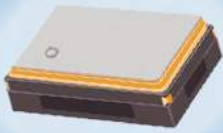


Ultra Miniature
SMD XO & VCXO



ASG2

Precision
SMD TCXO



AST3TQ

32.768kHz
SMD Low
Profile Crystal



ABS07

Ultra Low Phase Noise
XO / VCXO



ABLNO

Wireless Charging
Coils



AWCCA-107T52

SMD TCXO/
VCTCXO



ASGTX

Chip Antennas



ACA-104-T

Inductors



ASPI-0630LR

Transformers



AITC-449

RJ45



ARJ11G

Crystals & Resonators

Real-Time Clocks

Oscillators

Filters

Precision Timing

RF & Microwave

Magnetics & Capacitors

Engineered Solutions

ABRACON

Product Catalog

Ultra Miniature Ceramic SMD Crystal

The Smallest package size in industry - 1.2x1.0x0.3mm



SMD Crystals



ABM13 1.2 x 1.0 x 0.3mm
 • Ceramic Ultra Miniature Seam Sealed
 • 36MHz to 80MHz



★ **ABM12** 1.6 x 1.2 x 0.45 mm
 • Ceramic Ultra Miniature Seam Sealed
 • 24MHz to 80MHz



★ **ABM11** 2.0 x 1.6 x 0.59mm
 • Ceramic Ultra Miniature Seam Sealed
 • 16MHz to 50MHz



★ **ABM10** 2.5 x 2.0 x 0.50mm
 • Ceramic Ultra Miniature Seam Sealed
 • 16MHz to 55MHz



★ **ABM8** 3.2 x 2.5 x 0.8mm
 • Ceramic Ultra Miniature Seam Sealed
 • 10MHz to 125MHz



ABM8X 3.2 x 2.5 x 0.6mm
High Stability Seam Sealed • -40°C to +125°C; ±40 ppm all inclusive • 24MHz, 32MHz



★ **ABM8-166-114.285MHz-T2** 3.2 x 2.5 x 0.75mm
for use with SiLab Si5316
 • -40°C to +85°C • 114.285MHz



★ **ABM8G** 3.2 x 2.5 x 1.0mm
 • Ceramic Glass Sealed • 12MHz to 50MHz



★ **ABM9** 4.0 x 2.5 x 0.8mm
 • Ceramic Seam Sealed • 12MHz to 32MHz



★ **ABM3** 5.0 x 3.2 x 1.3mm
 • Ceramic Glass Sealed • 8MHz to 80MHz
Smaller package alternative for ABM7 series.



★ **ABM3B** 5.0 x 3.2 x 1.1mm
 • Ceramic Seam Sealed • 8MHz to 125MHz



ABM3X 5.0 x 3.2 x 0.9mm
High Stability Crystal • -40°C to +125°C; ±40 ppm all inclusive • 24MHz, 32MHz



★ **ABM3C** 5.0 x 3.2 x 1.3mm
 • Ceramic Seam Sealed • 10MHz to 50MHz



★ **ABM7** 6.0 x 3.5 x 1.4mm
 Ceramic Glass Sealed • 8MHz to 80MHz



★ **ABMM** 7.2 x 5.2 x 1.3mm
 • Ceramic Seam Sealed • 6MHz to 125MHz



ABMM1 7.2 x 5.2 x 1.2mm
 • Ceramic Seam Sealed • 6MHz to 125MHz



★ **ABMM2** 6.0 x 3.6 x 1.2mm
 • Ceramic Seam Sealed • 7.3728MHz to 110MHz



★ **ABM2** 8.0 x 4.5 x 1.4mm
 • Ceramic Glass Sealed • 8.0MHz to 100MHz



ABMC2 11.0 x 5.0 x 2.0mm
 • Resistance Welded • 3.5MHz to 70MHz



★ **ABLSG** 11.4 x 4.7 x 4.2mm
With 3rd lead case-grounded, ideal for EMI shielding
 • HC49US, Resistance Welded
 • 3.579545 MHz to 75 MHz



