

Component Solutions Catalog



TIMING & SYNCHRONIZATION:
XTAL | XO | TCXO | VCXO | OCXO | MEMS | NANO POWER RTC



RF & CONNECTIVITY:
ANTENNAS | RFID/NFC | RJ45 JACKS | WIRELESS MODULES



POWER & ENERGY:
POWER INDUCTORS | WIRELESS CHARGING COILS

TINY BUT MIGHTY BY ABRACON[®] LLC

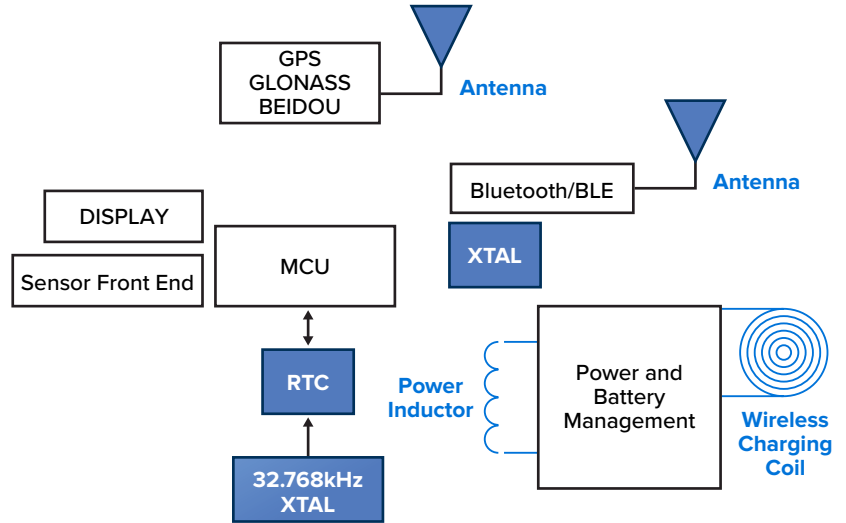


FEATURES

- Compact footprint
- Industry leading lowest profile
- Power saving for energy efficient designs

APPLICATIONS

- Financial Payment Access
- Consumer Medical/Fitness Monitoring
- AR/VR
- IoT
- Drones
- Wearables



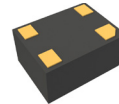
Miniature 32kHz XO
ASAKMP
1.6 x 1.2mm footprint
0.6mm profile



Miniature XTAL
ABM13W
1.2 x 1.0mm footprint
0.33mm profile



Miniature 32kHz XTAL
ABS04W
1.2 x 1.0mm footprint
0.35mm profile



Power Optimized MEMS XO
AMJM/AMPM/AMJD/AMPD
1.6 x 1.2mm footprint
Low 0.85mm profile



MEMS 32kHz Oscillator
ASTMTXK
1.54 x 0.84mm footprint
0.6mm profile



GPS/GLONASS/BEIDOU
Chip Antenna
ACAR0301-SG3
3.05 x 1.6mm footprint
0.55mm profile



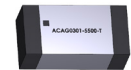
Chip Antenna
ACAG0201-2450-T
2.0 x 1.25mm footprint
0.6mm profile



Chip Inductor
ASMP
1.6 x 0.8mm footprint
0.5mm profile



Chip Inductor
ASMPM
2.0 x 1.6mm footprint
1.0mm profile



5.5 GHz Chip Antenna
ACAG-0301-5500-T
3.2 x 1.6mm footprint
1.2mm profile

LEARN MORE AT
ABRACON.COM



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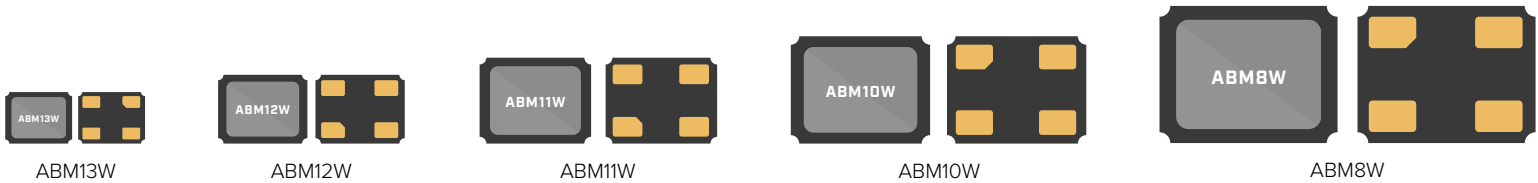
The Heartbeat of the IoT®

Featuring Abracon Low Plating Load (CL) + Low Equivalent Series Resistance (ESR) Quartz Crystals

W Series

What makes the IoT tick? Abracon's newest series of quartz crystals offer low ESR specifications in combination with low CL options to address energy-saving MCU & 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 & CL specifications. Abracon's W Series of quartz crystals engineered for micro power applications overcome these challenges.

ABMxW SERIES MHz CRYSTALS



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

*ESR MAX specifications dependent on carrier frequency

ABS0xW SERIES 32.768kHz CRYSTALS



SERIES	PACKAGE SIZE (mm)		FREQUENCY (kHz)	CL, PLATING LOAD (pF)	ESR MAX* (kΩ)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	TOLERANCE OPTIONS (±ppm)	CO, SHUNT MAX (pF)
	L	W						
ABS04W	1.2	1.0	32.768	4 to 8	130	-40°C to +85°C	10/20	2.0
ABS05W	1.6	1.0		4	85	-40°C to +125°C	20	2.0
ABS06W	2.0	1.2		3	120	-40°C to +125°C	20	2.0
ABS07W	3.2	1.5		3	70	-40°C to +125°C	10/20	1.3

Standard SMD MHz Quartz Crystals

SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	CL, PLATING LOAD (pF)	ESR MAX* (Ω)	TOLERANCE OPTIONS (\pm ppm)	STABILITY OPTIONS (\pm ppm)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
	L	W						
ABM13	1.2	1.0	36 to 80	5 to 7	200	10/20/30	10/15/20	-40°C to +85°C
ABM12	1.6	1.2	24 to 80	5 to 8	200	15/20/30	15/20/30	-40°C to +85°C
ABM12-118	1.6	1.2	27.12	8	80	10	30	-40°C to +85°C
ABM12-115	1.6	1.2	26	8	100	10	10	-20°C to +70°C
ABM11	2.0	1.6	16 to 50	6 to 20	120	10/15/20	10/15/20	-40°C to +85°C
ABM11-143	2.0	1.6	27.12	8	40	10	30	-40°C to +85°C
ABM11-140	2.0	1.6	26	8	40	10	10	-20°C to +70°C
ABM10	2.5	2.0	12 to 55	7 to 20	100	10/15/25	10/15/20	-40°C to +125°C
ABM8	3.2	2.5	10 to 125	6 to 20	50	10/15/20	10/15/20	-40°C to +125°C
ABM8G	3.2	2.5	12 to 50	7 to 20	80	10/15/20	10/15/20	-40°C to +85°C
ABM9	4.0	2.5	12 to 32	8 to 33	80	10/15/20	10/15/20	-40°C to +85°C
ABM3	5.0	3.2	8 to 80	7 to 32	30	15/20/25	10/15/20	-40°C to +125°C
ABM3B	5.0	3.2	8 to 125	6 to 32	50	10/15/20	10/15/20	-55°C to +125°C
ABM3C	5.0	3.2	10 to 50	8 to 33	50	20/25/30	30/35/80	-40°C to +85°C
ABM7	6.0	3.5	8 to 50	8 to 33	50	10/15/20	10/15/20	-55°C to +125°C
ABMM2	6.0	3.6	7.3728 to 110	8 to 33	50	10/15	10/20/30	-40°C to +125°C
ABLS7M	7.0	4.1	12 to 40	8 to 33	40	10/15/20	10/15/20	-40°C to +125°C
ABLS7M2	7.0	5.0	12 to 40	8 to 33	40	10/15/20	10/15/20	-40°C to +125°C
ABMM	7.0	5.0	6 to 125	8 to 33	50	10/15/20	10/15/20	-40°C to +85°C
ABMM1	7.2	5.2	6 to 125	8 to 33	50	10/15/20	10/15/20	-40°C to +125°C
ABM2	8.0	4.5	8 to 100	8 to 33	50	10/15/20	10/15/20	-40°C to +125°C
ABMC2	11.0	5.0	3.579545 to 70	7 to 20	40	10/15/20	10/15/20	-40°C to +85°C
ABLS	11.4	4.7	3.579545 to 75	8 to 33	40	5/10/15	10/15/20	-40°C to +125°C
ABLS2	11.4	4.7	3.579545 to 70	10 to 33	40	5/10/15	10/15/20	-40°C to +125°C
ABLS3	11.4	4.7	6 to 70	10 to 33	40	5/10/15	10/15/20	-40°C to +125°C

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

Standard SMD 32.768kHz Tuning Fork Quartz Crystals

SERIES	PACKAGE SIZE (mm)		FREQUENCY (kHz)	CL, PLATING LOAD (pF)	ESR MAX* (k Ω)	TOLERANCE OPTIONS (\pm ppm)	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
	L	W					
ABS05	1.6	1.0	32.768	6 to 12.5	90	10/20/30	-40°C to +85°C
ABS06	2.0	1.2		4 to 12.5	110	10/20/30	-55°C to +125°C
ABS06-107	2.0	1.2		4	80	20	-40°C to +85°C
ABS07	3.2	1.5		4 to 12.5	70	10/20/30	-55°C to +125°C
ABS07-LR	3.2	1.5		6	50	10/20	-40°C to +85°C
ABS07L	3.2	1.5		7 to 12.5	80	20/30	-40°C to +85°C
ABS07-120	3.2	1.5		6	60	20	-40°C to +85°C
ABS09	4.1	1.5		7 to 12.5	70	10/30	-40°C to +125°C
ABS13	6.9	1.4		7 to 12.5	65	20/30	-40°C to +85°C
ABS25	8.0	3.8		6 to 12.5	50	10/15/20	-40°C to +85°C

*Over widest available Operating Temperature Range

AX7 CLEARCLOCK™



POWER OPTIMIZED 119FS JITTER PERFORMANCE FOR THE FASTEST DATA LINKS

The AX7 ClearClock™ oscillator for next generation networking and RF applications leads the industry in low power consumption while maintaining low jitter performance of 119fs (typical) ideal for clocking serial data links beyond 56Gbps.



