

## SAW RESONATOR For Automotive



Product Number (please contact us)  
Q25NS21Rxxxxx00

# NS-21R

- Frequency range : 300 MHz to 500 MHz
- External dimensions : 2.5 × 2.0 × 0.86 mm
- Overtone order : Fundamental
- Applications : Remote keyless entry(RKE)  
(Please contact us for except RKE use.)
- High reliability and excellent temperature characteristic.
- The small package size.



Actual size

### Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Nominal frequency range	f_nom	300 MHz to 500 MHz	Please contact us about available frequencies.
Storage temperature	T_stg	-40 °C to +85 °C	Storage as single product.
Operating temperature	T_use	-40 °C to +85 °C	
Level of drive	DL	2 mW Max.	
Frequency tolerance (standard)	f_tol	$\pm 50 \times 10^{-6}$ , $\pm 100 \times 10^{-6}$ , $\pm 150 \times 10^{-6}$	+25 °C
Turnover temperature	Ti	+20 °C $\pm$ 20 °C	Please contact us for inquires about Peak temperature
Parabolic coefficient	B	$-(1.6 \pm 0.4) \times 10^{-8} / ^\circ\text{C}^2$	
Harmonic ratio	Rs/ R1	2 Min.	
Motional resistance(ESR)	R1	20 $\Omega$ Max.	
Frequency aging	f_age	$\pm 10 \times 10^{-6} / \text{year}$ Max.	+25 °C
Shock resistance	S.R.	$\pm 10 \times 10^{-6}$ Max.	Nine drops on a concrete surface from 1500 mm

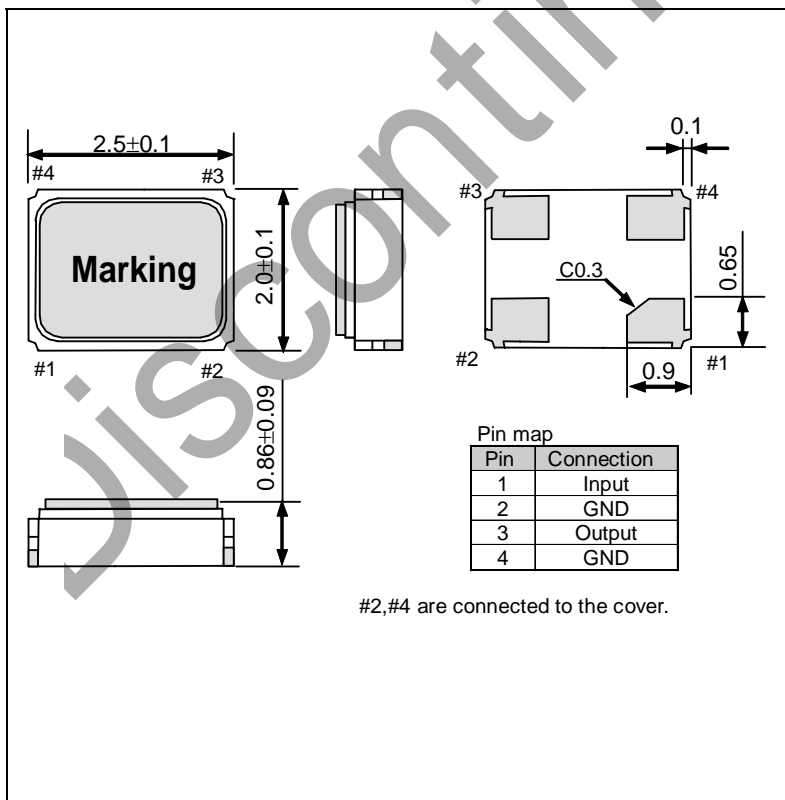
Product name  
(Standard form)

NS-21R 312.00000MHz 99.0 +50.0-50.0

① Model    ② Frequency    ③ Load capacitance(99.0=∞)    ④ Frequency tolerance( $\times 10^{-6}$ , +25 °C)

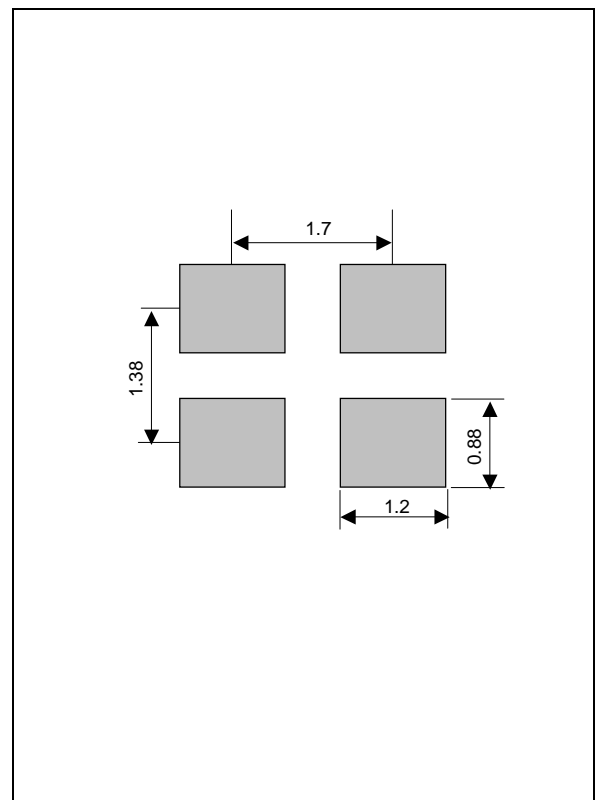
### External dimensions

(Unit:mm)



### Footprint (Recommended)

(Unit:mm)



## PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.





## WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

### ► Explanation of the mark that are using it for the catalog

	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
	► Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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