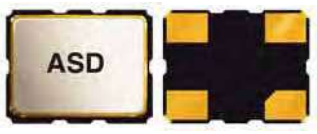
HCMOS SMD Crystal Oscillator

ASD SERIES

ESD Sensitive

RoHS/RoHS II compliant



2.5 X 2.0 X 1.0 mm

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

FEATURES:

- Low height 1.0mm max
- Low current consumption
- Tri-state function
- Suitable for RoHS compliant reflow
- Tight stability option
- Seam sealed package assures high reliability

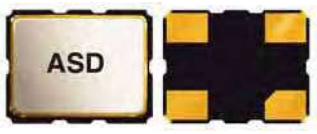
APPLICATIONS:

- CCD clock for VTR Camera
- Equipment connected to PC or PC cards
- Thin equipment

STANDARD SPECIFICATIONS:

Parameters		Minimum	Typical	Maximum	Units	Notes
Frequency Range		0.750		60	MHz	
Operating Temperature		-20		+70	°C	STD temp. Option code E (See options)
Storage Temperature		-55		+100	°C	
Overall Frequency Stability		-100		+100	ppm	See options
Supply Voltage (Vdd)		+3.135	+3.3	+3.465	V	ASD (Standard)
		+2.85	+3.0	+3.15		ASD1
		+2.375	+2.5	+2.625		ASD2
		+1.71	+1.8	+1.89		ASD3
		+0.95	+1.0	+1.05		ASD6
Input Current (Idd)	ASD (3.3V)		2.5	5	mA	0.750~15.999 MHz
			4	7		16.000~39.999 MHz
			9	13		40.000~60.000 MHz
	ASD1 (3.0V)		2.5	4	mA	0.750~15.999 MHz
			3.5	6		16.000~39.999 MHz
			8	12		40.000~60.000 MHz
	ASD2 (2.5V)		2	3.5	mA	0.750~15.999 MHz
			3	5		16.000~39.999 MHz
			7	10		40.000~60.000 MHz
	ASD3 (1.8V)		1	2.5	mA	0.750~15.999 MHz
			2	4		16.000~39.999 MHz
			4	7		40.000~60.000 MHz
	ASD6 (1.0V)		1.0	2.5	mA	25.000 MHz
Symmetry @ 1/2Vdd		40		60	%	STD (See option)
Output Load:				15	pF	CMOS
Output Voltage (VOH):		0.9* Vdd			V	
Output Voltage (VOL):				0.1* Vdd	V	

HCMOS SMD Crystal Oscillator



2.5 X 2.0 X 1.0 mm

ASD SERIES

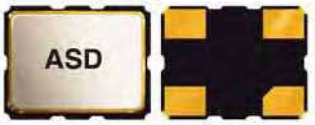
RoHS/RoHS II compliant

(Continued)

Parameters		Minimum	Typical	Maximum	Units	Notes
Rise and Fall Time (Tr/Tf):	ASD (3.3V)		3	7	ns	0.750~15.999 MHz
			2.5	6		16.000~39.999 MHz
			2	4		40.000~60.000 MHz
	ASD1 (3.0V)		3	7	ns	0.750~15.999 MHz
			2.5	6		16.000~39.999 MHz
			2	4		40.000~60.000 MHz
	ASD2 (2.5V)		4	8	ns	0.750~15.999 MHz
			3	7		16.000~39.999 MHz
			2.5	5		40.000~60.000 MHz
	ASD3 (1.8V)		5	10	ns	0.750~15.999 MHz
			3.5	8		16.000~39.999 MHz
			3	6		40.000~60.000 MHz
	ASD6 (1.0V)		1.9	6.0	ns	25.000 MHz
Start-up Time:	ASD (3.3V)		6	10	ms	0.750~15.999 MHz
			6	10		16.000~39.999 MHz
			5	10		40.000~60.000 MHz
	ASD1 (3.0V)		6	10	ms	0.750~15.999 MHz
			6	10		16.000~39.999 MHz
			5	10		40.000~60.000 MHz
	ASD2 (2.5V)		6	10	ms	0.750~15.999 MHz
			6	10		16.000~39.999 MHz
			5	10		40.000~60.000 MHz
	ASD3 (1.8V)		6	10	ms	0.750~15.999 MHz
			6	10		16.000~39.999 MHz
			5	10		40.000~60.000 MHz
	ASD6 (1.0V)		2.0	10	ms	25.000 MHz
Tri-state function (Stand-by) :		"1" (VIH≥0.7*Vdd) or Open: Oscillation; "0" (VIH<0.3*Vdd) : No oscillation/Hi Z				
Phase Jitter (12kHz to 20MHz)	ASD (3.3V)		0.4	1.0	ps	0.750~15.999 MHz
			0.4	1.0		16.000~39.999 MHz
			0.3	1.0		40.000~60.000 MHz
	ASD1 (3.0V)		0.4	1.0	ps	0.750~15.999 MHz
			0.4	1.0		16.000~39.999 MHz
			0.3	1.0		40.000~60.000 MHz
	ASD2 (2.5V)		0.5	1.0	ps	0.750~15.999 MHz
			0.5	1.0		16.000~39.999 MHz
			0.5	1.0		40.000~60.000 MHz
	ASD3 (1.8V)		0.5	1.0	ps	0.750~15.999 MHz
			0.5	1.0		16.000~39.999 MHz
			0.5	1.0		40.000~60.000 MHz
	ASD6 (1.0V)		0.3	1.0	ps	25.000 MHz
Period Jitter RMS	ASD (3.3V)		3.0	5.0	ps	0.750~15.999 MHz
			3.0	5.0		16.000~39.999 MHz
			3.0	5.0		40.000~60.000 MHz
	ASD1 (3.0V)		3.0	5.0	ps	0.750~15.999 MHz
			3.0	5.0		16.000~39.999 MHz
			3.0	5.0		40.000~60.000 MHz
	ASD2 (2.5V)		3.0	5.0	ps	0.750~15.999 MHz
			3.0	5.0		16.000~39.999 MHz
			3.0	5.0		40.000~60.000 MHz
	ASD3 (1.8V)		3.0	5.0	ps	0.750~15.999 MHz
			3.0	5.0		16.000~39.999 MHz
			3.0	5.0		40.000~60.000 MHz
	ASD6 (1.0V)		4.8	6.0	ps	25.000 MHz
Aging at 25°C/year		-5		+5	ppm	
Disable Current:				20	µA	

