SAW RESONATOR
HIGH-STABILITY

NS-32R
FS-335 / FS-555

- Frequency range : 230 MHz to 870 MHz
- External dimensions : 3.8 × 3.8 × 0.98 t (mm) ···NS-32R / FS-335
  4.8 × 5.2 × 1.5 t (mm) ···FS-555
- Overtone order : Fundamental
- Applications : Small wireless equipment

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			Remark
			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 regarding available frequencies
Temperature range	Storage temperature	T_stg	-40 °C to +85 °C			Store as bare product after unpacking
	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	$-(1.6 \pm 0.4) \times 10^{-8}$ / °C²	$-(3.4 \pm 0.8) \times 10^{-8}$ / °C²		
Harmonic ratio		R_S/R_1	2 Min.			
Motional resistance (ESR)		R_1	As per below table			
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

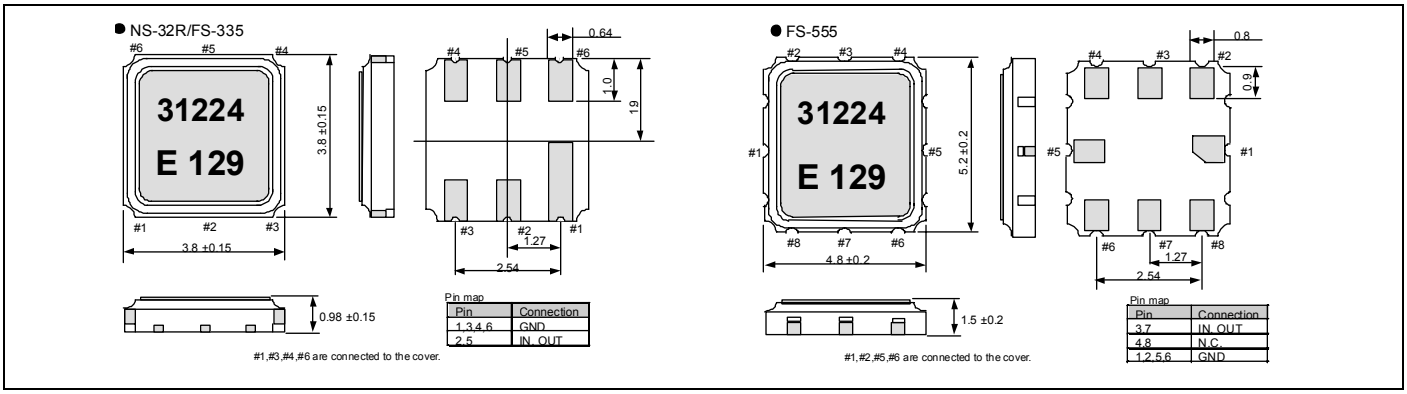
Frequency tolerance / Motional resistance

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.	

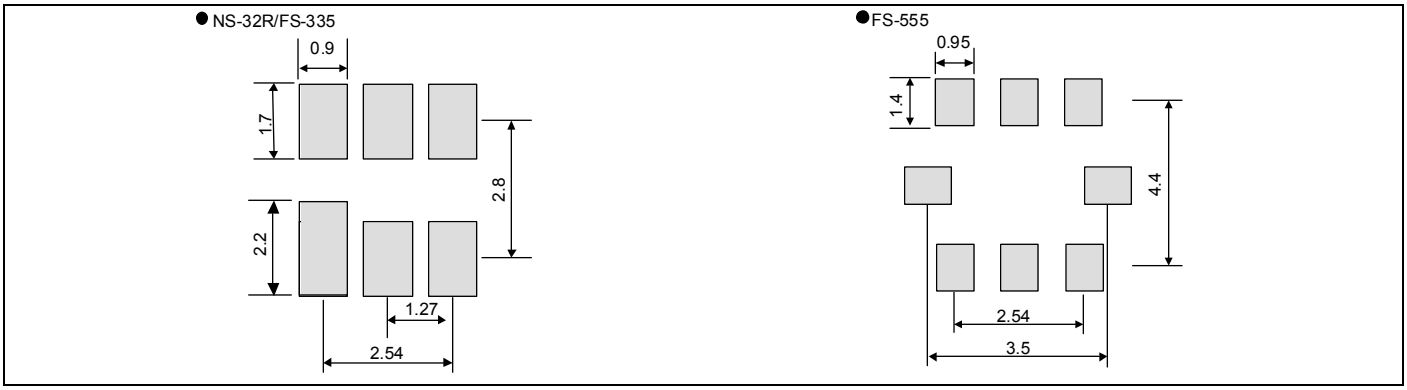
Model	Item	230 MHz to 250 MHz	250 MHz to 300 MHz	300 MHz to 500 MHz	500 MHz to 870 MHz
FS-335	Frequency tolerance (standard)	—	—	$\pm 50 \times 10^{-6}$, $\pm 100 \times 10^{-6}$ *1	$\pm 100 \times 10^{-6}$
	Motional resistance (ESR)	—	—	25 Ω Max.	40 Ω Max.
FS-555	Frequency tolerance (standard)	$\pm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

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

External dimensions (Unit:mm)



Footprint (Recommended) (Unit:mm)



“QMEMS” EPSON TOYOCOM

In order to meet customer needs in a rapidly advancing digital, broadband and ubiquitous society, we are committed to offering products that are one step ahead of the market and a rank above the rest in quality. To achieve our goals, we follow a “3D (three device) strategy” designed to drive both horizontal and vertical growth. We will to grow our three device categories of “Timing Devices”, ”Sensing Devices” and “Optical Devices”, and expand vertical growth through a combination of products from these categories.
A Quartz MEMS is any high added value quartz device that exploits the characteristics of quartz crystal material but that is produced using MEMS (micro-electro-mechanical system) processing technology.
Market needs are advancing faster than previously imagined toward smaller, more stable crystal products, but we will stay ahead of the curve by rolling out products that exceed market speed and quality requirements. We want to further accelerate the 3D strategy by QMEMS.

Quartz devices have become crucial in the network environment where products are increasingly intended for broadband, ubiquitous applications and where various types of terminals can transfer information almost immediately via LAN and WAN on a global scale. Epson Toyocom Corporation addresses every single aspect within a network environment. The new corporation offers “Digital Convergence” solutions to problems arising with products for consumer use, such as, core network systems and automotive systems.

QMEMS

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Epson Toyocom, 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.

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.

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

WORKING FOR HIGH QUALITY

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

QS-9000 is an enhanced standard for quality assurance systems formulated by leading U.S. automobile manufacturers based on the international ISO 9000 series.

ISO/TS 16949 is a global standard based on QS-9000, a severe standard corresponding to the requirements from the automobile industry.

►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	**►The products have been designed for high reliability applications such as Automotive.**

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  / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment
  / traffic control equipment / and others requiring equivalent reliability.
- In this new crystal master for Epson Toyocom, product codes and markings will remain as previously identified prior to the merger.
  Due to the on-going strategy of gradual unification of part numbers, please review product codes and markings, as they will change during the course of the coming months.

  We apologize for the inconvenience, but we will eventually have a unified part numbering system for Epson Toyocom that will be user friendly.