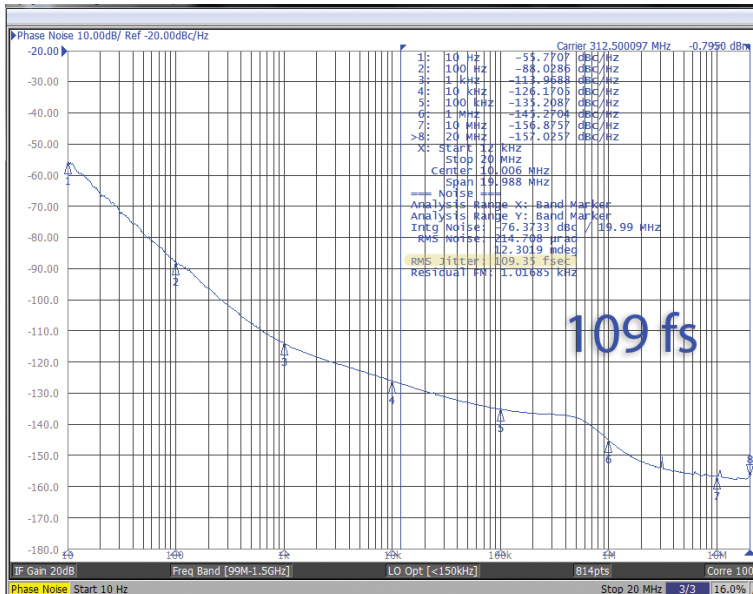
APPLICATIONS

- RF Systems
- High Speed SERDES up to 56Gbps
- High Performance Computing (HPC)
- Network Processors
- PCI Express
- BTS / Basestations
- Test and Measurement
- FPGA / Processors
- 100 / 400Gb Ethernet
- Server, Storage, Fibre Channel Networking and Communications
- Backplane / Chip to Chip Buses

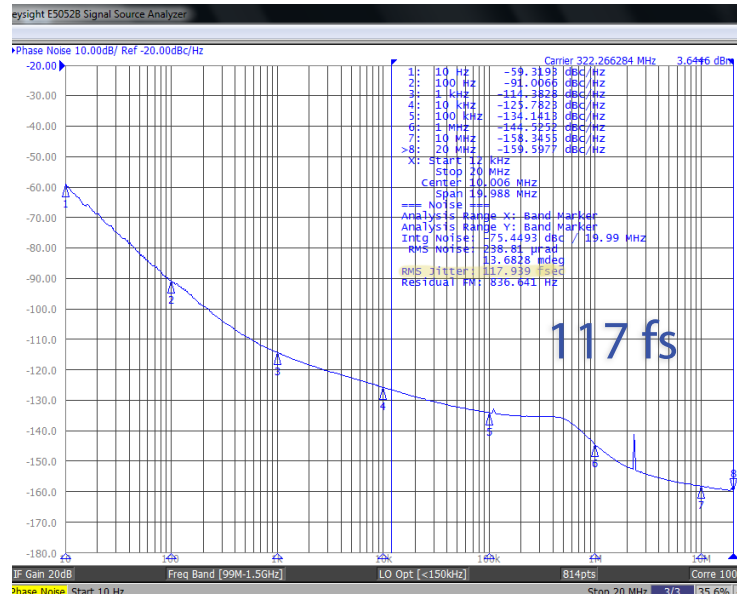
FEATURES

- 119fs Jitter Typical (F=322.265625MHz)
- 150fs Jitter MAX (F>200MHz)
- Widest in-class Frequency Range from 50MHz to 2.1GHz
- Lowest in-class Power Consumption 70mA MAX I_{dd} (LVDS)
- Programmable Oscillator (quick turnaround availability for entire frequency range)
- Supports LVPECL, LVDS, HCSL, CML Output Logic Type
- Industry Standard 7.0 x 5.0 mm Footprint

312.5MHz | LVPECL | 3.3V



322.265625MHz | HCSL | 2.5V





ASG2-LJ XO/VCXO
2.5 x 2.0mm
800fs



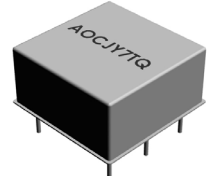
ASTMUP MEMS OSCILLATOR
3.2 x 2.5mm
600fs



AX7
7.0 x 5.0mm
150fs



ABLNO XO/VCXO
14.0 x 9.0mm
37fs



AOCJY7TQ OCXO
25.0 x 25.0mm
20fs

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, instrumentation and data center/server applications.

SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	TYPE
	L	W					
AX7	7.0	5.0	50 to 2100	1.8, 2.5, 3.3	LVPECL, LVDS, HCSSL, CML	-40°C to +85°C	XO
ASG-ULJ	7.0	5.0	1 to 705.8	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	XO
ABNM	7.0	5.0	1 to 160	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	XO
ABFM	7.0	5.0	30 to 280	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	XO
ASVMX	7.0	5.0	25 to 860	2.375 ~ 3.63V	CMOS, LVPECL, LVDS, HCSSL	-40°C to +85°C	XO
ASFLMX	5.0	3.2	25 to 860	2.375 ~ 3.63V	CMOS, LVPECL, LVDS, HCSSL	-40°C to +85°C	XO
ASG2-LJ	2.5	2.0	10 to 1500	2.5, 3.3	CMOS, LVPECL, LVDS	-40°C to +85°C	XO
ABLJO	14.3	8.7	80 to 200	3.3	CMOS	-40°C to +85°C	XO/VCXO
ABLNO	14.3	8.7	50 to 156.25	3.3	CMOS	-40°C to +85°C	XO/VCXO
ASGTX	9.0	7.0	10 to 1500	3.3	CMOS, LVPECL, LVDS	-40°C to +85°C	TCXO/VCTCXO
ASTX-H09	5.0	3.2	5 to 50	3.0, 3.3	CMOS	-40°C to +85°C	TCXO
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	TCXO/VCTCXO
ASTX-H11	3.2	2.5	2.5 to 55	2.5, 2.8, 3.3	CMOS	-40°C to +85°C	TCXO
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	TCXO/VCTCXO
ASTX-H12	2.5	2.0	3.2 to 55	2.5, 2.8, 3.3	CMOS	-40°C to +85°C	TCXO
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	TCXO/VCTCXO
ASTXR-12	2.5	2.0	10 to 52	1.8, 2.5, 3.0, 3.3	Clipped Sine	-40°C to +85°C	TCXO/VCTCXO
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	TCXO/VCTCXO
ASTXR-13	2.0	1.6	13 to 52	1.8, 2.5, 3.0	Clipped Sine	-40°C to +85°C	TCXO/VCTCXO
AST3TQ	7.0	5.0	10 to 40	3.3	CMOS	-55°C to +95°C	Stratum-III
AST3TQ53	5.0	3.2	10 to 40	3.3	CMOS	-40°C to +85°C	Stratum-III
ABDF(V)TCXO	14.0	9.0	5 to 52	3.3	CMOS	-40°C to 85°C	Stratum-III
AOCJY	25.4	22.1	10 to 100	3.3, 5.0	CMOS, Clipped Sine	-40°C to +75°C	OCXO
AOCJYR	9.7	7.5	10 to 24.576	3.3	CMOS	-40°C to +85°C	OCXO
AOCJY7TQ	25.5	25.5	100	12	Clipped Sine	-40°C to +85°C	OCXO

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. VDD operation up to 5V and legacy through-hole package options available. Contact Abracon for additional information.

SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE	PACKAGE TYPE
	L	W					
ASCO	1.6	1.2	7 to 80	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
ASA	2.0	1.6	1 to 80	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
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
ASG2	2.5	2.0	8 to 1500	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	SMD
AP2S	2.5	2.1	2.048 to 200	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
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
AP3S	3.2	2.5	2.048 to 200	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
ASFL(V)	5.0	3.2	0.32 to 133	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
ASFV	5.0	3.2	1.5 to 50	5.0	CMOS	-40°C to +85°C	SMD
AP5S	5.0	3.2	10 to 200	2.5, 3.3	CMOS	-40°C to +85°C	SMD
ASV(V)	7.0	5.0	0.31 to 200	1.8, 2.5, 3.3	CMOS	-40°C to +85°C	SMD
AL(V)D	7.0	5.0	0.75 to 800	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	SMD
ASL(V)	7.0	5.0	1 to 125	5.0	CMOS	-40°C to +85°C	SMD
ASG	7.0	5.0	10 to 1500	2.5, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C	SMD
AP7S	7.0	5.0	10 to 200	2.5, 3.3	CMOS	-40°C to +85°C	SMD
ACH	12.7	12.7	0.32 to 200	5.0	CMOS	-40°C to +85°C	Thru Hole
ACHL(x)	13.2	13.2	0.40 to 160	2.5, 3.3	CMOS	-40°C to +85°C	Thru Hole
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

