

# LOW ESR SMD MHz QUARTZ CRYSTAL

SERIES „SMD0507/2“ (7.0x5.0mm / 2 pads)

Please do not use this housing for new design.  
Please use [SMD0507/4 housing](#)

## FEATURES

- + Large frequency spectrum available
- + Standard operating temperature range of 0/+50°C to -40/+125°C
- + Excellent clock generator for CPU´s, Wireless, Mobile Comm., IoT, IIoT, WIFI Industrial, Telecom, Automotive, etc.
- + LRT-TECHNOLOGY Inside (LRT is our unique [LOW ESR Resonator-Technology](#))
- + Our top quality promise / depth of production:
  - Only use of crystal blanks from our in-house production, based on our unique LRT-Technology
  - Excellent product features guaranteed by multiple 100% test and 100% end-test
  - 100% quality monitoring from crystal raw material to the end product
  - Excellent quality, performance and reliability ist guaranteed



## GENERAL DATA

PB FREE / ROHS COMPLIANT

| 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 <a href="#">SMD0507/4</a> ) |
| FREQUENCY RANGE                                                     | 6.0 ~ 50.0 MHz AT-Fundamental<br>50.0 ~ 160.0 MHz 3rd. Overtone AT-cut                   |
| FREQUENCY TOLERANCES AT 25°C                                        | ±10 ppm ~ ±30 ppm (±30 ppm standard)                                                     |
| LOAD CAPACITANCE (C <sub>L</sub> )                                  | Series, 6 pF ~ 50 pF                                                                     |
| WORKING TEMPERATURE RANGES                                          | 0/+50°C ~ -40/+125°C                                                                     |
| SHUNT CAPACITANCE (C <sub>0</sub> )                                 | 4 pF max.                                                                                |
| DRIVE LEVEL                                                         | 100 µW typ. / 200 µW max. (500 µW available on request)                                  |
| AGING                                                               | ±2 ppm per year standard (± 1 ppm per year on request)                                   |
| INSULATION RESISTANCE                                               | >500 MΩ DC/100V ±15%                                                                     |
| STORAGE TEMPERATURE                                                 | -55°/+125°C                                                                              |
| DELIVERY FORM                                                       | Tape and Reel (1.000 pcs per reel)                                                       |
| PRODUCT WEIGHT                                                      | 121.016 mg                                                                               |
| POP (EU)2019/1021                                                   | No POP substances                                                                        |
| PFAS                                                                | No PFAS present                                                                          |
| PROP 65                                                             | Compliant to PROP 65                                                                     |
| TSCA                                                                | Compliant to TSCA                                                                        |
| RoHS                                                                | Lead free and RoHS compliant                                                             |
| <a href="#">SELECT YOUR REQUIRED CRYSTAL (PRODUCT CONFIGURATOR)</a> | <a href="#">REQUEST CRYSTAL SAMPLES (SAMPLE CONFIGURATOR)</a>                            |

### Note:

1. LRT is optimized low ESR resonator design for fast and secure oscillation start-up
2. The reference temperature for all specified values and tests ist +25°C
3. Do not use cleaning baths operating at ultrasonic frequencies or ultrasonic welding processes.
4. Do not solder by hot air gun.

## FREQUENCY STABILITY VS. TEMPERATURE

|             | ±10ppm | ±15ppm | ±20ppm | ±30ppm | ±50ppm |
|-------------|--------|--------|--------|--------|--------|
| 0°/+50°C    | +      | +      | +      | +      | +      |
| -10°/+60°C  | +      | +      | +      | +      | +      |
| 0°/+70°C    | +      | +      | +      | +      | +      |
| -20°/+70°C  | +      | +      | +      | +      | +      |
| -40°/+85°C  |        | +      | +      | +      | +      |
| -40°/+125°C |        |        |        |        | +      |

