ABRACON

2021

Timing Catalog

Ecliptek FOX ILSI MMD OSCILENT

ABRACON

Frequency Control and Timing Devices

With service, quality and technical expertise at Abracon's core, our brands enable innovative, connected IoT solutions. Abracon powers the Ecliptek, Fox, ILSI, MMD and Oscilent brands, providing the latest technical design support and global supply chain flexibility to solve customers' unique challenges of today. Our frequency control and timing devices include crystals and oscillators designed to meet automotive, IoT and precision timing design requirements. The collection includes compact size, low phase noise, and wide operating temperature range solutions.

PRODUCT TYPE BY BRAND

	QUARTZ CRYSTALS	CRYSTAL OSCILLATORS	MEMS OSCILLATORS	OCXO	TCXO	VCXO	REAL TIME CLOCKS (RTC)	PROGRAMMABLE XO/VCXO/ TCXO/VCTCXO	RESONATORS
ABRACON	•	•	•	•	•	•	•	•	•
ECLIPTEK	•	•	•					•	
FOX	•	•			•	•			
ILSI	•	•	•		•				
MMD	•	•							
OSCILENT	•	•							•

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TABLE OF CONTENTS

About Abracon

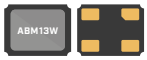
Abracon is an industry leader in passive components, providing frequency control & timing devices, RF & antenna products, and inductor & connectivity solutions. With service and quality at the company's core, Abracon enables innovative IoT solutions. Abracon powers the Ecliptek, Fox, ILSI, MMD and Oscilent brands, delivering the latest technical design support and global supply chain flexibility to solve customers' unique challenges.

ABRACON

Abracon W Series Crystals

What makes the IoT tick? Abracon's W Series crystals offer low ESR specifications in combination with low CL options to address energy-saving MCU and portable communication chipset market trends. In the race to decrease power consumption, many on-chip oscillators are starved of output drive and often cannot sustain oscillation using standard quartz crystals with higher ESR and CL specifications. Abracon's W Series of quartz crystals engineered for micro power applications overcome these challenges.

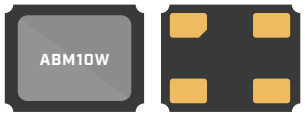
ABMxW Series MHz Crystals



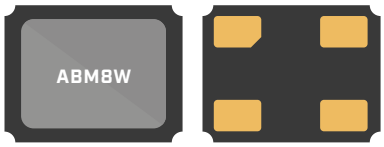
ABM13W

ABM12W

ABM11W



ABM10W



ABM8W

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	CL, PLATING LOAD (pF)	ESR MAX* (Ω)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	TOLERANCE OPTIONS (±ppm)	STABILITY OPTIONS (±ppm)	C0, SHUNT MAX (pF)
		L	W							
Abracon	ABM13W	1.2	1.0	32 to 80	5 to 8	50-100				1.0
Abracon	ABM12W	1.6	1.2	24 to 52		50-150				
Abracon	ABM11W	2.0	1.6	16 to 50	4 to 8	60-200	-40°C to +125°C	10/15/20	10/15/20	2.0
Abracon	ABM10W	2.5	2.0	16 to 50		40-100				
Abracon	ABM8W	3.2	2.5	10 to 54		30-200				

*ESR Maximum specifications dependent upon carrrier frequency and load (CL)

ABS0xW Series 32.768kHz Crystals

ABS04W

ABS05W

ABS06W

ABS07W

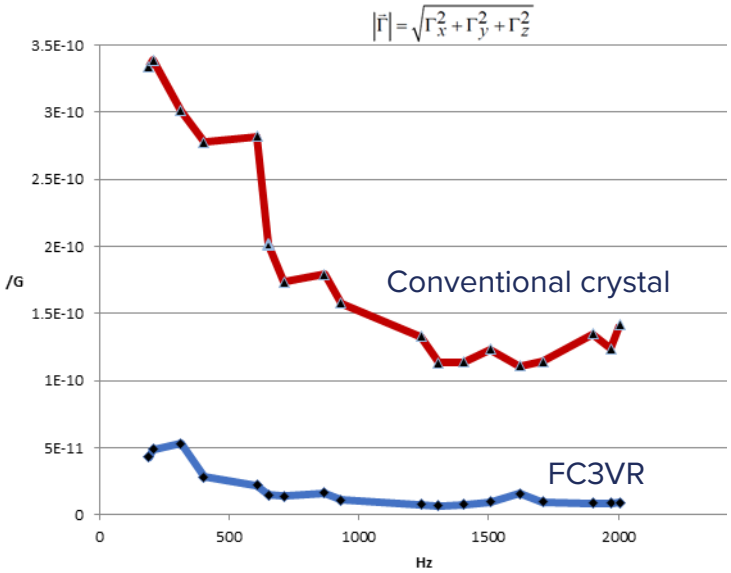
BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (kHz)	CL, PLATING LOAD (pF)	ESR MAX (kΩ)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	TOLERANCE OPTIONS (±ppm)	C0, SHUNT MAX (pF)
		L	W						
Abracon	ABS04W	1.2	1.0	32.768	4 to 12.5	130	-40°C to +85°C	20	2.0
Abracon	ABS05W	1.6	1.0		4	85	-40°C to +125°C	20	2.0
Abracon	ABS06W	2.0	1.2		3	120	-40°C to +125°C	20	2.0
Abracon	ABS07W	3.2	1.5		3	70	-40°C to +125°C	10/20	1.3

FOX LEO
FC3VR VIBRATION RESISTANT CRYSTAL

OVERVIEW

Fox, powered by Abracon, introduced the FC3VR to improve system performance when exposed to modern world environmental conditions. The state-of-the-art resonator incorporates patented technology that allows the FC3VR to hold superior frequency stability when compared to conventional crystals. The low G-sensitivity makes it ideal for wireless communication applications operating in active surroundings in which signal lock and low data loss are of utmost importance.

Acceleration Sensitivity Comparison (Under Vibration)



FEATURES

- Low G-sensitivity
- Frequency tolerances down to ±10 ppm
- Patented technology
- Industry standard package size of 3.2 x 2.5mm
- Frequency range from 33 - 52 MHz

APPLICATIONS

5G

Industrial IoT

Mil/Aero

Standard SMD MHz Quartz Crystals

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	CL, PLATING LOAD (pF)	ESR MAX* (Ω)	TOLERANCE OPTIONS (±ppm)	STABILITY OPTIONS (± ppm)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W						
Abracon	ABM13	1.2	1.0	36 to 80	5 to 7	200	10/20/30	10/15/20	-40°C to +85°C
Ecliptek	EA1012	1.2	1.0	36 to 80	5 to 7	200	10/20/30	10/15/20	-40°C to +85°C
ILSI	ILCX21	1.2	1.0	36 to 80	6	150	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +85°C
Fox	FCABS	1.2	1.0	32 to 80	6 to 12	60	10/15/20/25	10/15/20/25	-40°C to +85°C
Abracon	ABM12	1.6	1.2	24 to 80	5 to 8	200	15/20/30	15/20/30	-40°C to +85°C
Abracon	ABM12-118	1.6	1.2	27.12	8	80	10	30	-40°C to +85°C
Abracon	ABM12-115	1.6	1.2	26	8	100	10	10	-20°C to +70°C
Ecliptek	EA1216	1.6	1.2	24 to 80	5 to 8	200	15/20/30	15/20/30	-40°C to +85°C
ILSI	ILCX20	1.6	1.2	24 to 60	18	150	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +85°C
Fox	FC0BS	1.6	1.2	23.9 to 80	4 to 20	100	10/15/20/25/30/50	10/15/20/25/30/50/100	-55°C to +125°C
Abracon	ABM11	2.0	1.6	16 to 50	6 to 20	120	10/15/20	10/15/20	-40°C to +85°C
Abracon	ABM11-143	2.0	1.6	27.12	8	40	10	30	-40°C to +85°C
Abracon	ABM11-140	2.0	1.6	26	8	40	10	10	-20°C to +70°C
Ecliptek	EA1620	2.0	1.6	16 to 54	8 to 32	120	10/15/30/50	10/15/20/30/50/100	-40°C to +85°C
ILSI	ILCX19	2.0	1.6	16 to 72	8 to 32	150	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +85°C
Fox	FC1BS	2.0	1.6	16 to 200	7 to 20	60	10/15/20/25/30/50	10/15/20/25/30/50/100	-55°C to +125°C
Abracon	ABM10	2.5	2.0	12 to 55	7 to 20	100	10/15/25	10/15/20	-40°C to +125°C
Ecliptek	EA2025	2.5	2.0	12 to 54	8 to 30	80	10/15/30/50	10/15/20/30/50/100	-40°C to +85°C
ILSI	ILCX18	2.5	2.0	12 to 60	8 to 32	80	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +105°C
Fox	FC2BS	2.5	2.0	12 to 200	8 to 20	40	10/15/20/25/30/50	10/15/20/25/30/50/100	-55°C to +125°C
MMD	X	3.2	2.5	16 to 60	8 to 25	80	10/15/20/25/30/50	15/20/25/30/50/100	-40°C to +105°C
Abracon	ABM8	3.2	2.5	10 to 125	6 to 20	50	10/15/30/50	10/15/20	-40°C to +125°C
Abracon	ABM8G	3.2	2.5	12 to 50	7 to 20	80	10/15/20	10/15/20	-40°C to +85°C
Ecliptek	EA2532	3.2	2.5	10 to 54	8 to 30	60	10/15/30/50	10/15/20/30/50/100	-40°C to +125°C
ILSI	ILCX13	3.2	2.5	10 to 150	8 to 32	60	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +105°C
MMD	T	3.2	2.5	12 to 54	18 to 50	60	10/15/20/25/30/50	15/20/25/30/50/100	-40°C to +105°C
Fox	FC3BS	3.2	2.5	8 to 200	7 to 20	30	10/15/20/25/30/50	5/10/15/20/25/30/50/100	-55°C to +125°C
Fox	FC3VR	3.2	2.5	33 to 52	7 to 20	60	10/15/20/25/30/50	20/25/30/50/100	-40°C to +125°C
Abracon	ABM3	5.0	3.2	8 to 80	7 to 32	30	15/20/25	10/15/20	-40°C to +125°C
Abracon	ABM3B	5.0	3.2	8 to 125	6 to 32	50	10/20/20	10/15/20	-55°C to +125°C
Abracon	ABM3C	5.0	3.2	10 to 50	8 to 33	50	20/25/30	30/35/80	-40°C to +85°C
Ecliptek	EA3250	5.0	3.2	8 to 48	8 to 32	50	10/15/30/50	15/20/30/50/100	-40°C to +85°C
ILSI	ILCX03A	5.0	3.2	7.6 to 54	8 to 32	40	15/20/25/30/50	15/20/25/30/50	-40°C to +85°C
ILSI	ILCX07A	5.0	3.2	8 to 150	8 to 32	40	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +105°C
ILSI	ILCX07B	5.0	3.2	8 to 150	8 to 32	40	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +105°C
Fox	FC5BS	5.0	3.2	8 to 200	10 to 20	20	10/15/20/25/30/50	5/10/15/20/25/30/50/100	-55°C to +125°C
Abracon	ABM7	6.0	3.5	8 to 50	8 to 33	50	10/15/20	10/15/20	-55°C to +125°C
Abracon	ABMM2	6.0	3.5	7.3728 to 110	8 to 33	50	10/15	10/20/30	-40°C to +125°C
Ecliptek	EA3560	6.0	3.5	10 to 48	10 to 50	50	10/15/30/50	15/20/30/50/100	-40°C to +85°C
ILSI	ILCX08	6.0	3.5	8 to 100	18	60	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +85°C
Fox	FC6AS	6.0	3.5	8 to 67	10 to 20	40	20/25/30/50	20/25/30/50/100	-40°C to +85°C
Fox	FC6BS	6.0	3.5	7.3728 to 133	10 to 20	20	10/15/20/25/30/50	5/10/15/20/25/30/50/100	-55°C to +125°C
Abracon	ABLS7M	7.0	4.1	12 to 40	8 to 33	40	10/15/20	10/15/20	-40°C to +125°C
Abracon	ABLS7M2	7.0	4.1	12 to 40	8 to 33	40	10/15/20	10/15/20	-40°C to +125°C

