SAW RESONATOR
For Automotive

NS - 32R
FS - 335 / FS - 555

- Frequency range : 230 MHz to 870 MHz
- External dimensions : 3.8 × 3.8 × 0.98 mm ⋯NS-32R / FS-335
  4.8 × 5.2 × 1.5 mm ⋯FS-555
- Overtone order : Fundamental
- Applications : Remote keyless entry(RKE)
  (Please contact us for except RKE use.)

Product Number (please contact us)
NS-32R: Q25NS32R0xxxx00
FS-335: Q25FS3350xxxx00
FS-555: Q25FS5550xxxx00



Actual size

NS-32R	FS-335	FS-555

Specifications (characteristics)

Item	Symbol	Specifications			Conditions / Remarks
		NS-32R	FS-335	FS-555	
Nominal frequency range	f_nom	312 MHz to 870 MHz	300 MHz to 870 MHz	230 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	1 mW Typ.	2 mW Typ.		FS-335 : f_nom >500 MHz 0.1 mW Typ.
Frequency tolerance (standard)	f_tol	As per below table			+25 °C
Turnover temperature	Ti	+25 °C±20 °C	+25 °C±15 °C		Please specify
Parabolic coefficient	B	$-(1.6 \pm 0.4) \times 10^{-8}$ / °C^2	$-(3.4 \pm 0.8) \times 10^{-8}$ / °C^2		
Harmonic ratio	R_S/R_1	2 Min.			
Motional resistance (ESR)	R_1	As per table below			
Frequency aging	f_age	$\pm 10 \times 10^{-6}$ / year Max.			+25 °C
Shock resistance	S.R.	$\pm 10 \times 10^{-6}$ Max.			Nine drops on a concrete surface from 1500 mm

Frequency tolerance / Motional resistance

Model	Item	312 MHz to 500 MHz	500 MHz to 870 MHz
NS-32R	Frequency tolerance (standard)	$\pm 50 \times 10^{-6}$, $\pm 100 \times 10^{-6}$ *1	$\pm 100 \times 10^{-6}$
	Motional resistance (ESR)	30 Ω Max.	

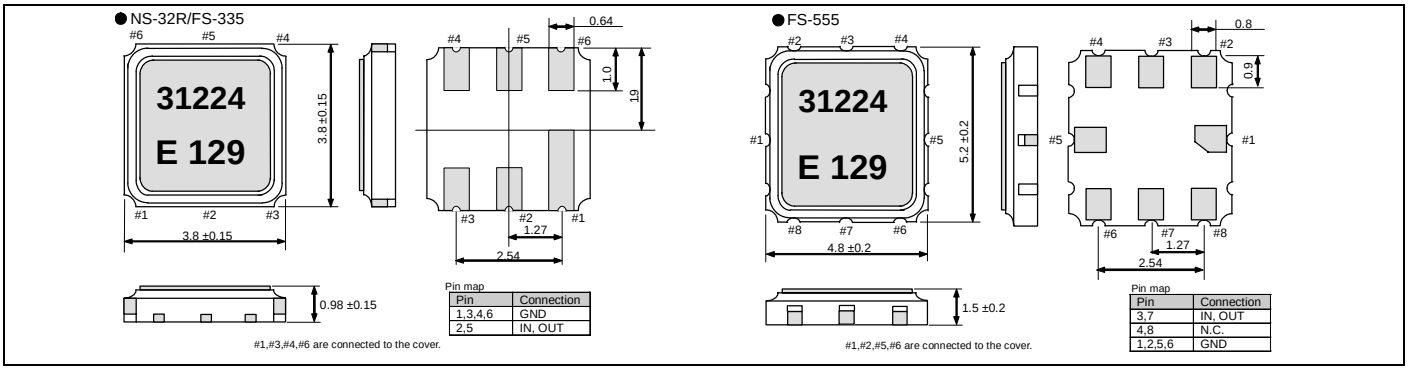
Model	Item	230 MHz to 250 MHz	250 MHz to 300 MHz	300 MHz to 500 MHz	500 MHz to 870 MHz
FS-335	Frequency tolerance (standard)	—	—	$\pm 50 \times 10^{-6}$, $\pm 100 \times 10^{-6}$ *1	$\pm 100 \times 10^{-6}$
	Motional resistance (ESR)	—	—	25 Ω Max.	40 Ω Max.
FS-555	Frequency tolerance (standard)	$\pm 50 \times 10^{-6}$, $\pm 100 \times 10^{-6}$ *1			—
	Motional resistance (ESR)	40 Ω Max.	25 Ω Max.		—

*1 Please contact us regarding frequency tolerance (< $\pm 50 \times 10^{-6}$)

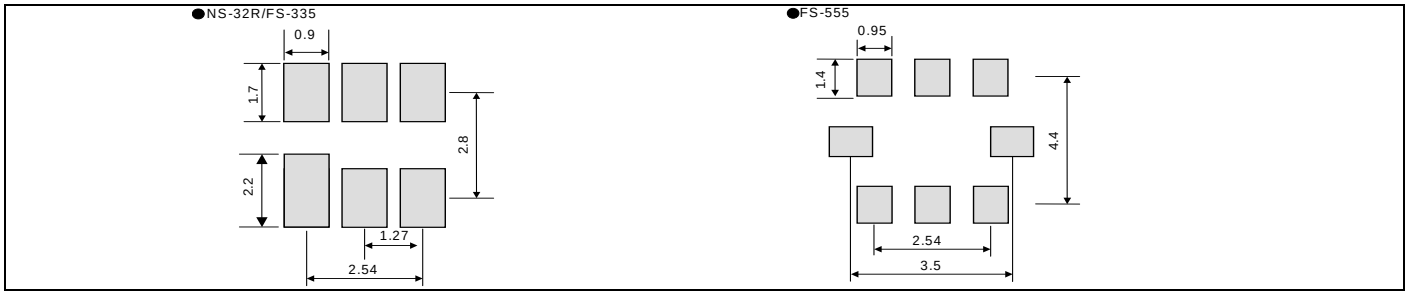
Product name (Standard form): NS-32R ① 312.00000MHz ② 99.0 ③ +50.0-50.0 ④

①Model ②Frequency ③Load capacitance(99.0=∞) ④Frequency tolerance(× 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	►Pb free.
RoHS Compliant	►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.)
For Automotive	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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