★ **ABLS-LR** 11.4 x 4.7 x 4.2mm
Ultra Low ESR low frequency crystal
 • HC49US, Resistance Welded • 3.0MHz to 36MHz



★ **ABLS** 11.4 x 4.7 x 4.2mm
 • HC49US, Resistance Welded
 • 3.579545MHz to 75MHz



★ **ABLS2** 11.4 x 4.7 x 3.3mm ← *Reduced Height*
 • HC49US, Resistance Welded
 • 3.579545MHz to 70MHz



★ **ABLS3** 11.4 x 4.7 x 2.5/2.6mm ← *Reduced Height*
 • HC49US, Resistance Welded
 • 3.579545MHz to 70MHz



★ **ABC2** 11.5 x 5.5 x 2.0mm ← *Reduced Height*
 • Ceramic Glass Sealed • 3.5MHz to 70MHz



★ **ABSM2** 12.5 x 4.6 x 3.7mm
 • Molded Plastic • 3.579545MHz to 66.6666MHz



ABSM3A 12.5 x 4.95 x 5.1mm
 • HC49US, Resistance Welded
 • 3.579545MHz to 54MHz



ABSM3B 12.5 x 4.85 x 5.1mm
 • HC49US, Resistance Welded
 • 3.579545MHz to 60MHz

MHz Thru-Hole Crystals



ABU, ABU5 7.8 x 8.0 x 3.1mm
 • UM Type Resistance Welded • 6MHz to 200MHz



ABL 11.5 x 5.0 x 3.5mm
 • HC49US Resistance Welded
 • 3.579545MHz to 70MHz



ABL2 11.5 x 5.0 x 2.5mm
 • HC49US Resistance Welded
 • 3.579545MHz to 70MHz



ABL3 11.5 x 5.0 x 2.0mm
 • HC49US Resistance Welded
 • 3.579545MHz to 70MHz



AB 11.5 x 13.46 x 5.0mm/19.33 x 19.80 x 9.0mm
 • HC49U/HC51U Resistance Welded
 • 1.8432MHz to 160MHz



★ **AB308** 8.5 x 3.0mm
 • Cylindrical Type • 4MHz to 70MHz

kHz SMD Crystals



★ **ABS05** 1.6 x 1.0 x 0.5mm *Industry smallest package*
 • Lowest Profile, 32.768kHz













★ **ABS06** 2.0 x 1.2 x 0.6mm
 • Ultra Low Profile, 32.768kHz






★ **ABS06L** 2.0 x 1.2 x 0.38mm
 • Lowest Profile, 32.768kHz



★ **ABS06-107** 2.0 x 1.2 x 0.60mm
 • Ultra Low Profile, 4pF, ESR Optimized,
 32.768kHz











	★ ABS07 3.2 x 1.5 x 0.90mm • Low Profile , 32.768kHz
	★ ABS07L 3.2 x 1.5 x 0.38mm • Lowest Profile, Low Height, 32.768kHz
	★ ABS07-120 3.2 x 1.5 x 0.90mm • Low Profile, 6pF, ESR Optimized, 32.768kHz
	★ ABS09 4.10 x 1.5 x 0.9mm • Low Profile , 32.768kHz <i>*Not recommended for new designs. Please consider our reduced size ABS07 or ABS06</i>
	★ ABS10 4.9 x 1.8 x 1.0mm • Low Profile , 32.768kHz <i>*Not recommended for new designs. Please consider our reduced size ABS07 or ABS06</i>
	★ ABS13 6.9 x 1.4 x 1.3mm • Molded Plastic • 32.768kHz
	★ ABS25 8.0 x 3.8 x 2.5mm • Molded Plastic • 32.768kHz, 30kHz to 100kHz
	★ AB26TRB 6.0 x ϕ 1.9mm • Cylindrical Type Reflowable • 32.768kHz
	★ AB26TRJ 6.0 x 2.5 x 2.1mm • Cylindrical Type Reflowable • 25kHz to 200kHz
	★ AB26TRQ 5.2 x 1.45 x 1.45mm • Cylindrical Type Reflowable • 32.768kHz