*Referenced @ F=20.000MHz over widest available Operating Temperature Range

Standard SMD MHz Quartz Crystals

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	CL, PLATING LOAD (pF)	ESR MAX* (Ω)	TOLERANCE OPTIONS (±ppm)	STABILITY OPTIONS (± ppm)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W						
Abracon	ABMM	7.0	5.0	6 to 125	8 to 33	50	10/15/20	10/15/20	-40°C to +85°C
Abracon	ABMM1	7.0	5.0	6 to 125	8 to 33	50	10/15/20	10/15/20	-40°C to +125°C
Ecliptek	EA5070	7.0	5.0	6 to 66	12 to 50	30	10/15/30/50	15/20/30/50/100	-40°C to +85°C
ILSI	ILCX04	7.0	5.0	6 to 150	18	30	10/15/20/25/30/50	10/15/20/25/30/50	-40°C to +105°C
Fox	FC7AS	7.0	5.0	6 to 160	10 to 20	40	20/25/30/50	15/20/25/30/50/100	-40°C to +85°C
Fox	FC7BS	7.0	5.0	6 to 312	10 to 20	20	10/15/20/25/30/50	5/10/15/20/25/30/50/100	-55°C to +125°C
Abracon	ABM2	8.0	4.5	8 to 100	8 to 33	50	10/15/20	10/15/20	-40°C to +125°C
Fox	FC8AQ	10.0	4.5	3.2 to 7	10 to 20	150	20/25/30/50	20/25/30/50/100	-40°C to +85°C
Abracon	ABMC2	11.0	4.7	3.579545 to 70	7 to 20	40	10/15/20	10/15/20	-40°C to +85°C
Abracon	ABLS	11.4	4.7	3.579545 to 75	8 to 33	40	5/10/15	10/15/20	-40°C to +125°C
Abracon	ABLS2	11.4	4.7	3.579545 to 70	10 to 33	40	5/10/15	10/15/20	-40°C to +125°C
Abracon	ABLS3	11.4	4.7	6 to 70	10 to 33	40	5/10/15	10/15/20	-40°C to +125°C
Ecliptek	E1S	11.4	4.7	3.579545 to 50	10 to 50	50	10/15/30/50	15/20/30/50/100	-55°C to +125°C
ILSI	HC49USM	11.4	4.7	3.2 to 100	18 to 33	30	10/15/20/25/30/50	15/20/25/30/50/100	-40°C to +125°C
MMD	F	11.4	4.7	3.2 to 80	18 to 33	30	10/15/20/25/30/50	15/20/25/30/50/100	-40°C to +105°C
Fox	FC4SD	11.4	4.7	3.2 to 80	10 to 50	30	10/15/20/25/30/50	10/15/20/25/30/50/100	-55°C to +125°C
Fox	FC9SD	11.4	4.7	4 to 80	10 to 50	30	10/15/20/25/30/50	10/15/20/25/30/50/100	-40°C to +85°C

*Referenced @ F=20.000MHz over widest available Operating Temperature Range

Standard SMD 32.768kHz Tuning Fork Quartz Crystals

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (kHz)	CL, PLATING LOAD (pF)	ESR MAX* (kΩ)	TOLERANCE OPTIONS (± ppm)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W					
Fox	FK121	1.2	1.0		7 to 12.5	90	20	-40°C to +105°C
Fox	FK124	1.2	1.0		4 to 12.5	90	20	-40°C to +85°C
Abracon	ABS05	1.6	1.0		6 to 12.5	90	10/20/30	-40°C to +85°C
Ecliptek	E4WS	1.6	1.0		9 to 12.5	90	20	-40°C to +85°C
ILSI	IL3W	1.6	1.0		7 to 12.5	90	20	-40°C to +85°C
Fox	FK161	1.6	1.0		6 to 12.5	90	20	-40°C to +85°C
Abracon	ABS06	2.0	1.2		4 to 12.5	110	10/20/30	-55°C to +125°C
Abracon	ABS06-107	2.0	1.2		4	80	20	-40°C to +85°C
Ecliptek	E3WS	2.0	1.2	32.768	4 to 12.5	110	10/20/30	-55°C to +125°C
ILSI	IL3T	2.0	1.2		4 to 12.5	90	20	-40°C to +85°C
Fox	FK122	2.0	1.2		4 to 12.5	70	10/20	-40°C to +85°C
Fox	FK125	2.0	1.2		4 to 12.5	75	20	-40°C to +85°C
Abracon	ABS07	3.2	1.5		4 to 12.5	70	10/20/30	-55°C to +125°C
Abracon	ABS07-LR	3.2	1.5		6	50	10/20	-40°C to +85°C
Abracon	ABS07L	3.2	1.5		7 to 12.5	80	20/30	-40°C to +85°C
Abracon	ABS07-120	3.2	1.5		6	60	20	-40°C to +85°C
Ecliptek	E8WS	3.2	1.5		6 to 12.5	70	10/20	-40°C to +85°C

*Over widest available Operating Temperature Range

Standard SMD 32.768kHz Tuning Fork Quartz Crystals

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (kHz)	CL, PLATING LOAD (pF)	ESR MAX* (kΩ)	TOLERANCE OPTIONS (± ppm)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W					
ILSI	IL3X2	3.2	1.5		6 to 12.5	70	10/20	-40°C to +85°C
MMD	WC315	3.2	1.5		6 to 12.5	70	10/20	-40°C to +85°C
Fox	FK135	3.2	1.5		6 to 12.5	70	5/10/20	-40°C to +85°C
Fox	FK13L	3.2	1.5		6 to 12.5	50	10/20	-40°C to +85°C
ILSI	IL3Y	4.1	1.5		6 to 12.5	70	20	-40°C to +85°C
MMD	WC415	4.1	1.5		6 to 12.5	70	10/20/30	-40°C to +85°C
Fox	FK145	4.1	1.5		6 to 12.5	70	10/20	-40°C to +85°C
Fox	FK255	4.9	1.8		7 to 12.5	70	10/20	-40°C to +85°C
Abracon	ABS13	6.9	1.4	32.768	7 to 12.5	65	20/30	-40°C to +85°C
ILSI	IL3R	6.9	1.4		6 to 12.5	65	20	-40°C to +85°C
MMD	WC146SM	6.9	1.4		7 to 12.5	65	20/30/50	-40°C to +85°C
Fox	FKFSX	7.0	1.5		7 to 12.5	65	20	-40°C to +85°C
Abracon	ABS25	8.0	3.8		6 to 12.5	50	10/15/20	-40°C to +85°C
Ecliptek	E1WS	8.0	3.8		6 to 12.5	50	10/15/20	-40°C to +85°C
ILSI	IL3M	8.0	3.8		6 to 12.5	50	20	-40°C to +85°C
MMD	WCSMC	8.0	3.8		6 to 12.5	50	10/20	-40°C to +85°C
Fox	FKFSR	8.7	3.7		6 to 12.5	50	20	-40°C to +85°C

*Over widest available Operating Temperature Range

Precision Timing Oscillator Solutions (XO/VCXO/TCXO/VCTCXO/OCXO/Stratum III)

Low RMS Phase Jitter Clock Oscillator Solutions and Precision TCXO/VCTCXO/OCXO/Stratum III options available for communications, RF, radar, 5G, instrumentation and data center/server applications.

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W				
Abracon	AK2	2.5	2.0	100 to 200	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL	-40°C to +85°C
Abracon	ASG2-LJ	2.5	2.0	10 to 1500	2.5, 3.3	CMOS, LVPECL, LVDS	-40°C to +85°C
Abracon	AX3	3.2	2.5	100 to 212.5	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL	-40°C to +85°C
Ecliptek	EQRD32	3.2	2.5	20 to 200	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQRD33	3.2	2.5	20 to 200	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQRE32	3.2	2.5	20 to 200	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRE33	3.2	2.5	20 to 200	3.3	LVDS	-40°C to +85°C
Ecliptek	EQRG32	3.2	2.5	20 to 200	2.5	HCSL	-40°C to +85°C
Ecliptek	EQRG33	3.2	2.5	20 to 200	3.3	HCSL	-40°C to +85°C
Abracon	AK5	5.0	3.2	100 to 200	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL	-40°C to +85°C
Abracon	AX5	5.0	3.2	50 to 2100	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL, CML	-40°C to +85°C
Abracon	ASFLMX	5.0	3.2	25 to 860	2.375 ~ 3.63	CMOS, LVPECL, LVDS, HCSL	-40°C to +85°C
Ecliptek	EQRD22	5.0	3.2	20 to 200	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQRD23	5.0	3.2	20 to 200	3.3	LVPECL	-40°C to +85°C

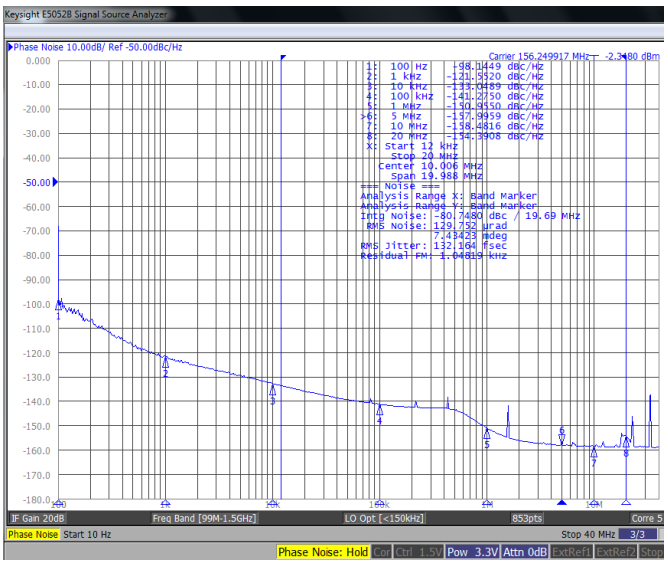
ABRACON CLEARCLOCK

AX5 AND AX7 SERIES CRYSTAL OSCILLATORS

PHASE LOCKED LOOP BASED XO

Based on sophisticated PLL technology, the AX5 and AX7 devices yield superior rms jitter performance, typically better than 150fs, at any carrier frequency from 50MHz to 2,100MHz. These PLL-based solutions offer an industry-leading upper frequency limit, suited for applications that require greater than 200MHz clocking reference. These programmable XOs come in miniature package sizes.

ClearClock AX5 | PLL | 156.25MHz | LVPECL | 3.3V | 132fsec



FEATURES

- Wide frequency range from 50MHz to 2,100MHz
- Programmable oscillator offers fast lead times for samples
- RMS jitter of 119fs typical (F=156.25MHz)
- Lowest power consumption in its class: 80mA max I_{dd} (LVDS)
- Supports LVPECL, LVDS, HCSL and CML output logic types
- Package sizes as small as 5.0 x 3.2 mm
- OE Pin 1 and 2 and Active High and Low Logic options available
- Superior all-inclusive frequency accuracy over 20-year product life

APPLICATIONS

SONET/SDH

Test and Measurement

RF Systems

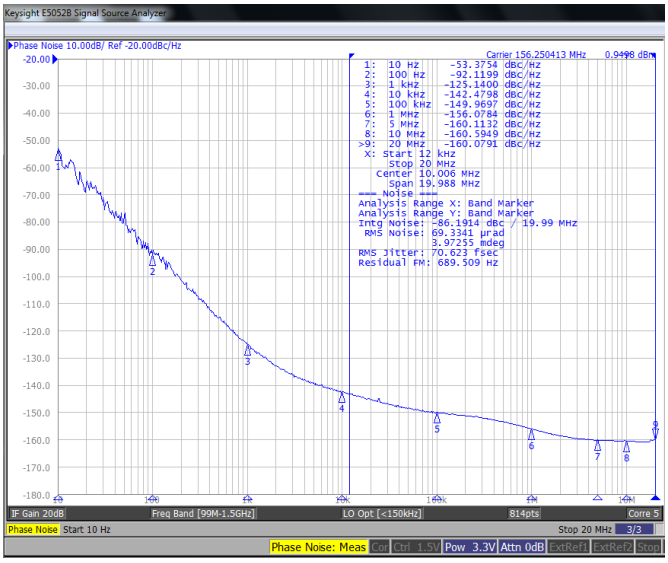
ABRACON CLEARCLOCK

AK2, AX3, AK5 AND AK7 SERIES CRYSTAL OSCILLATORS

THIRD OVERTONE XO

Abracon's third overtone ClearClock solutions deliver industry-leading energy efficiency for low-noise, differential crystal oscillators. The AK2, AX3, AK5 and AK7 series oscillators' simplified architecture avoids PLL-based multiplication, thereby lowering overall power consumption while maintaining exceptional rms jitter performance. These XOs come in compact package sizes ideal for space-constrained designs, such as optical transceivers.