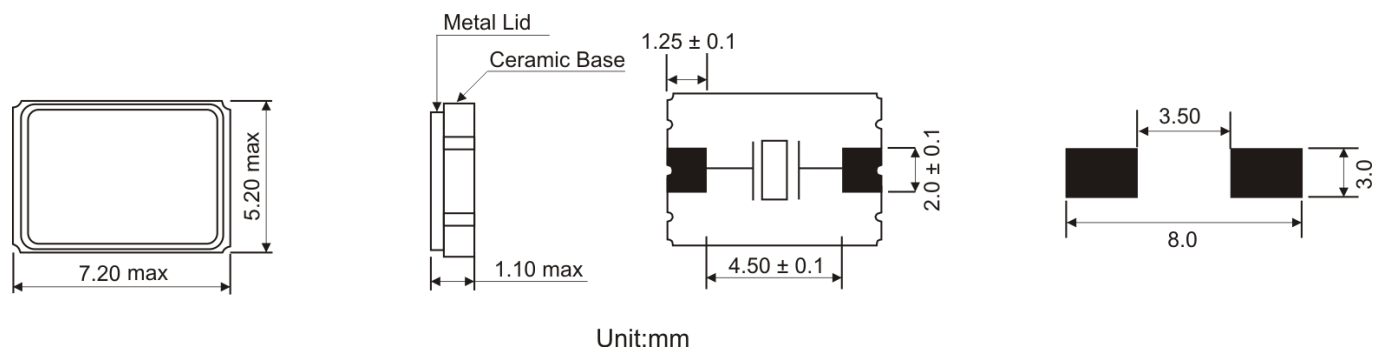
## ESR (EQUIVALENT SERIES RESISTANCE)

| FREQUENCY IN MHz | VIBRATION MODE | ESR MAX. IN Ω |
|------------------|----------------|---------------|
| 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 ~ 160.0 MHz | 3rd OT AT-cut  | 60            |

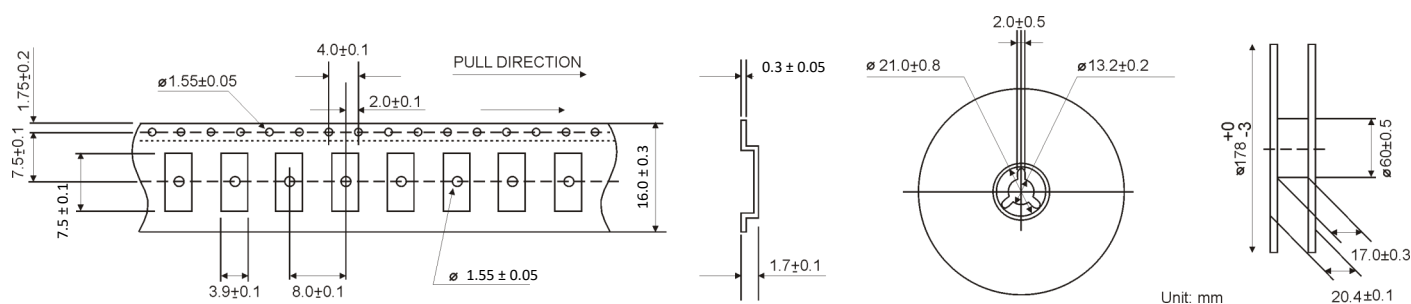
## LIST OF STANDARD FREQUENCIES

|             |             |               |             |             |               |              |             |
|-------------|-------------|---------------|-------------|-------------|---------------|--------------|-------------|
| 6.0000 MHz  | 6.1440 MHz  | 6.5536 MHz    | 7.3728 MHz  | 7.6000 MHz  | 7.6800 MHz    | 7.969178 MHz | 8.0000 MHz  |
| 8.1920 MHz  | 8.7040 MHz  | 9.50937 MHz   | 9.6000 MHz  | 9.8304 MHz  | 10.0000 MHz   | 10.2450 MHz  | 10.3680 MHz |
| 10.9200 MHz | 11.0592 MHz | 11.2896 MHz   | 12.0000 MHz | 12.2880 MHz | 12.3520 MHz   | 12.5000 MHz  | 12.8000 MHz |
| 13.0000 MHz | 13.2256 MHz | 13.225625 MHz | 13.4916 MHz | 13.5000 MHz | 13.5600 MHz   | 14.31818 MHz | 14.7456 MHz |
| 15.3600 MHz | 16.0000 MHz | 16.3840 MHz   | 16.6700 MHz | 16.9344 MHz | 17.734475 MHz | 18.0000 MHz  | 18.4320 MHz |
| 19.2000 MHz | 19.6608 MHz | 20.0000 MHz   | 20.4800 MHz | 20.7360 MHz | 20.9500 MHz   | 21.2500 MHz  | 22.1184 MHz |
| 24.0000 MHz | 24.5760 MHz | 24.7040 MHz   | 25.0000 MHz | 26.0000 MHz | 27.0000 MHz   | 27.1344 MHz  | 28.2240 MHz |
| 28.3750 MHz | 28.5938 MHz | 28.636363 MHz | 29.4912 MHz | 29.4989 MHz | 30.0000 MHz   | 32.0000 MHz  | 32.7680 MHz |
| 33.0000 MHz | 33.3300 MHz | 36.0000 MHz   | 38.8800 MHz | 40.0000 MHz | 48.0000 MHz   | 49.1520 MHz  | 50.0000 MHz |
| 64.0000 MHz | 75.0012 MHz | 96.0000 MHz   |             |             |               |              |             |

