

# SMD QUARTZ CRYSTAL

SERIES SMD0507 (2 pad housing 7.0x5.0mm)

Please do not use this housing for new design.  
Please use SMD0507/4 housing

## FEATURES

- + Large frequency spectrum available
- + Do not use for new designs—please use SMD0507/4 for new design
- + Low profile – 1.3 mm package height
- + Extended temperature range to  $-40/+125^{\circ}\text{C}$  available
- + Qualified for automotive applications
- + Excellent clock signal generator for CPU's



PB FREE / ROHS COMPLIANT

## GENERAL DATA

| PARAMETERS  | PRODUCT FEATURES AND CONDITIONS   |
|---|---|
| SMD-CRYSTAL SERIES  | SMD0507/2   |
| NUMBER OF SOLDER PADS   | 2 (Please do not use this housing for new design. Please use SMD0507/4) |
| FREQUENCY RANGE   | 6.0 ~ 48.0 MHz AT-Fundamental<br>40.0 ~ 150.0 MHz 3rd. Overtone AT-cut  |
| FREQUENCY TOLERANCES AT 25°C  | $\pm 10$ ppm ~ $\pm 30$ ppm ( $\pm 30$ ppm standard)                    |
| LOAD CAPACITANCE ( $C_L$ )  | 10 pF ~ 32 pF or Series Resonance                                       |
| WORKING TEMPERATURE RANGES  | $-20/+70^{\circ}\text{C}$ ~ $-40/+125^{\circ}\text{C}$                  |
| EQUIVALENT SERIES RESISTANCE  | See ESR table   |
| SHUNT CAPACITANCE ( $C_0$ )   | 7 pF max.   |
| DRIVE LEVEL   | 100 $\mu$ W typ.  |
| AGING   | $\pm 3$ ppm per year max.   |
| INSULATION RESISTANCE   | >500 M $\Omega$ DC/100V $\pm 15\%$                                      |
| STORAGE TEMPERATURE   | $-55^{\circ}/+125^{\circ}\text{C}$                                      |
| DELIVERY FORM   | Tape and Reel (1.000 pcs per reel)                                      |
| <a href="#">SELECT YOUR REQUIRED CRYSTAL (PRODUCT CONFIGURATOR)</a> | <a href="#">REQUEST CRYSTAL SAMPLES (SAMPLE CONFIGURATOR)</a>           |