ClearClock AK5 | Third Overtone | 156.25MHz | LVPECL | 3.3V | 70fsec



FEATURES

- Frequency range from 100MHz to 220MHz
- RMS jitter of 75fs typical (F=156.25MHz)
- Low power consumption 27mA max Idd (LVDS)
- Supports LVPECL, LVDS and HCSL output logic types
- Small package sizes as low as 2.5 x 2.0 mm
- OE Pin 1 and 2, Active High option available
- Superior all-inclusive frequency accuracy over 20-year product life

APPLICATIONS

Optical Transceivers

Networking and Communications

Fibre Channel

Precision Timing Oscillator Solutions (XO/VCXO/TCXO/VCTCXO/OCXO/Stratum III)

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W				
Abracon	AK2	2.5	2.0	100 to 200	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL	-40°C to +85°C
Abracon	ASG2-LJ	2.5	2.0	10 to 1500	2.5, 3.3	CMOS, LVPECL, LVDS	-40°C to +85°C
Abracon	AX3	3.2	2.5	100 to 212.5	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL	-40°C to +85°C
Ecliptek	EQRD32	3.2	2.5	20 to 200	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQRD33	3.2	2.5	20 to 200	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQRE32	3.2	2.5	20 to 200	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRE33	3.2	2.5	20 to 200	3.3	LVDS	-40°C to +85°C
Ecliptek	EQRG32	3.2	2.5	20 to 200	2.5	HCSL	-40°C to +85°C
Ecliptek	EQRG33	3.2	2.5	20 to 200	3.3	HCSL	-40°C to +85°C
Fox	FB3HD	3.2	2.5	32.768 kHz	2.5, 3, 3.3	CMOS	-40°C to +85°C
Fox	FO3PS	3.2	2.5	13.5 to 250	2.5, 3.3	LVPECL	-40°C to +85°C
Fox	FO3SL	3.2	2.5	13.5 to 160	3.3	HCSL	-40°C to +85°C
Fox	FO3LS	3.2	2.5	13.5 to 250	2.5, 3.3	LVDS	-40°C to +85°C
Abracon	AK5	5.0	3.2	100 to 200	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL	-40°C to +85°C
Abracon	AX5	5.0	3.2	50 to 2100	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL, CML	-40°C to +85°C
Abracon	ASFLMX	5.0	3.2	25 to 860	2.375 ~ 3.63	CMOS, LVPECL, LVDS, HCSL	-40°C to +85°C
Ecliptek	EQRD22	5.0	3.2	20 to 200	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQRD23	5.0	3.2	20 to 200	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQRE22	5.0	3.2	20 to 200	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRE23	5.0	3.2	20 to 200	3.3	LVDS	-40°C to +85°C
Ecliptek	EQRG22	5.0	3.2	20 to 200	2.5	HCSL	-40°C to +85°C
Ecliptek	EQRG23	5.0	3.2	20 to 200	3.3	HCSL	-40°C to +85°C
Fox	FO5PS	5.0	3.2	13.5 to 250	2.5, 3.3	LVPECL	-40°C to +85°C
Fox	FO5PU	5.0	3.2	50 to 320	2.5, 3.3	LVPECL	-40°C to +85°C
Fox	FO5LS	5.0	3.2	13.5 to 250	2.5, 3.3	LVDS	-40°C to +85°C
Fox	FO5SL	5.0	3.2	13.5 to 160	3.3	HCSL	-40°C to +85°C
Abracon	AK7	7.0	5.0	100 to 220	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL	-40°C to +85°C
Abracon	AX7	7.0	5.0	50 to 2100	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL, CML	-40°C to +85°C
Abracon	ASG-ULJ	7.0	5.0	1 to 705.8	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C
Abracon	ABNM	7.0	5.0	1 to 160	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C
Abracon	ABFM	7.0	5.0	30 to 280	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C
Abracon	ASVMX	7.0	5.0	25 to 860	2.375 ~ 3.63	CMOS, LVPECL, LVDS, HCSL	-40°C to +85°C
Ecliptek	EQRD12	7.0	5.0	10 to 200	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQRD13	7.0	5.0	10 to 200	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQRE12	7.0	5.0	10 to 200	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRE13	7.0	5.0	10 to 200	3.3	LVDS	-40°C to +85°C
Ecliptek	EQRG12	7.0	5.0	10 to 200	2.5	HCSL	-40°C to +85°C
Ecliptek	EQRG13	7.0	5.0	10 to 200	3.3	HCSL	-40°C to +85°C
Fox	FO7PS	7.0	5.0	40 to 325	2.5, 3.3	LVPECL	-40°C to +85°C
Fox	FO7PD	7.0	5.0	40 to 325	2.5, 3.3	LVPECL	-40°C to +85°C
Fox	FO7PU	7.0	5.0	70 to 170	2.5, 3.3	LVPECL	-40°C to +85°C
Fox	FO7LS	7.0	5.0	25 to 400	2.5, 3.3	LVDS	-40°C to +85°C
Fox	FO7LD	7.0	5.0	25 to 400	2.5, 3.3	LVDS	-40°C to +85°C
Fox	FO7SL	7.0	5.0	15 to 160	2.5, 3.3	HCSL	-40°C to +85°C
Abracon	ABLJO	14.3	8.7	80 to 200	3.3	CMOS	-40°C to +85°C
Abracon	ABLNO	14.3	8.7	50 to 156.25	3.3	CMOS	-40°C to +85°C

Precision Timing Oscillator Solutions (XO/VCXO/TCXO/VCTCXO/OCXO/Stratum III)

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W				
Fox	FY3H	3.2	2.5	1.25 to 125	3.3	CMOS	-40°C to +85°C
Fox	FY5C	5.0	3.2	1 to 125	3.3	CMOS	-40°C to +85°C
Fox	FY7H	7.0	5.0	1 to 96	3.3, 5	CMOS	-40°C to +85°C
Abracon	AS(V)TX-13	2.0	1.6	10 to 52	1.8, 2.5, 3.0, 3.3	Clipped Sine	-40°C to +85°C
Abracon	ASTXR-13	2.0	1.6	13 to 52	1.8, 2.5, 3.0	Clipped Sine	-40°C to +85°C
Abracon	AS(V)TX-12	2.5	2.0	10 to 52	1.8, 2.5, 2.8, 3.0, 3.3	Clipped Sine	-40°C to +85°C
Abracon	ASTXR-12	2.5	2.0	10 to 52	1.8, 2.5, 3.0, 3.3	Clipped Sine	-40°C to +85°C
Abracon	ASTX-H12	2.5	2.0	3.2 to 55	2.5, 2.8, 3.3	CMOS	-40°C to +85°C
Abracon	AS(V)TX-11	3.2	2.5	10 to 40	2.5, 2.8, 3.0, 3.3	Clipped Sine	-40°C to +85°C
Abracon	ASTX-H11	3.2	2.5	2.5 to 55	2.5, 2.8, 3.3	CMOS	-40°C to +85°C
ILSI	I537	3.2	2.5	10 to 40	2.5, 2.7, 1.8, 3.0, 3.3	Clipped Sine	-40°C to +85°C
ILSI	I538	3.2	2.5	10 to 40	2.5, 2.7, 1.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	I737	3.2	2.5	10 to 40	2.5, 2.7, 1.8, 3.0, 3.3	Clipped Sine	-40°C to +85°C
ILSI	I738	3.2	2.5	10 to 40	2.5, 2.7, 1.8, 3.0, 3.3	CMOS	-40°C to +85°C
Fox	FT3CN	3.2	2.5	8 to 52	2.5, 2.7, 2.8, 3, 3.3	Clipped Sine	-40°C to +105°C
Fox	FT3CV	3.2	2.5	8 to 52	2.5, 2.7, 2.8, 3, 3.3	Clipped Sine	-40°C to +105°C
Fox	FT3HN	3.2	2.5	8 to 52	3.3	CMOS	-40°C to +105°C
Fox	FT3HV	3.2	2.5	8 to 52	3.3	CMOS	-40°C to +105°C
Abracon	AS(V)TX-09	5.0	3.2	6 to 45	2.5, 3.0, 3.3, 5.0	Clipped Sine	-40°C to +85°C
Abracon	ASGTX5	5.0	3.2	15 to 2100	1.8, 2.5, 3.3	LVPECL, LVDS, HCSL, CML	-40°C to +85°C
Abracon	ASTX-H09	5.0	3.2	5 to 50	3.0, 3.3	CMOS	-40°C to +85°C
ILSI	I533	5.0	3.2	10 to 40	2.5, 2.7, 1.8, 3.0, 3.3	Clipped Sine	-40°C to +85°C
ILSI	I534	5.0	3.2	10 to 40	2.5, 2.7, 1.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	I733	5.0	3.2	10 to 40	2.5, 2.7, 1.8, 3.0, 3.3	Clipped Sine	-40°C to +85°C
ILSI	I734	5.0	3.2	10 to 40	2.5, 2.7, 1.8, 3.0, 3.3	CMOS	-40°C to +85°C
Fox	FT5CN	5.0	3.2	8 to 40	3	Clipped Sine	-40°C to +85°C
Fox	FT5CV	5.0	3.2	8 to 40	3	Clipped Sine	-40°C to +85°C
Fox	FT5HN	5.0	3.2	8 to 40	3.3	CMOS	-40°C to +85°C
Fox	FT5HV	5.0	3.2	8 to 40	3.3	CMOS	-40°C to +85°C
Fox	FT7CV	7.0	5.0	10 to 26	3	Clipped Sine	-40°C to +85°C
Abracon	ASGTX	9.0	7.0	10 to 1500	3.3	CMOS, LVPECL, LVDS	-40°C to +85°C
Fox	FT9CN	11.4	9.6	9.6 to 50	3, 3.3, 5	Clipped Sine	-40°C to +85°C
Fox	FT9CV	11.4	9.6	9.6 to 50	3, 3.3, 5	Clipped Sine	-40°C to +85°C
Fox	FT9HV	11.4	9.6	9.6 to 50	3, 3.3, 5	CMOS	-40°C to +85°C
Abracon	AOCJYR	9.7	7.5	10 to 24.576	3.3	CMOS	-40°C to +85°C
Abracon	AOC1409	14.9	9.7	20	3.3	CMOS	-40°C to +85°C
Abracon	AOC2012	20.3	12.7	10 to 25	3.3	CMOS	-20°C to +70°C
Abracon	AOCJY	25.4	22.1	10 to 100	3.3, 5.0	CMOS, Clipped Sine	-40°C to +75°C
Abracon	AOCJY7TQ	25.5	25.5	100	12	Clipped Sine	-40°C to +85°C
Abracon	AST3TQ53	5.0	3.2	10 to 40	3.3	CMOS	-40°C to +85°C
Fox	FT5SN	5.0	3.2	10 to 52	3.3	CMOS	-40°C to +85°C
Fox	FT5SV	5.0	3.2	10 to 52	3.3	CMOS	-40°C to +85°C
Abracon	AST3TQ	7.0	5.0	10 to 40	3.3	CMOS	-55°C to +95°C
Fox	FT7SN	7.0	5.0	10 to 40	3.3	CMOS	-40°C to +85°C
Fox	FT7SV	7.0	5.0	10 to 40	3.3	CMOS	-40°C to +85°C
Abracon	ABDF(V)TCXO	14.0	9.0	5 to 52	3.3	CMOS	-40°C to 85°C

