

HCMOS SURFACE-MOUNT CRYSTAL CLOCK OSCILLATOR

ASA SERIES

Moisture Sensitivity Level (MSL) – This product is
Hermetically Sealed and not Moisture Sensitive -
MSL = N/A: Not Applicable



RoHS/RoHS II Compliant



2.0 x 1.6 x 0.7 mm

FEATURES:

- Ultra miniature package, 2.0 x 1.6 x 0.7mm
- Tri-state function
- Suitable for high density SMT
- Suitable for RoHS compliant reflow process
- Seam sealed package assures high reliability

APPLICATIONS:

- CCD clock for VTR camera
- Computers and peripherals
- Portable electronics
- Mobile communication, PDA

STANDARD SPECIFICATIONS:

Parameters		Minimum	Typical	Maximum	Units	Notes	
Frequency Range		1.0		80	MHz		
Operating Temperature		-10		+60	°C	See options	
Storage Temperature		-40		+85	°C		
Overall Frequency Stability*		-50		+50	ppm	See options	
Supply Voltage (Vdd)		2.97	3.3	3.66	V	Standard	
		2.25	2.5	2.75		Option 1 (CMOS)	
		1.62	1.8	1.98		Option 2 (CMOS)	
Supply Current (I _{dd}) into 15pF Load	Vdd = 3.3 V		2.0	5.0	mA	1MHz ≤ F ≤ 20 MHz	
			4.0	10.0		20 MHz < F ≤ 50 MHz	
			7.0	15.0		50 MHz < F ≤ 80 MHz	
	Vdd = 2.5 V		2.0	5.0		1MHz ≤ F ≤ 20 MHz	
			3.0	10.0		20 MHz < F ≤ 50 MHz	
			5.0	10.0		50 MHz < F ≤ 80 MHz	
	Vdd = 1.8 V		1.5	5.0		1MHz ≤ F ≤ 20 MHz	
			2.5	5.0		20 MHz < F ≤ 50 MHz	
			4.0	10.0		50 MHz < F ≤ 80 MHz	
	Output Load				15	pF	
					2	TTL	
Output Voltage	V _{OH}	0.9*Vdd			V	CMOS	
	V _{OL}			0.1*Vdd		CMOS	
	V _{OH}	2.4				TTL	
	V _{OL}			0.4		TTL	
Tri-state function		"1" (VIH≥0.7*Vdd) or Open : Oscillation "0" (VIH<0.3*Vdd) : Hi Z					
Aging		-3.0		+3.0	ppm	@+25°C First year	
Symmetry @1/2Vdd		40	50	60	%	Standard	
		45	50	55		Option S	
Start-up Time				10.0	ms		
Rise/Fall Time (Tr/Tf)				10.0	ns		

*Overall frequency stability includes initial frequency tolerance @+25°C and stability over the operating temperature.

OPTIONS AND PART IDENTIFICATION:

(Left blank if standard)

ASA - MHz - - - -

Supply Voltage
Blank: 3.3V±10%
1: 2.5 V±10%
2: 1.8 V±10%

Packaging
Blank: Bulk
T: Tape & Reel (1kpcs)
T3: Tape & Reel (3kpcs)

Frequency in MHz
Please specify the frequency in MHz. e.g. 14.31818MHz

Operating Temp.
Blank: -10°C ~ +60°C
E: -20°C ~ +70°C
L: -40°C ~ +85°C

Overall Freq. Stability
Blank: ±50ppm
R**: ±25ppm
K***: ±30 ppm

Symmetry
Blank: 40/60% @1/2Vdd
S: 45/55% @1/2Vdd

**Available for -10 to +60°C only

***Available for -10 to +60°C, option E only

Contact Abracon for tighter frequency stability options

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 **RoHS/RoHS II Compliant**

Figure 1: Mechanical drawing of the PCB layout. The drawing shows three views: a top view, a side view, and a bottom view. The top view is a rectangle with dimensions 4.0 ± 0.1 mm (width) and 1.6 ± 0.1 mm (height). The side view shows a thickness of 0.028 ± 0.004 mm. The bottom view shows four mounting pads, each with a diameter of 0.020 ± 0.004 mm (0.5 ± 0.1 mm). The pads are spaced 0.028 mm (0.7 mm) apart. The drawing also indicates a 0.079 ± 0.004 mm (2.0 ± 0.1 mm) dimension for the top view and a 0.063 ± 0.004 mm (1.6 ± 0.1 mm) dimension for the side view. A 0.024 ± 0.004 mm (0.60 ± 0.1 mm) dimension is shown for the bottom view pads.

PIN #	Name
1	Tri-state
2	GND
3	Output
4	Vdd

Technical drawing of a 4-pin connector. The drawing includes a top view, a side view, and a cross-section view.

Top View Dimensions:

- Overall width: 2.0 ± 0.05
- Pin pitch (center-to-center): 4.0 ± 0.1
- Pin diameter: $\phi 1.5 \pm 0.1 / 0$
- Pin 1 location: PIN 1
- Body width: 4.0 ± 0.1
- Body height: 3.5 ± 0.5
- Overall height: 8.0 ± 0.2
- Pin 1 offset: 0.25 ± 0.05
- Pin 1 angle: 5° MAX
- Pin 1 radius: 0.95 ± 0.1
- Pin 1 hole diameter: $\phi 1.05$
- Pin 1 hole offset: 1.75 ± 0.1
- Pin 1 hole diameter: $\phi 1.5 \pm 0.1 / 0$
- Pin 1 hole offset: 4.0 ± 0.1
- Pin 1 hole offset: 1.85 ± 0.1

Side View Dimensions:

- Pin length: 9.0 ± 0.3
- Pin diameter: $\phi 60$
- Pin diameter: $\phi 180 \pm 0 / -3$
- Pin diameter: $\phi 21 \pm 0.8$
- Pin diameter: $\phi 13.0 \pm 0.5$
- Pin diameter: 2 ± 0.5
- Pin diameter: 120°
- Pin diameter: (1.2)

Feeding (Pull) Direction: Indicated by an arrow pointing to the right.

Figure 1 is a graph showing Temperature (°C) versus Time (seconds) for the heat treatment of a 100 mm diameter 42CrMo4 steel rod. The graph illustrates the temperature profile for two different heat treatment conditions: 60~120s (solid line) and 60~90s (dashed line). The temperature starts at 25°C, rises to 150°C, then to 180°C, and finally to 260°C. The 60~120s condition shows a longer dwell time at 180°C compared to the 60~90s condition. The 260°C plateau is labeled "5s max. 1 time at +260°C±5°C". The cooling phase is labeled "Cool".



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