

# SMD QUARTZ CRYSTAL FOR ULTRASONIC

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

## FEATURES

- + Recommended for ultrasonic welding process (20 kHz / 2000 W)
- + Tight tolerance / tight stability available
- + High reliability for low cost
- + Ultra miniature size and lightweight
- + Ideally suited for the use in electronic products, communication equipment, wearables, wireless modules, IoT, BLE, M2M, ISM band, medical applications, etc.



PB FREE / ROHS-2 2011/65/EU COMPLIANT

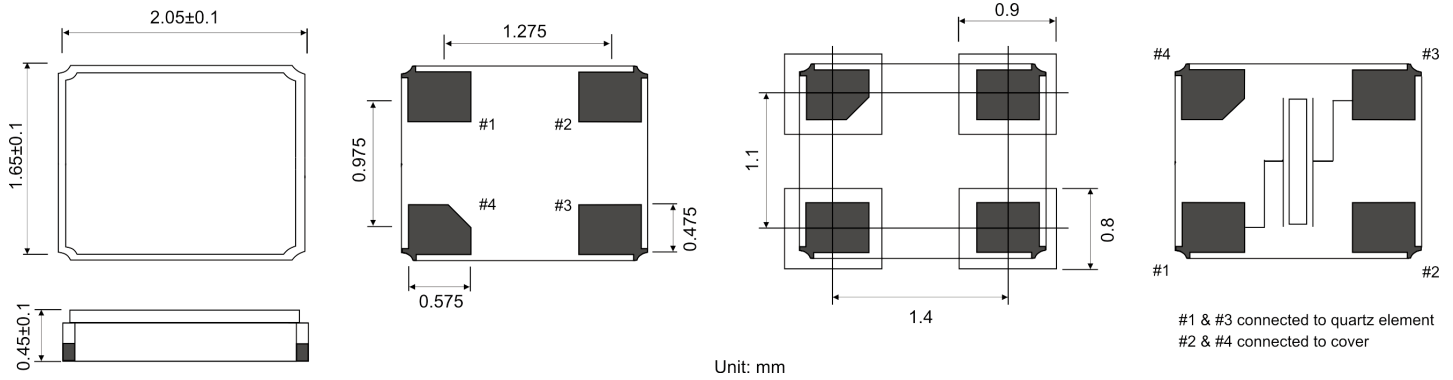
## GENERAL DATA

PARAMETERS	PRODUCT FEATURES AND CONDITIONS
SMD-CRYSTAL SERIES	SMD02016/4US
NUMBER OF SOLDER PADS	4
FREQUENCY RANGE	26.0 ~ 54.0 MHz AT-Fundamental
FREQUENCY TOLERANCES AT 25°C	±10 ppm ~ ±50 ppm
LOAD CAPACITANCE (C <sub>L</sub> )	Series, 7 pF ~ 20 pF
WORKING TEMPERATURE RANGES	0/+50°C ~ -40/+85°C
SHUNT CAPACITANCE (C <sub>0</sub> )	2 pF max.
DRIVE LEVEL	100 µW typ. / 200 µW max.
AGING	±3 ppm per year standard (±1 or ±2 ppm available on request)
INSULATION RESISTANCE	>500 MΩ DC/100V ±10%
STORAGE TEMPERATURE	-55°/+125°C
DELIVERY FORM	Tape and Reel (3.000 pcs per reel)
<u>OTHER PARAMETERS ARE AVAILABLE ON REQUEST / CREATE HERE YOUR SPECIFICATION</u>	

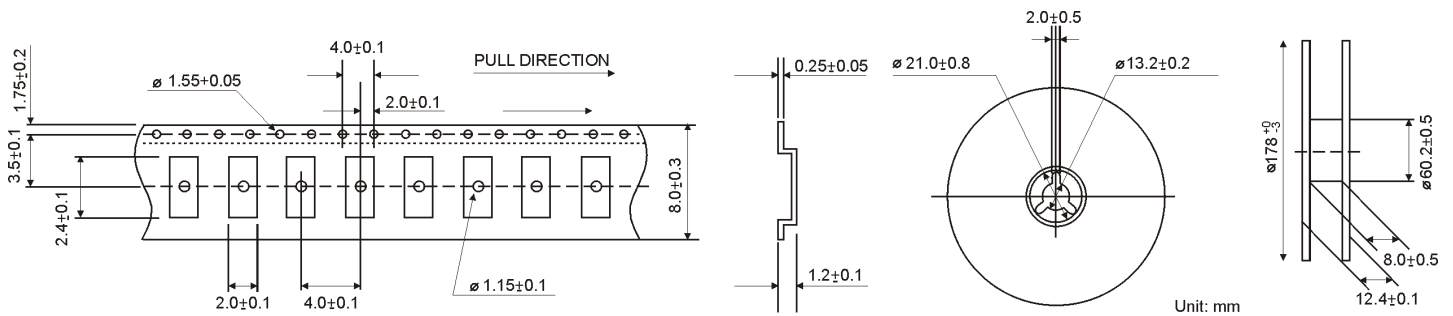
## FREQUENCY STABILITY VS. TEMPERATURE

	±10ppm	±12ppm	±15ppm	±20ppm	±30ppm	±50ppm
0°/+50°C	+	+	+	+	+	+
-10°/+60°C	+	+	+	+	+	+
0°/+70°C	+	+	+	+	+	+
-20°/+70°C		+	+	+	+	+
-40°/+85°C			+	+	+	+