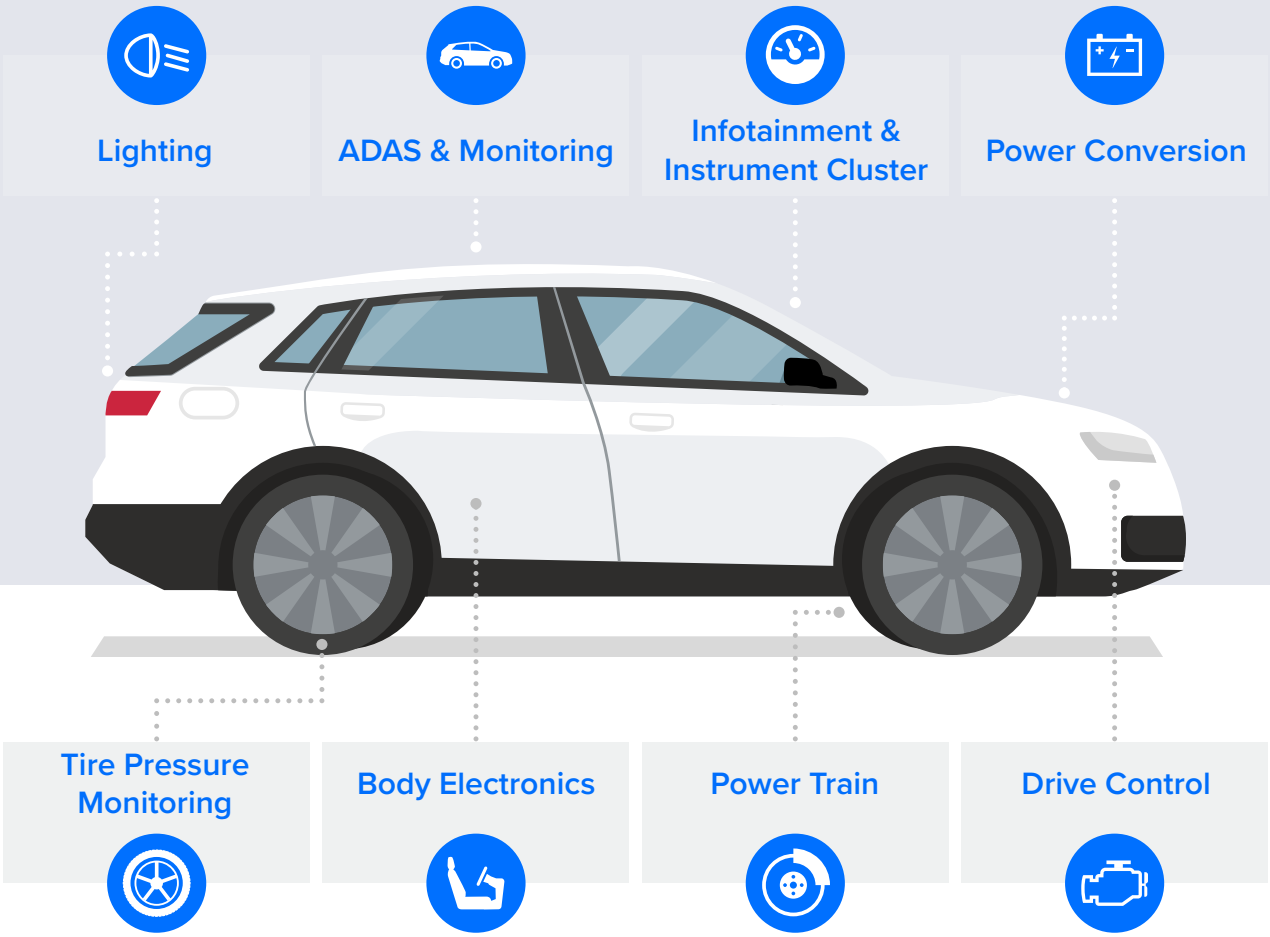
General Purpose MHz Quartz Crystal Oscillators

Fixed frequency quartz crystal oscillators are available with a variety of temperature stability options and single-ended or differential output logic types. V_{DD} operation up to 5V and legacy through-hole package options available. Contact Abracon for additional information.

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	PACKAGE TYPE
		L	W					
Abracon	ASCO	1.6	1.2	7 to 80	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
ILSI	ISM16	1.6	1.2	1 to 80	1.8 to 3.3	CMOS	-40°C to +85°C	SMD
Fox	FO8HS	1.6	1.2	1 to 80	1.8, 2.5, 3.3	CMOS	-40°C to +125°C	SMD
Abracon	ASA	2.0	1.6	1 to 80	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
Abracon	ASADV	2.0	1.6	1.25 to 100	1.6 to 3.6	CMOS	-40°C to +125°C	SMD
ILSI	ISM20	2.0	1.6	1 to 80	1.8 to 3.3	CMOS	-40°C to +85°C	SMD
Fox	FO1HS	2.0	1.6	0.75 to 170	1.8, 2.5, 3.3, 1.6~3.63	CMOS	-40°C to +125°C	SMD
Ecliptek	EB59E2	2.5	2.0	1 to 50	1.62 to 3.63	CMOS	-40°C to +85°C	SMD
Abracon	AP2S	2.5	2.0	2.048 to 200	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
Abracon	ASD	2.5	2.0	0.75 to 60	1.0, 1.8, 2.5, 3.0, 3.3	CMOS	-40°C to +125°C	SMD
Abracon	ASDDV	2.5	2.0	1.0 to 160	1.6 to 3.6	CMOS	-40°C to +125°C	SMD
Ecliptek	EB49E2	2.5	2.0	1 to 50	1.62 to 3.63	CMOS	-40°C to +85°C	SMD
Ecliptek	EC59	2.5	2.0	1 to 50	1.8	CMOS	-40°C to +85°C	SMD
Ecliptek	EC57	2.5	2.0	1 to 50	2.5	CMOS	-40°C to +85°C	SMD
Ecliptek	EC56	2.5	2.0	1 to 51	3.3	CMOS	-40°C to +85°C	SMD
ILSI	ISM95	2.5	2.0	1 to 156.250	1.8 to 3.3	CMOS	-40°C to +85°C	SMD
Abracon	ASG2	2.5	2.0	8 to 1500	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	SMD
Fox	FO2HS	2.5	2.0	0.75 to 170	1.8, 2.5, 3.3, 1.6~3.63	CMOS	-40°C to +125°C	SMD
Abracon	AP3S	3.2	2.5	2.048 to 200	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
Abracon	ASE(V)	3.2	2.5	0.625 to 200	1.0, 1.35, 1.8, 2.5, 3.0, 3.3	CMOS	-40°C to +85°C	SMD
Abracon	ASEDV	3.2	2.5	1.0 to 160	1.6 to 3.6	CMOS	-40°C to +125°C	SMD
Ecliptek	EB18E2	3.2	2.5	1 to 50	1.0	CMOS	-40°C to +85°C	SMD
Ecliptek	EB17E2	3.2	2.5	1 to 50	1.2	CMOS	-40°C to +85°C	SMD
Ecliptek	EB16E2	3.2	2.5	1 to 50	1.8	CMOS	-40°C to +85°C	SMD
Ecliptek	EB15E2	3.2	2.5	1 to 50	2.5	CMOS	-40°C to +85°C	SMD
Ecliptek	EB13E2	3.2	2.5	1 to 66.666	3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	EB19E2	3.2	2.5	1 to 50	1.62 to 3.63	CMOS	-40°C to +85°C	SMD
ILSI	ISM97	3.2	2.5	1 to 156.250	1.8 to 3.3	CMOS	-40°C to +85°C	SMD
Fox	FO3HS	3.2	2.5	0.625-170	1.8, 2.5, 3.3, 1.6~3.63	CMOS	-40°C to +125°C	SMD
Ecliptek	EC39	5.0	3.2	1 to 135	1.8	CMOS	-40°C to +85°C	SMD
Ecliptek	E15C5	5.0	3.2	62.5 to 162	2.5	LVPECL	-40°C to +85°C	SMD
Ecliptek	EC37	5.0	3.2	1 to 135	2.5	CMOS	-40°C to +85°C	SMD
Ecliptek	EL15C5	5.0	3.2	80 to 162	2.5	LVDS	-40°C to +85°C	SMD
Ecliptek	EN15C5	5.0	3.2	100 too 125	2.5	HCSL	-40°C to +85°C	SMD
Ecliptek	EV34C4	5.0	3.2	1.544 to 77.760	2.5	CMOS	-40°C to +85°C	SMD
Ecliptek	EV34C8	5.0	3.2	1.544 to 77.760	2.5	CMOS	-40°C to +85°C	SMD
Ecliptek	E13C5	5.0	3.2	62.5 to 162	3.3	LVPECL	-40°C to +85°C	SMD

General Purpose MHz Quartz Crystal Oscillators

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	PACKAGE TYPE
		L	W					
Ecliptek	EB13C5	5.0	3.2	6.144 to 40	3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	EC36	5.0	3.2	1 to 170	3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	EL13C5	5.0	3.2	80 to 162	3.3	LVDS	-40°C to +85°C	SMD
Ecliptek	EN13C5	5.0	3.2	100 too 125	3.3	HCSL	-40°C to +85°C	SMD
Ecliptek	EV32C4	5.0	3.2	1.544 to 77.760	3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	EV32C8	5.0	3.2	1.544 to 77.760	3.3	CMOS	-40°C to +85°C	SMD
Abracon	ASFV	5.0	3.2	1.5 to 50	5	CMOS	-40°C to +85°C	SMD
ILSI	ISM92	5.0	3.2	1.5 to 125	1.8 to 5.0	CMOS	-40°C to +85°C	SMD
Abracon	ASFL(V)	5.0	3.2	0.32 to 133	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
Abracon	AP5S	5.0	3.2	10 to 200	2.5, 3.3	CMOS	-40°C to +85°C	SMD
Fox	FO5HS	5.0	3.2	1 to 170	1.8, 2.5, 3.3, 5.0	CMOS	-40°C to +125°C	SMD
Fox	FO6HS	6.0	3.5	1.544 to 50	3.3	CMOS	-40°C to +125°C	SMD
Abracon	AL(V)D	7.0	5.0	0.75 to 800	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	SMD
Abracon	AP7S	7.0	5.0	10 to 200	2.5, 3.3	CMOS	-40°C to +85°C	SMD
Abracon	ASG	7.0	5.0	10 to 1500	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	SMD
Abracon	ASL(V)	7.0	5.0	1 to 125	5	CMOS	-40°C to +85°C	SMD
Abracon	ASV(V)	7.0	5.0	0.31 to 200	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	E13C7	7.0	5.0	62.5 to 162	3.3	LVPECL	-40°C to +85°C	SMD
Ecliptek	E15C7	7.0	5.0	62.5 to 162	2.5	LVPECL	-40°C to +85°C	SMD
Ecliptek	EB13C3	7.0	5.0	6.144 to 40	3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	EC26	7.0	5.0	1.544 to 200	3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	EC27	7.0	5.0	1.544 to 200	2.5	CMOS	-40°C to +85°C	SMD
Ecliptek	EC29	7.0	5.0	1 to 125	1.8	CMOS	-40°C to +85°C	SMD
Ecliptek	EL13C7	7.0	5.0	62 to 250	3.3	LVDS	-40°C to +85°C	SMD
Ecliptek	EL15C7	7.0	5.0	80 to 250	2.5	LVDS	-40°C to +85°C	SMD
Ecliptek	EN13C7	7.0	5.0	100 to 125	3.3	HCSL	-40°C to +85°C	SMD
Ecliptek	EN15C7	7.0	5.0	100 to 125	2.5	HCSL	-40°C to +85°C	SMD
Ecliptek	EV32C3	7.0	5.0	1.544 to 77.760	3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	EV32C6	7.0	5.0	1.544 to 77.760	3.3	CMOS	-40°C to +85°C	SMD
Ecliptek	EV34C3	7.0	5.0	1.544 to 77.760	2.5	CMOS	-40°C to +85°C	SMD
Ecliptek	EV34C6	7.0	5.0	1.544 to 77.760	2.5	CMOS	-40°C to +85°C	SMD
ILSI	ISM91	7.0	5.0	1 to 170	1.8 to 5.0	CMOS	-40°C to +85°C	SMD
Fox	FO7HS	7.0	5.0	0.012 to 170	1.8, 2.5, 3.3	CMOS	-40°C to +125°C	SMD
Fox	FO7HB	7.0	5.0	0.012 to 170	5	CMOS	-40°C to +125°C	SMD
Fox	FO7HH	7.0	5.0	1 to 125	5	CMOS	-40°C to +125°C	SMD
Abracon	ACH	12.7	12.7	0.32 to 200	5	CMOS	-40°C to +85°C	Thru Hole
Abracon	ACHL(x)	13.2	13.2	0.40 to 160	2.5, 3.3	CMOS	-40°C to +85°C	Thru Hole
Abracon	ACO(x)	20.2	12.6	0.32 to 200	2.5, 3.3, 5.0	CMOS	-40°C to +85°C	Thru Hole