HCMOS SMD Crystal Oscillator

ASD SERIES



2.5 X 2.0 X 1.0 mm

OPTIONS AND PART IDENTIFICATION:

ASD ☐ - ☐ MHz - ☐ - ☐ - ☐ - ☐

P/N and Vdd (V)
Blank: 3.3±5%
1: 3.0±5%
2: 2.5±5%
3: 1.8±5%
6: 1.0±5%

Frequency in MHz
e.g. 24.576MHz 14.31818MHz 26.000MHz

Operating Temp.
E: -20°C ~ +70°C (STD)
F: -30°C ~ +70°C
N: -30°C ~ +85°C
L: -40°C ~ +85°C
M(***): -40°C ~ +105°C
V(***): -40°C ~ +125°C

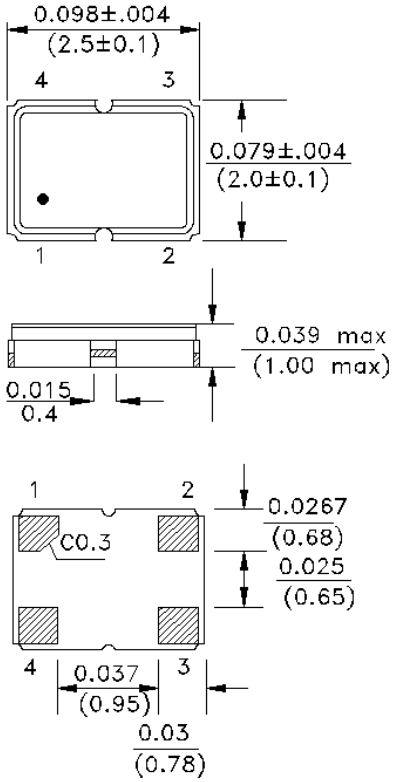
Overall Freq. Stability
J(*): ±20ppm
R(**): ±25ppm
K: ±30ppm
H: ±35ppm
C: ±50ppm

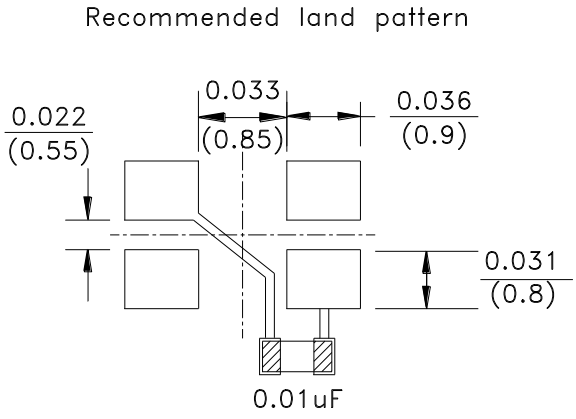
Duty Cycle
Blank : 40/60% @ 1/2Vdd
S: 45/55% @ 1/2Vdd

Packaging
Blank: Bulk
T: 1000pcs/Reel
T2: 250pcs/Reel
T3: 3000pcs/Reel

*: Standard only
**: E,F, N and L only
***: ± 100 ppm only

OUTLINE DRAWING:





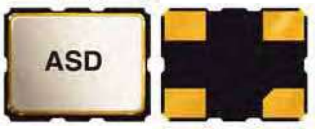
Pin	Function
1	Tri-State
2	GND/Case
3	Output
4	Vdd

Note1: Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.