SERIES	TYPE	PACKAGE SIZE (mm)		FREQUENCY	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
		L	W		
ABS07AIG	XTAL	3.2	1.5	32.768 kHz	-40°C to +125°C
ABM11AIG	XTAL	2.0	1.6	16 to 50 MHz	-40°C to +125°C
ABM10AIG	XTAL	2.5	2.0	12 to 62.5 MHz	-40°C to +125°C
ABM8AIG	XTAL	3.2	2.5	10 to 54 MHz	-40°C to +125°C
ABM8GAIG	XTAL	3.2	2.5	10 to 30 MHz	-40°C to +125°C
ABM3AIG	XTAL	5.0	3.2	12 to 54 MHz	-40°C to +125°C
ABM3BAIG	XTAL	5.0	3.2	12 to 54 MHz	-40°C to +125°C
ABM3CAIG	XTAL	5.0	3.2	8 to 20 MHz	-40°C to +150°C
ABM4AAIG	XTAL	7.0	5.0	6 to 25 MHz	-40°C to +125°C
ABM4BAIG	XTAL	7.0	5.0	6 to 25 MHz	-40°C to +125°C
ASH7KAIG	XO	3.2	1.5	32.768 kHz	-40°C to +85°C
ASAAIG	XO	2.0	1.6	4 to 50 MHz	-40°C to +105°C
ASDAIG	XO	2.5	2.0	20 to 48 MHz	-40°C to +125°C
ASEAIG	XO	3.2	2.5	1.75 to 60 MHz	-40°C to +125°C

TS16949 Certified
AEC-Q200 Qualified
PPAP Ready

Applications requiring the highest levels of quality and reliability benefit from our TS16949 qualified and PPAP ready crystals and oscillators.



kHz xtal, the OLD

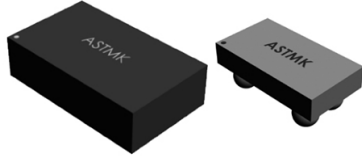


watch-MEMS®

kHz MEMS OSC, the NEW



µA IoT • Wearables



ASTMK, Ultra-Miniature Micro-Power 32.768kHz Clocking Solution

The ASTMK saves space for wearables and IoT applications. It is shock and vibration resistant, robust, and provides temperature compensated (TCXO) options down to ± 5 ppm.

32.768 kHz Quartz Crystal & MEMS Oscillators

SERIES	PACKAGE SIZE (mm)		FREQUENCY (kHz)	VDD OPTIONS (V)	TECHNOLOGY	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
	L	W				
ASTMK	1.54 2.0	0.84 1.2	0.001 to 32.768	1.5~3.63	MEMS	-40°C to +85°C
ASTMKJ	1.54	0.84	32.768	1.5~3.63	MEMS	-40°C to +85°C
ASTMTXK	1.54	0.84	32.768	1.5~3.63	MEMS	-40°C to +85°C
ASTMK06	2.0	1.2	32.768	1.5~3.63	MEMS	-40°C to +85°C
ASTMKH	2.0	1.2	32.768	1.5~3.63	MEMS	-40°C to +85°C
ASH7K	3.2	1.5	32.768	1.5~3.6	Quartz	-40°C to +85°C
ASH7KW	3.2	1.5	32.768	1.2~5.5	Quartz	-40°C to +125°C
ASAK	2.0	1.6	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
ASDK	2.5	2.0	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
ASEK	3.2	2.5	32.768	1.8, 2.5, 3.3	Quartz	-40°C to +85°C
ASHEK	3.2	2.5	32.768	1.5, 1.8, 2.8, 3.3, 5.0	Quartz	-20°C to +70°C
ASFLK	5.0	3.2	32.768	2.5, 3.0, 3.3, 5.0	Quartz	-40°C to +85°C
ASVK	7.0	5.0	32.768	2.8, 3.0, 3.3	Quartz	-40°C to +85°C

Ultra-Performance MHz MEMS Oscillators

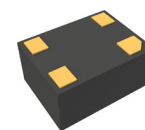
Ultra-Performance 600fs (typical) RMS Phase Jitter performance for communications, networking, PCI Express, data center, and server applications.

SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
	L	W				
ASTMUP(x)D	2.5	2.0	1 to 625	1.8, 2.5, 2.8, 3.3	CMOS	-40°C to +85°C
ASTMUP(x)E	3.2	2.5	1 to 625	1.8, 2.5, 2.8, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C
ASTMUP(x)FL	5.0	3.2	1 to 625	1.8, 2.5, 2.8, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C
ASTMUP(x)V	7.0	5.0	1 to 625	1.8, 2.5, 2.8, 3.3	CMOS, LVDS, LVPECL	-40°C to +85°C

Power Optimized MEMS Oscillators

AMJM | AMJD | AMPM | AMPD

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.



SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	FUNCTIONAL OPTIONS	STANDBY IDD	IDD	STABILITY OPTIONS	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
	L	W						
AMJM	1.6 2.0 2.5 3.2	1.2	1 to 100	OE or Standby	12µA	3mA	±50ppm ±25ppm	-40°C to +85°C -20°C to +70°C
AMJD		1.6	1 to 100	Frequency Select	N/A	3mA		
AMPM		2.0	1 to 80	OE or Standby	12µA	1.3mA		
AMPD		2.5	1 to 80	Frequency Select	N/A	1.3mA		

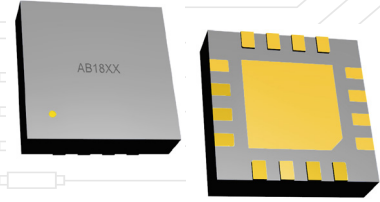
General Purpose MHz MEMS Oscillators

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.

SERIES	PACKAGE SIZE (mm)		FREQUENCY (MHz)	VDD OPTIONS (V)	OUTPUT LOGIC TYPE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
	L	W				
ASTMHTA	2.0	1.6	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ASTMLPA	2.0	1.6	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ASDM	2.5	2.0	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ASDMB	2.5	2.0	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
ASDMP	2.5	2.0	10 to 460	2.25~3.6	CMOS, LVDS, LVPECL, HCSL	-55°C to +125°C
ASDMDC	2.5	2.0	2.3 to 170	2.25~3.6	CMOS	-55°C to +125°C
ASTMLPD	2.5	2.0	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ASTMHTD	2.5	2.0	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ASEM	3.2	2.5	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ASEMB	3.2	2.5	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
ASEMP	3.2	2.5	10 to 460	2.25~3.6	CMOS, LVDS, LVPECL, HCSL	-55°C to +125°C
ASTMLPE	3.2	2.5	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ASTMHTE	3.2	2.5	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ASFLM	5.0	3.2	1 to 150	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ASFLMB	5.0	3.2	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
ASFLMP	5.0	3.2	10 to 460	2.25~3.6	CMOS, LVDS, LVPECL, HCSL	-55°C to +125°C
ASTMLPFL	5.0	3.2	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ASTMHTFL	5.0	3.2	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C
ASVM	7.0	5.0	1 to 110	1.8, 2.5, 2.8, 3.3	CMOS	-40°C to +85°C
ASVMB	7.0	5.0	1 to 150	1.8~3.3	CMOS	-40°C to +105°C
ASVMP	7.0	5.0	10 to 460	2.25~3.6	CMOS, LVDS, LVPECL, HCSL	-55°C to +125°C
ASTMLPV	7.0	5.0	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-40°C to +85°C
ASTMHTV	7.0	5.0	1 to 137	1.8, 2.5, 2.8, 3.0, 3.3	CMOS	-55°C to +125°C

Leading the industry with 22nA low power real time clock (RTC) solutions

Abracon offers industry leading solutions ideal for the industrial IoT, wearables, and battery operated applications.



Real Time Clock - Industry's Lowest 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.

SERIES	PACKAGE SIZE (mm)		PACKAGE	FEATURES	VDD OPTIONS (V)	INTERFACE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
	L	W					
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
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
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
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

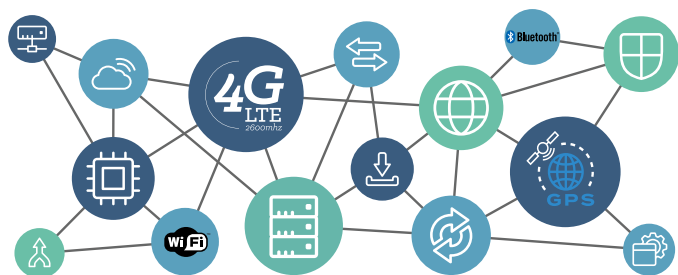
Stand-alone real time clocks (RTC) with integrated quartz crystals external crystals offer a variety of industry leading low power or high accuracy temperature compensated (TCXO) solutions.



SERIES	PACKAGE SIZE (mm)		PACKAGE	FEATURES	VDD OPTIONS (V)	INTERFACE	WIDEST AVAILABLE OPERATING TEMPERATURE RANGE
	L	W					
AB-RTCMC-32.768kHz-AIGZ-S7	3.2	1.5	8-CLCC	Alarm, Leap Year, Watchdog Timer	1.3 ~ 4.4	I2C, 2-Wire Serial	-40°C to +85°C
AB-RTCMK-32.768kHz	3.2	2.5	8-VDFN	Alarm, Leap Year, Square Wave Output, TCXO	1.3 ~ 5.5	I2C, 2-Wire Serial	-40°C to +85°C
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
AB-RTCMC-32.768kHz-EOA9-S3	3.7	2.5	10-VDFN	Alarm, EEPROM, TCXO, Trickle-Charger	2.1 ~ 5.5	SPI	-40°C to +125°C
AB-RTCMC-32.768kHz-EOZ9-S3	3.7	2.5	10-VDFN	Alarm, EEPROM, TCXO, Trickle-Charger	2.1 ~ 5.5	I2C, 2-Wire Serial	-40°C to +125°C
AB-RTCMC-32.768kHz-B5GA-S3	3.7	2.5	10-VDFN	Alarm	1.8 ~ 5.5	I2C, 2-Wire Serial	-40°C to +85°C
AB-RTCMC-32.768kHz-B5ZE-S3	3.7	2.5	10-VDFN	Alarm	1.6 ~ 5.5	I2C, 2-Wire Serial	-40°C to +85°C
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

Antenna Solutions

Abracon presents its line of antennas designed to address connectivity in the Internet of Things. Our antennas span across a wide variety of protocols including 4G/LTE, 2G/3G, WiFi/Bluetooth/Zigbee, GNSS/GPS/GLONASS, LPWA/LoRa/Sigfox and several ISM bands. These products include a broad mix of external, external active, chip, passive and active patch, and RFID reader antennas with high gain capability and multiple band options.