Automotive Grade Quartz Crystals and Oscillators

Applications requiring the highest levels of quality and reliability benefit from our certified IATF 16949 production lines and AEC-Q200 qualified crystals and oscillators. PPAP available upon request.

BRAND	SERIES	TYPE	PACKAGE SIZE (mm)		FREQUENCY	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
			L	W		
AUTOMOTIVE GRADE QUARTZ CRYSTALS						
Abracon	ABM12AIG	XTAL	1.6	1.2	24 to 60 MHz	-40°C to +150°C
Ecliptek	EB1216	XTAL	1.6	1.2	24 to 50 MHz	-40°C to +125°C
ILSI	IXA10	XTAL	1.6	1.2	24 to 50 MHz	-40°C to +125°C
Fox	FK12A	XTAL	2.0	1.2	32.768 kHz	-40°C to +125°C
Abracon	ABM11AIG	XTAL	2.0	1.6	16 to 60 MHz	-40°C to +150°C
Ecliptek	EB1620	XTAL	2.0	1.6	16 to 60 MHz	-40°C to +125°C
ILSI	IXA12	XTAL	2.0	1.6	16 to 24 MHz	-40°C to +125°C
Fox	FC1BA	XTAL	2.0	1.6	16 to 54 MHz	-55°C to +125°C
Abracon	ABM10AIG	XTAL	2.5	2.0	12 to 62.5 MHz	-40°C to +150°C
Ecliptek	EB2025	XTAL	2.5	2.0	12 to 54 MHz	-40°C to +125°C
ILSI	IXA14	XTAL	2.5	2.0	12 to 54 MHz	-40°C to +125°C
Fox	FC2BA	XTAL	2.5	2.0	12 to 54 MHz	-55°C to +125°C
Abracon	ABS07AIG	XTAL	3.2	1.5	32.768 kHz	-40°C to +125°C
Ecliptek	EB8WS	XTAL	3.2	1.5	32.768 kHz	-40°C to +125°C
ILSI	IXA24	XTAL	3.2	1.5	32.768 kHz	-40°C to +125°C

Automotive Grade Quartz Crystals and Oscillators

BRAND	SERIES	TYPE	PACKAGE SIZE (mm)		FREQUENCY	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
			L	W		
AUTOMOTIVE GRADE QUARTZ CRYSTALS						
Abracon	ABM8AIG	XTAL	3.2	2.5	8 to 54 MHz	-40°C to +150°C
Abracon	ABM8GAIG	XTAL	3.2	2.5	10 to 54 MHz	-40°C to +125°C
Ecliptek	EB2532	XTAL	3.2	2.5	8 to 66 MHz	-40°C to +125°C
ILSI	IXA16	XTAL	3.2	2.5	8 to 66 MHz	-40°C to +125°C
Fox	FK13A	XTAL	3.2	1.5	32.768 kHz	-40°C to +125°C
Fox	FC3BA	XTAL	3.2	2.5	8 to 150 MHz	-55°C to +125°C
Fox	FC3VA	XTAL	3.2	2.5	33 to 52 MHz	-40°C to +125°C
Abracon	ABM3AIG	XTAL	5.0	3.2	8 to 50 MHz	-40°C to +150°C
Abracon	ABM3BAIG	XTAL	5.0	3.2	8 to 54 MHz	-40°C to +150°C
Abracon	ABM3CAIG	XTAL	5.0	3.2	8 to 20 MHz	-40°C to +150°C
Ecliptek	EB3250A	XTAL	5.0	3.2	7.6 to 54 MHz	-40°C to +125°C
Ecliptek	EB3250	XTAL	5.0	3.2	7.6 to 54 MHz	-40°C to +125°C
ILSI	IXA18	XTAL	5.0	3.2	7.6 to 54 MHz	-40°C to +125°C
ILSI	IXA20	XTAL	5.0	3.2	7.6 to 54 MHz	-40°C to +125°C
Fox	FC5BA	XTAL	5.0	3.2	8 to 133 MHz	-55°C to +125°C
Abracon	ABM4AAIG	XTAL	7.0	5.0	6 to 25 MHz	-40°C to +125°C
Abracon	ABM4BAIG	XTAL	7.0	5.0	6 to 25 MHz	-40°C to +125°C
Fox	FC7BA	XTAL	7.0	5.0	6 to 133 MHz	-55°C to +125°C
AUTOMOTIVE GRADE QUARTZ CRYSTAL OSCILLATORS						
Abracon	ASAAIG	XO	2.0	1.6	4 to 50 MHz	-40°C to +105°C
Ecliptek	EBRA51	XO	2.0	1.6	2.5 to 60 MHz	-40°C to +125°C
Ecliptek	EBRA52	XO	2.0	1.6	2.5 to 60 MHz	-40°C to +125°C
Ecliptek	EBRA53	XO	2.0	1.6	2.5 to 60 MHz	-40°C to +125°C
ILSI	ISA11	XO	2.0	1.6	2.5 to 60 MHz	-40°C to +125°C
Ecliptek	EBCA56	XO	2.0	1.6	32.768 kHz	-40°C to +125°C
Fox	FO1HA	XO	2.0	1.6	1.25 to 135 MHz	-40°C to +125°C
Abracon	ASDAIG	XO	2.5	2.0	20 to 48 MHz	-40°C to +125°C
Ecliptek	EBRA41	XO	2.5	2.0	1 to 60 MHz	-40°C to +125°C
Ecliptek	EBRA42	XO	2.5	2.0	1 to 60 MHz	-40°C to +125°C
Ecliptek	EBRA43	XO	2.5	2.0	1 to 60 MHz	-40°C to +125°C
ILSI	ISA12	XO	2.5	2.0	1 to 60 MHz	-40°C to +125°C
Ecliptek	EBCA46	XO	2.5	2.0	32.768 kHz	-40°C to +125°C
Fox	FO2HA	XO	2.5	2.0	1.25 to 160 MHz	-40°C to +125°C
Abracon	ASEAIG	XO	3.2	2.5	1.75 to 60 MHz	-40°C to +125°C
Ecliptek	EBRA31	XO	3.2	2.5	1 to 156.25 MHz	-40°C to +125°C
Ecliptek	EBRA32	XO	3.2	2.5	1 to 156.25 MHz	-40°C to +125°C
Ecliptek	EBRA33	XO	3.2	2.5	1 to 156.25 MHz	-40°C to +125°C
ILSI	ISA16	XO	3.2	2.5	1 to 156.250 MHz	-40°C to +125°C
Ecliptek	EBCA36	XO	3.2	2.5	32.768 kHz	-40°C to +125°C
Fox	FO3HA	XO	3.2	2.5	1.25 to 160 MHz	-40°C to +125°C
Fox	FO5HA	XO	5.0	3.2	1 to 135 MHz	-40°C to +125°C
Fox	FO7HA	XO	7.0	5.0	2 to 135 MHz	-40°C to +125°C

32.768 kHz Quartz Crystal and MEMS Oscillators

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (kHz)	VDD OPTIONS (V)	TECHNOLOGY	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W				
32.768 KHZ QUARTZ CRYSTALS OSCILLATORS							
ILSI	ISM37	1.6	1.2	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
Abracon	ASAK	2.0	1.6	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
ILSI	ISM36	2.0	1.6	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
Fox	FO1HK	2.0	1.6	32.768	1.8, 2.5, 3.3. 1.6~3.63	Quartz	-40°C to +85°C
Abracon	ASDK	2.5	2.0	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
Ecliptek	EB16K2	2.5	2.0	32.768	1.8	Quartz	-40°C to +85°C
Ecliptek	EB15K2	2.5	2.0	32.768	2.5	Quartz	-40°C to +85°C
Ecliptek	EB13K2	2.5	2.0	32.768	3.3	Quartz	-40°C to +85°C
ILSI	ISM35	2.5	2.0	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
Fox	FO2HK	2.5	2.0	32.768	1.8, 2.5, 3.3. 1.6~3.63	Quartz	-40°C to +85°C
Abracon	ASEK	3.2	2.5	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
Abracon	ASHEK	3.2	2.5	32.768	1.5, 1.8, 2.8, 3.3, 5.0	Quartz	-20°C to +70°C
Ecliptek	EB16K4	3.2	2.5	32.768	1.8	Quartz	-40°C to +85°C
Ecliptek	EB15K4	3.2	2.5	32.768	2.5	Quartz	-40°C to +85°C
Ecliptek	EB13K4	3.2	2.5	32.768	3.3	Quartz	-40°C to +85°C
ILSI	ISM34	3.2	2.5	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
Fox	FO3HK	3.2	2.5	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
Abracon	ASFLK	5.0	3.2	32.768	2.5, 3.0, 3.3, 5.0	Quartz	-40°C to +85°C
Ecliptek	EB15K5	5.0	3.2	32.768	2.5	Quartz	-40°C to +85°C
Ecliptek	EB13K5	5.0	3.2	32.768	3.3	Quartz	-40°C to +85°C
ILSI	ISM31	5.0	3.2	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
Abracon	ASVK	7.0	5.0	32.768	2.8, 3.0, 3.3	Quartz	-40°C to +85°C
Ecliptek	EB15K7	7.0	5.0	32.768	2.5	Quartz	-40°C to +85°C
Ecliptek	EB13K7	7.0	5.0	32.768	3.3	Quartz	-40°C to +85°C
ILSI	ISM30	7.0	5.0	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
32.768 KHZ MEMS OSCILLATORS							
Abracon	ASTMK-J	1.54	0.84	0.001 to 32.768	1.5~3.63	MEMS	-40°C to +85°C
Abracon	ASTMKJ	1.54	0.84	32.768	1.5~3.63	MEMS	-40°C to +85°C
Abracon	ASTMTXK	1.54	0.84	32.768	1.5~3.63	MEMS	-40°C to +85°C
Ecliptek	EMRB8x	1.54	0.84	32.768	1.5~3.63	MEMS	-40°C to +85°C
Abracon	ASTMK-H	2.0	1.2	0.001 to 32.768	1.5~3.63	MEMS	-40°C to +85°C
Ecliptek	EMRB6x	2.0	1.2	32.768	1.5~3.63	MEMS	-40°C to +85°C
Abracon	ASTMK06	2.0	1.2	32.768	1.5~3.63	MEMS	-40°C to +85°C
Abracon	ASTMKH	2.0	1.2	32.768	1.5~3.63	MEMS	-40°C to +85°C
ILSI	IM890	2.0	1.2	32.768	1.5~3.63	MEMS	-40°C to +85°C

Ultra-Performance MHz MEMS Oscillators

Superior RMS phase jitter performance for communications, networking, PCI Express, data center, and server applications.