kHz Cylindrical Thru- Hole Crystals

	★ AB15T 5.0 x ϕ 1.4mm • Cylindrical Type • 32.768kHz
	★ AB26T 6.2 x ϕ 2.1mm • Cylindrical Type • 32.768kHz, 30kHz to 200kHz
	★ AB38T 8.3 x ϕ 3.2mm • Cylindrical Type • 32.768kHz

Automotive & Industrial Grade Crystals NEW



	★ ABS07AIG 3.2 x 1.5 x 0.8mm • 32.768 kHz • 2 Pad SMD
	★ ABM11AIG 2.0 x 1.6 x 0.5mm • 18 to 50 MHz • 4 Pad SMD
	★ ABM10AIG 2.5 x 2.0 x 0.6mm • 12 to 62.50 MHz • 4 Pad SMD
	★ ABM8AIG 3.2 x 2.5 x 0.75mm • 12 to 54 MHz • 4 Pad SMD
	★ ABM8GAIG 3.2 x 2.5 x 0.8mm • 10 to 30 MHz • 4 Pad SMD
	★ ABM3AIG 5.0 x 3.2 x 1.3mm • 8 to 20 MHz • 2 Pad SMD
	★ ABM3BAIG 5.0 x 3.2 x 1.0mm • 12 to 54 MHz • 4 Pad SMD
	★ ABM3CAIG 5.0 x 3.2 x 1.3mm • 8 to 20 MHz • 4 Pad SMD
	★ ABM4AAIG 7.0 x 5.0 x 1.6mm • 6 to 25 MHz • 2 Pad SMD
	★ ABM4BAIG 7.0 x 5.0 x 1.6mm • 6 to 25 MHz • 4 Pad SMD

ABS06-107-32.768kHz-T; Ultra Low ESR; 4pF Plated - Tuning Fork Crystal



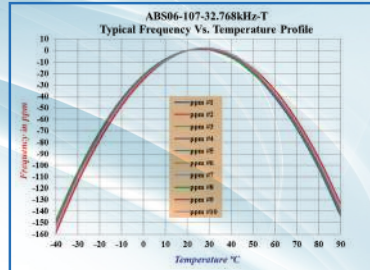
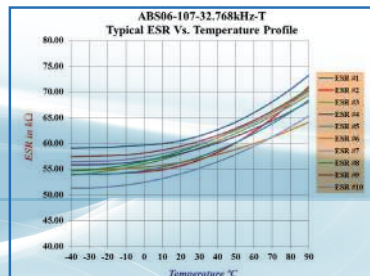
ABRACON's ABS06-107-32.768kHz-T Tuning Fork Crystal is optimized for Power Sensitive Designs, requiring minimal plating load (4pF) and Ultra Low ESR. With guaranteed maximum ESR of 80k Ω , this device is ideally suited for Ultra Low Power - Real Time Clocking solutions, requiring exceptionally low power consumption (Reference; ST Micro STM32L1, F2 & F4 μ controllers).

Applications:

- Power Sensitive, battery operated Consumer Electronics
- PDA and Smartphone
- Communication & measurement equipment
- Commercial & Industrial applications
- Wireless communications

What ABS06-107-32.768kHz-T offers designers?

