

# PROGRAMMABLE CRYSTAL OSCILLATOR

AP3S

\* PB FREE & ROHS COMPLIANT



3.2 x 2.5 x 1.1mm

## FEATURES:

- Performance equivalent to fixed frequency oscillator
- Lowest peak-to-peak jitter
- Low supply current
- Short lead time
- Suitable for mass production
- Alternative to long lead-time XO's

## STANDARD SPECIFICATIONS:

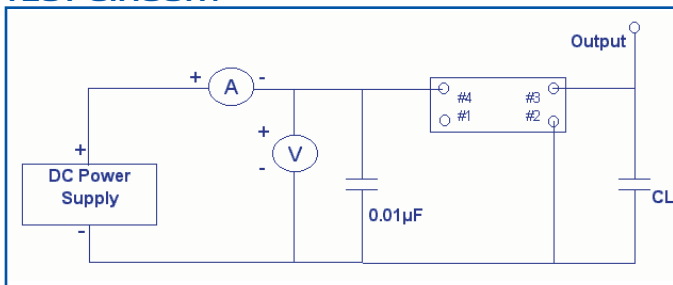
### 3.3V OPERATION (STANDARD)

Characteristics	Unit	Minimum	Typical	Maximum
Frequency Range	MHz	0.8	--	110
Operation Temperature Range *(See Options)	°C	-10	--	60
Frequency Stability *(See Options)	ppm	-100	--	100
Input Voltage (Operating Vdd)	VDC	2.97	3.3	3.63
Vdd Sensitivity ( $\pm 10\%$ )	ppm	-2	--	2
Supply Current	mA			
0.8MHz $\leq$ Fo $\leq$ 20MHz		--	--	10
20MHz $\leq$ Fo $\leq$ 40MHz		--	--	15
40MHz $\leq$ Fo $\leq$ 75MHz		--	--	15
75MHz $\leq$ Fo $\leq$ 90MHz		--	--	20
90MHz < Fo	--	--	--	25
Transition Time : Rise / Fall Time *	nSec	--	--	5.0
Duty Cycle	%	45	--	55
Output				
Output High (Logic "1")	V	2.97	--	--
Output Low (Logic "0")	V	--	--	0.33
Start Time	nSec	--	--	8
Tri-state (Input to Pin 1)				
Output Active	V	0.7	--	--
Output in High Impedance State		--	--	0.3
Absolute Clock Period Jitter	pSec	--	--	150
Standby Current	$\mu$ A	--	--	10
Storage Temp. Range	°C	-55	--	125

\* Inclusive of calibration @25°C, operating temperature range, input voltage variation, load variation, aging, shock, and vibration.

\* Transition times are measured between 10% and 90% of Vdd with an output load of 15 pf.

## TEST CIRCUIT:



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## STANDARD SPECIFICATIONS (cont'd):

### 2.5V OPERATION

Characteristics	Unit	Minimum	Typical	Maximum
Frequency Range	MHz	0.8	--	90
Operation Temperature Range *(See Options)	°C	-10	--	60
Frequency Stability *(See Options)	ppm	-100	--	100
Input Voltage (Operating Vdd)	VDC	2.25	2.5	2.75
Vdd Sensitivity (±10%)	ppm	-2	--	2
Supply Current	mA			
0.8MHz ≤ Fo ≤ 20MHz		--	--	8
20MHz ≤ Fo ≤ 40MHz		--	--	10
40MHz ≤ Fo ≤ 75MHz		--	--	10
75MHz ≤ Fo ≤ 90MHz		--	--	15
90MHz < Fo		--	--	--
Transition Time : Rise / Fall Time *	nSec	--	--	5.0
Duty Cycle	%	45	--	55
Output				
Output High (Logic "1")	V	2.25	--	--
Output Low (Logic "0")	V	--	--	0.25
Start Time	nSec	--	--	8
Tri-state (Input to Pin 1)				
Output Active	V	0.7	--	--
Output in High Impedance State		--	--	0.3
Absolute Clock Period Jitter	pSec	--	--	150
Standby Current	μ A	--	--	10
Storage Temp. Range	°C	-55	--	125

