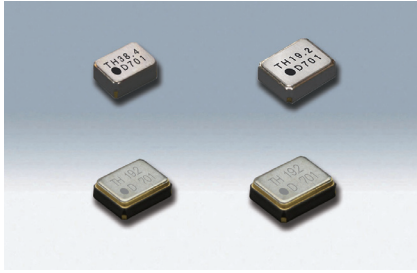


# SMD Crystal Resonators with dedicated temperature sensor / MHz Band Crystal Resonators (For Automotive)

## DSR1612ATH/DSR211ATH/DSR211STH/DSR221STH



Actual size DSR1612ATH □ DSR211ATH □  
DSR211STH □ DSR221STH □

### ■ Features

- DSR1612ATH: 1612size, height 0.65mm max.
- DSR211ATH: 2016size, height 0.65mm max.
- DSR211STH: 2016size, height 0.8mm max. (19.2MHz)  
0.65mm max. (38.4MHz)
- DSR221STH: 2520size, height 1.0mm max.
- Built-in NTC thermistor
- AEC-Q200 Compliant

### ■ Applications

- Multimedia devices such as car navigation systems and car audio
- GPS/GNSS



### ■ Standard Specification

Item	Type	DSR1612ATH	DSR211ATH	DSR211STH	DSR221STH
Frequency Range		38.4Mhz	19.2MHz	19.2MHz/38.4MHz	19.2MHz
Overtone Order		Fundamental			
Load Capacitance		7pF, 8pF			
Drive Level		10μW (100μW max.)			
Frequency Tolerance		±10×10 <sup>-6</sup> (at 25°C)			
Series Resistance		80Ω max.			
Frequency Characteristics over Temperature		±30×10 <sup>-6</sup> / -40 to +105 °C (±12×10 <sup>-6</sup> / -30 to +85 °C)			±30×10 <sup>-6</sup> / -40 to +105 °C (±12×10 <sup>-6</sup> / -30 to +85 °C) ±20×10 <sup>-6</sup> / -40 to +105 °C
Storage Temperature Range		-40 to +125 °C			
Thermistor Resistance		100kΩ (at +25°C)			
Thermistor B-constant		4250K (+25°C to +50°C)			
Reliability		AEC-Q200			
Packing Unit (1)		3000pcs./reel (φ 180)			

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

Consult our sales representative for other specifications.

■ DSR1612ATH [mm]	■ DSR211ATH [mm]	■ DSR211STH [mm]	■ DSR221STH [mm]
<p>■ Dimensions</p> <p>Model Code: TH38.4, Frequency: 38.4MHz, Lot No: D701</p> <p>Dimensions: 1.64±0.06, 1.24±0.06, 0.65mm max. height, 1.10, 0.70, 0.84, 0.30, 0.10</p> <p>■ Internal Connections (Top View)</p> <p>■ Recommended Land Pattern (Top View)</p>	<p>■ Dimensions</p> <p>Model Code: TH19.2, Frequency: 19.2MHz, Lot No: D701</p> <p>Dimensions: 2.0±0.1, 1.6±0.1, 0.65mm max. height, 1.375, 0.975, 0.475, 1.80, 0.75, 0.45, 0.20</p> <p>■ Internal Connections (Top View)</p> <p>■ Recommended Land Pattern (Top View)</p>	<p>■ Dimensions</p> <p>Model Code: TH19.2, Frequency: 19.2MHz/38.4MHz, Lot No: D701</p> <p>Dimensions: 2.0±0.1, 1.6±0.1, 0.65mm max. height, 1.375, 0.975, 0.475, 2.20, 0.75, 0.45, 0.20</p> <p>■ Internal Connections (Top View)</p> <p>■ Recommended Land Pattern (Top View)</p>	<p>■ Dimensions</p> <p>Model Code: TH19.2, Frequency: 19.2MHz, Lot No: D701</p> <p>Dimensions: 2.5±0.15, 2.0±0.15, 1.0mm max. height, 1.65, 1.25, 0.65, 1.55, 0.85, 1.95, 0.95</p> <p>■ Internal Connections (Top View)</p> <p>■ Recommended Land Pattern (Top View)</p>