- 4pF plating load facilitates sustained oscillations with very low oscillator loop transconductance (gm) < 3 μ A/V
- Guaranteed maximum ESR of 80k Ω ensures lower overall power consumption & higher Gain Margin
- Tight Frequency Set Tolerance < \pm 20 ppm into a 4pF Effective Oscillator Loop Load
- Wide Operating Temperature Range (-40 $^{\circ}$ C to +85 $^{\circ}$ C)
- < \pm 175 ppm typical stability over -40 $^{\circ}$ C to +85 $^{\circ}$ C; \pm 250 ppm guaranteed; referenced to measured frequency at 25 $^{\circ}$ C \pm 3 $^{\circ}$ C
- Developed in close-cooperation with ST Micro for STM32L1, F2 & F4 Reference Designs
- Space saving 2.0x1.2x0.6 mm, RoHS Compliant SMT package
- Low cost, available through Abracon's Global Distributors



Reference Design:

ABS06-107-32.768kHz-T device is Qualified on the following ST Micro's Reference Designs STM32F2, STM32F4 and STM32L1

ABS07-120-32.768kHz-T ; Ultra Low ESR; 6pF Plated - Tuning Fork Crystal



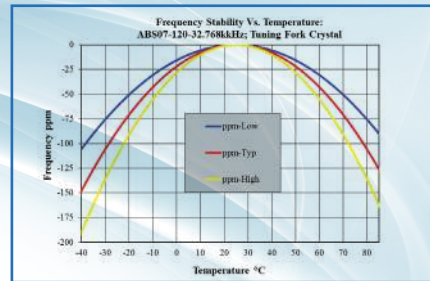
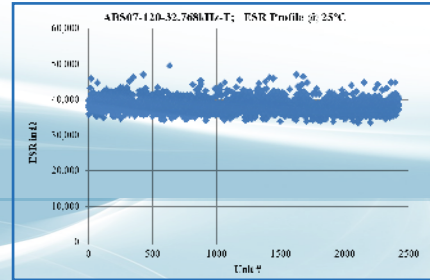
ABRACON's ABS07-120-32.768kHz-T Tuning Fork Crystal is optimized for Power Sensitive Designs, requiring lower plating load and Ultra Low ESR. With guaranteed maximum ESR of 60kΩ, this device is ideally suited for Ultra Low Power - Real Time Clocking solutions, requiring exceptionally low power consumption.

Applications:

- Power Sensitive, battery operated Consumer Electronics
- PDA and Smartphone
- Communication & measurement equipment
- Commercial & Industrial applications
- Wireless communications

What ABS07-120-32.768kHz-T offers designers?

- 6pF plating load facilitates sustained oscillations with lower oscillator loop transconductance (gm) < 5μA/V
- Guaranteed maximum ESR of 60kΩ ensures lower overall power consumption
- Tight Frequency Set Tolerance < ±20 ppm
- Wide Operating Temperature Range (-40°C to +85°C)
- Developed in close-cooperation with ST Micro for ST32F4 Reference Design
- Space saving 3.2x1.5x0.9 mm, RoHS Compliant SMT package
- Low cost, available through Abracon's Global Distributors



Reference Design:

ABS07-120-32.768kHz-T device is Qualified on ST Micro's Reference Design; STM32F4 MCU solutions.

SMD Ceramic Resonators

- | | |
|--|--|
| | ★ AWSZT-CW 2.5 x 2.0 x 1.2mm
• Low Resonant Impedance • 20MHz to 60MHz |
| | ★ AWSCR-CW 2.5 x 2.0 x 1.2mm
• Built-in Capacitance • Low Resonant Impedance
• 20MHz to 60MHz |
| | AWSCR-CE 3.2 x 1.3 x 1.0mm
• Built-in Capacitance • Low Resonant Impedance
• 8MHz to 12MHz |
| | ★ AWSCR-CV 3.7 x 3.1mm
• Built-in Capacitance • Low Resonant Impedance
• 8MHz to 13MHz, 16MHz to 60MHz <i>Height varies per frequency</i> |
| | ★ AWSZT-CV 3.7 x 3.1 mm
• Low Resonant Impedance • 8MHz to 13MHz,
16MHz to 60MHz <i>Height varies per frequency</i> |
| | AWSZT-CR 4.5 x 2.0 x 1.2mm
• Low Resonant Impedance • 4MHz to 8MHz |
| | AWSCR-CR 4.5 x 2.0 x 1.2mm
• Built-in Capacitance • Low Resonant Impedance
• 4MHz to 8MHz |
| | ★ AWSCR-MTD 4.7 x 4.1 mm
• Built-in Capacitance • Low Resonant Impedance
• 6MHz to 60MHz <i>Height varies per frequency</i> |
| | AWSZT-MWD 4.7 x 4.1 mm
• Low Resonant Impedance • 6MHz to 13MHz
<i>Height varies per frequency</i> |
| | ★ AWSZT-MXD 4.7 x 4.1 mm
• Low Resonant Impedance • 13.01MHz to 60MHz
<i>Height varies per frequency</i> |