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W				
Abracon	ASTMUPLDE	3.2	2.5	1 to 625	2.5 to3.3	LVDS	-40°C to +85°C
Abracon	ASTMUPLPE	3.2	2.5	1 to 625	2.5 to3.3	LVPECL	-40°C to +85°C
Abracon	ASTMUPD	2.5	2.0	1 to 220	1.8 to 3.3	CMOS	-40°C to +85°C
Abracon	ASTMUPCE	3.2	2.5	1 to 220	1.8 to 3.3	CMOS	-40°C to +85°C
ILSI	IM840C	3.2	2.5	1 to 220	2.5, 3.3	LVDS, LVPECL	-55°C to +125°C
ILSI	IM841C	3.2	2.5	220 to 625	2.5, 3.3	LVDS, LVPECL	-55°C to +125°C
Abracon	ASTMUPLDFL	5.0	3.2	1 to 625	2.5 to3.3	LVDS	-40°C to +85°C
Abracon	ASTMUPLPFL	5.0	3.2	1 to 625	2.5 to3.3	LVPECL	-40°C to +85°C
Abracon	ASTMUPCFL	5.0	3.2	1 to 220	1.8 to 3.3	CMOS	-40°C to +85°C
ILSI	IM840B	5.0	3.2	1 to 220	2.5, 3.3	LVDS, LVPECL	-55°C to +125°C
ILSI	IM841B	5.0	3.2	220 to 625	2.5, 3.3	LVDS, LVPECL	-55°C to +125°C
Ecliptek	EMRC22	5.0	3.2	1 to 625	2.5	LVPECL	-40°C to +85°C
Ecliptek	EMRC23	5.0	3.2	1 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EMRE22	5.0	3.2	1 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EMRE23	5.0	3.2	1 to 625	3.3	LVDS	-40°C to +85°C
Abracon	ASTMUPLDV	7.0	5.0	1 to 625	2.5 to3.3	LVDS	-40°C to +85°C
Abracon	ASTMUPLPV	7.0	5.0	1 to 625	2.5 to3.3	LVPECL	-40°C to +85°C
Abracon	ASTMUPCV	7.0	5.0	1 to 220	1.8 to 3.3	CMOS	-40°C to +85°C
Ecliptek	EMRC12	7.0	5.0	1 to 625	2.5	LVPECL	-40°C to +85°C
Ecliptek	EMRC13	7.0	5.0	1 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EMRE12	7.0	5.0	1 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EMRE13	7.0	5.0	1 to 625	3.3	LVDS	-40°C to +85°C

Abracon Power Optimized MEMS Oscillators

Power optimized oscillators based on MEMS are ideal for compact, portable and battery power applications. MEMS devices present a very small footprint and produce an accurate clock that is robust and immune to shock and vibration.

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	FUNCTIONAL OPTIONS	STANDBY IDD	IDD	STABILITY OPTIONS	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W						
Abracon	AMJM	1.6, 2.0, 2.5, 3.2	1.2, 1.6, 2.0, 2.5	1 to 100	OE or Standby	12	3.0	±50ppm, ±25ppm	-40°C to +85°C
Abracon	AMJD	1.6, 2.0, 2.5, 3.2	1.2, 1.6, 2.0, 2.5	1 to 100	Frequency Select	N/A	3.0	±50ppm, ±25ppm	-40°C to +85°C
Abracon	AMPM	1.6, 2.0, 2.5, 3.2	1.2, 1.6, 2.0, 2.5	1 to 80	OE or Standby	12	1.3	±50ppm, ±25ppm	-40°C to +85°C
Abracon	AMPD	1.6, 2.0, 2.5, 3.2	1.2, 1.6, 2.0, 2.5	1 to 80	Frequency Select	N/A	1.3	±50ppm, ±25ppm	-40°C to +85°C

General Purpose MHz MEMS Oscillators

Abracon's MEMS oscillator product lines feature high temperature operation with stability options as low as ±10ppm, resistance to shock and vibration, and compact form factors enabling space savings in IoT and wearable applications.

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W				
Abracon	ASTMLPA	2.0	1.6	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASTMHTA	2.0	1.6	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA51	2.0	1.6	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA56	2.0	1.6	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
ILSI	IM801E	2.0	1.6	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM802E	2.0	1.6	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM804E	2.0	1.6	3.57 to 77.760	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Power	-40°C to +85°C
ILSI	IM820E	2.0	1.6	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM821E	2.0	1.6	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM830E	2.0	1.6	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ILSI	IM831E	2.0	1.6	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
Abracon	ASDM	2.5	2.0	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASDMB	2.5	2.0	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
Abracon	ASDMP	2.5	2.0	10 to 460	2.25~3.6	CMOS, LVDS, LVPECL, HCSL	-55°C to +125°C
Abracon	ASDMDC	2.5	2.0	2.3 to 170	2.25~3.6	CMOS	-55°C to +125°C
Abracon	ASTMLPD	2.5	2.0	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASTMHTD	2.5	2.0	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA41	2.5	2.0	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA46	2.5	2.0	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
ILSI	IM801D	2.5	2.0	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM802D	2.5	2.0	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM804D	2.5	2.0	3.57 to 77.760	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Power	-40°C to +85°C
ILSI	IM820D	2.5	2.0	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM821D	2.5	2.0	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM830D	2.5	2.0	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ILSI	IM831D	2.5	2.0	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ILSI	IM810D	2.5	2.0	1 to 80	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Jitter	-40°C to +85°C
ILSI	IM811D	2.5	2.0	80 to 220	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Jitter	-40°C to +85°C
Abracon	ASEM	3.2	2.5	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASEMB	3.2	2.5	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
Abracon	ASEMP	3.2	2.5	10 to 460	2.25~3.6	CMOS, LVDS, LVPECL, HCSL	-55°C to +125°C
Abracon	ASTMLPE	3.2	2.5	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASTMHTE	3.2	2.5	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA31	3.2	2.5	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA36	3.2	2.5	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
ILSI	IM801C	3.2	2.5	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM802C	3.2	2.5	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C

General Purpose MHz MEMS Oscillators

BRAND	SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W				
ILSI	IM804C	3.2	2.5	3.57 to 77.760	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Power	-40°C to +85°C
ILSI	IM820C	3.2	2.5	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM821C	3.2	2.5	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM830C	3.2	2.5	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ILSI	IM831C	3.2	2.5	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ILSI	IM810C	3.2	2.5	1 to 80	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Jitter	-40°C to +85°C
ILSI	IM811C	3.2	2.5	80 to 220	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Jitter	-40°C to +85°C
Abracon	ASFLM	5.0	3.2	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASFLMB	5.0	3.2	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
Abracon	ASFLMP	5.0	3.2	10 to 460	2.25~3.6	CMOS, LVDS, LVPECL, HCSL	-55°C to +125°C
Abracon	ASTMLPFL	5.0	3.2	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASTMHTFL	5.0	3.2	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA21	5.0	3.2	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA26	5.0	3.2	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
ILSI	IM801B	5.0	3.2	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM802B	5.0	3.2	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM804B	5.0	3.2	3.57 to 77.760	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Power	-40°C to +85°C
ILSI	IM820B	5.0	3.2	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM821B	5.0	3.2	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM830B	5.0	3.2	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ILSI	IM831B	5.0	3.2	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ILSI	IM810B	5.0	3.2	1 to 80	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Jitter	-40°C to +85°C
ILSI	IM811B	5.0	3.2	80 to 220	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Jitter	-40°C to +85°C
Abracon	ASVM	7.0	5.0	1 to 110	1.8, 2.5, 2.8, 3.3	CMOS	-40°C to +85°C
Abracon	ASVMB	7.0	5.0	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
Abracon	ASVMP	7.0	5.0	10 to 460	2.25~3.6	CMOS, LVDS, LVPECL, HCSL	-55°C to +125°C
Abracon	ASTMLPV	7.0	5.0	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASTMHTV	7.0	5.0	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA11	7.0	5.0	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA16	7.0	5.0	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
ILSI	IM801A	7.0	5.0	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM802A	7.0	5.0	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ILSI	IM804A	7.0	5.0	3.57 to 77.760	1.8, 2.5, 2.8, 3.0, 3.3	CMOS - Low Power	-40°C to +85°C
ILSI	IM820A	7.0	5.0	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM821A	7.0	5.0	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +125°C
ILSI	IM830A	7.0	5.0	1 to 110	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ILSI	IM831A	7.0	5.0	115 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C

Real Time Clock - Low Power Consumption Solutions

Stand-alone real time clocks (RTC) using external crystals deliver industry leading low time keeping current consumption solutions that extend battery life.

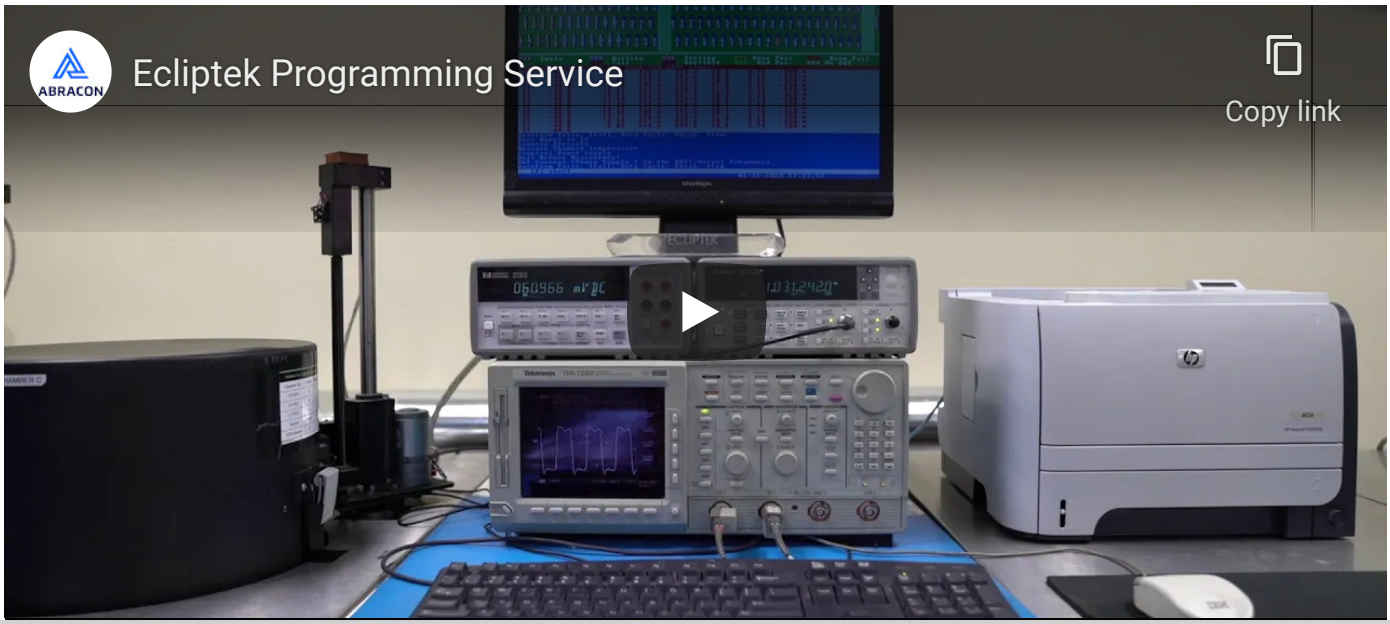
BRAND	SERIES	PACKAGE SIZE (mm)		PACKAGE	FEATURES	VDD OPTIONS (V)	INTERFACE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W					
Abracon	AB0805	3.0	3.0	16-QFN	Alarm, Leap Year, SRAM, Trickle-Charger, Watchdog Timer	1.5 ~ 3.6	I2C, 2-Wire Serial	-40°C to +85°C
Abracon	AB0815	3.0	3.0	16-QFN	Alarm, Leap Year, SRAM, Trickle-Charger, Watchdog Timer	1.5 ~ 3.6	SPI	-40°C to +85°C
Abracon	AB1805	3.0	3.0	16-QFN	Power Management, Alarm, Leap Year, SRAM, Trickle-Charger, Watchdog Timer	1.5 ~ 3.6	I2C, 2-Wire Serial	-40°C to +85°C
Abracon	AB1815	3.0	3.0	16-QFN	Power Management, Alarm, Leap Year, SRAM, Trickle-Charger, Watchdog Timer	1.5 ~ 3.6	SPI	-40°C to +85°C

Real Time Clock - Integrated Quartz Crystal Solutions

Stand-alone real time clocks (RTC) with integrated quartz crystals external crystals offer a variety of industry leading low power or high accuracy temperature compensated (TCXO) solutions.

