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## Product Change Notification

**PCN Publish Date:** 06/19/2015

**PCN#:** 466

**Change Title:** Product End of Life (EOL)

### Products Affected:

Custom Parts (Ordered to customer specified frequency and specifications)

Model Number	Part Number
FPXLF	256LF-Frequency-xxxxx

### Standard Stocking Parts

Number	Frequency	Tolerance	Stability	Temp Range	CL
FPXLF036S	3.579545	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	18pF
FPXLF0368S	3.686400	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	Series
FPXLF0368-20	3.686400	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF040	4.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF049-20	4.915200	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF073-20	7.372800	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF080	8.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	Series
FPXLF080-20	8.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF100-20	10.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF115-20	11.059200	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF120-20	12.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF160	16.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	Series
FPXLF160-20	16.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF200-20	20.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF
FPXLF250F	25.000000	+/- 50 ppm	+/- 50 ppm	-10 to +70 C	20pF

### Description of Change to the Customer:

End of Life for the FPXLF series.

**Reason for Change:**

Fox has experienced an unfortunate tool failure in the process that produces the FPXLF product family. This failure has resulted in Production being halted.

This part was first introduced by Fox in the 1980's and is well beyond the End of Life in its product lifecycle. The investment required to resume the production process would result in a significant price increase.

In addition to the cost for resuming production of the FPXLF, this product contains lead and is currently ROHS approved through exemption. This exemption will expire in the near future and, if not extended, would result in disqualification of the FPXLF under the ROHS standard.

Fox has other, more cost effective products that can do a better job with less manufacturing issues. (*See suggested substitutions on following page.*)

**Suggested Substitutions:**

- HC49SPXLF - To provide our customers time to modify their board designs if necessary, we are offering the HC49SPXLF on a temporary basis for 1 year from this date. The HC49SPXLF is an HC49SLF modified to a 4 pad configuration to be compatible with the FPXLF recommended solder pad layout.

As alternatives to the traditional 4 pad product, for frequencies of 8 MHz and above, there are also two smaller 2 pad crystals that fit on the crystal connected pads of the solder pad layout.

- FQ5032A – 5x3.2mm, 8 MHz ~ 60 MHz
- FX532AS - 5x3.2mm, 8 MHz ~ 70 MHz (tighter stability version of the FX532A)

Datasheets for all recommended substitutions are attached. In addition, a drawing showing all three substitutions on the FPXLF recommended solder pad layout is attached.

**Schedule of Change:**

- FPXLF – Orders will be supported with existing inventory until depleted.
- Last Buy Date for HC49SPXLF – 06/20/2016
- Last Ship Date for HC49SPXLF -- lead time at time of quote past the buy date.

**Customer Impact and Response:** We sincerely hope this change will have minimal impact on our customers. If you have any questions, please contact Fox Technical Support at [www.foxonline.com/email.htm](http://www.foxonline.com/email.htm) or call 239-693-0099.

# Resistance Weld Low Profile Crystal

**MODEL: HC49SPXLF Series**

RoHS &amp; REACH Compliant Pb Free

Rev. 06/12/2015

**PART NUMBER SELECTION**

Part Number	Model Number	Frequency Range (MHz)
448LF-Frequency-xxxx	HC49SPXLF	3.500 ~ 80.000

**SPECIFICATIONS**

Parameters	Max (unless otherwise noted)
Frequency Range	3.500 ~ 80.000 MHz
Frequency Tolerance @ 25°C	±30 PPM <sup>1</sup>
Frequency Stability, ref @ 25°C Over Operating Temp Range	±50 PPM <sup>1</sup>
Temperature Range	
Operating (T <sub>OPR</sub> )	-20°C ~ +70°C <sup>1</sup>
Storage (T <sub>STG</sub> )	-55°C ~ +125°C
Shunt Capacitance (C <sub>O</sub> )	7pF
Load Capacitance (C <sub>L</sub> )	10pF ~ Series (Customer Specified)
Drive Level	1.0 mW
Aging per year	±5 PPM
Maximum Soldering Temp / Time	250°C Peak ≥230°C / 30±10 Sec.
Moisture Sensitivity Level (MSL)	1
Termination Finish:	Ag over Ni

