



# SMD MHz Quartz Crystal Resonator

## 9S-Series (2016)

### ■ Features

- Size (L x W) 2.0 x 1.6, Height (Max.) 0.55 mm

### ■ Applications

- Digital Electronics, Consumer Products
- Mobile Communications
- Bluetooth, Wireless LAN



### ■ General Specifications

#	Items	Parameters
1	Frequency range	16 to 60MHz
2	Oscillation mode	Fundamental
3	Frequency tolerance at 25°C	±10, ±15, ±20, ±30, ±50 ppm
4	Frequency stability Vs. operating temperature range	See below Table 1
5	Equivalent series resistance	See below Table 2
6	Drive level	10, 100, 200 μW or specify
7	Insulation resistance	500 MΩ Min. at DC 100V
8	Load capacitance	8, 10, 12 pF or specify
9	Shunt capacitance (C0)	3 pF Max or specify
10	Aging at 25°C	±3 ppm / year or specify

■ Tab. 1: Frequency Stability Vs. Operating Temperature Range

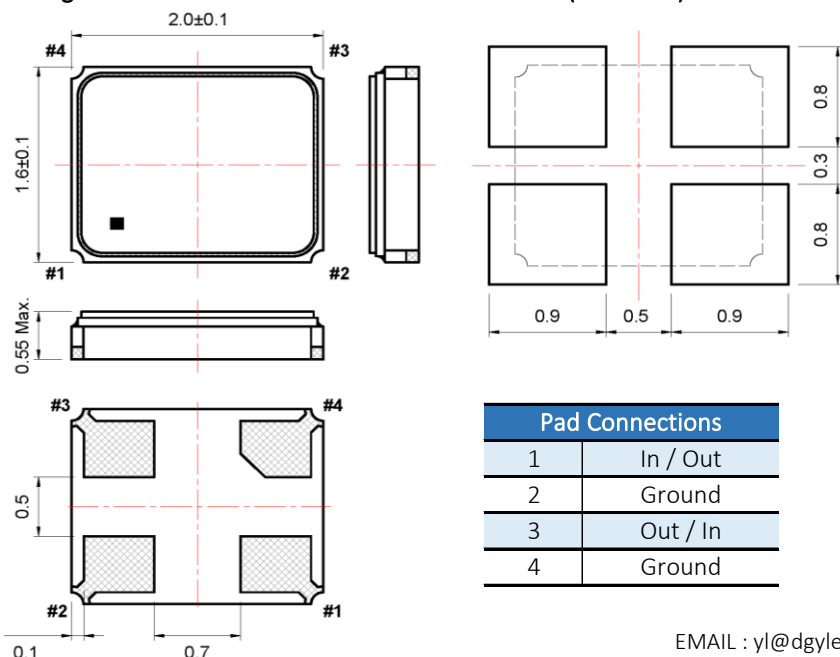
Temp.	(ppm)		
	±15	±20	±50
-40 to +85 °C	●	●	●

Note: The mark "●" denotes our achieved level

■ Tab. 2: Equivalent Series Resistance

Frequency (MHz)	ESR <sub>MAX</sub> (Ω)	Oscillation mode
16 to 20	100	Fundamental
20 to 32	80	
32 to 54	50	
54 to 60	30	

### ■ Package Dimensions & Recommended Land Pattern (Unit: mm)



Pad Connections	
1	In / Out
2	Ground
3	Out / In
4	Ground

### ■ Pad Functions

