



actual size

# Automotive SMD Crystal · JXS32P4

4 Pad Version · 3.2 x 2.5 mm

- seam sealed ceramic/metal package
- all versions are AEC-Q200 qualified
- HMR version with extended shock & vibration immunity
- reflow soldering temperature: 260 °C max.



## General Data

type	JXS32P4
frequency range	10.0 ~ 54.0 MHz (fund. AT-cut)
frequency tolerance at 25 °C	± 10 ppm, ± 30 ppm, ± 50 ppm
load capacitance $C_L$	12 pF standard (option: 10 pF ~ 30.0 pF / series)
shunt capacitance $C_0$	< 5 pF
storage temperature	-40 °C ~ +125 °C
shock resistance	> 100 g (half sine pulse, 6.0 ms)*
drive level max.	100 µW (10 µW recommended)
aging	< ± 3 ppm first year

\* optional HMR version: 3000G / half sine pulse / 0.3 ms

## ESR (series resistance $R_s$ ) at max. temp. range

frequency in MHz	vibration mode	ESR max. in $\Omega$	ESR typ. in $\Omega$
10.0 ~ 11.999	fund.-AT	300	150
12.0 ~ 12.999	fund.-AT	100	50
13.0 ~ 15.999	fund.-AT	100	40
16.0 ~ 18.999	fund.-AT	80	40
19.0 ~ 21.999	fund.-AT	70	30
22.0 ~ 29.999	fund.-AT	70	25
30.0 ~ 54.000	fund.-AT	50	20

## Frequency Stability vs. Temperature

		± 15 ppm	± 20 ppm	± 30 ppm	± 50 ppm	± 100 ppm
-20 °C ~ +70 °C	STD.	○*	○	○	○	○
-30 °C ~ +85 °C	T (-30/+85)	□				
-40 °C ~ +85 °C	T1	◇	○	○*	○	○
-40 °C ~ +105 °C	T2				○	○
-40 °C ~ +125 °C	T3				○	○

○ available    ◇ for frequencies > 20 MHz, ask if available < 20 MHz    □ for frequencies < 20 MHz  
 \* best value for frequencies < 12.0 MHz

## Marking

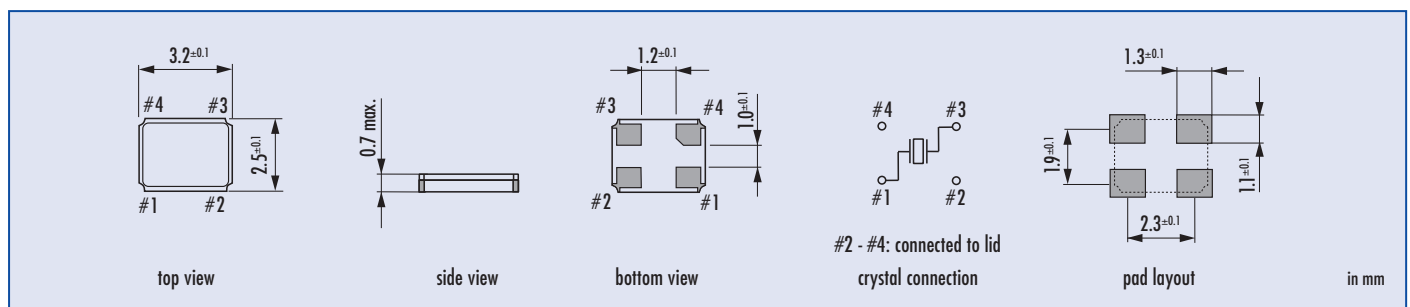
frequency with load capacitance code  
 company code / date code / internal code

date code:                      year/month  
 example:                        2A = 2012 January

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F

July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	L	M

## Dimensions



## Order Information

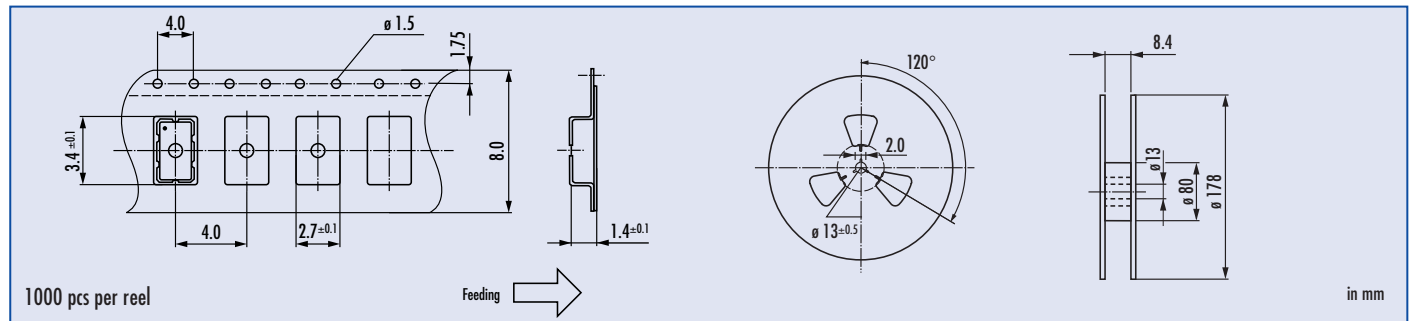
Q	frequency	type	load capacitance	stability at 25 °C	stability vs. temp. range	option 1	option 2
Quartz	10.0 ~ 54.0 MHz	JXS32P4	12 pF standard 10 pF ~ 30 pF S for series	10 ± 10 ppm 30 ± 30 ppm 50 ± 50 ppm	15 ± 15 ppm 20 ± 20 ppm 30 ± 30 ppm 50 ± 50 ppm 100 ± 100 ppm	blank = -20 °C ~ +70 °C T (-30/+85) = -30 °C ~ +85 °C T1 = -40 °C ~ +85 °C T2 = -40 °C ~ +105 °C T3 = -40 °C ~ +125 °C FU = for fundamental frequencies ≥ 20 MHz	AEC = AEC-Q200 qualified HMR = high mechanical reliability (3000g/half sine wave/0.3ms)

Example: Q 28.0-JXS32P4-12-30/30-FU-AEC-LF (Suffix LF = RoHS compliant / Pb free pads)

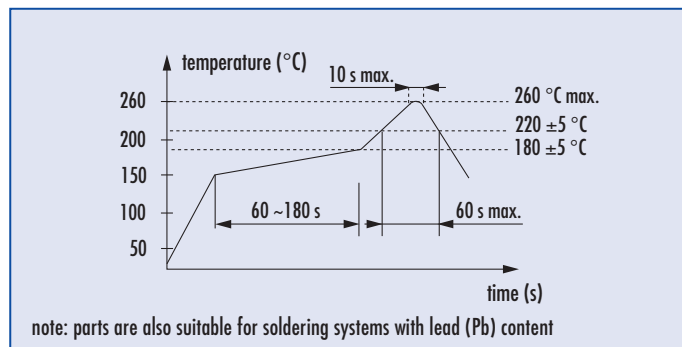


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## Taping Specification



## Reflow Soldering Profile



## Load Capacitance Codes

8 pF: k	14 pF: x	22 pF: g	series: s
9 pF: n	15 pF: j	24 pF: d	T: 3rd OT
10 pF: h	16 pF: b	25 pF: r	
11 pF: l	17 pF: t	27 pF: w	
12 pF: a	18 pF: f	30 pF: .	
13 pF: v	20 pF: c		

example 20.0 MHz / 12 pF: 20a00