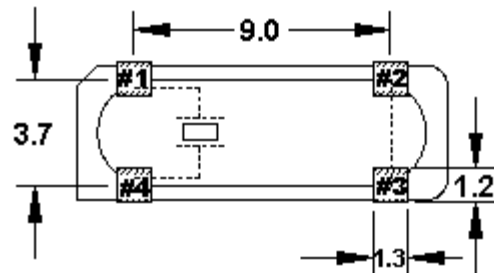
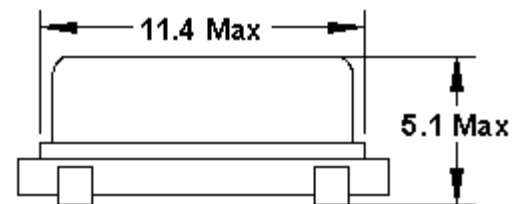
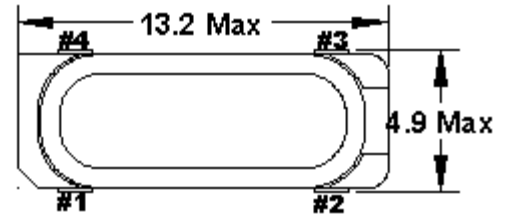
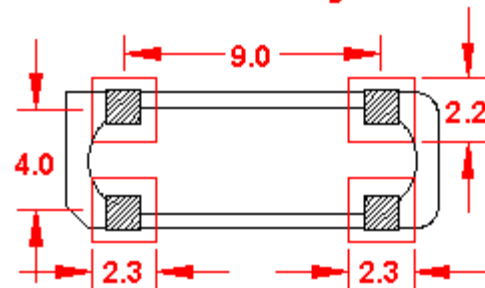
<sup>1</sup>Other tolerances, stabilities, and operating temperature ranges available.

\*Dimensional drawing is for reference to critical specifications defined by size measurements.

Certain non-critical visual attributes, such as side castellations, reference pin shape, etc. may vary. Specifications subject to change without notice.

**ESR**

Frequency Range (MHz)	Operating Mode	Max ESR Ω
3.500 ~ 4.500	Fundamental	120
4.500001 ~ 6.000	Fundamental	90
6.000001 ~ 8.000	Fundamental	70
8.000001 ~ 12.000	Fundamental	60
12.000001 ~ 15.000	Fundamental	40
15.000001 ~ 18.000	Fundamental	30
18.000001 ~ 40.000	Fundamental	25
30.000 ~ 35.000	3 <sup>rd</sup> OT	100
35.000001 ~ 40.000	3 <sup>rd</sup> OT	80
40.000001 ~ 80.000	3 <sup>rd</sup> OT	70


**Recommended Solder Pad Layout**


Reference / Comments	Title / Description: HC49SPX Standard Specifications	
Initial release	Drawing Number:	Size: A
	Part Number:	Cage: 61429
	Draftsperson: CMR	Approved: BEC
		Rev. Date: 06/15/2015



# Resin Sealed SMD Crystal

Model: FQ5032 SERIES

RoHS Compliant / Pb Free

Rev. 6/19/2014

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[http://www.foxonline.com/need\\_a\\_sample.htm](http://www.foxonline.com/need_a_sample.htm)

Need a  
Sample®

## FEATURES

- Surface Mount Resin Sealed
- Low Cost
- Ultra Low Profile
- Fundamental to 48.000 MHz
- Tape and Reel (1,000 pcs STD)

## OPTIONS

- Tolerances to  $\pm 20$  PPM
- Stabilities to  $\pm 20$  PPM
- Temp Range to  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

