



actual size

# Automotive SMD Crystal · JXG32P4

4 Pad Version · 3.2 x 2.5 mm

- glass sealed ceramic package
- all versions are AEC-Q200 qualified
- HMR version with extended shock & vibration immunity
- RKE version withstands 100x drop test from 150 cm



## General Data

type	JXG32P4
frequency range	12.0 ~ 50.0 MHz (fund. AT-cut) ask for availability of lower frequencies
frequency stability at 25 °C	± 30 ppm, ± 50 ppm
load capacitance $C_L$	12 pF standard (option: 10 pF ~ 30.0 pF / series)
shunt capacitance $C_0$	< 7 pF
storage temperature	-40 °C ~ +125 °C
shock resistance	> 100 g (half sine pulse, 6.0 ms)*
drive level max.	100 $\mu$ W (10 $\mu$ W recommended)
aging	< ± 3 ppm first year

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

## ESR (series resistance Rs)

frequency in MHz	vibration mode	ESR max. in $\Omega$	ESR typ. in $\Omega$
12.0 ~ 12.999	fund.-AT	200	90
13.0 ~ 13.999	fund.-AT	150	70
14.0 ~ 15.999	fund.-AT	100	40
16.0 ~ 18.999	fund.-AT	80	35
19.0 ~ 21.999	fund.-AT	70	30
22.0 ~ 29.999	fund.-AT	70	25
30.0 ~ 50.000	fund.-AT	50	20

## Frequency Stability vs. Temperature

		± 30 ppm	± 50 ppm	± 100 ppm		
-20 °C ~ +70 °C	STD.	○	○	○		
-40 °C ~ +85 °C	T1	○	○	○		
-40 °C ~ +105 °C	T2		○	○		
-40 °C ~ +125 °C	T3			○		

○ available

## Marking

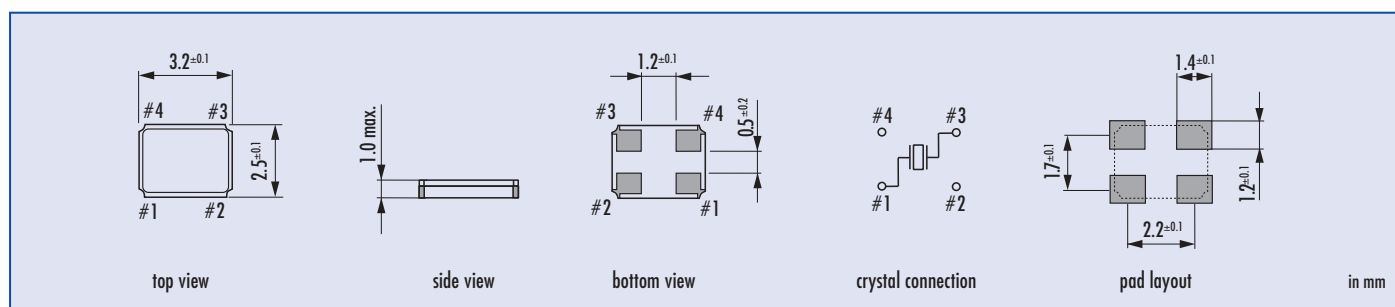
frequency with load capacitance code  
company code / date code / internal code

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

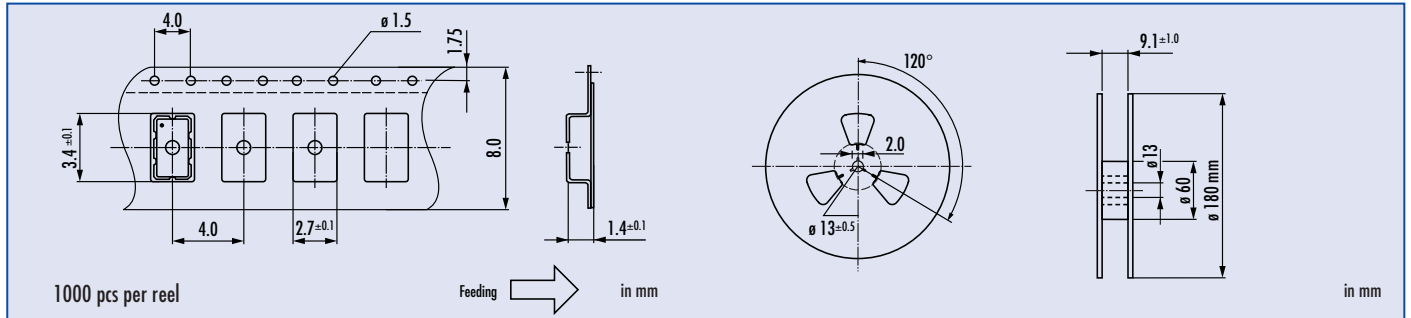
Q	frequency	type	load capacitance	stability at 25 °C	stability vs. temp. range	option 1	option 2
Quartz	12.0 ~ 50.0 MHz	JXG32P4	12 pF standard 10 pF ~ 30 pF S for series	30 = ± 30 ppm 50 = ± 50 ppm	30 = ± 30 ppm 50 = ± 50 ppm 100 = ± 100 ppm	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C T2 = -40 °C ~ +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) RKE = for remote keyless entry (drop 100x / 150 cm)

Example: Q 28.0-JXG32P4-12-30/30-T1-FU-AEC-LF (Suffix LF = RoHS compliant / Pb free pads)

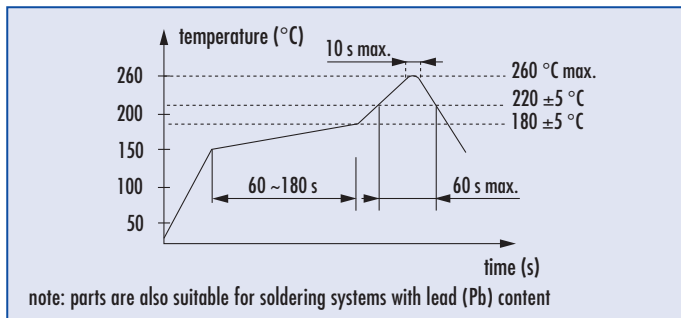


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## Taping Specification



## 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