

SMD WATCH CRYSTAL 32.768 kHz

SERIES M3215RR (50 kΩ)

FEATURES

- + Reduced Resonance Resistance 50 kΩ max. for low power designs
- + Cheapest available MINI-Watch-Crystal in ceramic package
- + Ultra low profile
- + Extended operating temperature range of up to -40/+125°C
- + Excellent clock generator for CPU's, Wireless, Mobile Comm., etc.



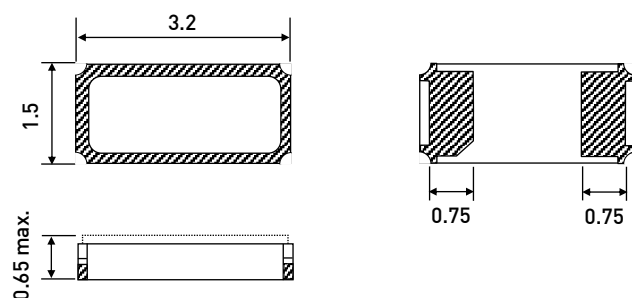
PB FREE / ROHS COMPLIANT

GENERAL DATA

PARAMETERS	PRODUCT FEATURES AND CONDITIONS
SMD-CRYSTAL SERIES	M3215RR (3.2x1.5x0.75mm)
NUMBER OF SOLDER PADS	2
FREQUENCY RANGE	32.768 kHz
FREQUENCY TOLERANCES AT 25°C	±20 ppm (standard) / ±10 ppm (option)
LOAD CAPACITANCE (C _L)	12.5 pF (standard) 6,7 and 9pF available on request
WORKING TEMPERATURE RANGES	-40/+85°C or -40/+105° or -40/+125°
RESONANCE RESISTANCE	50 kΩ max. for low power designs
SHUNT CAPACITANCE (C _s)	1.3 pF typ.
TURNOVER TEMPERATURE	+25°C ±5°C
PARABOLIC COEFFICIENT	-0.04 ppm/°C ²
DRIVE LEVEL	0.2 μW typical (1.0 μW max.)
AGING	±3 ppm max. per year
INSULATION RESISTANCE	>500 MΩ DC/100V ±10%
STORAGE TEMPERATURE	-55°/+125°C
DELIVERY FORM	Tape and Reel (1.000 ~ 3.000 pcs per reel)
SELECT YOUR REQUIRED CRYSTAL (PRODUCT CONFIGURATOR)	REQUEST CRYSTAL SAMPLES (SAMPLE CONFIGURATOR)

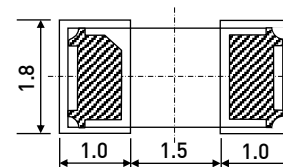
DIMENSIONS AND PATTERNS

PACKAGE SIZE – DIMENSIONS (UNIT:MM)
3.2 X 1.5 X 0.75 MM



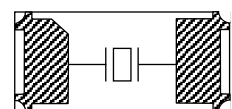
RECOMMENDED
LAND PATTERN

Top View

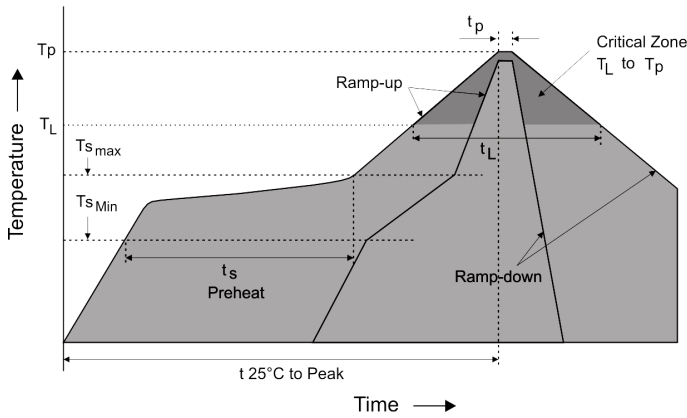


INTERNAL
CONNECTIONS

Top View



REFLOW SOLDER PROFILE



Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/second max.
Preheat:	
Temperature Min (Tsmin)	150°C
Temperature Max (Tsmax)	200°C
Time (min to max) (ts)	60-180 seconds
Time maintained above:	
Temperature (TL)	217°C
Time (tL)	60-150 seconds
Peak/Classification Temperature (Tp)	260°C
Time within 5°C of actual Peak Temperature (tp)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

ORDERING INFORMATION

SERIES
FREQUENCY STABILITY AT 25°C

M3215RR-32.768kHz-±20ppm-12.5pF (-40/+85°C)

FREQUENCY

LOAD CAPACITANCE

TEMPERATURE

RANGES:
(-40/+85°C) - STANDARD
(-40/+105°C) - OPTIONAL
(-40/+125°C) - OPTIONAL

EXAMPLE: M3215RR-32.768kHz-±20ppm-12.5pF (-40/+85°C)

PLEASE INDICATE YOUR REQUIRED PARAMETERS

REVISION HISTORY^[1]

REVISION	RELEASE DATE	AMENDMENTS SUMMARY
01	September 2017	8pF load capacitances (C _L) are deleted due to non-availability
02	February 2018	Added two temperature ranges: 40/+105°C and -40/+125°C

Note:

1. Based on Datasheet version from September 2017/SPEC 01/REV.01



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.