



Accurate Kinetic Energy
No.11-3 Jianguo Rd., Tanzi Dist., 42760 Taiwan

All dimensions are millimeters.

| | |
|---------|----------------|
| CAD: | TCR |
| Review: | EG |
| Appr: | JL |
| Page: | 1/4 |
| Date: | August 01,2022 |

Specification Title:

**Clock Oscillator
Automotive Grade
2.0 x 1.6 millimeter Surface Mount
General Product Specification**

Part Number: **S1 Auto Series**

Electrical Specifications:

| | | | | | | |
|---------------------------------|---------------------|-----------------------|-----------|-------------|-------------|---------|
| Frequency Range | 2.000 ~ 50.000 | | | | MHz | |
| Frequency Stability | ±25 ~ ±100 | | | | ppm | |
| Aging per Year | ±3 | | | | ppm Max. | |
| Operating Temperature Range | Standard | -40 ~ +85 | | | °C | |
| | Extended | -40 ~ +125 | | | | |
| Storage Temperature Range | -55 ~ +150 | | | | | |
| Supply Voltage | 1.8 ± 5% | 2.5 ± 5% | 3.3 ± 10% | 1.62 ~ 3.63 | VDD | |
| Input Current | 1.250 to 9.999MHz | 3 | 4 | 5 | 5 | mA Max. |
| | 10.000 to 19.999MHz | 4 | 5 | 6 | 6 | |
| | 20.000 to 31.999MHz | 5 | 6 | 7 | 7 | |
| | 32.000 to 50.000MHz | 6 | 7 | 8 | 8 | |
| Output Voltage | Logic High (Voh) | 90% | | | VDD Min. | |
| | Logic Low (Vol) | 10% | | | VDD Max. | |
| Output Symmetry (Duty Cycle) | Standard | 40 ~ 60 (at 50% VDD) | | | % | |
| | Tight | 45 ~ 55 (at 50% VDD) | | | | |
| Output Level | CMOS | | | | | |
| Output Load | 15 | | | | pF Max. | |
| Rise and Fall Time | 1.250 to 9.999MHz | 6 | 5 | 5 | 6 | ns Max. |
| | 10.000 to 19.999MHz | 6 | 5 | 5 | 6 | |
| | 20.000 to 31.999MHz | 5 | 5 | 5 | 5 | |
| | 32.000 to 50.000MHz | 5 | 5 | 5 | 5 | |
| Phase Jitter (12 KHz to 20 MHz) | 1 | | | | ps Max. RMS | |
| Enable-Disable Function | Tri-State | | | | | |
| Start Up Time | 10 | | | | ms Max. | |

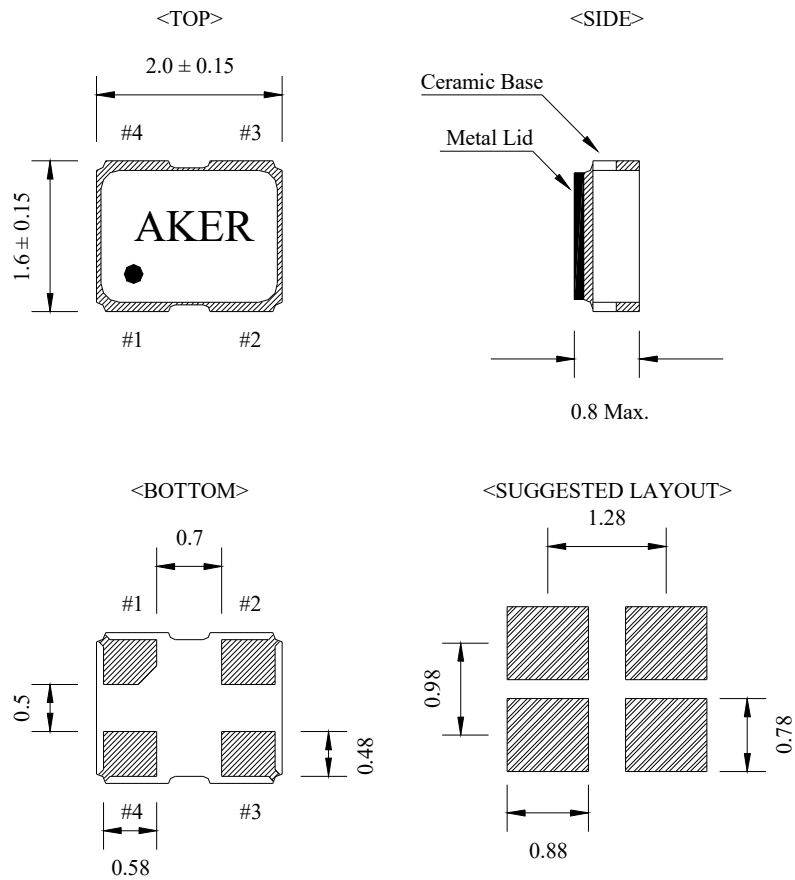
Temperature stability is Inclusive of all conditions:

Calibration Tolerance at +25°C, frequency stability over the operating temperature range, supply voltage change, output load change, shock, vibration, and 1st year aging at +25°C.

**RoHS Compliant
Pb - Lead Free**

| Ltr | Revisions | Date | Appr |
|-----|-----------|------|------|
| | | | |
| | | | |
| | | | |

Mechanical Outline and Solder Pad Layout:



| Pin Connection | |
|----------------|----------------|
| PIN No. | Connection |
| #1 | Enable/Disable |
| #2 | GND |
| #3 | Output |
| #4 | VDD |

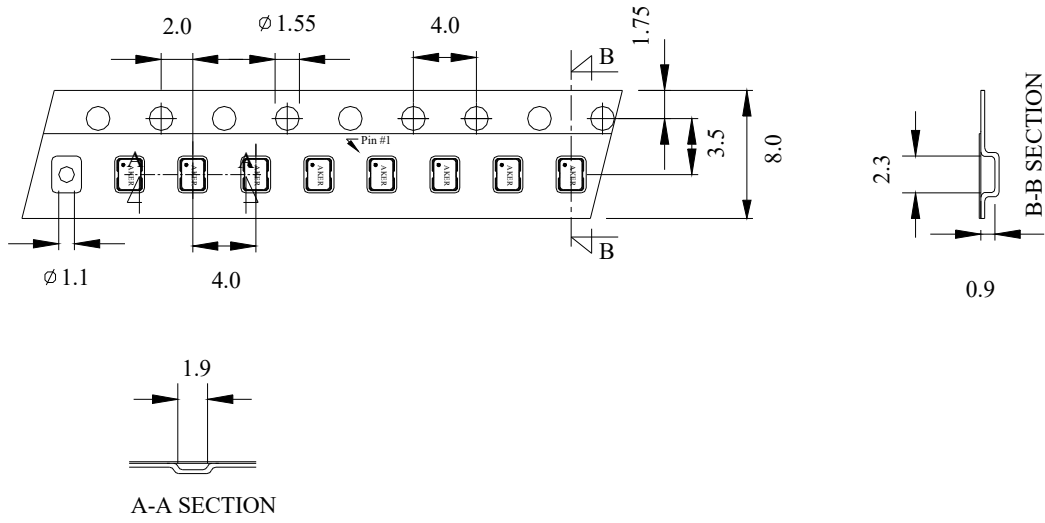
| Enable/Disable Function | |
|-------------------------|----------------|
| PIN #1 | PIN #3 |
| HIGH or OPEN | Operating |
| LOW | High Impedance |

Package is Seam Sealed Ceramic-Metal.

Terminator Pads are Ni/Au.