## • PART NUMBER

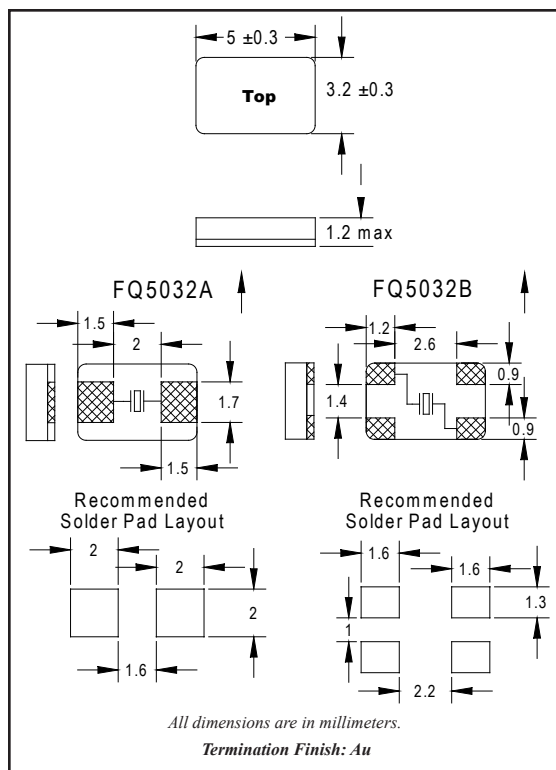
Part Number	Model Number	Frequency Range (MHz)
738A-Frequency-xxxxx	FQ5032A	8.000 ~ 60.000
738B-Frequency-xxxxx	FQ5032B	8.000 ~ 60.000

## • STANDARD SPECIFICATIONS<sup>1</sup>

PARAMETERS	MAX (unless otherwise noted)
Frequency Range (Fo)	8.000 ~ 60.000 MHz
Frequency Tolerance @ 25°C	$\pm 30$ PPM <sup>1</sup>
Frequency Stability, ref @ 25°C Over Operating Temp Range	$\pm 30$ PPM <sup>1</sup>
Temperature Range	
Operating (TOPR)	$0^{\circ}\text{C} \sim +70^{\circ}\text{C}$ <sup>1</sup>
Storage (TSTG)	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Shunt Capacitance (Co)	7 pF
Load Capacitance (CL)	10 pF ~ Series (Customer Specified)
Drive Level	0.5 mW
Aging per year	$\pm 5$ PPM

<sup>1</sup> Other tolerances, stabilities & operating temperature ranges available. Consult Fox Customer Service for specific requirements.

**NOTE:** The above specifications, having been carefully prepared and checked, is believed to be accurate at the time of publication; however, no responsibility is assumed by Fox Electronics for inaccuracies. All specifications subject to change without notice.



Frequency Range (MHz)	Operating Mode	Max ESR $\Omega$
8.000000 ~ 11.999999	Fundamental	100
12.000000 ~ 16.000	Fundamental	80
16.000001 ~ 48.000	Fundamental	50
48.000001 ~ 60.000	3rd OT	100

# CERAMIC, SEAM-SEALED, SMD, CRYSTAL

## MODEL: FX532AS Series

RoHS / REACH Compliant / Pb Free

### FEATURES

- Low Cost
- Fundamental to 70 MHz
- Seam Sealed
- Tape and Reel (2,000 pcs. STD)

### OPTIONS

- Tolerances to < 10 PPM
- Stabilities to < 10 PPM
- Temperatures to -40°C ~ +85°C

### PART NUMBER SELECTION

Part Number	Model Number	Frequency Range (MHz)
419S-Freq.-xxxx	FX532AS	8.000 ~ 70.000

### STANDARD SPECIFICATIONS

Parameters	
Frequency Range (F <sub>O</sub> )	8.000 ~ 70.000 MHz
Frequency Tolerance @ 25°C	±50 PPM Max <sup>1</sup>
Frequency Stability, ref @ 25°C Over Operating Temp. Range	±50 PPM Max <sup>1</sup>
Temperature Range Operating (T <sub>OPR</sub> ) Storage (T <sub>STG</sub> )	-10°C ~ +70°C <sup>1</sup> -40°C ~ +90°C
Shunt Capacitance (C <sub>O</sub> )	7 pF Max
Load Capacitance (C <sub>L</sub> )	8pF ~ Series (Customer Specified)
Drive Level	0.1 mW Max
Aging per year	± 5 PPM Max
Maximum Soldering Temp / Time	260°C / 10 Seconds
Moisture Sensitivity Level (MSL)	1
Termination Finish:	Au

<sup>1</sup> Other tolerances, stabilities, and operating temperature ranges available.

