Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

SMD CMOS PROGRAMMABLE CRYSTAL OSCILLATOR

3.2 x 2.5 x 1.2mm

AP3S

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

Pb RoHS Compliant

FEATURES:

- Performance comparable 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

For Small Quantities, Delivery Time is 1-5 days

ELECTRICAL SPECIFICATIONS:

Parameters		Minimum	Typical	Maximum	Units	Notes
Frequency Range	V_{dd} = 3.3V	2.048	-----	200	MHz	
	V_{dd} = 2.5V	2.048	-----	166		
	V_{dd} = 1.8V	11	-----	110		
	V_{dd} = 1.8V	2.048	-----	10.999		In-house programming small quantity only (< 1,000pcs) Contact Abracon for mass production quantity
Operating Temperature		-10	-----	+60	°C	See options
Storage Temperature		-55	-----	+150	°C	
Overall Frequency Stability*		-100	-----	+100	ppm	See options
Supply Voltage (V_{dd})	V_{dd} = 3.3V	2.97	3.30	3.63	V	Standard
	V_{dd} = 2.5V	2.25	2.50	2.75		V_{dd} option 1
	V_{dd} = 1.8V	1.62	1.80	1.98		V_{dd} option 2
Input Current	V_{dd} = 3.3V	-----	-----	10	mA	2.048 MHz ≤ F< 30MHz
		-----	-----	15		30MHz ≤ F< 75MHz
		-----	-----	20		75MHz ≤ F< 133MHz
		-----	-----	22		133MHz ≤ F< 166MHz
		-----	-----	25		166MHz ≤ F< 200MHz
	V_{dd} = 2.5V	-----	-----	8		2.048 MHz ≤ F< 30MHz
		-----	-----	10		30MHz ≤ F< 75MHz
		-----	-----	15		75MHz ≤ F< 133MHz
		-----	-----	15		133MHz ≤ F< 166MHz
	V_{dd} = 1.8V	-----	-----	6		2.048 MHz ≤ F< 30MHz
		-----	-----	8		30MHz ≤ F< 75MHz
		-----	-----	2		75MHz ≤ F< 133MHz
Symmetry****		45	50	55	%	@ 1/2 Vdd
Rise and Fall Time (Tr/Tf)**	V_{dd} = 3.3V	-----	-----	3	ns	2.048 MHz ≤ F < 10 MHz
		-----	-----	2		10 MHz ≤ F
	V_{dd} = 2.5V	-----	-----	4		2.048 MHz ≤ F < 10 MHz
		-----	-----	3		10 MHz ≤ F
	V_{dd} = 1.8V	-----	-----	5		2.048 MHz ≤ F < 10 MHz
		-----	-----	4		10 MHz ≤ F
Output Load:		-----	-----	15	pF	CMOS

ABRACON LLC

5101 Hidden Creek Lane Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sale please visit:
www.abracon.com

REVISED: 03.16.2018

ABRACON IS ISO9001-2008 CERTIFIED

SMD CMOS PROGRAMMABLE CRYSTAL OSCILLATOR

AP3S

3.2 x 2.5 x 1.2mm

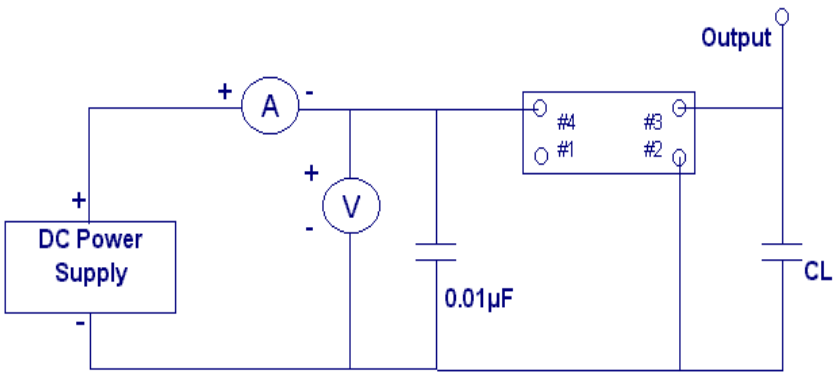
Pb RoHS Compliant

ELECTRICAL SPECIFICATIONS:

Parameters		Minimum	Typical	Maximum	Units	Notes
Output Voltage	V_{OL}	-----	-----	0.33	V	V_{dd} = 3.3V
	V_{OH}	2.97	-----	-----		
	V_{OL}	-----	-----	0.25		V_{dd} = 2.5V
	V_{OH}	2.25	-----	-----		
	V_{OL}	-----	-----	0.18		V_{dd} = 1.8V
	V_{OH}	1.62	-----	-----		
Start-up Time		-----	-----	2.0	ms	
Tri-state function (Stand-by)		"1" (V_{IH} > 0.7*Vdd) or Open: Oscillation "0" (V_{IH} < 0.3*Vdd) : Disable			-----	
Standby current		-----	-----	15	uA	
Period jitter Peak to Peak (Reference only. Please contact Abracon for each frequencies.):		-----	-----	40	ps	Standard frequencies***
		-----	-----	200	ps	Other frequencies Reference only Please contact Abracon
Aging:		-3.0	-----	+3.0	ppm	@+25°C First year

* Inclusive of calibration @25°C, operating temperature range, input voltage variation, load variation, aging, shock, and vibration.
For ±20ppm, inclusive of calibration @25°C, operating temperature range, load variation, shock, and vibration.
** Transition times are measured between 10% and 90% of Vdd with an output load of 15 pF.
*** 4.0, 6.0, 8.0, 12.0, 13.0, 16.0 19.2, 20.0, 24.0, 26.0, 32.0, 38.4, and 40.0MHz
**** Only 40/60% is available for certain frequencies. Please contact Abracon when ordering.

TEST CIRCUIT:



ABRACON LLC

5101 Hidden Creek Lane Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sale please visit:
www.abracon.com

REVISED: 03.16.2018

ABRACON IS ISO9001-2008 CERTIFIED

SMD CMOS PROGRAMMABLE CRYSTAL OSCILLATOR

AP3S

RoHS Compliant

3.2 x 2.5 x 1.2mm

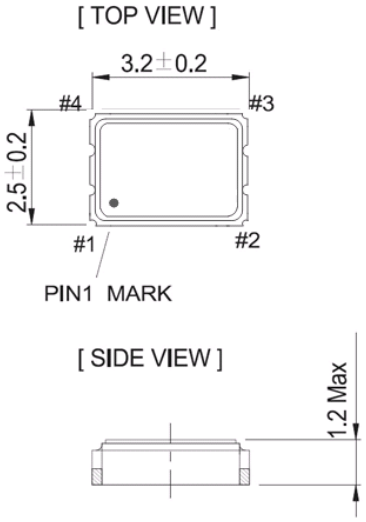
OPTIONS & PART IDENTIFICATION:

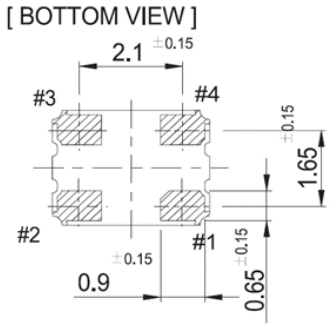
AP3S□ - □□□□□□ MHz - □□ - □

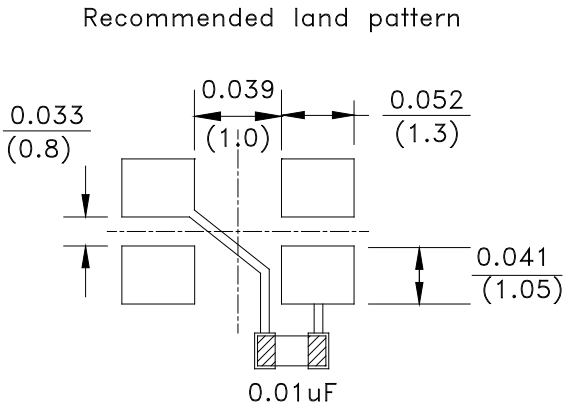
Supply Voltage	Frequency in MHz	Operating Temp.	Overall Freq. Stability	Tri-state pin	Packaging
*Blank: 3.3V	Please specify the frequency in MHz. e.g. 14.31818MHz	I: 0°C ~ +50°C	J(****): ±20ppm	**Blank: OE	Blank: Bulk
1: 2.5V		E: -20°C ~ +70°C	R: ±25ppm	***B: Power Down	T: Tape & Reel (1k/reel)
2: 1.8V		F: -30°C ~ +70°C	K: ±30ppm		T3: Tape & Reel (3k/reel)
		N: -30°C ~ +85°C	C: ±50ppm		
		L: -40°C ~ +85°C			

* 3.3V is standard
** OE: Tri-state the output buffer
*** PDB: Tri-state the output buffer and shut off the oscillator, <10µA when PDB enabled.
**** Available for -10 to +60°C, I, or E temp options only. Contact ABRACON for EJ or LR options. (Availability limited)

OUTLINE DRAWING:







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

***Note 2**
Recommend using an approximately 0.01uF bypass capacitor between PIN 2 and 4.

UNIT : mm

***Note 1**
- Do not leave Pin 1 (Tri-State) floating
- If Pin 1 (Tri-State) is not utilized for toggling, it must be tied to Vdd (logic 1)

Dimensions: inches (mm)

ABRACON LLC

5101 Hidden Creek Lane Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sale please visit:
www.abracon.com

REVISED: 03.16.2018

ABRACON IS ISO9001-2008 CERTIFIED

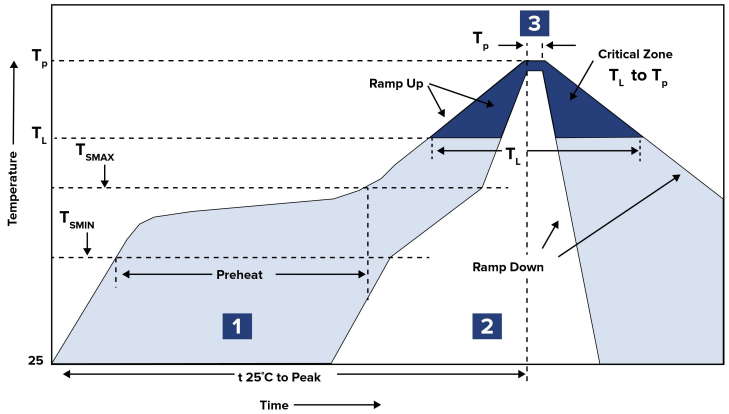
SMD CMOS PROGRAMMABLE CRYSTAL OSCILLATOR

AP3S

3.2 x 2.5 x 1.2mm

Pb RoHS Compliant

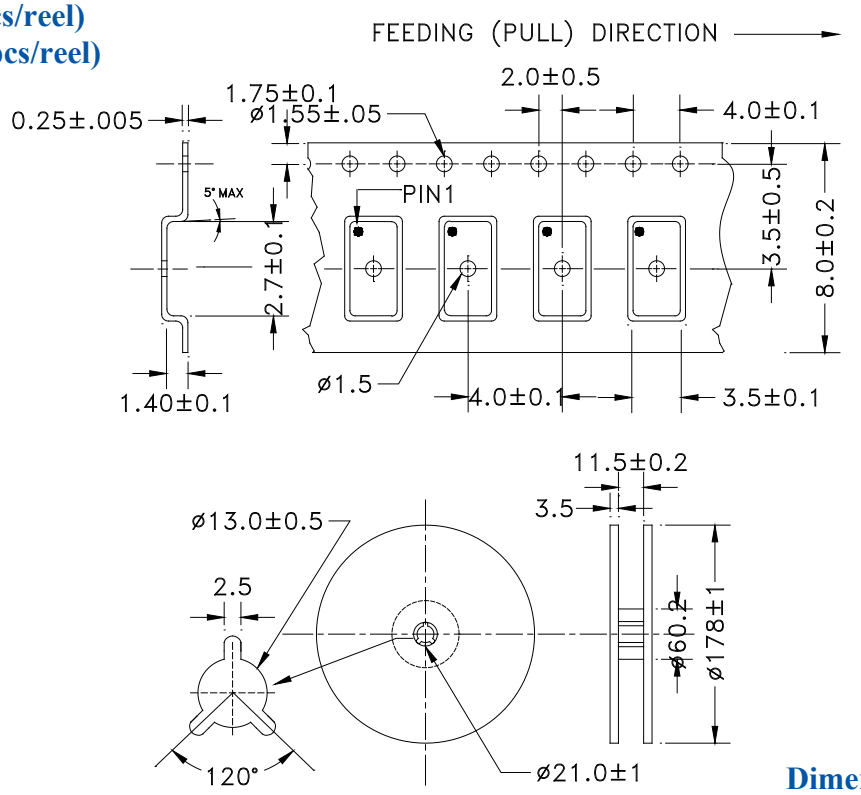
REFLOW PROFILE



Zone	Description	Temperature	Times
1	Preheat	T_{SMIN} ~ T_{SMAX} 150°C ~ 180°C	60 ~ 120 sec.
2	Reflow	T_L 230°C	30 ~ 40 sec.
3	Peak Heat	T_P 260±5°C	10 sec. MAX

TAPE & REEL:

T= Tape and reel (1,000pcs/reel)
T3= Tape and reel (3,000pcs/reel)



Dimensions: mm

ABRACON LLC

5101 Hidden Creek Lane Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sale please visit:
www.abracon.com

REVISED: 03.16.2018

ABRACON IS ISO9001-2008 CERTIFIED