4G/LTE/3G/2G/GSM

CHIP				
PART NUMBER	FREQUENCY (MHz)	GAIN PEAK (dBi)	PACKAGE SIZE (mm)	
			(L x W) / (Ø)	H
ACAJ-109-T	824 ~ 960 1710 ~ 2170	1.3 ~ 6.4	24.0 x 5.5	4.4
EXTERNAL				
APAMS-101	820 ~ 960 1710 ~ 1990	1.0 2.0	115.0 x 22.0	7.0
APAMS-102	820 ~ 960 1710 ~ 2170	1, 2, 2.5, 3	138.0 x 21.0	6.0
APAMS-103	820 ~ 960 1710 ~ 1880	2.0	138.0 x 21.0	6.0
APAMS-104	890 ~ 960 1710 ~ 1880	2.5 3.0	Ø6.78	111.0
APAMS-118	890 ~ 960 1710 ~ 1880	2.0 3.0	Ø10.0	108.1
APAMS-119	890 ~ 960 1710 ~ 1880	2.15	Ø12.0	78.0
APAMS-131	890 ~ 960 1710 ~ 1880	2.5 3.0	Ø6.78	111.0
AEACCA115021-S698	698 ~ 960 1710 ~ 2655	2.0	115.6 x 21.7	5.8
AEACAC198013-S698	698 ~ 960 1710 ~ 2655	3.0	Ø13.0	198.0

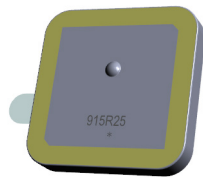
GNSS/GPS/GLONASS/BEIDOU/Galileo

CHIP				
PART NUMBER	FREQUENCY (MHz)	GAIN PEAK (dBi)	PACKAGE SIZE (mm)	
			(L x W) / (Ø)	H
ACAG0301-1575-T	1575	4.18	3.2 x 1.6	0.6
ACAG0301-15752450-T	1575 2450	1.21 3.18	3.2 x 1.6	1.2
PATCH				
APAE1575R1240ABDD1-T	1575.42	0.6	12.0 x 12.0	4.0
APAE1575R1540AZDB2F-T	1575.42	1.2	15.0 x 15.0	4.0
APAE1575R1820ABDC1-T	1575.42	3.3	18.0 x 18.0	2.0
APAE1575R1840BADB1F-T	1575.42	3.3	18.0 x 18.0	4.0
APAE1575R2040ABDD2-T	1575.42		20.0 x 20.0	4.0
APAE1575R2520ABDD7-T	1575.42	4.3	25.0 x 25.0	2.0
APAE1575R2540AADBE-T	1575.42	4.5	25.0 x 25.0	4.0
APAEA1575R0940K14-T	1606	-1	9.0 x 9.0	4.0
APAKN1304-C2G-T	1575.42 1602	2.6 2.4	13.0 x 13.0	4.0
APAKN1804-C2G-T	1575.42 1602	2.8 2.9	18.0 x 18.0	4.0
APAKN2504-C2G-T	1575.42 1602	3.6	25.0 x 25.0	4.0
ACTIVE PATCH				
APAM0968JL03V2.0	1575.42	-3	9.0 x 9.0	6.8
APAM1268JL02V2.0	1575.42	0	12.0 x 12.0	6.8
APAM1568YE15V2.0	1575.42	1.5	15.0 x 15.0	6.8
APAM1866YA18	1575.42	2.0	18.0 x 18.0	7.0
EXTERNAL ACTIVE				
APAMP-106	1575.42	5.0	48.6 x 39.2	15.2
APAMP-108	1575.42	5.0	54.5 x 44.5	14.8
APAMP-109	1575.42	5.0	50.6 x 50.6	15.1
APAMP-111	1575.42	5.0	38.3 x 35.0	12.0
APAMP-112	1575.42	5.0	46.0 x 38.0	15.0
APAMP-114	1575.42	1.0	26.0 x 23.0	12.0
APAMP-115	1575.42	3.5	40.0 x 35.0	15.1
APAMP-116	1575.42	5.0	44.0 x 37.0	14.5
APAMP-122	1576.44	5.0	48.6 x 39.2	15.2
APAMP-127	1576.44	5.0	38.0 x 34.0	12.0
APAMPG-117	1575.42 1594 ~ 1610	5.0	44.0	14.5
APAMPJ-132	1575.42	4.0	41.0 x 34.0	14.5
AEAGMK148060-S1575	1164 ~ 1610	4.5	Ø148.0	60.0



ACAG0201-2450-T

Small Package Size



APAE915R2540ABDB1-T

LPWA/LORA



AEACCA115021-S698

Low Profile, LTE/GSM



ACAG0301-24505500-T

Dual Band WLAN

WiFi/Bluetooth/Zigbee

CHIP				
PART NUMBER	FREQUENCY (MHz)	GAIN PEAK (dBi)	PACKAGE SIZE (mm)	
			(L x W) / (Ø)	H
AMCA31-2R450G-S1F-T	2450	0.5	3.2 x 1.6	1.2
AMCA72-2R470G-S1F-T	2470	2.5	7.0 x 2.0	1.0
ACAG0301-15752450-T	1575 2450	1.21 3.18	3.2 x 1.6	1.2
ACAG0301-24505500-T	2400 ~ 2500 5150 ~ 5850	2.23 4.05	3.2 x 1.6	1.2
ACAG0201-2450-T	2450	2.7	2.0 x 1.25	0.6
ACAG0801-2450-T	2450	7.29	8.0 x 1.0	1.0
ACAG0301-5500-T	5500	4.5	3.2 x 1.6	1.2
PATCH				
APAKN2504-S2448-T	2412 ~ 2484	7.0	25.0 x 25.0	4.0
APAKN1304-S5517-T	5150 ~ 5885	6.0	13.0 x 13.0	4.0
EXTERNAL				
APAMBJ-135	2.4 5.0	2.0	Ø10.0	54.4
APAMBJ-145	2.4 5.1 ~ 5.9	5.0 2.0	Ø36.5	77.3
APAMS-120	2350 ~ 2450 5700 ~ 5900	2.0	Ø10.0	77.0
APAMS-121	2350 ~ 2450 5700 ~ 5900	2.0	Ø10.0	86.0
APAMSJ-137	4850 ~ 5850	5.0	Ø9.6	44.0
AEACAQ190012-S2400	2400 ~ 2483.5	5.0	Ø12.9	190.0
AEACAC025009-S2400	2400 ~ 2483.5	2.0	Ø9.5	25.9

LPWA/LORA/SigFox

CHIP				
PART NUMBER	FREQUENCY (MHz)	GAIN PEAK (dBi)	PACKAGE SIZE (mm)	
			(L x W) / (Ø)	H
ACAJ-110-T	868 915	2.5 2.7	9.0 x 3.0	1.2
ACAG1204-433-T	433	-1.72	12.0 x 4.0	1.6
ACAG1204-915-T	915	3.42	12.0 x 4.0	1.6
ACAG1204-868-T	868	2.63	12.0 x 4.0	1.6
PATCH				
APAE868R2540JBDB2-T	868	-1.37	25.0 x 25.0	4.0
APAE915R2540ABDB1-T	915		25.0 x 25.0	4.0
APAES868R8060C16-T	868	5.0	80.0 x 80.0	6.0
APAES915R6460C16-T	915	3.5	62.5 x 62.5	6.0
APAES915R80C16-T	915	5.0	80.0 x 80.0	6.0
APAES923R3640C16-T	923	1.5	36.0 x 36.0	4.0
APAES923R4560C16-T	923	2.5	45.0 x 45.0	6.0
EXTERNAL				
APAMSTJ-139	380 ~ 500	2.0	Ø13.2	54.6
AEACAQ190012-S868	868	3.5	Ø12.9	190.0
AEACAQ190012-S915	915	3.5	Ø12.9	190.0
AEACAC053010-S433	433	2.0	Ø10.4	53.4
PATCH				
PART NUMBER	FREQUENCY (MHz)	GAIN PEAK (dBi)	PACKAGE SIZE (mm)	
			L x W	H
APAE1621R2540ABDD1-T	1621±3	4.0	25.0 x 25.0	4.0
APAE2338L2540DDDB1-T	2338	5.0	25.0 x 25.0	4.0

Satellite Communications



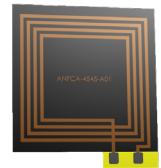
Combinational Antennas

Combinational antennas offer support for multiple protocols like Cellular, GNSS and WiFi with various connector options. They also offer long range connectivity, high power efficiency and allow easy integration for IoT and M2M applications.