### ESR

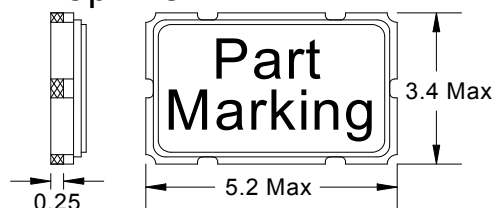
Frequency Range (MHz)	Operating Mode	Max ESR (Ω)
8.000 ~ 9.999999	Fundamental	150
10.000 ~ 15.999999	Fundamental	60
16 ~ 70.000	Fundamental	50

Note: Dimensional drawing is for reference to critical specifications defined by size measurements.

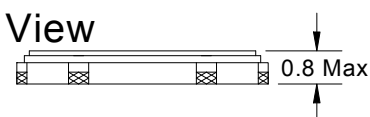
Certain non-critical visual attributes, such as side castellations, etc. may vary

All specifications subject to change without notice.

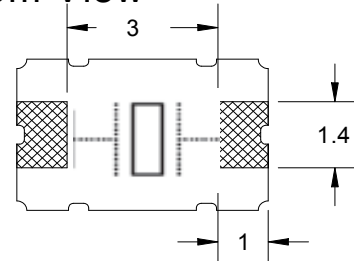
Top View



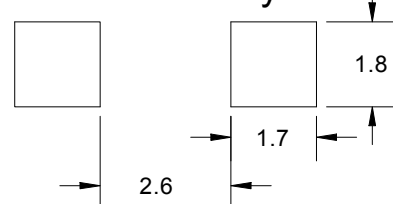
Side View



Bottom View



Recommended Solder Pad Layout

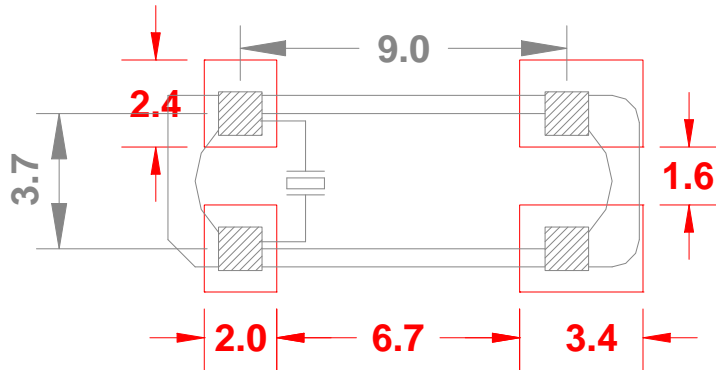


Reference / Comments	Title / Description: FX532AS Standard Specifications		
Initial release APPROVAL PENDING	Drawing Number:	Rev: 1	Size: A
	Part Number:		Cage: 61429
	Draftsperson: CMR	Approved: BEC	Date: 06/19/2015

HC49SPXLF, FX532AS, and FQ5032A, all on the recommended FPXLF pad layout

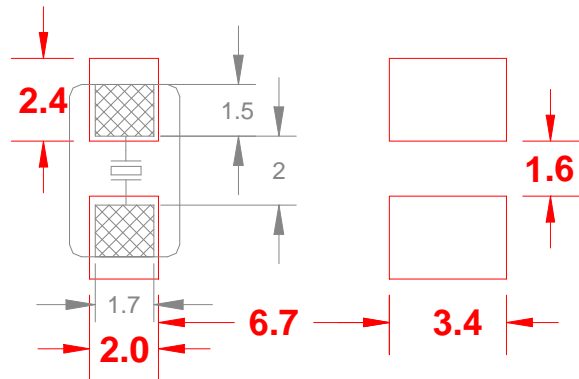
### HC49SPXLF

Primary suggested substitution.  
(Matches FPXLF recommended solder pad layout.)



### FQ5032A

Alternative 2 pad substitution.  
(Connects to active crystal pads.)



### FX532AS

Alternative 2 pad substitution.  
(Connects to active crystal pads.)