BRAND	SERIES	PACKAGE SIZE (mm)		PACKAGE	FEATURES	VDD OPTIONS (V)	INTERFACE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W					
Abracon	AB-RTCMC-32.768kHz-AIGZ-S7	3.2	1.5	8-CLCC	Alarm, Leap Year, Watchdog Timer	1.3 ~ 4.4	I2C	-40°C to +85°C
Abracon	AB-RTCMK-32.768kHz	3.2	2.5	8-VDFN	Alarm, Leap Year, Square Wave Output, TCXO	1.3 ~ 5.5	I2C	-40°C to +85°C
Abracon	AB-RTCMC-32.768kHz-IBO5-S3	3.7	2.5	10-VDFN	22nA Idd, Alarm, Leap Year, Trickle-Charger, Watchdog Timer, Countdown Timer, Century Flag, Square Wave Output	1.5 ~ 3.6	I2C, 2-Wire Serial	-40°C to +85°C
Abracon	AB-RTCMC-32.768kHz-EOZ9-S3	3.7	2.5	10-VDFN	Alarm, EEPROM, TCXO, Trickle-Charger	2.1 ~ 5.5	I2C	-40°C to +125°C
Abracon	AB-RTCMC-32.768kHz-B5GA-S3	3.7	2.5	10-VDFN	Alarm	1.8 ~ 5.5	I2C	-40°C to +85°C
Abracon	AB-RTCMC-32.768kHz-B5ZE-S3	3.7	2.5	10-VDFN	Alarm	1.6 ~ 5.5	I2C	-40°C to +85°C
Abracon	AB-RTCMC-32.768kHz-ZIZE-S2	5.0	3.2	10-TDFN	Alarm, Watchdog Timer	1.6 ~ 5.5	SPI	-40°C to +85°C

PROGRAMMABLE OSCILLATORS



Programmable MEMS Oscillators

BRAND	SERIES	PACKAGE SIZE (mm)		PACKAGE	OSCILLATOR TYPE	FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W						
Ecliptek	EMRA51	2.0	1.6	4 Pad SMD	MEMS	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA52	2.0	1.6	4 Pad SMD	MEMS	1 to 137	2.5	CMOS	-55°C to +125°C
Ecliptek	EMRA53	2.0	1.6	4 Pad SMD	MEMS	1 to 137	3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA54	2.0	1.6	4 Pad SMD	MEMS	1 to 137	2.8	CMOS	-55°C to +125°C
Ecliptek	EMRA55	2.0	1.6	4 Pad SMD	MEMS	1 to 137	3.0	CMOS	-55°C to +125°C
Ecliptek	EMRA56	2.0	1.6	4 Pad SMD	MEMS	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
Abracon	ASDM	2.5	2.0	4 Pad SMD	MEMS	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASDMB	2.5	2.0	4 Pad SMD	MEMS	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
Ecliptek	EMRA41	2.5	2.0	4 Pad SMD	MEMS	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA42	2.5	2.0	4 Pad SMD	MEMS	1 to 137	2.5	CMOS	-55°C to +125°C
Ecliptek	EMRA43	2.5	2.0	4 Pad SMD	MEMS	1 to 137	3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA44	2.5	2.0	4 Pad SMD	MEMS	1 to 137	2.8	CMOS	-55°C to +125°C
Ecliptek	EMRA45	2.5	2.0	4 Pad SMD	MEMS	1 to 137	3.0	CMOS	-55°C to +125°C
Ecliptek	EMRA46	2.5	2.0	4 Pad SMD	MEMS	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
Ecliptek	EMK41	2.5	2.0	4 Pad SMD	MEMS	1 to 125	1.8	CMOS	-40°C to +85°C
Ecliptek	EMK42	2.5	2.0	4 Pad SMD	MEMS	1 to 125	2.5	CMOS	-40°C to +85°C
Ecliptek	EMK43	2.5	2.0	4 Pad SMD	MEMS	1 to 125	3.3	CMOS	-40°C to +85°C
Abracon	ASEM	3.2	2.5	4 Pad SMD	MEMS	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASEMB	3.2	2.5	4 Pad SMD	MEMS	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
Ecliptek	EMRA31	3.2	2.5	4 Pad SMD	MEMS	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA32	3.2	2.5	4 Pad SMD	MEMS	1 to 137	2.5	CMOS	-55°C to +125°C

Programmable MEMS Oscillators

BRAND	SERIES	PACKAGE SIZE (mm)		PACKAGE	OSCILLATOR TYPE	FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W						
Ecliptek	EMRA33	3.2	2.5	4 Pad SMD	MEMS	1 to 137	3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA34	3.2	2.5	4 Pad SMD	MEMS	1 to 137	2.8	CMOS	-55°C to +125°C
Ecliptek	EMRA35	3.2	2.5	4 Pad SMD	MEMS	1 to 137	3.0	CMOS	-55°C to +125°C
Ecliptek	EMRA36	3.2	2.5	4 Pad SMD	MEMS	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
Ecliptek	EMK31	3.2	2.5	4 Pad SMD	MEMS	1 to 125	1.8	CMOS	-40°C to +85°C
Ecliptek	EMK32	3.2	2.5	4 Pad SMD	MEMS	1 to 125	2.5	CMOS	-40°C to +85°C
Ecliptek	EMK33	3.2	2.5	4 Pad SMD	MEMS	1 to 125	3.3	CMOS	-40°C to +85°C
Abracon	ASFLM	5.0	3.2	4 Pad SMD	MEMS	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
Abracon	ASFLMB	5.0	3.2	4 Pad SMD	MEMS	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +105°C
Ecliptek	EMRA21	5.0	3.2	4 Pad SMD	MEMS	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA22	5.0	3.2	4 Pad SMD	MEMS	1 to 137	2.5	CMOS	-55°C to +125°C
Ecliptek	EMRA23	5.0	3.2	4 Pad SMD	MEMS	1 to 137	3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA24	5.0	3.2	4 Pad SMD	MEMS	1 to 137	2.8	CMOS	-55°C to +125°C
Ecliptek	EMRA25	5.0	3.2	4 Pad SMD	MEMS	1 to 137	3.0	CMOS	-55°C to +125°C
Ecliptek	EMRA26	5.0	3.2	4 Pad SMD	MEMS	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
Ecliptek	EMK21	5.0	3.2	4 Pad SMD	MEMS	1 to 125	1.8	CMOS	-40°C to +85°C
Ecliptek	EMK22	5.0	3.2	4 Pad SMD	MEMS	1 to 125	2.5	CMOS	-40°C to +85°C
Ecliptek	EMK23	5.0	3.2	4 Pad SMD	MEMS	1 to 125	3.3	CMOS	-40°C to +85°C
Abracon	AP2S	2.5	2.1	4 Pad SMD	MEMS	2.048 to 200	1.8, 2.5, 3.3	CMOS	-40°C to +85°C
Abracon	AP3S	3.2	2.5	4 Pad SMD	MEMS	2.048 to 200	1.8, 2.5, 3.3	CMOS	-40°C to +85°C
Abracon	ASVM	7.0	5.0	4 Pad SMD	MEMS	1 to 110	1.8, 2.5, 2.8, 3.3	CMOS	-40°C to +85°C
Abracon	ASVMB	7.0	5.0	4 Pad SMD	MEMS	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
Ecliptek	EMRA11	7.0	5.0	4 Pad SMD	MEMS	1 to 137	1.8	CMOS	-55°C to +125°C
Ecliptek	EMRA12	7.0	5.0	4 Pad SMD	MEMS	1 to 137	2.5	CMOS	-55°C to +125°C
Ecliptek	EMRA13	7.0	5.0	4 Pad SMD	MEMS	1 to 137	3.3	CMOS	-55°C to +125°C
Ecliptek	EMRA14	7.0	5.0	4 Pad SMD	MEMS	1 to 137	2.8	CMOS	-55°C to +125°C
Ecliptek	EMRA15	7.0	5.0	4 Pad SMD	MEMS	1 to 137	3.0	CMOS	-55°C to +125°C
Ecliptek	EMRA16	7.0	5.0	4 Pad SMD	MEMS	1 to 137	2.25~3.6	CMOS	-55°C to +125°C
Ecliptek	EMK11	7.0	5.0	4 Pad SMD	MEMS	1 to 125	1.8	CMOS	-40°C to +85°C
Ecliptek	EMK12	7.0	5.0	4 Pad SMD	MEMS	1 to 125	2.5	CMOS	-40°C to +85°C
Ecliptek	EMK13	7.0	5.0	4 Pad SMD	MEMS	1 to 125	3.3	CMOS	-40°C to +85°C
Ecliptek	EMRC12	7.0	5.0	6 Pad SMD	MEMS	1 to 625	2.5	LVPECL	-40°C to +85°C
Ecliptek	EMRC13	7.0	5.0	6 Pad SMD	MEMS	1 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EMRC22	5.0	3.2	6 Pad SMD	MEMS	1 to 625	2.5	LVPECL	-40°C to +85°C
Ecliptek	EMRC23	5.0	3.2	6 Pad SMD	MEMS	1 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EMRE12	7.0	5.0	6 Pad SMD	MEMS	1 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EMRE13	7.0	5.0	6 Pad SMD	MEMS	1 to 625	3.3	LVDS	-40°C to +85°C
Ecliptek	EMRE22	5.0	3.2	6 Pad SMD	MEMS	1 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EMRE23	5.0	3.2	6 Pad SMD	MEMS	1 to 625	3.3	LVDS	-40°C to +85°C