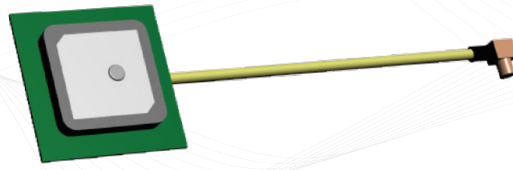
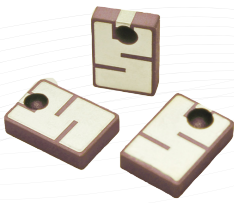
PART NUMBER	FREQUENCY (MHz)	TYPE	GAIN PEAK (dBi)	PACKAGE SIZE (mm)		FEATURES
				(L x W) / (Ø)	H	
APAMPS-105	1575.42, 806 ~ 960 1710 ~ 1880	External	5.0	Ø76.8	15.5	GSM, Active GPS
APAMPS-106	1575.42, 806 ~ 960 1710 ~ 1880	External	5.0	Ø75.0	14.1	GSM, Active GPS
APAMPSBJ-144	791 ~ 960, 1710 ~ 2960 1572 ~ 1610	External	2.2, 2.0, 2.0	Ø77.3	66.5	4G/LTE/3G, GSM, WiFi, GPS/ GLONASS, Active GPS/GLONASS
APAMPSLJ-142	1572 ~ 1610, 380 ~ 500 824 ~ 2497	External	2.2	92.0 x 52.0	157.0	GSM, Active GPS/GLONASS, WiFi
APAMPSLJ-140	1559 ~ 1606, 699 ~ 960 1710 ~ 2690	External	5.0	196.0 x 38.0	13.8	4G/LTE, GSM, WiFi, GPS/GLONASS
APAMSJ-147	850 ~ 960, 1700 ~ 2100 1575 ~ 1610	External	1.5, 0.5	Ø77.0	12.0	GSM, Active GPS/GLONASS, IP67 Certified
APAMSTJ-138	380 ~ 500, 824 ~ 900 1800 ~ 2500	External	2.2	126.5 x 22.0	6.7	TETRA, GSM, WiFi
AEACBK046014-C2WG	1575.42, 2400 ~ 2483.5 4800 ~ 5825	External	2.0	Ø46.6	14.5	Active GPS, Dual Band WiFi
ACAG0301-15752450-T	1575, 2450	Chip	1.21, 3.18	3.2 x 1.6	1.2	WiFi, GPS

Flexible NFC Antennas

Abracon's flexible near field communications (NFC) antennas are designed to operate at 13.56MHz. NFC is a set of RF communications protocols that transmit data at very close range, requiring the transmit and receive antennas to be within a few centimeters from each other. NFC is useful in applications where the two devices come in close contact with each other, for example: identity authentication cards, payment systems, asset tracking and file or picture sharing at close range.



PART NUMBER	FREQUENCY (MHz)	INDUCTANCE VALUE (µH)	PACKAGE SIZE (mm)		THICKNESS (µm)
			L	W	
ANFCA-1510-A02	13.56	1.8±10%	45.0	35.0	140-280
ANFCA-2515-A02	13.56	1.8±10%	25.0	15.0	140-240
ANFCA-2525-A02	13.56	1.8±10%	25.0	25.0	140-240
ANFCA-3225-A02	13.56	1.8±10%	32.0	25.0	140-240
ANFCA-4030-A01	13.56	1.5±10%	40.0	30.0	140-240
ANFCA-4030-A02	13.56	1.7±10%	40.0	30.0	140-240
ANFCA-4040-A02	13.56	1.7±10%	40.0	40.0	140-240
ANFCA-4535-A01	13.56	1.45±10%	45.0	35.0	140-240
ANFCA-4545-A01	13.56	1.5±10%	45.0	45.0	140-240
ANFCA-5035-A01	13.56	2.7±10%	50.0	35.0	140-240
ANFCA-5040-A02	13.56	1.8±10%	50.0	40.0	140-240
ANFCA-6040-A02	13.56	1.9±10%	60.0	40.0	140-240



RFID

RFID Tags

ARTXXX-IC Series are passive UHF RFID tags designed for use on multiple surface materials including metal. These tags are passive, have read ranges up to 9.0 meters, incorporate Alien H3 IC's with 96 bits of EPC, and 512 bits of user memory. The tags operate at 915MHz and comply with the ISO 18000-6C/EPC Class1 Gen2 protocol. Key attributes of ceramic tags are read range, robustness, ability to operate over wide temperature ranges and their ability to be attached to metal objects, unlike film tags. The ARTXXX-IC Series antennas are ideal for asset tracking applications in industrial, heavy machinery, cloud computing, and transportation segments.

PART NUMBER	FREQUENCY (MHz)	READ RANGE (M)	PACKAGE SIZE (mm)	
			(L x W) / (Ø)	H
ART915X050503OP-IC	902~928	2	5.0 x 5.0	3.0
ART915X100202TO-IC	902~928	1.6	10.0 x 2.5	2.5
ART915X100503JA-IC	902~928	3.6	10.0 x 5.0	3.0
ART915X130930TX13-IC	902~928	0.8	13.0 x 9.0	3.0
ART915X1620TX16-IC	902~928	1.2	Ø16.0	2.0
ART915X2117225TX21-IC	902~928	1.2	20.4 x 17.0	2.25
ART915X250903AM-IC	902~928	6.5	23.0 x 9.0	3.0
ART915X2509EP60-IC	902~928	1.8	25.0 x 9.0	3.0
ART915X252503MA-IC	902~928	9.0	25.0 x 25.0	3.0
ART915X3030YZ30-IC	902~928	4.0	30.0 x 30.0	3.0
ART923X1015YZ10-IC	902~928	0.45	Ø10.0	1.50

RFID Reader Antennas

Abrakon offers high quality, well tuned RFID reader antennas for UHF applications. RFID reader systems require high performance and well tuned antennas in order to meet the read range specified with each tag.

PART NUMBER	FREQUENCY (MHz)	GAIN PEAK (dBi)	PACKAGE SIZE (mm)		
			L	W	H
ARRAN5-868.000MHz	868 ±3	0.5	35.0	35.0	8.2
ARRAN5-915.000MHz	915 ±3	0.5	35.0	35.0	8.2
ARRCN5-868.000MHz	868 ±3	-5	20.5	20.5	7.8
ARRCN5-915.000MHz	915 ±3	-5	20.5	20.5	7.8
ARRRN5-868.000MHz	868 ±3	1.5	40.0	40.0	8.0
ARRRN5-915.000MHz	915 ±3	1.5	40.0	40.0	8.0
ARRSN5-868.000MHz	868 ±3	2.5	50.0	50.0	9.4
ARRSN5-915.000MHz	915 ±3	2.5	50.0	50.0	9.4
ARRTN5-868.000MHz	868 ±3	3.5	65.0	65.0	9.2
ARRTN5-915.000MHz	915 ±3	3.5	65.0	65.0	9.2
ARRUN5-868.000MHz	868 ±3	5.5	120.0	120.0	9.5
ARRUN5-915.000MHz	915 ±3	5.5	120.0	120.0	9.5
ARRKP4065-S915A	902 ~ 928	1.5	40.0	40.0	6.5
ARRKP5062-S915B	902 ~ 928	3.0	50.0	50.0	6.2
ARRKP7059-S915B	902 ~ 928	4.0	70.0	70.0	5.9

Bluetooth Modules

Abrakon offers a selection of Bluetooth modules supporting V4.1 compliance. Design in support is available. To learn more about the entire offering, please visit: www.abracon.com



ABBTM-NVC-MDCS71



Ask about our comprehensive list of compatible Ethernet PHYs.

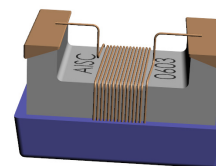
Ethernet PHY and magnetics compatibility resource is available NOW at www.abracon.com/ALAN_PHY. ALAN series magnetics are compatible with hundreds of standard PHY IC's.

Discrete Ethernet LAN Transformers

SERIES	SPEED	NUMBER OF PORTS	OPERATING TEMPERATURE RANGE	FEATURE
ALAN-101	10/100 Base-T	Single	-40°C to +85°C	
ALAN-102	10/100 Base-T	Single	-40°C to +85°C	PoE
ALAN-2201	10/100 Base-T	Single	-40°C to +85°C	PoE
ALAN-2202	10/100 Base-T	Single	-40°C to +85°C	PoE+
ALAN-2204	10/100 Base-T	Single	-40°C to +85°C	PoE+
APT-106	10/100 Base-T	Single	-40°C to +85°C	
ALAN-508	10/100 Base-T	Single	-40°C to +85°C	
ALAN-1002	1000 Base-T	Single	-40°C to +85°C	
ALAN-2301	1000 Base-T	Single	-40°C to +85°C	PoE+
ALAN-409	10/100 Base-TX	Quad	-40°C to +85°C	

Featured RF Inductor Solutions

These solutions are optimal for RF applications including VCOs, impedance matching networks and filters. Abracon offers a variety of technologies including wire-wound, thin film, air coil, ceramic and leaded.



