

22nA INDUSTRY LEADING POWER CONSUMPTION RTC

SERIES	PACKAGE SIZE (mm)	PACKAGE (mm)	FEATURES	INTERFACE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	
AB0805 / AB0815	3.0 x 3.0	16-QFN	Alarm, Leap Year, SRAM, Trickle-Charger, Watchdog Timer	12 C/SPI	-40°C to +85°C	22nA IDD
AB1805 / AB1815	3.0 x 3.0	16-QFN	Power Management, Alarm, Leap Year, SRAM, Trickle-Charger, Watchdog Timer	12 C/SPI	-40°C to +85°C	22nA IDD

QUARTZ & WATCH-MEMS 32.768 kHz CLOCK OSCILLATORS

SERIES	PACKAGE SIZE (mm)	HEIGHT (mm)	TECHNOLOGY	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	
ASTMK	2.0 x 1.2, 1.54 x 0.84	0.6	1.0 Hz to 32.768 kHz MEMS	-40°C to +85°C	Smallest
ASTMKJ	1.54 x 0.84	0.6	32.768 kHz MEMS	-40°C to +85°C	Smallest
ASTMTXK	1.54 x 0.84	0.6	32.768 kHz MEMS TCXO	-40°C to +85°C	Smallest & ±5ppm Stability
ASTMK06	2.0 x 1.2, XTAL footprint compatible	0.6	32.768 kHz MEMS	-40°C to +85°C	
ASTMKH	2.0 x 1.2	0.6	32.768 kHz MEMS	-40°C to +85°C	
ASAK	2.0 x 1.6	0.7	32.768 kHz Quartz	-40°C to +85°C	
ASDK	2.5 x 2.0	0.95	32.768 kHz Quartz	-40°C to +85°C	
ASH7K	3.2 x 1.5	1	32.768 kHz Quartz	-40°C to +85°C	
ASH7KW	3.2 x 1.5	1	32.768 kHz Quartz	-40°C to +85°C	
ASEK	3.2 x 2.5	1.2	32.768 kHz Quartz	-40°C to +85°C	
ASHEK	3.2 x 2.5	0.9	32.768 kHz Quartz	-40°C to +85°C	

LOW ESR 32 kHz SMD QUARTZ CRYSTALS (TIMING FORK CRYSTALS)

SERIES	PACKAGE SIZE * (mm)	HEIGHT (mm)	FREQUENCY RANGE (kHz)	TOLERANCE OPTIONS (±PPM)	ESR MAX (kΩ)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	
ABS05	1.6 x 1.0	0.5	32.768	10	90	-40°C to +85°C	Lowest CL (3pF) Lowest ESR (<95)
ABS06W	2.0 x 1.2	0.6	32.768	20	95 **	-40°C to +125°C	
ABS06	2.0 x 1.2	0.6	32.768	10	90, 100	-55°C to +125°C	Lowest CL (3pF) Lowest ESR (<95)
ABS06-107-32.768 kHz	2.0 x 1.2	0.6	32.768	20	80	-40°C to +85°C	
ABS07W	3.2 X 1.5	0.9	32.768	10, 20	55 **	-40°C to +85°C	
ABS07	3.2 x 1.5	0.9	32.768	10	60	-55°C to +125°C	
ABS07-LR	3.2 x 1.5	0.9	32.768	20	50	-40°C to +85°C	
ABS07L	3.2 x 1.5	0.4	32.768	20	80	-40°C to +85°C	
ABS09	4.1 X 1.5	0.9	32.768	10	70	-40°C to +85°C	

* Note: Additional package and through-hole options available. See website for more information.

** Note: -40°C to +85°C



REAL TIME CLOCK WITH INTEGRATED QUARTZ CRYSTAL

SERIES	PACKAGE SIZE (mm)	PACKAGE (mm)	FEATURES	INTERFACE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	
AB-RTCMC-32.768kHz-AIGZ-S7	3.2 x 1.5	8-CLCC	Alarm, Leap Year, Watchdog Timer	12C, 2-Wire Serial	-40°C to +85°C	±5ppm Stability
AB-RTCMC-32.768kHz	3.2 x 2.5	8-VDFN	Alarm, Leap Year, Square Wave Output, TCXO	12C, 2-Wire Serial	-40°C to +85°C	
AB-RTCMC-32.768kHz-IBO5-S3	3.7 x 2.5	10-VDFN	22nA IDD, Alarm, Leap Year, Trickle-Charger, Watchdog Timer, Countdown Timer, Century Flag, Square Wave Output	12C, 2-Wire Serial	-40°C to +85°C	22nA IDD
AB-RTCMC-32.768kHz-EOZ9-S3	3.7 x 2.5	10-VDFN	Alarm, EEPROM, TCXO, Trickle-Charger	12C, 2-Wire Serial	-40°C to +125°C	±8ppm Stability

