

# SMD WATCH CRYSTAL 32.768 kHz

SERIES M8208 (4 PAD HOUSING 8.7x3.7MM)

## FEATURES

- + Worldwide cheapest available SMD-Watch-Crystal
- + High performance for low cost
- +  $\pm 10$  ppm frequency tolerance at 25°C deliverable on request
- + Standard operating temperature range of -40/+85°C
- + Excellent clock generator for CPU's, Wireless, Mobile Comm., etc.



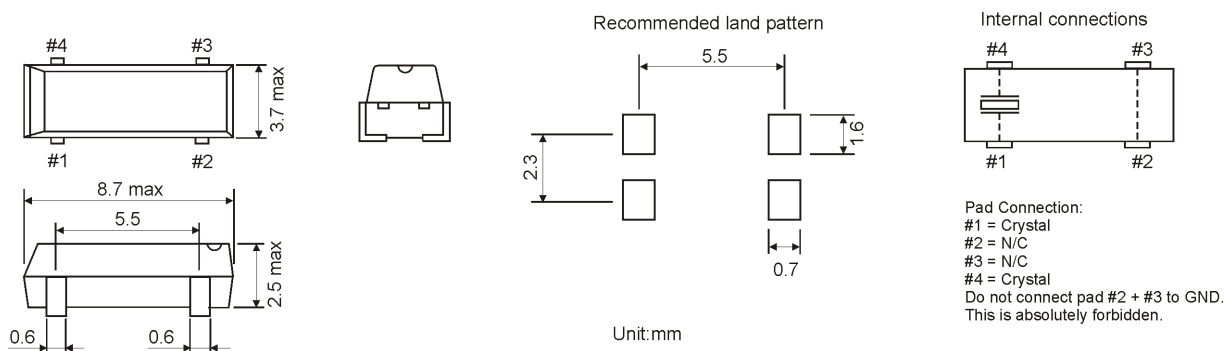
## GENERAL DATA

ROHS-2 2011/65/EU COMPLIANT

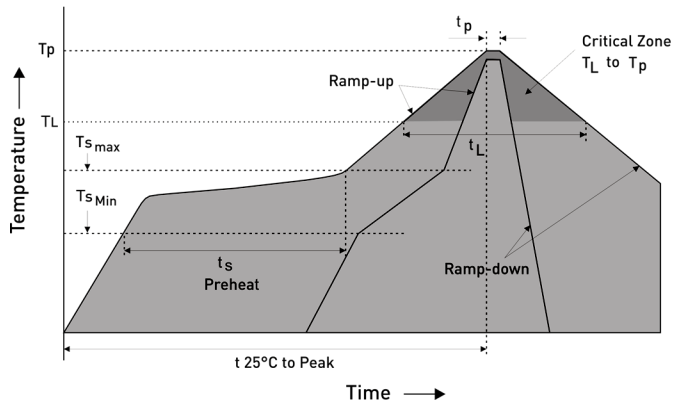
PARAMETERS	PRODUCT FEATURES AND CONDITIONS
SMD-CRYSTAL SERIES	M8208
NUMBER OF SOLDER PADS	4
PAD CONNECTION	Pad # 1 + 4 = XTAL Pad # 2 + 3 = do not connected / not connect to ground
FREQUENCY RANGE	32.768 kHz
FREQUENCY TOLERANCES AT 25°C	$\pm 20$ ppm (standard) / $\pm 10$ ppm ~ $\pm 100$ ppm (option)
LOAD CAPACITANCE (C <sub>L</sub> )	12.5 pF (standard) 6,7,8 and 9pF available on request
WORKING TEMPERATURE RANGE	-40/+85°C
RESONANCE RESISTANCE	50 k $\Omega$ max.
SHUNT CAPACITANCE (C <sub>s</sub> )	1.0 ~ 1.25 pF typ.
TURNOVER TEMPERATURE	+25°C $\pm 5^\circ$ C
PARABOLIC COEFFICIENT	-0.035 ppm/°C <sup>2</sup>
DRIVE LEVEL	1.0 $\mu$ W max. (other parameters deliverable on request)
AGING	$\pm 5$ ppm max. per year
INSULATION RESISTANCE	>500 M $\Omega$ DC/100V $\pm 10\%$
STORAGE TEMPERATURE	-40°/+85°C
DELIVERY FORM	Tape and Reel (1.000 ~ 3.000 pcs per reel)

[OTHER PARAMETERS ARE AVAILABLE ON REQUEST / CREATE HERE YOUR SPECIFICATION](#)

## DIMENSIONS

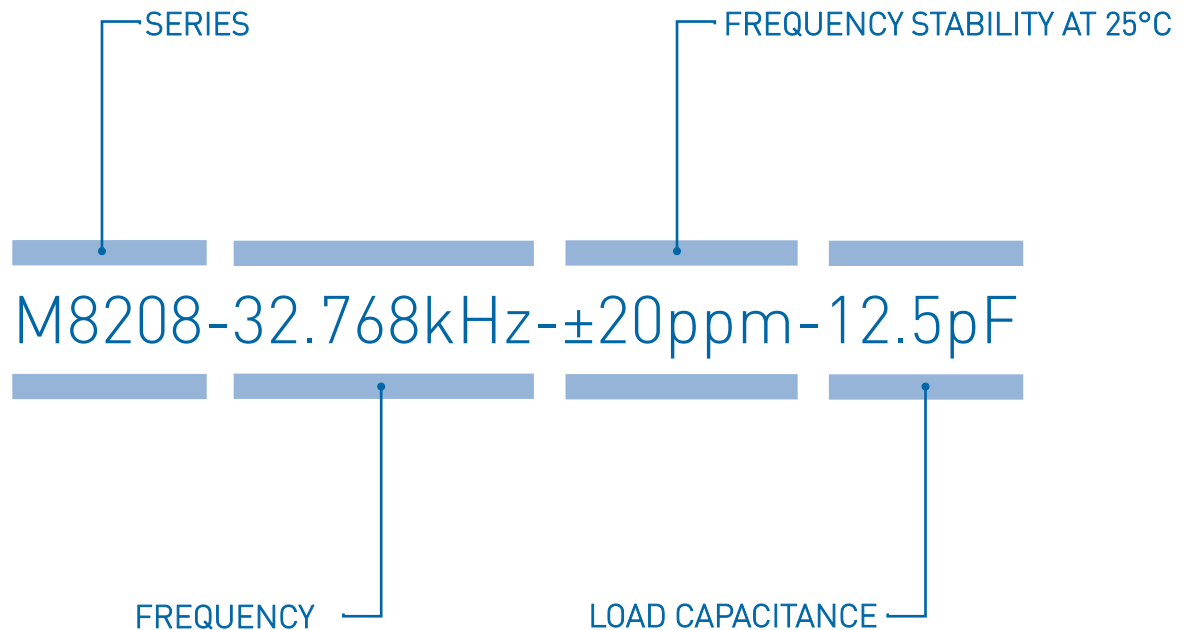


## REFLOW SOLDER PROFILE



Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/second max.
Preheat:	
Temperature Min (T <sub>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> )	240°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.

## ORDERING INFORMATION



EXAMPLE: M8208-32.768kHz-±20ppm-12.5pF  
 PLEASE INDICATE YOUR REQUIRED PARAMETERS



## PREMIUM QUALITY BY PETERMANN-TECHNIK



OUR COMPANY IS CERTIFIED ACCORDING TO ISO 9001:2008 IN OCTOBER 2013 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.