SERIES	INDUCTOR TYPE	INDUCTANCE RANGE (nH)	CURRENT RATING RANGE (mA)	DCR RANGE (Ω)	Q	PACKAGE SIZE (mm)		
						L	W	H
ATFC	Thin Film	0.1 to 33	75 to 850	0.05 to 4.5	16	0.6	0.3	0.23
AIMC	Ceramic	1 to 390	50 to 1,000	0.05 to 3.6	22	0.6	0.3	0.30
AIAC	Air Coil	2.5 to 538	500 to 4,800	0.8 to 42.2	145	2.85	1.80	2.10
AIAM	Axial Leaded	22 to 1,000	28 to 2,400	0.025 to 72	55	2.41	6.35	6.35
AISC-0402	Wire-Wound	1 to 150	80 to 1,360	0.045 to 2.9	26	1.20	0.64	0.66
AISC-0402F	Wire-Wound	18 to 200	390 to 1,400	0.046 to 0.47	--	1.10	0.6	0.60
AISC-0402HP	Wire-Wound	2 to 68	320 to 2,100	0.038 to 0.95	26	1.00	0.55	0.50
AISC-0603	Wire-Wound	1.8 to 560	70 to 1,000	0.043 to 8.1	40	1.80	1.12	1.02
AISC-0603F	Wire-Wound	47 to 22,000	70 to 1,200	0.06 to 11.4	--	1.60	1.0	1.0
AISC-0603HC	Wire-Wound	1.6 to 24	1,800 to 2,400	0.03 to 0.105	42	1.80	1.12	1.02
AISC-0603HP	Wire-Wound	1.7 to 390	180 to 2,100	0.033 to 3.8	40	1.80	1.12	1.02
AISC-0805F	Wire-Wound	2.2 to 68,000	40 to 600	0.1 to 17.5	15	2.30	1.7	1.55
AISC-0805HQ	Wire-Wound	2.5 to 51	1,000 to 1,600	0.02 to 0.12	98	2.29	1.73	1.52
AISC-0805LP	Wire-Wound	1.8 to 1,000	1.7 to 800	0.03 to 3.5	60	2.29	1.73	1.03
AISC-1008F	Wire-Wound	4.7 to 10,000	300 to 1,000	0.08 to 2.95	50	2.92	2.79	2.29
AISC-1008HQ	Wire-Wound	3 to 100	1,000 to 1,600	0.04 to 0.16	80	2.60	2.10	1.70
AISC-1008LP	Wire-Wound	3.3 to 1,000	300 to 1,000	0.03 to 3.7	75	2.92	2.79	1.40
AISC-1206	Wire-Wound	3.3 to 1,200	300 to 1,000	0.07 to 3.2	60	3.56	2.16	1.52
AISC-1210	Wire-Wound	3.9 to 8,600	200 to 1,000	0.05 to 9	60	3.65	2.95	2.70

Single Port Shielded POE, POE+ and POE++ RJ45 Jacks with Integrated Magnetics

SERIES	MOUNT	FUNCTIONALITY	LED	ORIENTATION
ARJ-139	Thru Hole	1000 Base-T, PoE++	Green, Yellow - Green	90° Angle (Right)
ARJ-199	Thru Hole	10/100 Base-T, PoE+	Green, Orange - Yellow	90° Angle (Right)
ARJ-146	Thru Hole	10/100/1000 Base-T, PoE	No LED	90° Angle (Right)
ARJP11A	Thru Hole	10/100 Base-TX, PoE	Green - Yellow	90° Angle (Right)
ARJP11C	Thru Hole	10/100 Base-T, PoE	Green - Yellow	90° Angle (Right)



Single Port Shielded 10G Base-T RJ45 Jacks with Integrated Magnetics

SERIES	MOUNT	FUNCTIONALITY	LED	ORIENTATION
ARJE-1034	SMD	10G Base-T	No LED	90° Angle (Right)

Shielded RJ45 Jacks with Integrated Magnetics & USB Combo

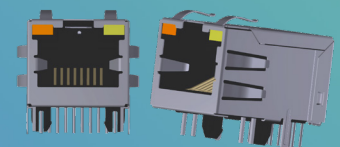
SERIES	MOUNT	FUNCTIONALITY	LED	ORIENTATION
ARJ-150A	Thru Hole	1000 Base-T w/ 2x USB	Green - Yellow	90° Angle (Right)
ARJ-150C	Thru Hole	1000 Base-T w/ 2x USB	Green, Orange - Yellow	90° Angle (Right)
ARJU31B	Thru Hole	10/100/1000 Base-TX w/ 2x USB	Green - Green, Orange	90° Angle (Right)
ARJ-196	Thru Hole	10/100/1000 Base-T w/ 1x USB, AutoMDIX	Green, Orange - Yellow	90° Angle (Right)
ARJU31A	Thru Hole	10/100 Base-TX w/ 2x USB	Green, Orange - Yellow	90° Angle (Right)
ARJ-150B	Thru Hole	10/100 Base-T w/ 2x USB	Green - Yellow	90° Angle (Right)
ARJE-0029	Thru Hole	10/100 Base-T w/ 2x USB	Green, Orange - Yellow	90° Angle (Right)
ARJ-169	Thru Hole	10/100 Base-T w/ 1x USB, AutoMDIX	Green, Orange - Yellow	90° Angle (Right)
ARJE-0032	Thru Hole	10/100 Base-T w/ 1x USB	Green, Orange - Yellow	90° Angle (Right)



Single Port Shielded RJ45 Jacks with Integrated Magnetics

PRODUCT SERIES	MOUNT	FUNCTIONALITY	ORIENTATION
ARJM1	PIH, Thru Hole	10/100Base-T, 1000Base-T, 2.5GBase-T, 5GBase-T	90° Angle (Right)
ARJE-0040	PIH Thru Hole	10/100/1000 Base-TX	90° Angle (Right)
ARJE-0041	PIH Thru Hole	10/100 Base-T	90° Angle (Right)
ARJ-102S	SMD	10/100/1000 Base-T, SMD	90° Angle (Right)
ARJE-0034	SMD	10/100 Base-T, SMD	90° Angle (Right)
ARJ-101D	Thru Hole	10/100 Base-T	90° Angle (Right)
ARJ11A	Thru Hole	10 Base-T	90° Angle (Right)
ARJ11B	Thru Hole	10/100 Base-T	90° Angle (Right)
ARJ11C	Thru Hole	10/100/1000 Base-T	90° Angle (Right)
ARJ11D	Thru Hole	10/100 Base-T	90° Angle (Right)
ARJ11E	Thru Hole	10/100/1000 Base-TX	90° Angle (Right)
ARJ11F	Thru Hole	10/100/1000 Base-T	90° Angle (Right)
ARJ11G	Thru Hole	10/100 Base-T	Vertical
ARJ-148	Thru Hole	10/100/1000 Base-TX	Vertical
ARJ-205	Thru Hole	10/100/1000 Base-TX	90° Angle (Right)
ARJE-0025	Thru Hole	10/100/1000 Base-T, Low Profile	90° Angle (Right)
ARJE-0026	Thru Hole	10/100 Base-T	90° Angle (Right)
ARJE-0027	Thru Hole	10/100/1000 Base-T	90° Angle (Right)
ARJE-0028	Thru Hole	10/100 Base-T	90° Angle (Right)
ARJE-0030	Thru Hole	10/100/1000 Base-T	90° Angle (Right)
ARJE-0031	Thru Hole	10/100 Base-T	90° Angle (Right)
ARJE-0051	Thru Hole	10/100/1000 Base-T, AutoMDIX	Vertical

New ARJM1 Series



The ARJM1 series supports a wide range of configurations in 10/100Base-T, 1000Base-T, 2.5GBase-T and 5GBase-T applications. This series offers the ability to mix and match physical orientation of the tab, pin layouts, EMI fingers, LED colors and plating options, while providing PoE and PoE+ options for 10/100Base-T rates. All configurations support paste in hole (PIH). All devices are rated to 0°C to 70°C or -40°C to 85°C operating temperature range.

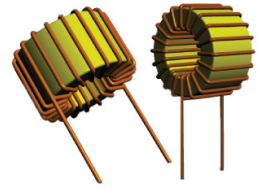


High Power Toroid Inductors by Abracon

Abracon's ATCA line of toroid inductors, utilizing high efficiency, powdered iron cores, are designed for high power applications where through-hole assembly technology is used. Unshielded, the toroidal form-factor minimizes electromagnetic emissions. Supporting either vertical or horizontal orientations, these inductors can be placed with orthogonal orientation with respect to each other, further reducing coupling and crosstalk due to EMI. With current rating up to 10A and extended operating temperature range of -40°C to 105°C, ideal applications include industrial, high power and LED ballasts.

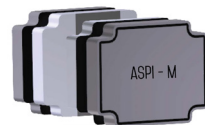
High Power Toroid Inductors

SERIES	INDUCTANCE RANGE (μH)	CURRENT RATING RANGE (A)	DCR RANGE (mΩ)
ATCA-01	20 to 220	1.0 to 3.0	21 to 190
ATCA-02	22 to 470	1.0 to 5.0	14 to 286
ATCA-03	25 to 230	1.0 to 5.0	16 to 159
ATCA-04	50 to 960	1.0 to 5.0	22 to 438
ATCA-05	90 to 1800	1.0 to 5.0	34 to 680
ATCA-06	82 to 1300	1.0 to 5.0	33 to 585
ATCA-07	30 to 850	2.0 to 10.0	9 to 211
ATCA-08	75 to 680	5.0 to 10.0	14 to 105