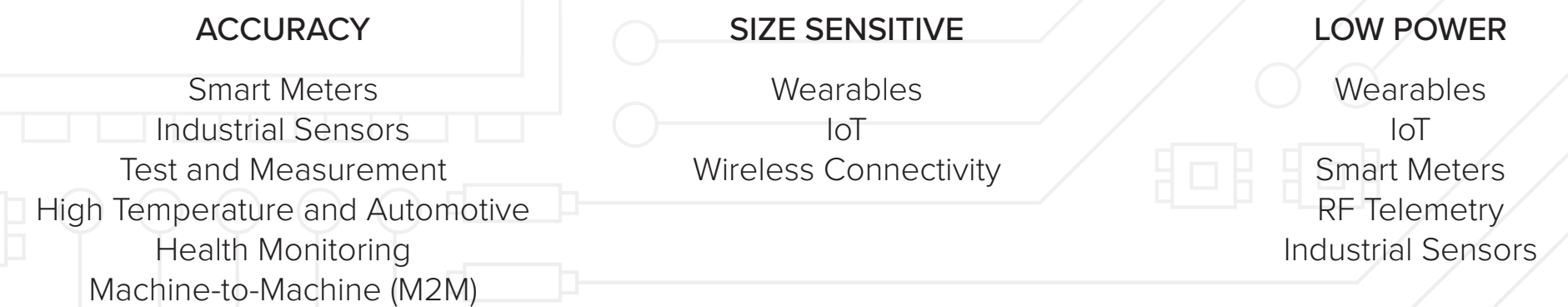
FEATURED APPLICATION: Industry leading RTC solutions eliminate supercapacitors for holdover.

Many timekeeping applications require battery replacement. When the battery is disconnected, a backup or holdover solution must keep the RTC alive for a few minutes while the battery is fully replaced and power is restored. In other cases, accurate timekeeping must survive temporary power failures. The standard practice is to use expensive boutique technologies, such as supercapacitors, that can supply enough power to run the RTC while power is normalized. A better solution uses Abracon's industry leading ABx8x5 series RTCs with timekeeping power consumption of 22nA. With such low power, holdover is achieved for several minutes from standard low cost ceramic capacitors, saying goodbye to the need for supercaps.

Required Holdover Time	Capacitor Value (µF)	Package Case Code
100 Minutes	100	1206
55 Minutes	47	0805
21 Minutes	22	0603
7 Minutes	10	0402

Read the app note: www.abracon.com/Support/ABX8XX-Application-Note.pdf

ABRACON SUPPORTS APPLICATIONS REQUIRING LOW POWER, SMALL SIZE, AND HIGH ACCURACY



LONG TERM TIME KEEPING ERROR VS. PPM STABILITY

Ever wonder what ppm stability is needed to meet long term time keeping requirements? From appliances to wearables to IoT devices to industrial applications, this table shows you where your clock accuracy needs to be.

Type	Time Keeping Drift		Error / Day	Error / Month	Error / Year	
	PPM	Percent	Seconds	Seconds	Seconds	Hours
Quartz or MEMS TCXO	5	0.0005	0.43	13	160	0.04
	10	0.001	0.86	26	320	0.09
	20	0.002	1.7	53	630	0.20
Uncompensated Quartz XTAL	50	0.005	4.3	130	1600	0.40
	100	0.01	8.6	260	3200	0.9
	1000	0.1	86	2600	32000	9
Internal MCU Oscillator	10000	1	860	26000	320000	90

IDEAL FOR AUTOMOTIVE

SERIES	TYPE	WIDEST TEMP OPTION
ABS07AIG	32.768 kHz XTAL	-40°C to 125°C
ASH7KAIG	32.768 kHz XO	-40°C to 85°C

