

# SMD QUARTZ CRYSTAL

SERIES SMD02016 (4 pad housing 2.0x1.6mm)

## FEATURES

- + Tight tolerance / tight stability available
- + High reliability for low cost
- + Low resistance for fast oscillation start-up
- + Recommended for BLE, Bluetooth, WI-FI, Wireless, IoT, Wearables, Telecom, Industrial, Medical applications, etc.



PB FREE / ROHS COMPLIANT

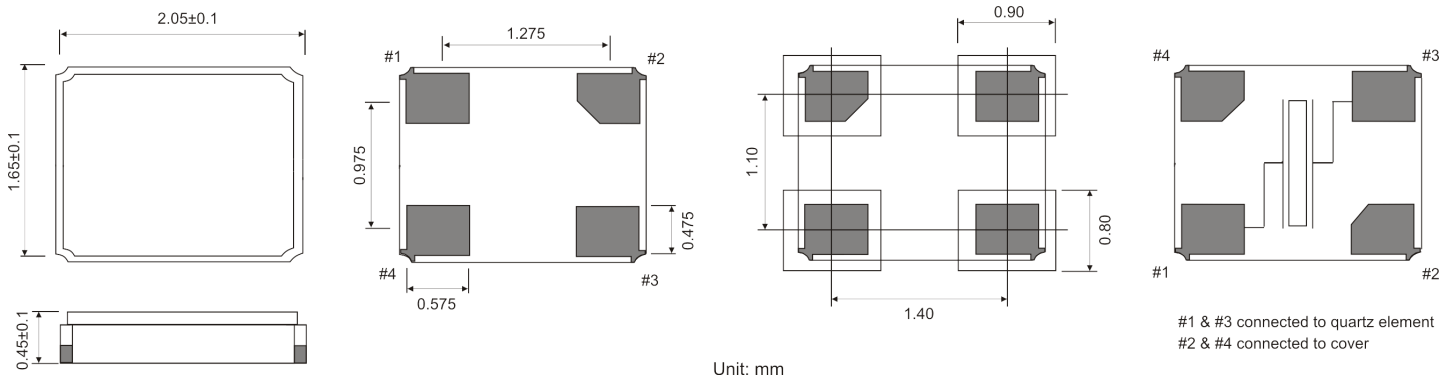
## GENERAL DATA

PARAMETERS	PRODUCT FEATURES AND CONDITIONS
SMD-CRYSTAL SERIES	SMD02016/4
NUMBER OF SOLDER PADS	4
STANDARD FREQUENCIES	16.000, 24.000, 25.000, 26.000, 27.000, 30.000, 32.000, 38.400, 40.000, 48.000, 50.000 MHz
FREQUENCY TOLERANCES AT 25°C	±10 ppm ~ ±50 ppm
LOAD CAPACITANCE (C <sub>L</sub> )	8 pF, 10pF, 12 pF ( other C <sub>L</sub> available on request)
WORKING TEMPERATURE RANGES	0/+50°C ~ -40/+85°C
SHUNT CAPACITANCE (C <sub>0</sub> )	2 pF max.
DRIVE LEVEL	100 µW typ. / 400 µW max.
AGING	±2 ppm max. after the first year, ±10 ppm max. after 10 years
INSULATION RESISTANCE	>500 MΩ DC/100V ±10%
STORAGE TEMPERATURE	-55°/+125°C
DELIVERY FORM	Tape and Reel (3.000 pcs per reel)
<a href="#">SELECT YOUR REQUIRED CRYSTAL (PRODUCT CONFIGURATOR)</a>	<a href="#">REQUEST CRYSTAL SAMPLES (SAMPLE CONFIGURATOR)</a>

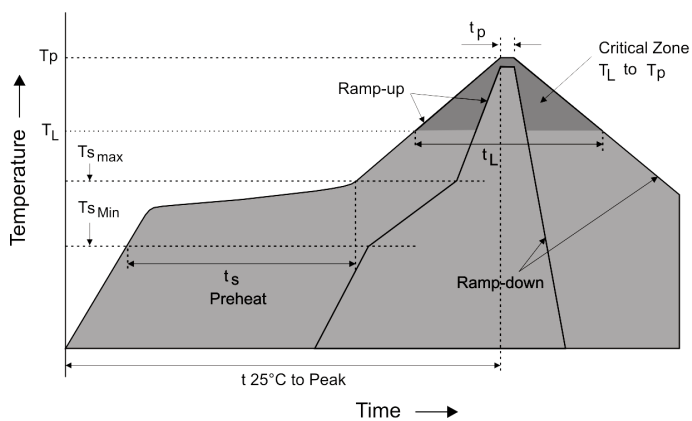
## FREQUENCY STABILITY VS. TEMPERATURE

	±8ppm	±10ppm	±15ppm	±20ppm	±30ppm	±50ppm
0°/+50°C	+	+	+	+	+	+
-10°/+60°C		+	+	+	+	+
0°/+70°C		+	+	+	+	+
-20°/+70°C			+	+	+	+
-40°/+85°C			+	+	+	+