ASPI Series Low Profile SMD Power Inductors

SERIES	INDUCTANCE RANGE (μH)	CURRENT RATING RANGE (A)	DCR RANGE (mΩ)	OPERATING TEMPERATURE RANGE	PACKAGE SIZE (mm)		
					L	W	H
ASPI-M2512	0.24- to 10	1.0 to 4.1	23 to 480	-40°C to +125°C	2.0	2.5	1.2
ASPI-M3015	0.47 to 10	1.5 to 5.0	27 to 270	-40°C to +125°C	3.0	3.0	1.5
ASPI-2010	0.47 to 6.8	0.58 to 2.60	59 to 816	-40°C to +125°C	2.0	1.6	1.0
ASPI-U201610	0.12 to 4.7	1.25 to 5.60	15 to 288	-40°C to +125°C	2.0	1.6	1.0
ASPI-2510	0.47 to 10	0.55 to 2.5	38 to 712	-25°C to +120°C	2.5	2.0	1.0
ASPI-2515	0.47 to 10	0.75 to 2.8	35 to 445	-25°C to +120°C	2.5	2.0	1.5
ASPI-U252010	0.16 to 4.7	1.4 to 5.0	20 to 240	-40°C to +125°C	2.5	2.0	1.0
ASPI-0315FS	1.0 to 100	0.25 to 2.3	28 to 2,100	-25°C to +120°C	3.0	3.0	1.5
ASPI-0418FS	0.82 to 220	0.28 to 4.0	16 to 2,960	-25°C to +120°C	4.0	4.0	1.8
ASPI-4030S	0.91 to 120	0.42 to 4.15	13 to 1,350	-40°C to +125°C	4.0	4.0	3.0
ASPI-0428S	1.2 to 180	0.22 to 2.56	20 to 1,540	-40°C to +85°C	4.7	4.7	3.0
ASPI-0530LR	1.5 to 5.6	4.0 to 7.0	18 to 55	-55°C to +125°C	5.6	5.2	3.0
ASPI-0615FS	0.5 to 47	0.8 to 5.2	9 to 370	-25°C to +120°C	6.0	6.0	2.2
ASPI-6045S	0.82 to 330	0.57 to 5.9	8 to 1,270	-40°C to +125°C	6.0	6.0	4.5
ASPI-0403S	1.0 to 10000	0.02 to 3.0	40 to 32,800	-40°C to +85°C	6.6	4.45	2.92
ASPI-0630LR	0.47 to 22	2.5 to 18	3 to 152	-55°C to +125°C	7.2	6.65	3.0
ASPI-7318	0.10 to 22	2.0 to 30	1 to 30	-55°C to +125°C	7.3	6.8	3.0
ASPI-8040S	0.82 to 330	0.64 to 6.3	8 to 889	-40°C to +125°C	8.0	8.0	4.2
ASPI-104S	7.0 to 470	0.5 to 4.5	27 to 1,610	-40°C to +85°C	10.1	10.0	4.0
ASPI-1040HI	0.16 to 10	7.5 to 40.0	0.65 to 30	-55°C to +125°C	11.15	10.0	4.0
ASPI-1367	0.1 to 10	10 to 60	0.5 to 18.5	-40°C to +125°C	14.0	12.9	6.7
ASPI-1306T	1.0 to 1000	0.53 to 3.9	40 to 2,010	-40°C to +85°C	18.5	15.2	7.6



ASPI-M2512



Chip



Wire-Wound



Axial-Leaded



Drum Core

Miniature, High Performance, and Standard Power Inductors

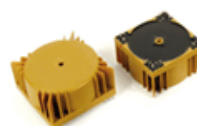
SERIES	INDUCTANCE RANGE (μ H)	CURRENT RATING RANGE (A)	DCR RANGE (m Ω)	SMALLEST PACKAGE SIZE AVAILABLE (mm)			OPERATING TEMPERATURE RANGE
				L	W	H	
CHIP							
AS MPL-0603	0.22 to 1.0	0.70 to 1.2	150 to 400	1.6	0.8	0.5	-40°C to +125°C
AS MPL-0805	0.22 to 2.2	0.35 to 1.2	80 to 400	2.0	1.25	0.5	-40°C to +125°C
AS MPH-0603	0.22 to 2.2	0.30 to 1.25	100 to 300	1.6	0.8	0.8	-40°C to +85°C
AS MPH-0805	0.47 to 4.7	0.28 to 1.2	80 to 250	2.0	1.25	0.9	-40°C to +85°C
AS MPH-0806	0.47 to 4.7	0.22 to 1.5	80 to 140	2.0	1.6	0.9	-40°C to +85°C
AS MP M-0806	0.47 to 4.7	0.95 to 3.1	40 to 360	2.0	1.6	1.0	-40°C to +125°C
AS MPH-1008	0.47 to 4.7	0.32 to 1.5	40 to 110	2.5	2.0	0.9	-40°C to +85°C
AS MCI-0603	0.1 to 10	0.05 to 0.7	140 to 900	1.6	0.8	0.8	-40°C to +85°C
AS MCI-0805	0.1 to 10	0.60 to 1.0	70 to 500	2.0	1.25	1.85	-40°C to +85°C
AI ML-0402	1.0 to 27.0	0.01 to 0.015	900 to 2,000	1.0	0.5	0.5	-55°C to +125°C
AI ML-0603HC	3.3 to 4.7	0.50 to 0.6	400 to 500	1.6	0.8	0.8	-55°C to 125°C
AI ML-0805	0.047 to 39	0.004 to 0.3	200 to 1,500	2.0	1.25	0.85	-55°C to +125°C
AI ML-0805HC	1.0 to 22.0	0.04 to 0.3	150 to 700	2.0	1.25	1.15	-55°C to +125°C
AI ML-1206	0.047 to 220	0.002 to 0.3	150 to 4,000	3.2	1.6	1.1	-55°C to +125°C
MOLDED WIRE-WOUND							
AI SM-1008	0.01 to 100	0.06 to 0.53	260 to 21,000	2.5	2.0	1.8	-40°C to +105°C
AI SM-1210	0.01 to 180	0.06 to 0.45	220 to 17,000	3.2	2.5	2.2	-40°C to +85°C
AI SM-1812	0.1 to 1000	0.03 to 0.80	180 to 40,000	4.5	3.2	3.2	-40°C to +85°C
AI SM-1812H	1 to 330	0.09 to 1.05	110 to 13,000	4.5	3.2	3.2	-40°C to +125°C
AI SM-2220	1 to 1000	0.085 to 1.8	30 to 15,000	5.8	5.2	5.2	-40°C to +85°C
UNSHIELDED WIRE-WOUND							
AI SC-1206H	0.045 to 100	0.045 to 1.0	20 to 8,450	3.2	1.6	1.8	-40°C to +85°C
AI SC-1210HS	2.2 to 33	0.22 to 0.8	500 to 5,000	3.2	3.05	1.3	-40°C to +85°C
AI SC-1812H	1 to 2,200	0.03 to 0.55	20 to 50,000	4.5	3.2	2.6	-25°C to +85°C
AI SC-2220H	0.12 to 10,000	0.05 to 6.0	10 to 140,000	5.7	5.0	4.7	-40°C to +85°C
AXIAL LEADED							
AI AP	1 to 120,000	0.07 to 15.5	7 to 37,000	Ø3.3		9.14	-40°C to +105°C
AI AS	0.1 to 100,000	0.22 to 2.9	71 to 484,000	Ø4.11		10.4	-55°C to +105°C
AI CC	0.1 to 1000	0.035 to 1.38	80 to 33,000	Ø2.54		4.06	-25°C to +105°C
DRUM CORE							
AI RD	1 to 19,000	0.80 to 116.0	2 to 1,540	Ø16.5		21.0	-25°C to +85°C
AI SR-01	1000 to 120,000	0.008 to 0.09	3,400 to 97,000	Ø10.5		10.5	-25°C to +85°C
AI SR-04	10 to 1,000	0.00039 to 0.0039	20 to 1,500	Ø10.5		10.5	-25°C to +85°C
AI SR-875	10 to 10,000	0.084 to 2.9	50 to 33,000	Ø7.8		7.5	-55°C to +125°C
AI UR	1 to 68,000	0.02 to 6.5	12 to 115,000	Ø8.5		7.5	-25°C to +85°C

Custom Transformers, Current Sense, Flyback & Power

Abracon supports a broad range of magnetic technologies suitable for current sense, flyback and other power transformers.

Standard and custom configurations are available.

Contact Abracon for details.



Power



Current Sense



Flyback

Automotive Inductors

Abracon introduces multiple series of standard and automotive grade next generation power inductors optimized for a wide range of applications, from high power automotive and industrial grade, to medium power low profile solutions, down to ultra-compact wearable devices, and IoT. The automotive grade inductors support AEC-Q200 grade 0 or 1 (-55°C to 155°C or -40°C to +125°C), PPAP level 3 and TS-16949 qualified manufacturing.



PART NUMBER	INDUCTANCE RANGE (μH)	CURRENT RATING RANGE (A)	DCR RANGE (mΩ)	CURRENT RATING (A)	DCR (mΩ)	PACKAGE SIZE (mm)			OPERATING TEMPERATURE RANGE
				@ 1 μH		L	W	H	
ASPIAIG-S4035	1.0 to 150	0.45 to 4.5	24 to 2280	4.5	24.0	4.0	4.0	3.5	-40°C to +125°C
ASPIAIG-F4020	0.1 to 2.2	5.6 to 18	2.42 to 38.7	9.6	14.6	4.1	4.1	1.9	-40°C to +125°C
ASPIAIG-FLR4020	0.47 to 4.7	5.1 to 13.2	6.8 to 57.2	11.0	11.7	4.1	4.1	1.9	-40°C to +125°C
ASPIAIG-Q4020	0.1 to 2.2	5.6 to 18	2.42 to 38.70	9.6	14.6	4.1	4.1	1.9	-55°C to +155°C
ASPIAIG-QLR4020	0.47 to 4.7	5.1 to 13.2	6.8 to 57.20	11.0	11.7	4.1	4.1	1.9	-55°C to +155°C
ASPIAIG-F5020	0.15 to 1.5	8.8 to 18.8	4.6 to 18.7	10.5	13.8	5.5	5.3	1.9	-40°C to +125°C
ASPIAIG-F5030	0.15 to 4.7	5.9 to 22.2	2.31 to 36.30	12.2	7.6	5.5	5.3	2.9	-40°C to +125°C
ASPIAIG-F6030	0.18 to 4.5	7.0 to 32	1.75 to 25.30	18.0	6.05	6.6	6.4	2.8	-40°C to +125°C
ASPIAIG-F6050	1.0 to 4.7	8.5 to 20	4.52 to 18.40	20.0	4.52	6.6	6.4	4.8	-40°C to +125°C
ASPIAIG-F7020	0.27 to 1.0	11 to 21	3.5 to 10.8	11.0	10.8	7.8	7.6	1.85	-40°C to +125°C
ASPIAIG-F7030	0.6 to 8.2	5.9 to 23	3.2 to 48.73	21.8	5.0	7.8	7.6	2.9	-40°C to +125°C
ASPIAIG-F1040	0.15 to 82	1.5 to 43	0.6 to 320	18.0	3.3	11.0	10.0	3.8	-55°C to +155°C
ASPIAIG-F1265	0.15 to 47	6.5 to 55	0.6 to 90	30.0	2.3	13.5	12.5	6.2	-55°C to +155°C

20W Dual Mode RX Wireless Charging Coil

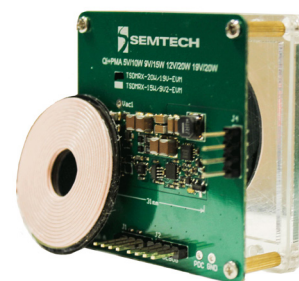
For use in the SEMTECH LINKCHARGE™ 20 TSDMRX-19V20W-EVM reference design

Abrakon's AWCCA-RX350300-101 wireless charging coil is optimized to meet the requirements of Semtech's LinkCharge™ 20 TSDMRX-19V20W-EVM reference design board.

