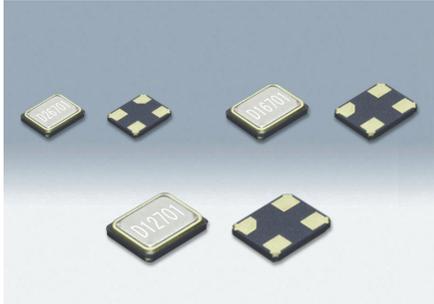


# SMD Crystal Resonators / MHz Band Crystal Resonators

## DSX211S/DSX211SH/DSX221SH/DSX321SH



Actual size DSX211S/SH DSX221SH   
DSX321SH

### ■ Features

- Miniature and lightweight SMD crystal resonator  
DSX211S/SH : 2016 size 0.45mm height  
DSX221SH : 2520 size 0.45mm height  
DSX321SH : 3225 size 0.65mm height
- Excellent heat resistance, High precision and high reliability
- Offers a wide range of frequencies  
DSX211S : 76.8MHz, 80MHz, 96MHz  
DSX211SH : 16MHz to 60MHz  
DSX221SH : 16MHz to 54MHz  
DSX321SH : 12MHz to 50MHz
- AEC-Q200 Compliant (except for DSX211S)
- Frequency Characteristics over Temperature  
 $\pm 50 \times 10^{-6} / -40$  to  $+105^\circ\text{C}$  is available for Industrial Equipment.



### ■ Applications

- Telecommunication products, short-range wireless modules and other small devices such as DVC, DSC, PC.
- Automotive applications such as multimedia devices (AEC-Q200 Compliant).
- Industrial equipment

### ■ Standard Specification

Item	Type	DSX211SH	DSX211S	DSX221SH			DSX321SH			
Frequency Range		16 to 30MHz / 30 to 60MHz	76.8MHz/80MHz/96MHz	12 to 24MHz	24 to 30MHz	30 to 54MHz	12 to 20MHz	20 to 32MHz	32 to 50MHz	
Overtone Order		Fundamental								
Load Capacitance		8pF, 10pF, 12pF								
Drive Level		10 $\mu\text{W}$ (100 $\mu\text{W}$ max.)	10 $\mu\text{W}$ (400 $\mu\text{W}$ max.)	10 $\mu\text{W}$ (200 $\mu\text{W}$ max.)						
Frequency Tolerance		$\pm 20 \times 10^{-6}$ (at 25 $^\circ\text{C}$ )								
Series Resistance		100 $\Omega$ max. / 50 $\Omega$ max.	30 $\Omega$ max.	120 $\Omega$ max.	50 $\Omega$ max.	40 $\Omega$ max.	80 $\Omega$ max.	50 $\Omega$ max.	40 $\Omega$ max.	
Frequency Characteristics over Temperature		$\pm 30 \times 10^{-6} / -30$ to $+85^\circ\text{C}$ (Ref. to 25 $^\circ\text{C}$ )								
Storage Temperature Range		$-40$ to $+85^\circ\text{C}$								
Packing Unit (1)		3000pcs./reel( $\phi$ 180)								

(1) Moisture prevention packing is unnecessary.  
Moisture Sensitivity Level: LEVEL 1 (IPC/JEDEC J-STD-033)

Consult our sales representative for other specifications.

### ■ DSX211S/DSX211SH [mm]

### ■ DSX221SH [mm]

### ■ DSX321SH [mm]

[mm]

<p><b>■ Dimensions</b></p> <p>2.0<math>\pm</math>0.1 1.6<math>\pm</math>0.1 0.45<math>\pm</math>0.05 1.275 0.975 0.575 0.475</p> <p><b>■ Internal Connections (Top View)</b></p> <p>#1 &amp; #3 connected to quartz element #2 &amp; #4 connected to the cover #2 &amp; #4 recommended GND connection</p> <p><b>■ Recommended Land Pattern (Top View)</b></p> <p>1.4 1.1 0.9 0.8</p>	<p><b>■ Dimensions</b></p> <p>2.5<math>\pm</math>0.15 2.0<math>\pm</math>0.15 0.45<math>\pm</math>0.05 1.6 1.25 0.7 0.55</p> <p><b>■ Internal Connections (Top View)</b></p> <p>#1 &amp; #3 connected to quartz element #2 &amp; #4 connected to the cover #2 &amp; #4 recommended GND connection</p> <p><b>■ Recommended Land Pattern (Top View)</b></p> <p>1.75 1.3 1.15 1.0</p>	<p><b>■ Dimensions</b></p> <p>3.2<math>\pm</math>0.1 2.5<math>\pm</math>0.1 0.65<math>\pm</math>0.1 2.1 1.5 0.9 0.8</p> <p><b>■ Internal Connections (Top View)</b></p> <p>#1 &amp; #3 connected to quartz element #2 &amp; #4 connected to the cover #2 &amp; #4 recommended GND connection</p> <p><b>■ Recommended Land Pattern (Top View)</b></p> <p>2.2 1.7 1.4 1.2</p>
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