

Specification Title:
Clock Oscillator Automotive Grade
HCSL - Complimentary Output
$3.2 \times 2.5$ millimeter Surface Mount General Product Specification

AEC-Q200 Qualified IATF 16949 Certified

Part Number:
S3A Auto HCSL Series

Electrical Specifications:

| Frequency Range |  | $13.500 \sim 200.000$ |  |  |  | MHz |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency Stability |  | $\pm 25 \sim \pm 100$ |  |  |  | ppm |
| Aging per Year |  | $\pm 3$ |  |  |  | ppm Max. |
| Operating Temperature Range | Standard | $-20 \sim+70$ |  |  |  | ${ }^{\circ} \mathrm{C}$ |
|  | Option |  |  |  |  |  |
|  | Option |  |  | 105 |  |  |
|  | Option |  |  | 125 |  |  |
| Storage Temperature Range |  | $-55 \sim+125$ |  |  |  |  |
| Supply Voltage |  | $1.8 \pm 5 \%$ | $2.5 \pm 5 \%$ | $3.3 \pm 5 \%$ | 2.375~3.63 | VDD |
| Input Current |  | 30 | 30 | 30 | 30 | mA Max. |
| Output Voltage | Logic High (Voh) | 0.85 | 0.85 | 0.85 | 0.85 | VDD Max. |
|  | Logic Low (Vol) | -0.15 | -0.15 | -0.15 | -0.15 | VDD Min. |
| Output Symmetry (Duty Cycle) |  | $45 \sim 55$ |  |  |  | \% |
| Output Type |  | HCSL |  |  |  |  |
| Output Load ( Terminated to GND ) |  | 50 |  |  |  | ohm |
| Rise and Fall Time | 13.500 to 99.999 MHz | 1.0 | 1.0 | 1.0 | 1.0 | ns Max. |
|  | 100.000 to 200.000 MHz | 0.7 | 0.7 | 0.7 | 0.7 | ns Max. |
| Enable-Disable Function |  | Tri-State |  |  |  |  |
| Input Enable Voltage |  | 1.26 | 1.75 | 2.31 | 70\%VDD | VDD Min. |
| Input Disable Voltage |  | 0.54 | 0.75 | 0.99 | $30 \% \mathrm{VDD}$ | VDD Max. |
| Phase Jitter (12 KHz to 20 MHz ) |  | 0.5 |  |  |  | ps Max. RMS |

Temperature stability is Inclusive of all conditions:
Calibration Tolerance at $+25^{\circ} \mathrm{C}$, frequency stability over the operating temperature range, supply voltage change, output load change, shock, vilbration, and 1 st year aging at $+25^{\circ} \mathrm{C}$.

| RoHS Compliant | Ltr | Revisions | Date | Appr |
| :--- | :---: | :---: | :---: | :---: |
| Pb - Lead Free <br> AEC-Q200 Qualified <br> IATF 16949 Certified |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

## Mechanical Outline and Solder Pad Layout:



| Pin Connection |  |
| :---: | :--- |
| PIN No. | Connection |
| $\# 1$ | Enable/Disable |
| $\# 2$ | NC |
| $\# 3$ | GND |
| $\# 4$ | Output - Q |
| $\# 5$ | Output - QN |
| $\# 6$ | VDD |


| Enable/Disable Function |  |
| :---: | :---: |
| PIN \#1 | PIN \#4 \& \#5 |
| 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 | 3A | $3.2 \times 2.5 \mathrm{~mm}-6 \mathrm{Pad}$ |
|  |  |  |
| Supply Voltage | 33 | +3.3 VDD $\pm 5 \%$ |
|  | 25 | +2.5 VDD $\pm 5 \%$ |
|  | 18 | +1.8 VDD $\pm 5 \%$ |
|  | M | +2.375 ~ +3.63VDD |
|  |  |  |
| Temperature Stability | 10 | $\pm 100 \mathrm{ppm}$ |
|  | 05 | $\pm 50 \mathrm{ppm}$ |
|  | 025 | $\pm 25 \mathrm{ppm}$ |
| - |  |  |
| Frequency | 13.500~200.000 | MHz |
| - |  |  |
| Output Load | H | HCSL |
| - |  |  |
| AECQ-200 | A | Automotive |
| - |  |  |
| Temperature Range | See Notes | $-20 \sim+70^{\circ} \mathrm{C}$ |
|  | X | $-40 \sim+85^{\circ} \mathrm{C}$ |
|  | X1 | $-40 \sim+125^{\circ} \mathrm{C}$ |
|  | X2 | $-40 \sim+105{ }^{\circ} \mathrm{C}$ |
| - |  |  |
| Packaging | M | 250pcs Reel |
|  | R | 1000pcs Reel |

## Part Number Example:

S3A3305-156.250-H-A-X-R

S3A: $3.2 \times 2.5 \mathrm{~mm}$ SMD Package - 6 Pad
33: $+3.3 \pm 5 \%$ VDD Supply Voltage
05: $\pm 50 \mathrm{ppm}$ Temperature Stability
156.250 MHz Nominal Frequency

H: HCSL Output
A: Automotive Grade
X: - $40 \sim+85^{\circ} \mathrm{C}$ Extended 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.