- | | |
|--|--|
| | AWSCR-CP 6.0 x 3.0 x 1.7mm
• Built-in Capacitance • Low Resonant Impedance
• 4.0MHz to 12.00MHz |
| | AWSZT-CP 6.0 x 3.0 x 1.7mm
• Low Resonant Impedance • 4.0MHz to 12.00MHz |
| | ★ AWSZT-MGD 7.4 x 3.4 x 1.8 mm
• Low Resonant Impedance • 2MHz to 8MHz |
| | AWSCR-MGD 7.4 x 3.4 x 1.8mm
• Built-in Capacitance • Low Resonant Impedance
• 1.84MHz to 8MHz |

Thru-Hole Ceramic Resonators

- | | |
|--|--|
| | ★ HWZT-MD Dimensions vary per frequency
• Low Resonant Impedance
• 2MHz to 6MHz, 12.51MHz to 60MHz |
| | ★ HWZT-RS 5.5 x 5.0 x 3.0mm
• Low Resonant Impedance • 6.01MHz to 12.5MHz |
| | ★ AWCR-MD Dimensions vary per frequency
• Built-in Capacitance • Low Resonant Impedance
• 2MHz to 6MHz, 12.51MHz to 60MHz |
| | ★ AWCR-RS 5.5 x 5.0 x 3.0mm
• Built-in Capacitance • Low Resonant Impedance
• 6.01MHz to 12.5MHz |

RTC IC- Ultra Low Power



- ★ **AB1815** 3.0 x 3.0mm
- SPI • -40 to +85°C • 256B RAM
- On-board Power & VBAT Switch, RTC consumes <55nA



- ★ **AB1805** 3.0 x 3.0mm
- I²C • -40 to +85°C • 256B RAM
- On-board Power & VBAT Switch, RTC consumes <55nA

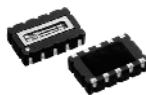


- ★ **AB0815** 3.0 x 3.0mm
- SPI • -40 to +85°C • 256B RAM
- On-board VBAT Switch, RTC consumes <55nA



- ★ **AB0805** 3.0 x 3.0mm
- I²C • -40 to +85°C • 256B RAM
- On-board VBAT Switch, RTC consumes <55nA

RTC IC + Oscillator



- ★ **AB-RTCMC-32.768kHz-ZIZE-S2**
- 5.0 x 3.2 x 1.2 mm • -40 to +85°C • SPI



- ★ **AB-RTCMC-32.768kHz-B5ZE-S3**
- 3.7 x 2.5 x 0.9 mm • -40 to +85°C • I²C



- ★ **AB-RTCMC-32.768kHz-B5GA-S3**
- 3.7 x 2.5 x 0.9 mm • -40 to +85°C • I²C

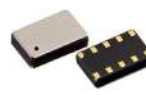


- ★ **AB-RTCMC-32.768kHz-AIGZ-S7**
- 3.2 x 1.5 x 0.8 mm • -40 to +85°C • I²C

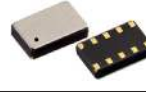
RTC IC + TCXO



- ★ **AB-RTCMK-32768kHz**
- 3.2 x 2.5 x 1.0 mm
- +/-5ppm over -40 to +125°C • I²C



- ★ **AB-RTCMC-32.768kHz-EOZ9-S3**
- 3.7 x 2.5 x 0.9 mm
- +/-30ppm over -40 to +125°C • I²C



- ★ **AB-RTCMC-32.768kHz-EOA9-S3**
- 3.7 x 2.5 x 0.9 mm
- +/-30ppm over -40 to +125°C • SPI

Real Time Clock Family Product Highlights



Ultra-Low Power Semiconductors. Redefined.

