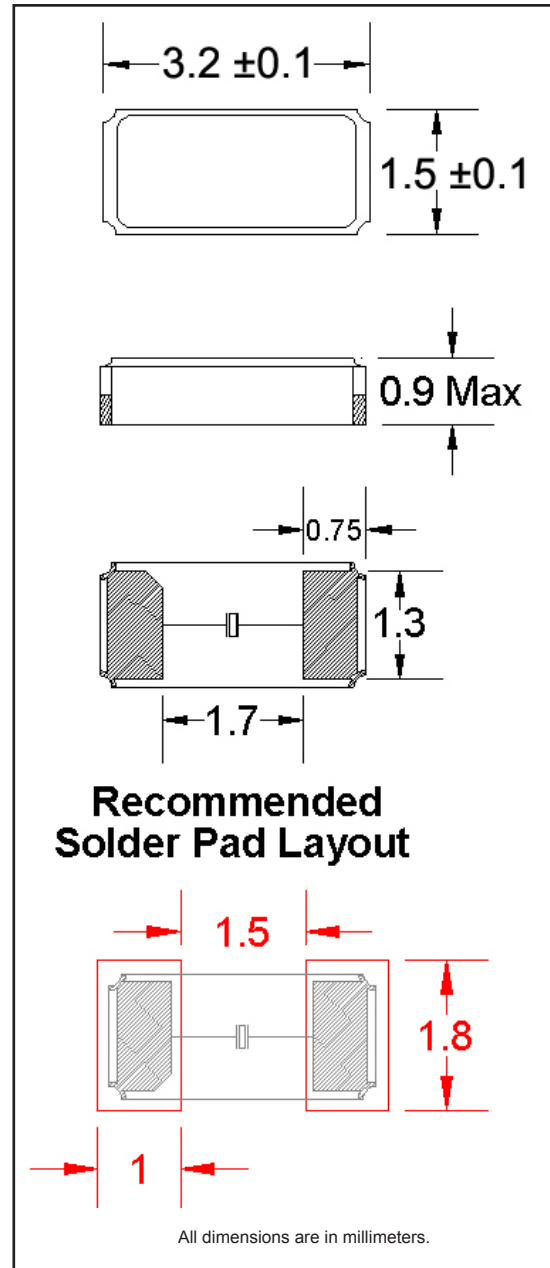
(former FXA135)

## DATASHEET

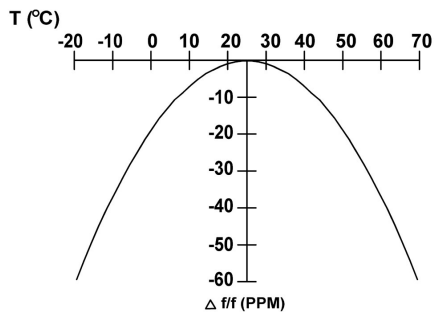
### • SPECIFICATIONS

PARAMETERS	MAX (unless otherwise noted)
Frequency	32.768 kHz
Frequency Tolerance @ 25°C	±20 PPM
Frequency Stability, ref @ 25°C (Temperature Coefficient)	-0.04 PPM / (Δ°C) <sup>2</sup>
Temperature Range	
Turnover (TO)	+20°C ~ +30°C
Operating (TOPR)	-40°C ~ +125°C
Storage (TSTG)	-40°C ~ +125°C
Equivalent Series Resistance (RS)	80 kΩ
Load Capacitance (CL)	12.5pF (Standard)*
Insulation Resistance @ 100VDC	500 MΩ Min
Drive Level	0.5 μW 0.1 μW Typ.
Aging per year	±3 PPM
Maximum Soldering Temp / Time	260°C / 10 Seconds
Moisture Sensitivity Level (MSL)	1
Termination Finish	Au over Ni
Seal Method	Seam Seal
Lead (Pb) Free	Yes
RoHS Compliant	No Exemptions

Note: Dimensional drawing is for reference to critical specifications defined by size measurements. Certain non-critical visual attributes, such as side castellations, etc. may vary.  
\* Other CLs available with conditions. Contact Fox Technical Support for specific requirements.



### Parabolic Temperature Curve



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 PPM \* (ΔC)<sup>2</sup>  
= -0.04 PPM \* (20)<sup>2</sup>  
= -16.0 PPM



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• TAPE SPECIFICATIONS (millimeters)							• REEL SPECIFICATIONS (millimeters)								
MODEL	A	B	C	D	E	F	STD Reel QTY	MODEL	G	H	I	J	K	L	M
K13A	Ø1.5	4.0	4.0	5.5	12.0	1.0	3000	K13A	2.0	Ø13	Ø21	Ø60	Ø180	13.0	1.2

**Available Options & Part Identification for Automotive Crystal Model Number K13A**

**F K13A E I H M 0.032768**

<b>F</b>	<b>K13A</b>	<b>E</b>	<b>I</b>	<b>H</b>	<b>M</b>	<b>0.032768</b>
FOX	Model Number	Tolerance E=20ppm	Stability I=-0.04 PPM / (Δ°C) <sup>2</sup>	Load Capacitance B=6pF D=8pF H=12.5pF V=7pF W=9pF	Operating Temperature D=-10~+60°C M=-40~+85°C I=-40~+125°C	Frequency



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