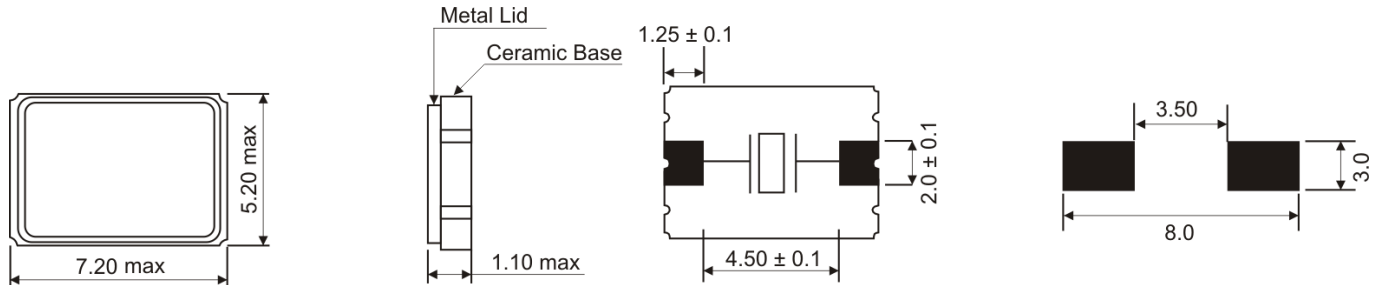
## FREQUENCY STABILITY VS. TEMPERATURE

|  | $\pm 10$ ppm | $\pm 20$ ppm | $\pm 30$ ppm | $\pm 50$ ppm | $\pm 100$ ppm |
|--|--------------|--------------|--------------|--------------|---------------|
| $-20^{\circ}/+70^{\circ}\text{C}$                        | +            | +            | +            | +            | +             |
| $-40^{\circ}/+85^{\circ}\text{C}$                        | +            | +            | +            | +            | +             |
| $-40^{\circ}/+105^{\circ}\text{C}$                       |              |              |              | +            | +             |
| $-40^{\circ}/+125^{\circ}\text{C}$                       |              |              |              |              | +             |
| *Operating Temperature $-30^{\circ}/+80^{\circ}\text{C}$ |              |              |              |              |               |

### Note:

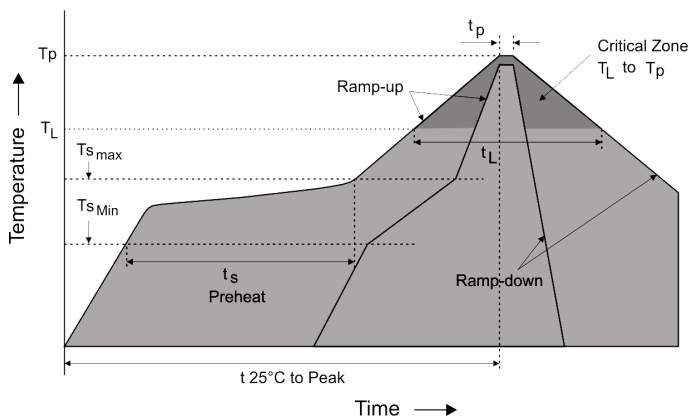
1. The reference temperature for all specified values and tests is  $+25^{\circ}\text{C}$ .