Dimensions: inches (mm)

HCMOS SMD Crystal Oscillator

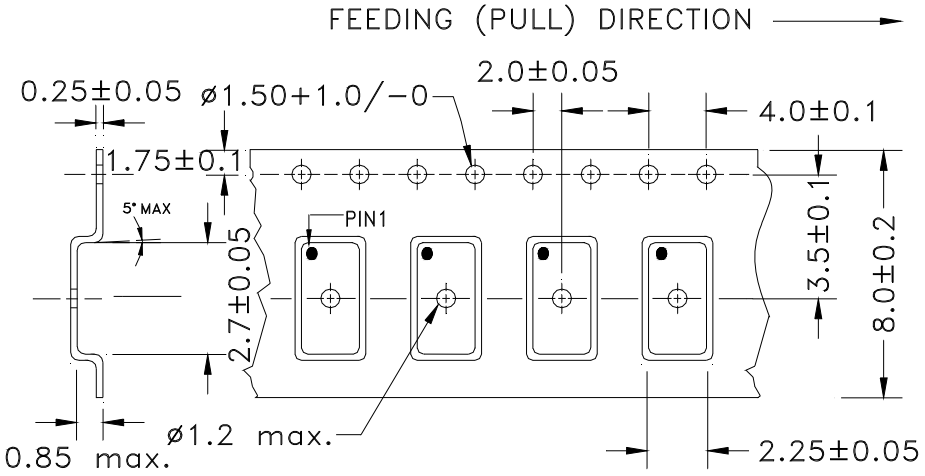
ASD SERIES

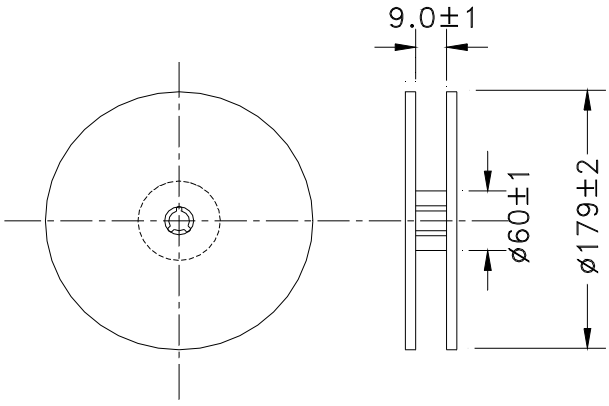


2.5 X 2.0 X 1.0 mm

TAPE & REEL:

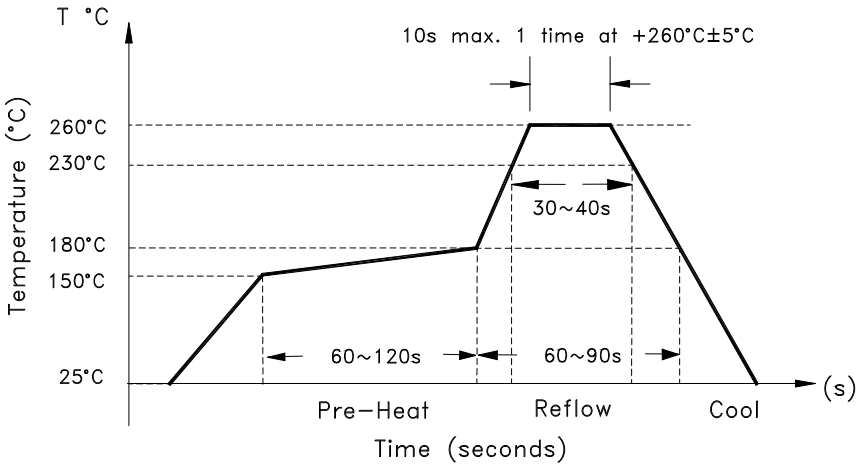
T: 1000pcs/reel
T2: 250pcs/reel
T3: 3000pcs/reel





Dimensions: mm

REFLOW PROFILE:





Need a test socket for the ASD Series? To view compatible **PRECISION TEST & BURN-IN SOCKETS** for these parts, **click here. P/N AXS-2520-04-01**

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