Abracon redefines the meaning of ultra-low power semiconductors by announcing the immediate availability of the world's lowest power Real Time Clock and Real Time Clock with Integrated Power Management families. Sub-Threshold Power optimized technology by ambiq micro provides power requirements more than 7X lower than any other industry RTC (as low as 14nA), these are the first semiconductors based on the innovative SPOT™ (Sub-Threshold Power Optimized Technology) CMOS platform. This family of full-featured products includes a host of innovative timing and power management features designed to lower overall system power requirements and decrease product cost.

The AB18x5 product family sets a new standard for RTC devices with a number of innovative timing features combined with groundbreaking ultra-low power requirements. By combining clock functions and system power management, the AB18x5 family combines the functions of several chips into a single, low cost solution. The low-cost AB08x5 family contains all of the low power and advanced timing features of the AB18x5 but does not have the power management capabilities.

Features

All AB08x5 and AB18x5 devices include the following capabilities:

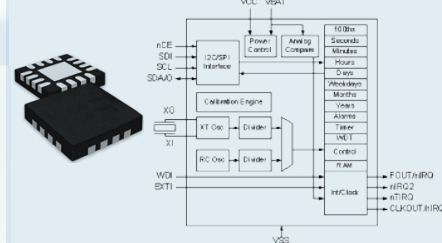
- Ultra-Low Crystal Mode Supply Current for High Accuracy- 55nA
- RC Oscillator for Extreme Low Power Applications – 14nA
- Autocalibration for Accurate Timekeeping with Very Low Power- 18nA
- Distributed Low Jitter Digital Calibration Enables More Precise Timing
- Extended Crystal Calibration Supports a Wide Range of Crystals
- Advanced Timing Functions - A Superset of Most Legacy RTCs
- Available I2C and SPI Interfaces for System Flexibility
- Sophisticated Battery Management for Compact RTC Backup Applications
- Optional On-Chip RAM with No Power Penalty
- Low Resistance Power Switch Allows External Component Power Gating
- Sleep Manager Dramatically Reduces Overall System Power
- Host Reset Manager for Power Control Flexibility

Applications

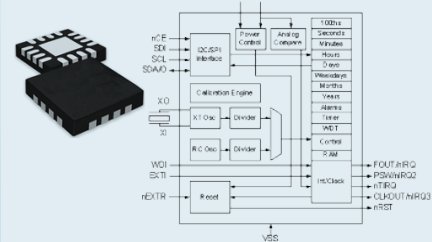
- Battery Operated Devices
- Wireless Sensors
- Smart Cards
- Smart Appliances
- Consumer Electronics
- Data Loggers
- Medical Devices

Part Number	Baseline/Timekeeping		Advanced Timekeeping			Power Management				System Interface	
	Crystal Oscillator	Number of GPIO Outputs	RC Oscillator	Calibration/ Auto-Calibration	Watchdog Timer	RAM (Bytes)	VBAT Switch	Reset Management	External Interrupts		Power Switch & Sleep Finite State Machine
AB0805	■	4	■	■	■	256	■		■		I ² C
AB0815	■	3	■	■	■	256	■		■		SPI
AB1805	■	4	■	■	■	256	■	■	■	■	I ² C
AB1815	■	3	■	■	■	256	■	■	■	■	SPI