### 1.8V OPERATION

Characteristics	Unit	Minimum	Typical	Maximum
Frequency Range	MHz	0.8	--	75
Operation Temperature Range *(See Options)	°C	-10	--	60
Frequency Stability *(See Options)	ppm	-100	--	100
Input Voltage (Operating Vdd)	VDC	1.62	1.8	1.98
Vdd Sensitivity (±10%)	ppm	-2	--	2
Supply Current	mA			
0.8MHz ≤ Fo ≤ 20MHz		--	--	6
20MHz ≤ Fo ≤ 40MHz		--	--	7
40MHz ≤ Fo ≤ 75MHz		--	--	10
75MHz ≤ Fo ≤ 90MHz		--	--	--
90MHz < Fo		--	--	--
Transition Time : Rise / Fall Time *	nSec	--	--	5.0
Duty Cycle	%	45	--	55
Output				
Output High (Logic "1")	V	1.62	--	--
Output Low (Logic "0")	V	--	--	0.18
Start Time	nSec	--	--	8
Tri-state (Input to Pin 1)				
Output Active	V	0.7	--	--
Output in High Impedance State		--	--	0.3
Absolute Clock Period Jitter	pSec	--	--	150
Standby Current	μ A	--	--	10
Storage Temp. Range	°C	-55	--	125

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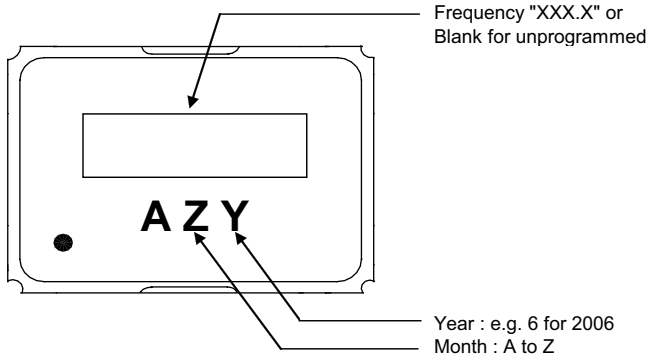


3.2 x 2.5 x 1.1mm

## STANDARD SPECIFICATIONS (cont'd):

- \* Inclusive of calibration @25°C, operating temperature range, input voltage variation, load variation, aging, shock, and vibration.
- \* Transition times are measured between 10% and 90% of Vdd with an output load of 15 pf.

## MARKING:



Month	Code	Month	Code
January	A	July	G
February	B	August	H
March	C	September	I
April	D	October	J
May	E	November	K
June	F	December	L

## OPTIONS AND PART IDENTIFICATION (Left blank if standard):

AP3SX-Frequency-XX-X

Supply Voltage	
Blank*	3.3 V
1	2.5 V
2	1.8 V

\*3.3V : Standard

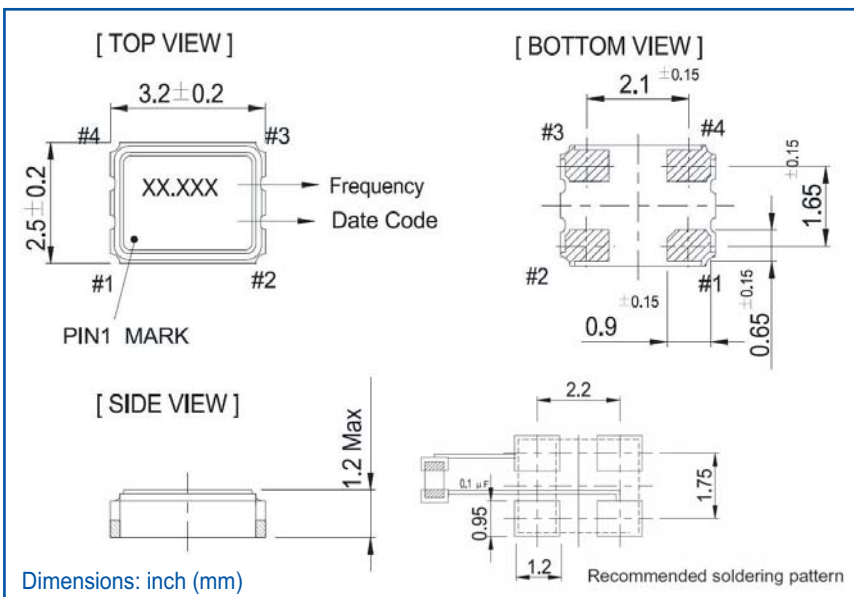
Frequency Stability Over Operating Temp.		
EJ	-20°C to +70°C	± 20 ppm
ER	-20°C to +70°C	± 25 ppm
EC	-20°C to +70°C	± 50 ppm
LJ*	-40°C to +85°C	± 20 ppm
LR	-40°C to +85°C	± 25 ppm
LC	-40°C to +85°C	± 50 ppm

\*EJ : Please ask availability.

Packaging	
B	Bulk
T	Tape and Reel

\*Ask for Tube Package

## OUTLINE DRAWING:



PIN	FUNCTION
1	Tristate
2	Ground
3	Output
4	Vdd