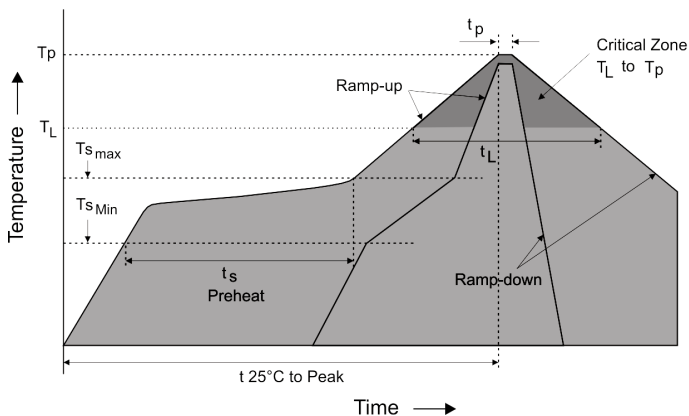
## DIMENSIONS



## REEL SPECIFICATION



## REFLOW SOLDER PROFILE

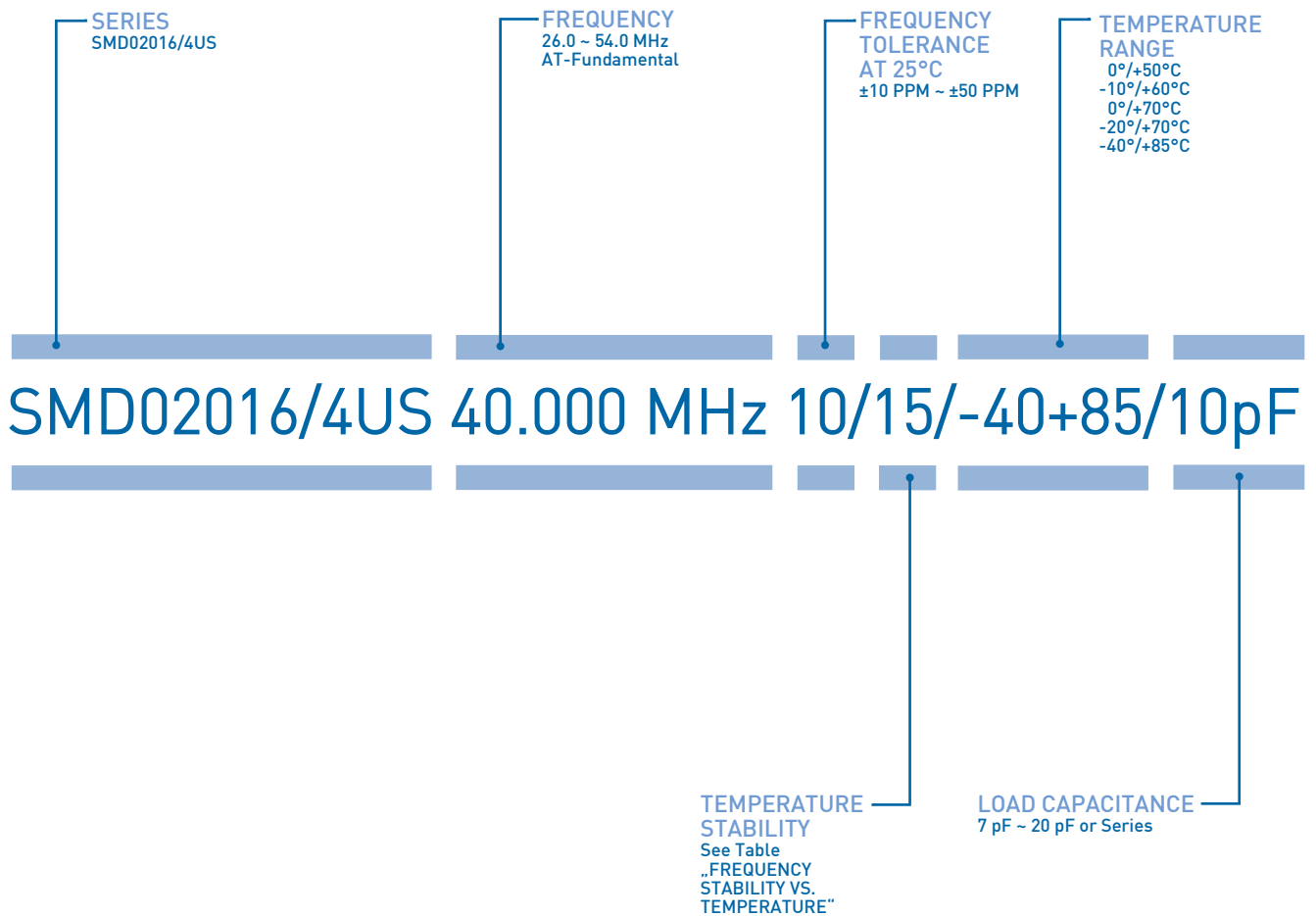


Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/second max.
Preheat:	
Temperature Min (T <sub>smin</sub> )	150°C
Temperature Max (T <sub>smax</sub> )	200°C
Time (min to max) (t <sub>s</sub> )	60-180 seconds
Time maintained above:	
Temperature (TL)	217°C
Time (t <sub>L</sub> )	60-150 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 $\Omega$
26.0 ~ 32.0 MHz	AT Fund.	100
32.0 ~ 54.0 MHz	AT Fund.	60

## ORDERING INFORMATION



EXAMPLE: SMD02016/4US 40.000 MHz 10/15/-40+85/10pF  
PLEASE INDICATE YOUR REQUIRED PARAMETERS



## PREMIUM QUALITY BY PETERMANN-TECHNIK



OUR COMPANY IS CERTIFIED ACCORDING TO ISO 9001:2015 IN OCTOBER 2016 BY THE DMSZ CERTIFIKATION GMBH.

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.