## DIMENSIONS



## REFLOW SOLDER PROFILE

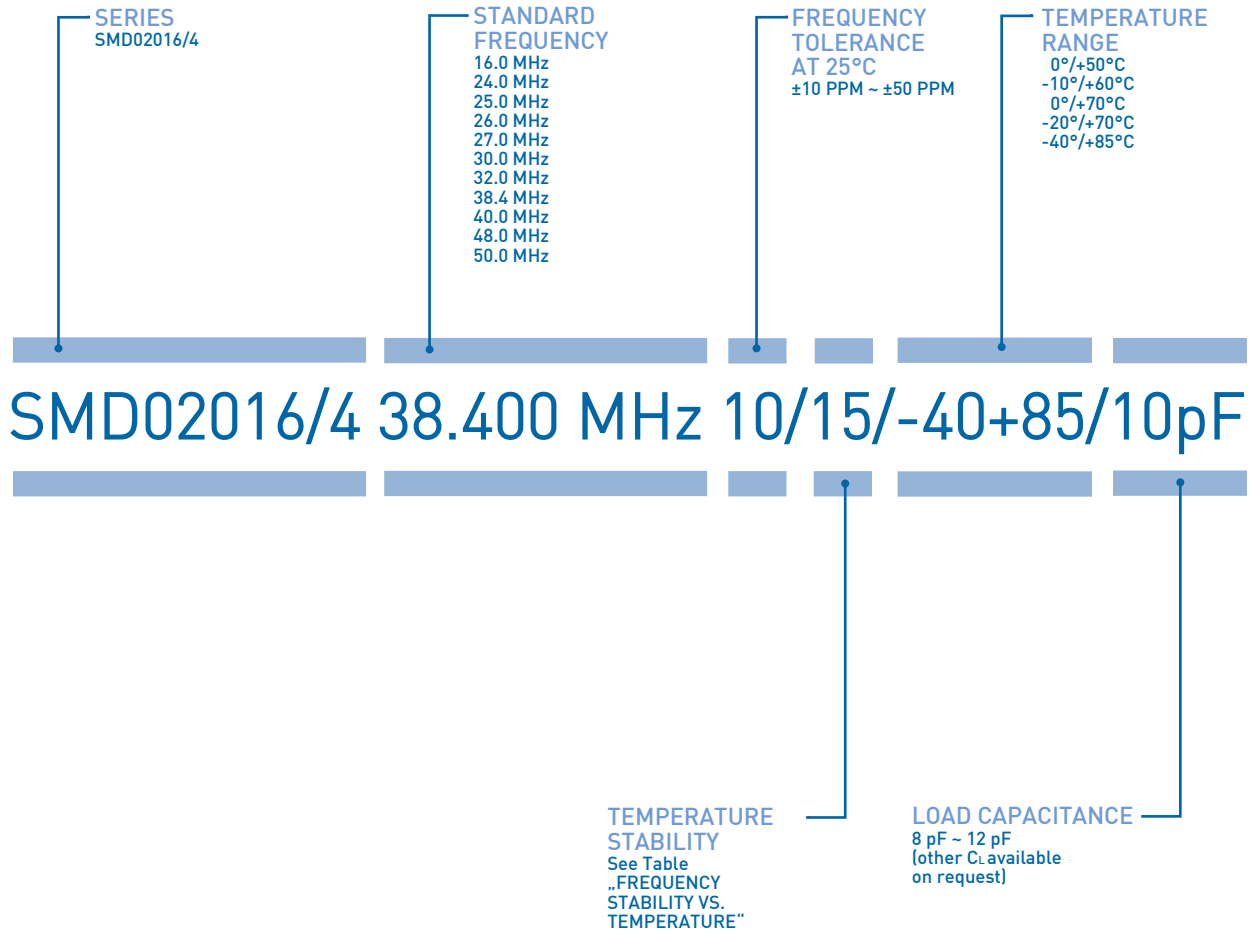


Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/second max.
Preheat:	
Temperature Min (T <sub>min</sub> )	150°C
Temperature Max (T <sub>max</sub> )	200°C
Time (min to max) (t <sub>s</sub> )	60-180 seconds
Time maintained above:	
Temperature [TL]	217°C
Time (t <sub>L</sub> )	60-150 seconds
Peak/Classification Temperature (T <sub>p</sub> )	260°C
Time within 5°C of actual Peak Temperature (t <sub>p</sub> )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

## RESONANCE RESISTANCE

FREQUENCY IN MHz	VIBRATION MODE	ESR MAX. IN Ω
16.0 MHz	AT Fund.	200
24.0 MHz	AT Fund.	150
25.0 MHz	AT Fund.	80
26.0 MHz	AT Fund.	65
27.0 MHz	AT Fund.	60
30.0 MHz	AT Fund.	55
32.0 MHz	AT Fund.	50
38.4 MHz	AT Fund.	45
40.0 MHz	AT Fund.	45
48.0 MHz	AT Fund.	40
50.0 MHz	AT Fund.	40

## ORDERING INFORMATION



EXAMPLE: SMD02016/4 38.400 MHz 10/15/-40+85/10pF  
PLEASE INDICATE YOUR REQUIRED PARAMETERS



## PREMIUM QUALITY BY



OUR COMPANY IS CERTIFIED ACCORDING TO ISO 9001:2015 IN OCTOBER 2016 BY THE DMSZ CERTIFIKATION GMBH AND CERTIFIED ACCORDING TO 14001:2015 IN MARCH 2018 BY SEQ-CERT.

THIS IS FOR YOU TO ENSURE THAT THE PRINCIPLES OF QUALITY MANAGEMENT ARE FULLY IMPLEMENTED IN OUR QUALITY MANAGEMENT SYSTEM AND QUALITY CONTROL METHODS ALSO DOMINATE OUR QUALITY STANDARDS.