



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: February 5,2025

Specification Title:

**HCMOS Output Clock Oscillator
Ultra Miniature
2.5 x 2.0 millimeter Surface Mount
General Product Specification**

Part Number:

S2 Series

Electrical Specifications:

Frequency Range		10.000~40.000	10.000~50.000	10.000~50.000	2.000~110.000	2.000~160.000	2.000~160.000	2.000~110.000	2.000~50.000	MHz
Frequency Stability		±20 ~ ±100								ppm
Aging per Year		±3								ppm Max.
Operating Temperature Range	Standard	-20 ~ +70								°C
	Extended	-40 ~ +85 Or Specify (-40~+125 is available)								
Storage Temperature Range		-55 ~ +125								
Supply Voltage		0.9 ± 5%	1.2 ± 5%	1.5 ± 5%	1.8 ± 10%	2.5 ± 10%	3.3 ± 10%	1.62 ~ 3.63	5.0 ± 10%	VDD
Input Current	2.000 to 9.999MHz	-	-	-	3	5	5	5	10	mA Max.
	10.000 to 19.999MHz	1.5	2.5	3.5	5	5	5	5	12	
	20.000 to 31.999MHz	1.5	2.5	3.5	5	6	7	7	15	
	32.000 to 50.000MHz	2	3.5	4.5	10	12	12	12	22	
	50.001 to 110.000MHz	-	-	-	10	20	25	25	-	
	110.001 to 160.000MHz	-	-	-	-	20	30	-	-	
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	2.000 to 9.999MHz	-	-	-	7	7	6	7	6	ns Max.
	10.000 to 19.999MHz	15	12	10	7	7	6	7	6	
	20.000 to 31.999MHz	15	12	10	6	6	5	6	5	
	32.000 to 50.000MHz	15	12	10	6	6	5	6	5	
	50.001 to 110.000MHz	-	-	-	6	6	5	6	-	
	110.001 to 160.000MHz	-	-	-	-	6	6	-	-	
Phase Jitter RMS (12 KHz to 20 MHz)		1								ps Max.
Enable-Disable Function		Tri-State								
Start Up Time		5								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

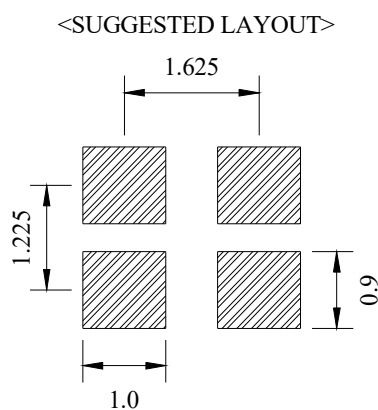
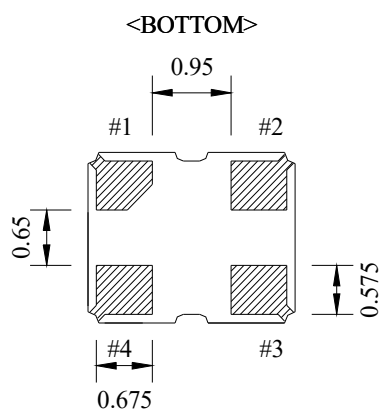
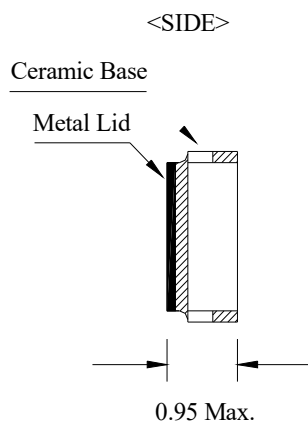
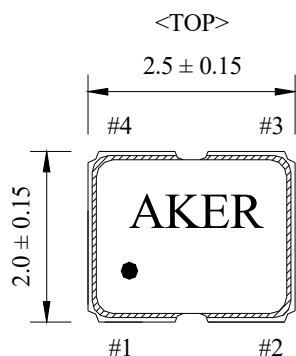
Revisions

Date

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Mechanical Outline and Solder Pad Layout:



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

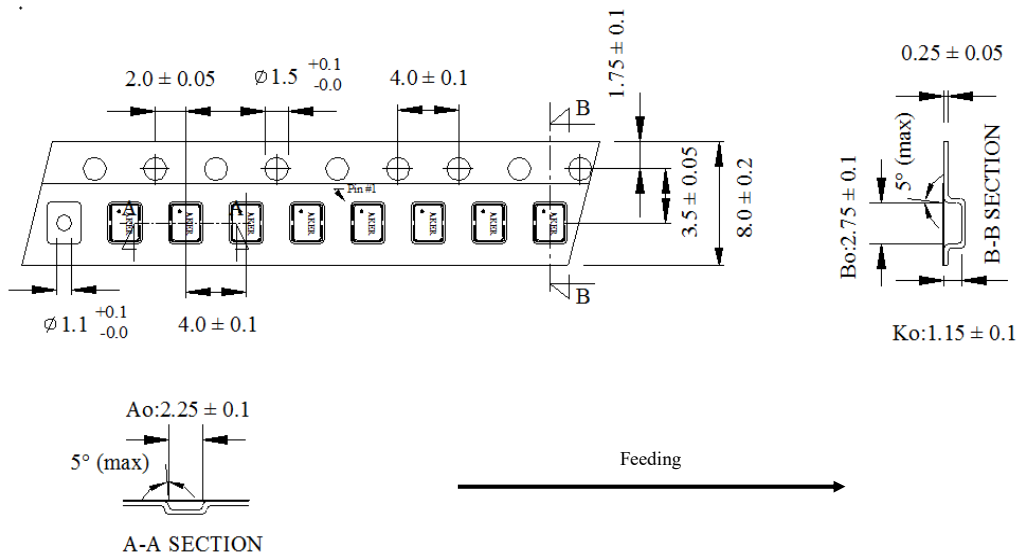
Enable/Disable Function	
PIN #1	PIN #3
HIGH or OPEN	Operating
LOW	High Impedance

Package is Seam Sealed Ceramic-Metal.

Terminator Pads are Ni/Au.

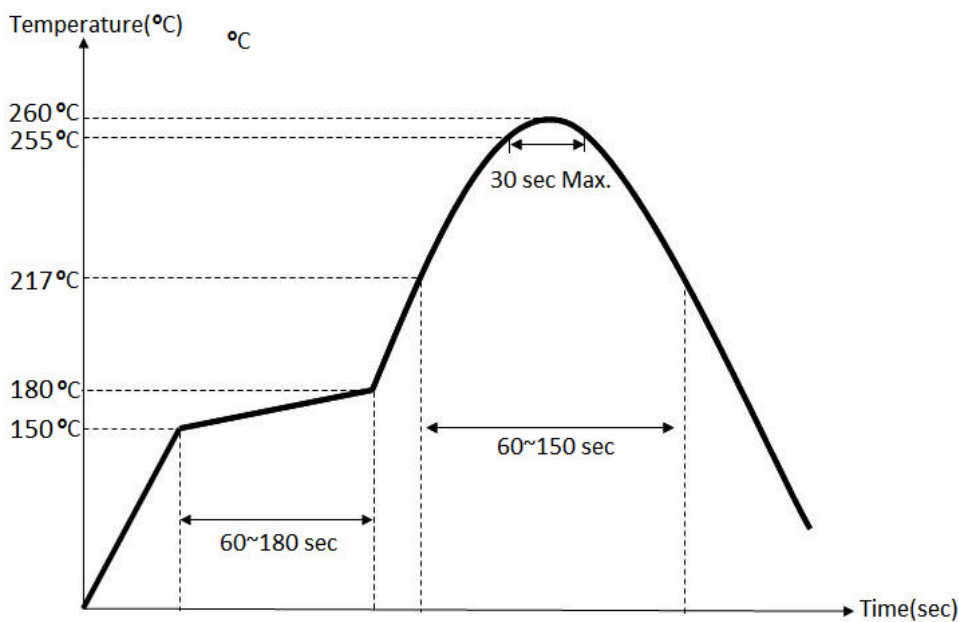
Dimensions are millimeters.

Carrier Tape Dimensions:



Dimensions are millimeters.

Solder Reflow Characteristics:



How to build a Part Number:

Series	S	Parameter
Package	2	2.0 x 2.5 mm
Supply Voltage	50	+5.0 VDD $\pm$ 10%
	33	+3.3 VDD $\pm$ 10%
	25	+2.5 VDD $\pm$ 10%
	18	+1.8 VDD $\pm$ 10%
	15	+1.5 VDD $\pm$ 5%
	12	+1.2 VDD $\pm$ 5%
	09	+0.9 VDD $\pm$ 5%
	M	+1.62 ~ +3.63 VDD
Temperature Stability	10	$\pm$ 100 ppm
	05	$\pm$ 50 ppm
	025	$\pm$ 25 ppm
Duty Cycle	See Notes	40%~60%
	T	45%~55%
Frequency	2.000~160.000	MHz
Temperature Range	See Notes	-20 ~ +70 °C
	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:

S23305T-50.000-X-R

S2: 2.0 x 2.5 mm SMD Package

33: +3.3 $\pm$ 10% VDD Supply Voltage

05: $\pm$ 50 ppm Temperature Stability

T: 45%~55% Tight Symmetry

50.000 MHz Nominal Frequency

X: -40 ~ + 85°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.