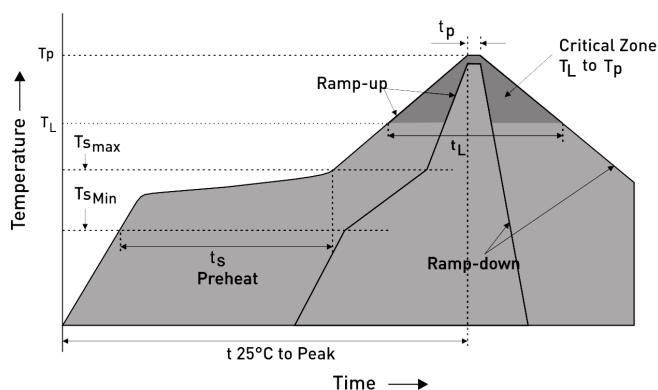
## DIMENSIONS



## REEL SPECIFICATION

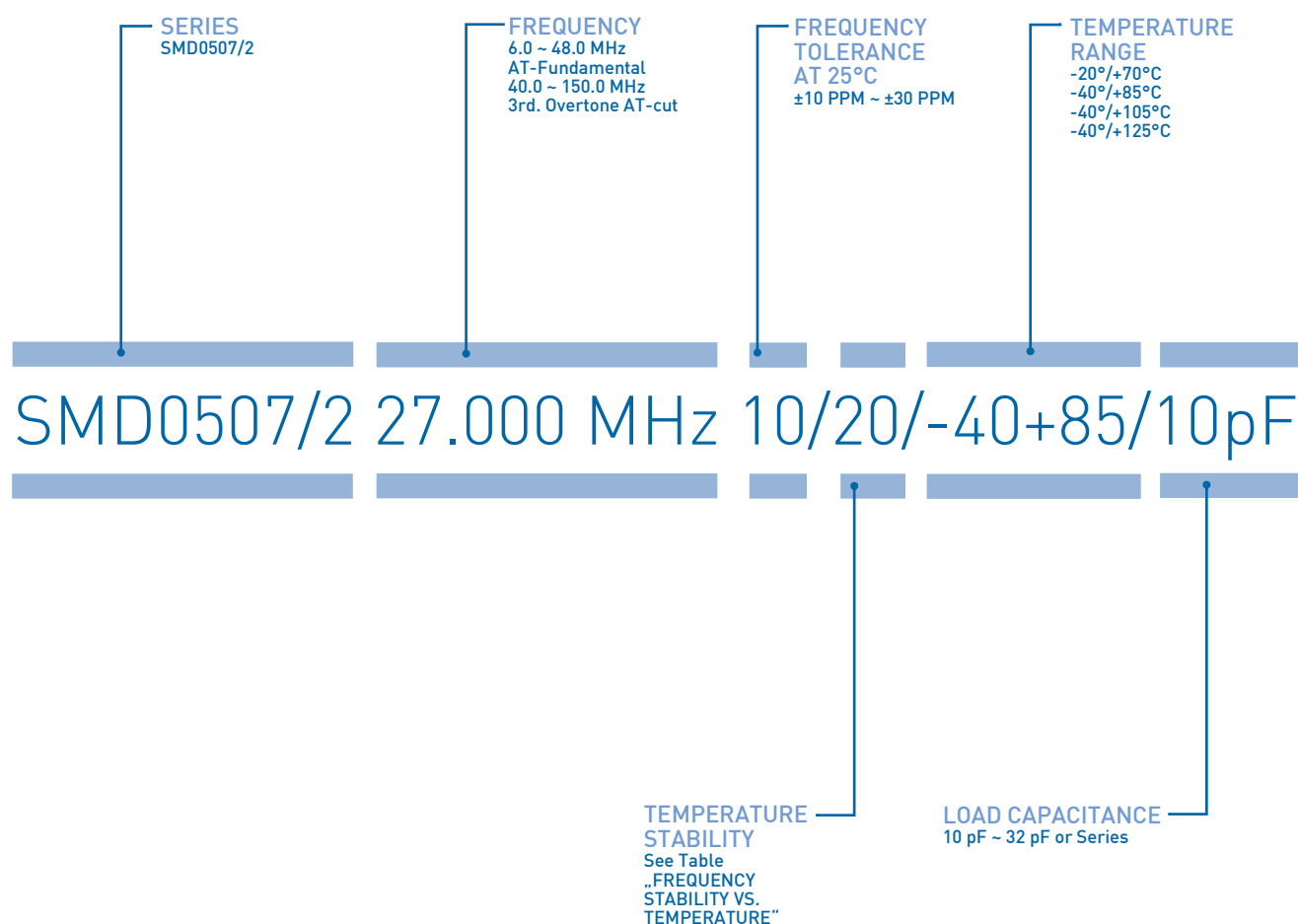


## REFLOW SOLDER PROFILE



| IPC/JEDEC Standard                  | IPC/JEDEC J-STD-020 |
|-------------------------------------|---------------------|
| Moisture Sensitivity Level          | Level 1             |
| TS MAX to TL (Ramp-up Rate)         | 3°C/second Maximum  |
| Preheat                             |                     |
| - Temperature Minimum (TS MIN)      | 150°C               |
| - Temperature Typical (TS TYP)      | 175°C               |
| - Temperature Maximum (TS MAX)      | 200°C               |
| - Time (tS)                         | 60 - 180 seconds    |
| Ramp-up Rate (TL to TP)             | 3°C/second Maximum  |
| Time Maintained Above:              |                     |
| - Temperature (TL)                  | 217°C               |
| - Time (TL)                         | 60 - 150 seconds    |
| Peak Temperature (TP)               | 265°C Maximum       |
| Target Peak Temperature (TP Target) | 255°C               |
| Time within 5°C of actual peak (tP) | 20 - 40 seconds     |
| Max. Number of Reflow Cycles        | 2                   |
| Ramp-down Rate                      | 6°C/second Maximum  |