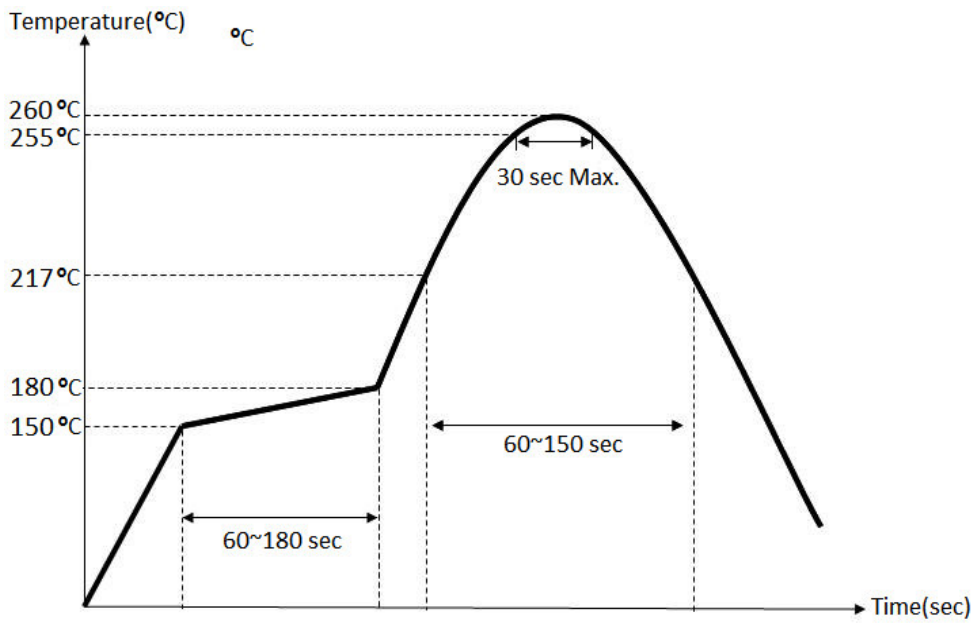
Dimensions are millimeters.

Carrier Tape Dimensions:



Dimensions are millimeters.

Solder Reflow Characteristics:



How to build a Part Number:

| | | |
|-----------------------|--------------|-------------------|
| Series | S | Parameter |
| Package | 1 | 2.0 x 1.6 mm |
| | | |
| Supply Voltage | 33 | +3.3 VDD ± 10% |
| | 25 | +2.5 VDD ± 5% |
| | 18 | +1.8 VDD ± 5% |
| | M | +1.62 ~ +3.63 VDD |
| | | |
| Temperature Stability | 10 | ±100 ppm |
| | 05 | ±50 ppm |
| | 03 | ±30 ppm |
| | 025 | ±25 ppm |
| | | |
| Duty Cycle | See Notes | 40%~60% |
| | T | 45%~55% |
| | | |
| Frequency | 2.000~50.000 | MHz |
| | | |
| AECQ-200 | A | Automotive |
| | | |
| Temperature Range | X | -40 ~ +85 °C |
| | X1 | -40 ~ +125 °C |
| | X2 | -40 ~ +105 °C |
| | | |
| Packaging | M | 250pcs Reel |
| | R | 1000pcs Reel |
| | R3 | 3000pcs Reel |

Part Number Example:

S13305T-50.000-A-X-R

S1: 2.0 x 1.6 mm SMD Package

33: +3.3±10% VDD Supply Voltage

05: ±50 ppm Temperature Stability

T: 45%~55% Tight Symmetry

50.000 MHz Nominal Frequency

A: Automotive Grade

X: -40 ~ + 85°C Standard Temperature Range

R: Tape and Reel Packaging - 1000pcs Reel

Notes:

- 1- Standard Duty Cycle and Temperature Range do not need to be included in Part Number description.
- 2- Product is shipped in Tape and Reel configuration.
- 3- Quantities less than 250pcs are shipped in tape only.
- 4- Specification subject to change without notice.