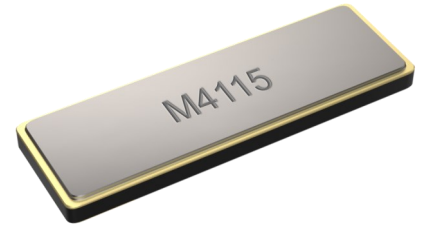


# SMD WATCH CRYSTAL 32.768 kHz

SERIES „M4115 32.768 KHZ ±20 PPM 12.5PF (-40/+85°C)“

## FEATURES

- + Smallest available low cost watch crystal
- + Ultra low profile
- + Standard operating temperature range of -40/+85°C, others available on request
- + LRT-TECHNOLOGY Inside (LRT is Low ESR Resonator-Technology)
- + Excellent clock generator for CPU's, Wireless, Mobile Comm., RTC, IoT, etc.
- + Our top quality promise / depth of production:
  - Only use of crystal blanks from our in-house production
  - Excellent product features guaranteed by multiple 100% tests
  - 100% quality monitoring from crystal raw material to the end product



## GENERAL DATA

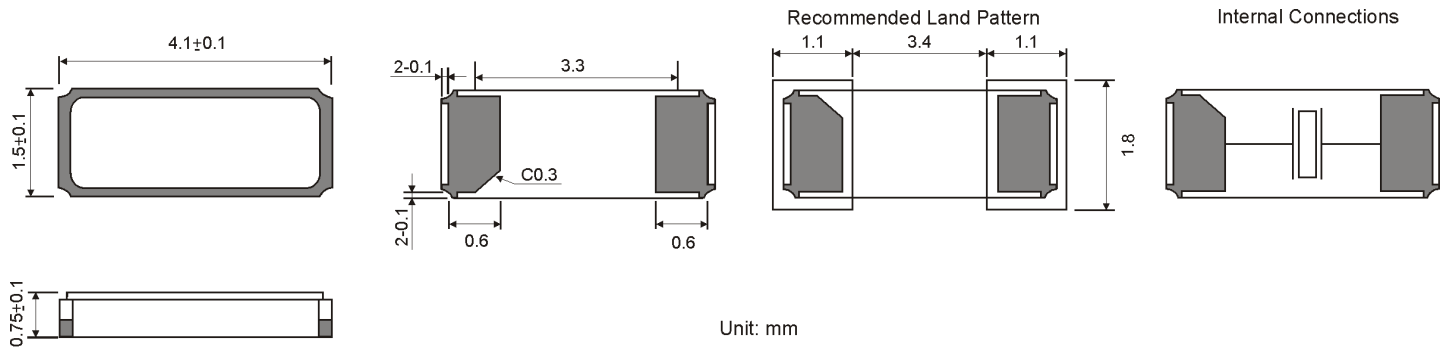
PARAMETERS	PRODUCT FEATURES AND CONDITIONS
SMD-CRYSTAL SERIES	M4115
NUMBER OF SOLDER PADS	2
FREQUENCY	32.768 kHz
FREQUENCY TOLERANCE AT 25°C	±20 ppm
LOAD CAPACITANCE (C <sub>L</sub> )	12.5 pF
WORKING TEMPERATURE RANGE	-40/+85°C
SERIES RESISTANCE	80 kΩ max.
SHUNT CAPACITANCE (C <sub>0</sub> )	1.3 pF typ.
TURNOVER TEMPERATURE	+25°C ±5°C
TEMPERATURE COEFFICIENT	-0.04 ppm/°C <sup>2</sup> max.
DRIVE LEVEL	0.5 μW max.
AGING	±5 ppm max. per year
INSULATION RESISTANCE	>500 MΩ DC/100V ±10%
STORAGE TEMPERATURE	-55°/+125°C
MSL LEVEL	1
DELIVERY FORM	Tape and Reel (3.000 pcs)
RoHS	Lead free and RoHS compliant
Ordering Code	M4115 32.768 kHz ±20 ppm 12.5pF (-40/+85°C)
Customer P/N	
PETERMANN-TECHNIK P/N	QEU10010014/1

### Notes

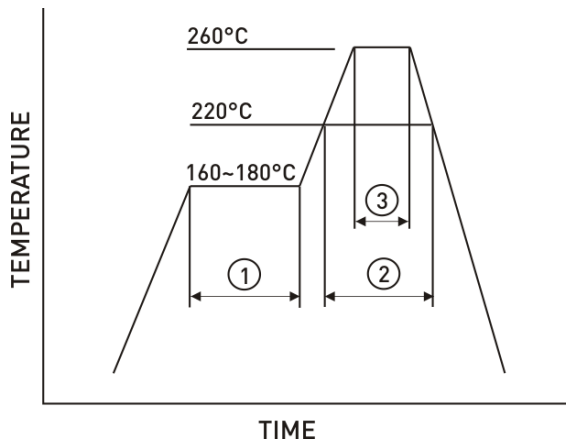
1. The reference temperature for all specified values and tests is +25°C.
2. No Ultrasonic Handling: Do not subject the 4115 to an ultrasonic cleaning environment or to ultrasonic welding process. Permanent damage or long term reliability issues to the structure may occur.
3. Do not design any ground line under the M4115.

## DIMENSIONS AND PATTERNS

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



## REEL SOLDER PROFILE



①	Preheat	160~180°C	120sec.
②	Primary heat	220°C	60sec.
③	Peak	260°C	10sec. max.

### Soldering

Peak-temperature 260°C 10sec max., 2times max.

If the temperature is higher than 280 °C, there is a possibility for the sealing alloy to remelt.

### Solder Iron

Bit temp.: 350 °C max., Time: 3 s max., Each terminal solder a 1 time max.

Please take care so that a soldering iron should not touch a product directly.



## PREMIUM QUALITY BY PETERMANN-TECHNIK

OUR COMPANY IS CERTIFIED ACCORDING TO ISO 9001:2015 AND  
14001:2015

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