| Time 25°C to Peak Temperature (t)   | 8 minutes Maximum   |

## ORDERING INFORMATION



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

| 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> |
| 02      | AUGUST 2026  | <ul style="list-style-type: none"> <li>+ Added New Standard Frequencies</li> </ul>                                                                                                                                                                                                                                                                                                                                                      |



## 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.

THE HEARTBEAT OF YOUR INNOVATION!  
RELIABLE · COST-EFFECTIVE · COMPETENT  
DESIGN SMARTER – EMPOWERING YOUR PRODUCTS

FOR ALMOST 30 YEARS, WE HAVE BEEN YOUR SPECIALIST FOR CRYSTALS AND OSCILLATORS – FROM PROVEN STANDARDS TO CUSTOM-TAILORED SOLUTIONS.

YOU DEVELOP WITH THE HIGHEST STANDARDS – WE DELIVER THE COMPONENTS TO MATCH: INNOVATIVE, RELIABLE, AND COST-EFFICIENT.

CHOOSE OUR PRODUCTS AND BENEFIT FROM TOP-TIER QUALITY, INNOVATION, STABLE AND INDEPENDENT SUPPLY CHAINS AND PARTNERSHIP ON HIGHEST LEVEL.

SUSTAINABLE SUCCESS FOR YOU AND YOUR PRODUCTS!