Programmable MHz Crystal Oscillators

BRAND	SERIES	PACKAGE SIZE (mm)		PACKAGE	OSCILLATOR TYPE	FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W						
Ecliptek	EH59	2.5	2.0	4 Pad SMD	Quartz	2.6 to 133	1.8	CMOS	-40°C to +85°C
Ecliptek	EH57	2.5	2.0	4 Pad SMD	Quartz	2.6 to 166	2.5	CMOS	-40°C to +85°C
Ecliptek	EH56	2.5	2.0	4 Pad SMD	Quartz	2.6 to 200	3.3	CMOS	-40°C to +85°C
Ecliptek	EH49	3.2	2.5	4 Pad SMD	Quartz	2.6 to 133	1.8	CMOS	-40°C to +85°C
Ecliptek	EH47	3.2	2.5	4 Pad SMD	Quartz	2.6 to 200	2.5	CMOS	-40°C to +85°C
Ecliptek	EH46	3.2	2.5	4 Pad SMD	Quartz	2.6 to 200	3.3	CMOS	-40°C to +85°C
Ecliptek	EP16E7	3.2	2.5	4 Pad SMD	Quartz	3.3 to 75	1.8	CMOS	-40°C to +85°C
Ecliptek	EP15E7	3.2	2.5	4 Pad SMD	Quartz	3.3 to 88	2.5	CMOS	-40°C to +85°C
Ecliptek	EP13E7	3.2	2.5	4 Pad SMD	Quartz	3.3 to 100	3.3	CMOS	-40°C to +85°C
Ecliptek	EH39	5.0	3.2	4 Pad SMD	Quartz	2.6 to 133	1.8	CMOS	-40°C to +85°C
Ecliptek	EH37	5.0	3.2	4 Pad SMD	Quartz	2.6 to 166	2.5	CMOS	-40°C to +85°C
Ecliptek	EH36	5.0	3.2	4 Pad SMD	Quartz	1 to 155.52	3.3	CMOS	-40°C to +85°C
Ecliptek	EP36	5.0	3.2	4 Pad SMD	Quartz	1 to 106.250	3.3	CMOS	-40°C to +85°C
Ecliptek	EH35	5.0	3.2	4 Pad SMD	Quartz	1 to 155.52	5.0	CMOS	-40°C to +85°C
Ecliptek	EP35	5.0	3.2	4 Pad SMD	Quartz	1 to 125	5.0	CMOS	-40°C to +85°C
Ecliptek	EH29	7.0	5.0	4 Pad SMD	Quartz	2.6 to 133	1.8	CMOS	-40°C to +85°C
Ecliptek	EH27	7.0	5.0	4 Pad SMD	Quartz	1 to 200	2.5	CMOS	-40°C to +85°C
Ecliptek	EH26	7.0	5.0	4 Pad SMD	Quartz	1 to 155.52	3.3	CMOS	-40°C to +85°C
Ecliptek	EP26	7.0	5.0	4 Pad SMD	Quartz	1 to 106.25	3.3	CMOS	-40°C to +85°C
Ecliptek	EH25	7.0	5.0	4 Pad SMD	Quartz	1 to 155.52	5.0	CMOS	-40°C to +85°C
Ecliptek	EP25	7.0	5.0	4 Pad SMD	Quartz	1 to 125	5.0	CMOS	-40°C to +85°C
Ecliptek	EPH13	12.7	12.7	HS DIP	Quartz	1 to 106.25	3.3	CMOS	-40°C to +85°C
Ecliptek	EHH11	12.7	12.7	HS DIP	Quartz	1 to 155.52	5.0	CMOS	-40°C to +85°C
Ecliptek	EHH13	12.7	12.7	HS DIP	Quartz	1 to 155.52	3.3	CMOS	-40°C to +85°C
Ecliptek	EPH11	12.7	12.7	HS DIP	Quartz	1 to 125	5.0	CMOS	-40°C to +85°C
Ecliptek	EHF13	20.2	12.7	FS DIP	Quartz	1 to 155.52	3.3	CMOS	-40°C to +85°C
Ecliptek	EPF13	20.2	12.7	FS DIP	Quartz	1 to 106.25	3.3	CMOS	-40°C to +85°C
Ecliptek	EHF11	20.2	12.7	FS DIP	Quartz	1 to 155.52	5.0	CMOS	-40°C to +85°C
Ecliptek	EPF11	20.2	12.7	FS DIP	Quartz	1 to 125	5.0	CMOS	-40°C to +85°C
Ecliptek	EQRA22	5.0	3.2	6 Pad SMD	Quartz	10 to 250	2.5	CMOS	-40°C to +85°C
Ecliptek	EQRA24	5.0	3.2	6 Pad SMD	Quartz	10 to 250	2.8	CMOS	-40°C to +85°C
Ecliptek	EQRA25	5.0	3.2	6 Pad SMD	Quartz	10 to 250	3.0	CMOS	-40°C to +85°C
Ecliptek	EQRA23	5.0	3.2	6 Pad SMD	Quartz	10 to 250	3.3	CMOS	-40°C to +85°C
Ecliptek	EQRA12	7.0	5.0	6 Pad SMD	Quartz	10 to 250	2.5	CMOS	-40°C to +85°C
Ecliptek	EQRA14	7.0	5.0	6 Pad SMD	Quartz	10 to 250	2.8	CMOS	-40°C to +85°C
Ecliptek	EQRA15	7.0	5.0	6 Pad SMD	Quartz	10 to 250	3.0	CMOS	-40°C to +85°C
Ecliptek	EQRA13	7.0	5.0	6 Pad SMD	Quartz	10 to 250	3.3	CMOS	-40°C to +85°C
Ecliptek	EQRF32	3.2	2.5	6 Pad SMD	Quartz	10 1500	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRF33	3.2	2.5	6 Pad SMD	Quartz	10 1500	3.3	LVPECL	-40°C to +85°C

Programmable MHz Crystal Oscillators

BRAND	SERIES	PACKAGE SIZE (mm)		PACKAGE	OSCILLATOR TYPE	FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W						
Ecliptek	EQRM32	3.2	2.5	6 Pad SMD	Quartz	10 1500	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRM33	3.2	2.5	6 Pad SMD	Quartz	10 1500	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQRF22	5.0	3.2	6 Pad SMD	Quartz	10 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRF23	5.0	3.2	6 Pad SMD	Quartz	10 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQRM22	5.0	3.2	6 Pad SMD	Quartz	10 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRM23	5.0	3.2	6 Pad SMD	Quartz	10 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQRF12	7.0	5.0	6 Pad SMD	Quartz	10 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRF13	7.0	5.0	6 Pad SMD	Quartz	10 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQRM12	7.0	5.0	6 Pad SMD	Quartz	10 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EQRM13	7.0	5.0	6 Pad SMD	Quartz	10 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQVA22	5.0	3.2	6 Pad SMD	Quartz	10 to 250	2.5	CMOS	-40°C to +85°C
Ecliptek	EQVA23	5.0	3.2	6 Pad SMD	Quartz	10 to 250	3.3	CMOS	-40°C to +85°C
Ecliptek	EQVD22	5.0	3.2	6 Pad SMD	Quartz	10 to 625	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQVD23	5.0	3.2	6 Pad SMD	Quartz	10 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQVE22	5.0	3.2	6 Pad SMD	Quartz	10 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EQVE23	5.0	3.2	6 Pad SMD	Quartz	10 to 625	3.3	LVDS	-40°C to +85°C
Ecliptek	EQVA12	7.0	5.0	6 Pad SMD	Quartz	10 to 250	2.5	CMOS	-40°C to +85°C
Ecliptek	EQVA13	7.0	5.0	6 Pad SMD	Quartz	10 to 250	3.3	CMOS	-40°C to +85°C
Ecliptek	EQVD12	7.0	5.0	6 Pad SMD	Quartz	10 to 625	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQVD13	7.0	5.0	6 Pad SMD	Quartz	10 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQVE12	7.0	5.0	6 Pad SMD	Quartz	10 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EQVE13	7.0	5.0	6 Pad SMD	Quartz	10 to 625	3.3	LVDS	-40°C to +85°C
Ecliptek	EQTA32	3.2	2.5	6 Pad SMD	Quartz	10 to 250	2.5	CMOS	-40°C to +85°C
Ecliptek	EQTA34	3.2	2.5	6 Pad SMD	Quartz	10 to 250	2.8	CMOS	-40°C to +85°C
Ecliptek	EQTA35	3.2	2.5	6 Pad SMD	Quartz	10 to 250	3.0	CMOS	-40°C to +85°C
Ecliptek	EQTA33	3.2	2.5	6 Pad SMD	Quartz	10 to 250	3.3	CMOS	-40°C to +85°C
Ecliptek	EQTG32	3.2	2.5	6 Pad SMD	Quartz	10 to 625	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQTG33	3.2	2.5	6 Pad SMD	Quartz	10 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQTJ32	3.2	2.5	6 Pad SMD	Quartz	10 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EQTJ33	3.2	2.5	6 Pad SMD	Quartz	10 to 625	3.3	LVDS	-40°C to +85°C
Ecliptek	EQUA32	3.2	2.5	6 Pad SMD	Quartz	10 to 250	2.5	CMOS	-40°C to +85°C
Ecliptek	EQUA33	3.2	2.5	6 Pad SMD	Quartz	10 to 250	3.3	CMOS	-40°C to +85°C
Ecliptek	EQUA34	3.2	2.5	6 Pad SMD	Quartz	10 to 250	2.5	CMOS	-40°C to +85°C
Ecliptek	EQUA35	3.2	2.5	6 Pad SMD	Quartz	10 to 250	3.3	CMOS	-40°C to +85°C
Ecliptek	EQUG32	3.2	2.5	6 Pad SMD	Quartz	10 to 625	2.5	LVPECL	-40°C to +85°C
Ecliptek	EQUG33	3.2	2.5	6 Pad SMD	Quartz	10 to 625	3.3	LVPECL	-40°C to +85°C
Ecliptek	EQUJ32	3.2	2.5	6 Pad SMD	Quartz	10 to 625	2.5	LVDS	-40°C to +85°C
Ecliptek	EQUJ33	3.2	2.5	6 Pad SMD	Quartz	10 to 625	3.3	LVDS	-40°C to +85°C

PIERCE ANALYZER SYSTEM (PAS) SERVICE

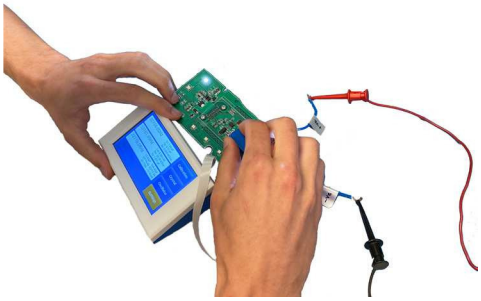
OVERVIEW

OVERVIEW

The Pierce Analyzer System (PAS) advanced board characterization service provides design engineers support in optimizing their circuit performance by properly determining the oscillator loop dynamics. Abracon's Engineering Team developed a proprietary system that is designed to analyze both the stand-alone crystal and the performance of the crystal in the customer's circuit.

FEATURES

- System designed for wide bandwidth between 32.768kHz to 100MHz
- Circuit characterization, providing the best possible match between the quartz crystal, oscillator loop and associated feedback components
- Eliminates probability of oscillator start-up issues related to inadequate design or marginal component performance
- Eliminates production launch issues related to crystal oscillator-based timing circuits
- Solves for design margin uncertainty
- Provides a customer oscillator circuit overview in the form of a detailed report, providing a third-party assessment for the design history file or PPAP documentation.
- This report encompasses both the stand-alone crystal performance, as well as in-circuit closed loop oscillator performance.
- For additional information, please contact Abracon at: tech-support@abracon.com



PIERCE ANALYZER SYSTEM (PAS) SERVICE

DELIVERABLES

DETAILED TEST REPORT INCLUDES:

- Project background information
- Abracon test instrumentation and equipment setup
- Customer project background information
- Customer PCB and crystal documentation
- Customer product photographs
- Quartz crystal electrical specifications
- Pierce oscillator design and theory of operation
- AC equivalent model characteristics
- Safety factor theory (non-AGC MHz oscillator loops only)
- Customer's existing oscillator design configuration performance data:
    - Stand-alone quartz crystal measurements
        - Series resonant (F_S) and parallel resonant (F_L) frequencies
        - Motional parameters (Rm, Cm, Lm)
        - Shunt capacitance (Co) and plating capacitance (Cpl)
    - Closed-loop oscillator circuit measurements (non-AGC MHz oscillator loops only)
        - Oscillator output frequency
        - Oscillator - crystal power dissipation
        - Oscillator - safety factor of oscillator loop
    - Closed-loop oscillator circuit (AGC 32.768kHz oscillator loops only)
        - Oscillator output frequency
        - Oscillator - crystal power dissipation
    - Maximum projections
        - Calculated worst-case drive level
        - Calculated worst-case safety factor of oscillator loop
- Abracon Engineering recommended oscillator design configuration
- Abracon Engineering review and conclusion

ORDERING INFORMATION

- EXPEDITED-PAS-SVC
- STANDARD-PAS-SVC

LOCATED GLOBALLY

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Hungary | India | Israel | Italy | Korea | Malaysia
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United Kingdom | United States

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