## DIMENSIONS



Unit:mm

## REFLOW SOLDER PROFILE

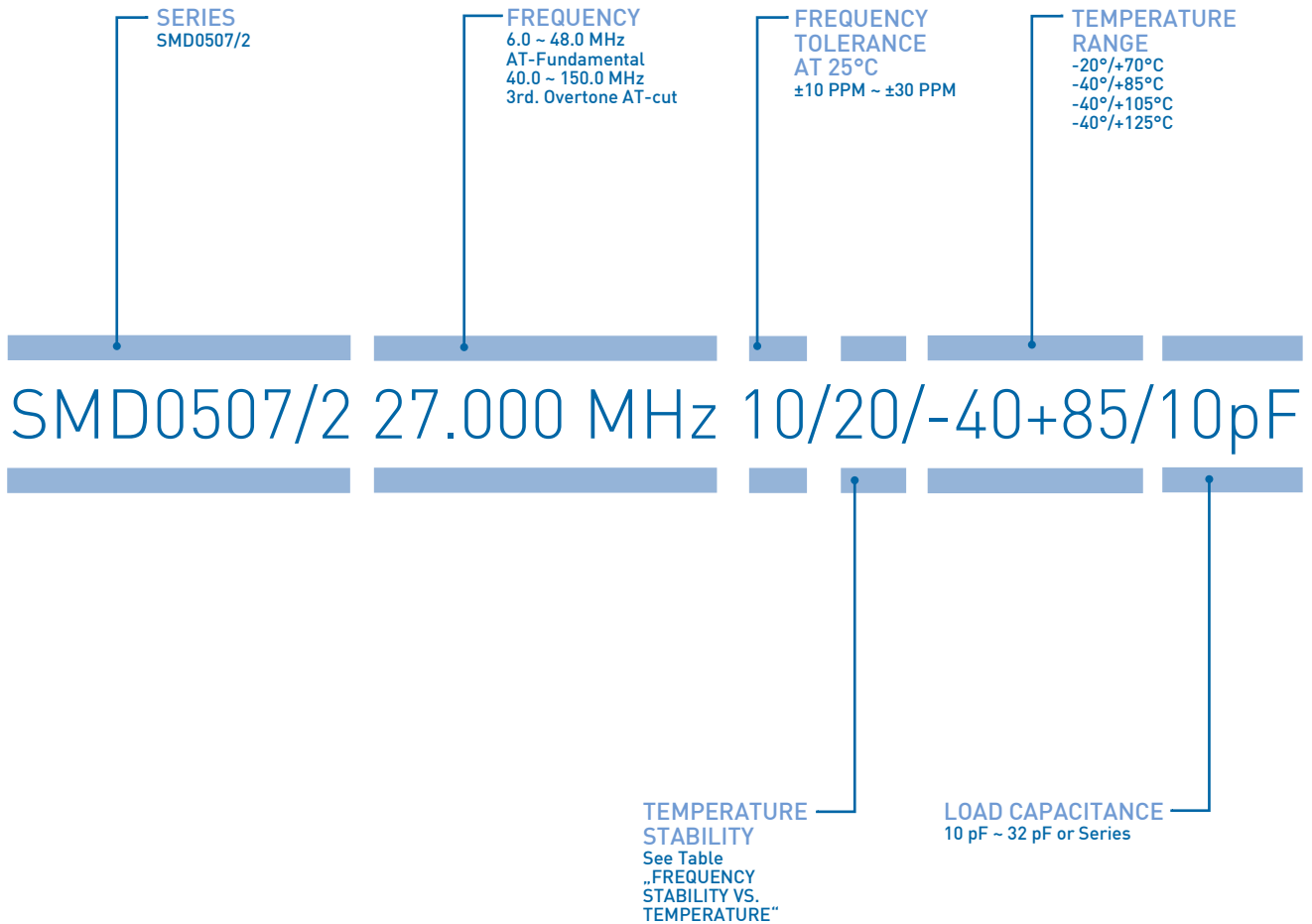


|                                    |                    |
|------------------------------------|--------------------|
| Preheat                            |                    |
| - Temperature Minimum ( $T_S$ MIN) | 150°C              |
| - Temperature Maximum ( $T_S$ MAX) | 180°C              |
| - Time ( $t_s$ )                   | 60 - 120 seconds   |
| Time Maintained Above:             |                    |
| - Temperature ( $T_L$ )            | 217°C              |
| - Time ( $t_L$ )                   | 45 - 90 seconds    |
| Peak Temperature ( $T_p$ )         | 260°C Maximum      |
| Time within actual peak ( $t_p$ )  | 10 seconds maximum |

## EQUIVALENT SERIES RESISTANCE

| FREQUENCY IN MHz | VIBRATION MODE | ESR MAX. IN $\Omega$ |
|------------------|----------------|----------------------|
| 6.0 ~ 10.0 MHz   | AT Fund.       | 110                  |
| 10.1 ~ 12.0 MHz  | AT Fund.       | 60                   |
| 12.1 ~ 20.0 MHz  | AT Fund.       | 45                   |
| 20.1 ~ 48.0 MHz  | AT Fund.       | 30                   |
| 40.0 ~ 150.0 MHz | 3rd OT AT-cut  | 60                   |

## ORDERING INFORMATION



EXAMPLE: SMD0507/2 27.000 MHz 10/20/-40+85/10pF  
 PLEASE INDICATE YOUR REQUIRED PARAMETERS



## REVISION HISTORY<sup>[2]</sup>

| VERSION | RELEASE DATE | AMENDMENTS SUMMARY  |
|---------|--------------|---|
| 01      | 10/25/2016   | <ul style="list-style-type: none"> <li>+ increased Frequency Range</li> <li>+ Updated Frequency Tolerances</li> <li>+ Updated Load Capacitances</li> <li>+ Updated Dimensions</li> <li>+ Updated Soldering Profile</li> <li>+ Increased Working Temperature Ranges</li> <li>+ Updated ESR values</li> <li>+ Updated Drive Level</li> <li>+ Updated Aging values</li> <li>+ Updated Frequency Stability vs. Temperature table</li> </ul> |

Note:

2. Based on Datasheet version from May 2015/SPEC 01/REV.00



## 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.