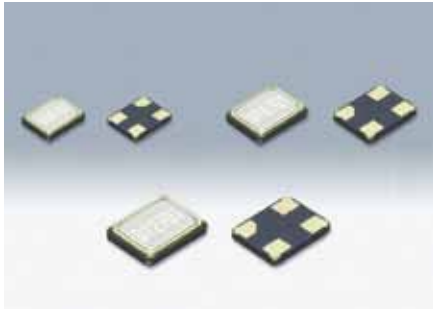


# SMD Crystal Resonators / MHz Band Crystal Resonators (For Automotive)

## 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/SH : 24MHz to 50MHz  
DSX221SH : 16MHz to 54MHz  
DSX321SH : 12MHz to 50MHz
- AEC-Q200 Compliant



### Applications

- Automotive radio applications such as Bluetooth, wireless LAN, GPS/GNSS, multimedia devices and automotive camera

### Standard Specification

Item	Type	DSX211S/SH		DSX221SH			DSX321SH			
		24 to 30MHz	30 to 50MHz	12 to 16MHz	16 to 24MHz	24 to 30MHz	30 to 54MHz	12 to 20MHz	20 to 28MHz	28 to 50MHz
Frequency Range		24 to 30MHz	30 to 50MHz	12 to 16MHz	16 to 24MHz	24 to 30MHz	30 to 54MHz	12 to 20MHz	20 to 28MHz	28 to 50MHz
Overtone Order		Fundamental								
Load Capacitance		8pF, 10pF, 12pF								
Drive Level		10μW (100μW max.)			10μW (200μW max.)					
Frequency Tolerance		±30×10 <sup>-6</sup> (at 25°C)								
Series Resistance		150Ω max.	100Ω max.	250Ω max.	200Ω max.	150Ω max.	100Ω max.	120Ω max.	100Ω max.	80Ω max.
Frequency Characteristics over Temperature		±100×10 <sup>-6</sup> / -40 to +125°C (Ref. to 25°C)								
Storage Temperature Range		-40 to +150°C								
Reliability		AEC-Q200								
Packing Unit (1)		3000pcs./reel(φ180)								

(1) Moisture prevention packing is unnecessary.  
Moisture Sensitivity Level: LEVEL1 (IPC/JEDEC J-STD-033)

Consult our sales representative for other specifications.

### DSX211S/SH [mm]

### DSX221SH [mm]

### DSX321SH [mm]

### [mm]

DSX211S/SH [mm]	DSX221SH [mm]	DSX321SH [mm]
<p><b>Dimensions</b></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><b>Dimensions</b></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><b>Dimensions</b></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>