As part of Semtech's complete wireless charging solution delivering up to 85% efficiency at 20W, this coil implements the receive side of the wireless charging solution. Designed for compact applications, it features a 35mm diameter achieving a high power density.

The AWCCA-RX350300-101 wireless charging coil is optimized for 19V/20W operation and 25uH inductance. It has a 35mm diameter, 3.15mm height, and a high permeability shielding to protect sensitive electronics. The durable construction reaches industrial -25°C to 85°C operating temperatures and is compatible with SEMTECH 19V/20W dual mode LinkCharge 20™ TSDMRX-19V20W-EVM chipset to jumpstart your design.

PART NUMBER	INDUCTANCE	DC RESISTANCE	Q
AWCCA-RX350300-101	25μH±10%	<150mΩ Typ	90 Typ
TEST CONDITION	100KHz / 1V	20±15°C	100KHz/1V
TEST EQUIPMENT	HP4284A, HP42841A , Agilent 34420A or equivalent		
TEST ENVIRONMENT	Temperature: 20±15°C, RH: 65% ±20%.		



Standard Wireless Charging Coils

PART NUMBER	TYPE RATIO	FUNCTION (TX OR RX)	INDUCTANCE (μH)	DC RESISTANCE (mΩ)
AWCCA-15N15H06-C01-B	1 Coil, 1 Layer	TX/RX	14.9±10	1,000±20%
AWCCA-20N20H20-C01-B	1 Coil, 1 Layer	TX/RX	6.3±10	150
AWCCA-20R20H08-C01-B	1 Coil, 1 Layer	RX	12±10%	290
AWCCA-28R15H08-C01-B	1 Coil, 1 Layer	RX	7.5±10%	500
AWCCA-30N30H20-C01-B	1 Coil, 1 Layer	RX	6.3±10%	140
AWCCA-30R30H05-C01-B	1 Coil, 1 Layer	RX	29.5±10%	1,800±20%
AWCCA-37R37H18-C01-B	1 Coil, 1 Layer	RX	10	160
AWCCA-38R32H09-C01-B	1 Coil, 1 Layer	RX	11.1	260
AWCCA-48R32H11-C01-B	1 Coil, 1 Layer	RX	10.5	190±20%
AWCCA-53N53H50-C01-B	1 Coil, 1 Layer	TX/RX	24	72±20%
AWCCA-53N53H50-C02-B	1 Coil, 1 Layer	TX/RX	6.3	19
AWCCA-42R38H08-C01-B	1 Coil, 1 Layer	RX	11.5	160
AWCCA-26R26H08-C01-B	1 Coil, 1 Layer	RX	10	320 ±20%
AWCCA-36R36H08-C51-B	1 Coil, 1 Layer	RX	12	350 max
AWCCA-98T56H38-C01-B	3 Coils, 2 Layers	TX	12 (lower coils), 11.5 (upper coils)	56 ± 20%
AWCCA-12R12H11-C01-B	1 Coil, 1 Layer	RX	8	520 max
AWCCA-18R18H10-C01-B	1 Coil, 1 Layer	RX	10.5	330 max
AWCCA-50N50H30-C21-B	1 Coil, 1 Layer	TX/RX	6.3	38±20%
AWCCA-50N50H16-C51-B	1 Coil, 1 Layer	TX/RX	12.5	80±20%
AWCCA-47R38H08-C01-B	1 Coil, 1 Layer	RX	11.5	160±20%
AWCCA-107T52H40-C01-B	3 Coil, 2 Layer	TX	Upper 11.5/ Lower 12.0	56±20%



NXP's Rapid IoT Prototyping Kit

Supported by Abracon
Component Solutions

ABRACON SUPPLIES OFF-THE-SHELF COMPONENTS FOR NXP KINETIS® BASED RAPID IoT PROTOTYPING KIT

FEATURES INCLUDE

- Minimize time to market
- Accelerate software and firmware development
- Reduce design effort
- Complete BOM available using Abracon's solutions

Abracon Part Number	Description	NXP Chipset	Chipset Function
ABM11W-101-32.0000MHZ-T3	2.0 x 1.6mm low ESR 8pF crystal for IoT applications reducing power	MKW41Z512VHT4	Low power BLE/Thread/Zigbee RF
ABM8G-106-12.000MHZ-T	3.2 x 2.5mm cost effective crystal	MK64FN1M0VMD12	Main low power MCU
ABS06-127-32.768kHz-T	2.0 x 1.2mm crystal solution	MKW41Z512VHT4	Low power BLE/Thread/Zigbee RF
ABS07-166-32.768kHz-T	3.2 x 1.2mm crystal solution	PCF2123BS	SPI Real Time Clock (RTC)
AMCA31-101-2R450G-S1F-T3	Low profile 1.2mm chip antenna for BLE, WiFi, Zigbee	MKW41Z512VHT4	Low power BLE/Thread/Zigbee RF
ANFCA-101-2515-A02	Flexible 25 x 15mm NFC 13.56MHz NFC antenna	NT3H2211 NFC	Energy harvesting NFC antenna

LEARN MORE AT

ABRACON.COM/RAPID-IOT

About Abracon, LLC

Abracon is a leading global manufacturer of passive and electromechanical timing, synchronization, power, connectivity and RF solutions. With a broad portfolio of quartz crystals, crystal and MEMS oscillators, real time clocks, power inductors, IoT antennas and more, Abracon supports go-to-market needs by reliably supplying the most advanced components that tackle the toughest design challenges. Focused on quality and innovation, Abracon helps engineers transform their ideas into products that meet the opportunities of tomorrow. The company is ISO9001-2015 certified with design & application engineering resources in Texas and sales representatives throughout North America, Europe, Asia, Australasia, Brazil and Israel. Abracon's products are offered through its global distribution network.

ENGINEERING SERVICES

DID IT PAS?™

Abracon provides an advanced proprietary Pierce analyzer test service (PAS) that validates quartz crystal performance and long term operation in-circuit. The ability to sustain oscillation for a given quartz crystal oscillator design depends heavily on the crystal's motional parameters, board parasitics and oscillator circuit characteristics. The oscillator circuit is a closed loop system that sustains oscillation at an operating frequency depending on the crystal parameters including, crystal plating capacitance (CL), crystal equivalent series resistance (ESR), external loading capacitors, trace parasitics and the oscillator amplifier's gain & phase response. The PAS test service provides a direct measurement of all variables associated with the quartz crystal oscillation. With all variables taken into account, Abracon is able to provide an optimized solution and detailed report that includes:

- Motional parameters (Cm, Lm, ESR, Co)
 - Motional parameters
 - Narrow band frequency response plot
 - Wide band frequency response plot
 - Admittance versus susceptance plot
 - Frequency dependence versus load capacitance plot
- Circuit design margin calculation
- Recommendations for achieving optimal operating point

Abracon Part Number	Lead Time
PAS-BC1WK	1 week
PAS-BC2WK	2 week
PAS-BC3WK	3 week

ANTENNA OPTIMIZATION SERVICES

Abracon offers in-system tuning services for patch and chip antennas. By characterizing the antenna performance in the end system or product, this service takes the guess work out of RF verification while offering corrective measures that re-tune the system for center frequency and impedance mismatch. This provides maximum system efficiency delivering many benefits including, extended RF range, improved sensitivity and can reduce the required power consumption for a given level of transmit range.

This service is offered for the APAE and APA series of passive patch antennas covering a variety of RF bands from few MHz to thousands of MHz for applications, such as RFID, GPS/GLONASS, LPWA, WiFi, ISM radios, and Iridium. Patch antennas are compact with excellent coupling gain and are easy to use. However, frequency shifts may occur due to the layout, proximity to other components and the design of the ground plane. If detuned center frequency is discovered during testing, the patch antenna design can be fine-tuned for the particular device environment. These adjustments match the layout for maximum gain at the center frequency of the application.

This service also applies to the ACAG, ACAJ and AMCA series of chip antennas. Chip antennas such as the ACAG0201-2450-T with 2.0x1.25mm footprint are ultra-compact with good gain that increases sensitivity for applications, such as Bluetooth, Bluetooth Low Energy (BLE), WiFi/WLAN, and Zigbee. These chip antennas require a matching network that optimizes antenna impedance thereby improving the efficiency. The input impedance is matched using lumped elements like inductors and capacitors for the center resonant frequency of the antenna. Higher efficiency guarantees more radiated power and increased range for antennas.

The test requires a fully functional system to be shipped to Abracon and typically takes 4 weeks to complete.

ORDERABLE PART NUMBER: ABAOS-5WK

LOCATIONS

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