AB08x5 RTC



AB18x5 RTC + Power Management



MEMS Oscillators

★ **AB-557-03** 3.5 x 2.5 x 0.85mm
PCIe Clock Generator • 2.25 to 3.6Vdc • LVC MOS, LVDS, LVPECL, HCSL output • 100MHz



★ **ASDM** 2.5 x 2.0 x 0.85mm
• 1.8Vdc to 3.3Vdc • Plastic QFN Package
• LVC MOS output • 1.0MHz to 150MHz



★ **ASDMB** 2.5 x 2.0 x 0.85mm **Industrial Grade**
• 1.8Vdc to 3.3Vdc • Plastic QFN Package
• LVC MOS output • 1.0MHz to 150MHz
• 10ppm • -40 to +105°C

ASDMDC 2.5 x 2.0 x 0.85mm
Industrial Grade 3G MEMS Oscillator



• Pin Configurable Dual LVC MOS output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 2.3MHz to 170MHz



★ **ASDMP** 2.5 x 2.0 x 0.85mm
Industrial Grade High Performance MEMS Oscillator
• Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc
• Plastic QFN Package
• LVPECL/LVDS/HCSL: 10MHz to 460MHz
LVC MOS: 10MHz to 170MHz



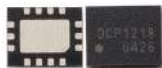
★ **ASEM** 3.2 x 2.5 x 0.85mm
• 1.8Vdc to 3.3Vdc • Plastic QFN Package
• LVC MOS output • 1.0MHz to 150MHz



★ **ASEMB** 3.2 x 2.5 x 0.85mm **Industrial Grade**
• 1.8Vdc to 3.3Vdc • Plastic QFN Package
• LVC MOS output • 1.0MHz to 150MHz • 10ppm
• -40 to +105°C



★ **ASEMP** 3.2 x 2.5 x 0.85mm
Industrial Grade High Performance MEMS Oscillator
• Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN Package • LVPECL/LVDS/HCSL: 10MHz to 460MHz
LVC MOS: 10MHz to 170MHz



★ **ASEMCC** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable LVC MOS output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 10MHz to 170MHz



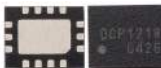
★ **ASEMDC** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable Dual LVC MOS output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 10MHz to 170MHz



★ **ASEMDHC** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable dual HCSL output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 10MHz to 460MHz



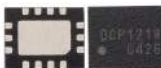
★ **ASEMDLC** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable LVDS-CMOS dual output, Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN Package • 10 MHz to 170MHz for LVC MOS, 10 MHz to 460MHz for LVDS



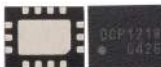
★ **ASEMCPL** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable LVPECL output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 10 MHz to 460MHz



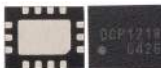
★ **ASEMCCHC** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable HCSL output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 10 MHz to 460MHz



★ **ASEMCCLV** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable LVDS output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 10 MHz to 460MHz



★ **ASEMDLP** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable LVPECL Dual output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 10MHz to 460MHz



★ **ASEMDLV** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable LVDS dual output, Low power, and low jitter for high speed data communication
• 2.25Vdc to 3.6Vdc • Plastic QFN Package
• 10MHz to 460MHz



★ **ASEMDHCC** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable HCSL-CMOS dual output, Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN Package • 10MHz to 170MHz for LVC MOS, 10MHz to 460MHz for HCSL



★ **ASEMDHLP** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable HCSL-LVPECL dual output, Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN Package • 10 MHz to 460MHz












★ **ASEMDHLV** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable HCSL-LVDS dual output, Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN Package • 10 MHz to 460MHz







★ **ASEMDLPC** 3.2 x 2.5 x 0.85mm
Industrial Grade 3G MEMS Oscillator
• Pin Configurable LVPECL-CMOS dual output, Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN package • 10 MHz to 170MHz for LVC MOS, 10 MHz to 460MHz LVPECL

	<p>★ ASEMDLVP 3.2 x 2.5 x 0.85mm <i>Industrial Grade 3G MEMS Oscillator</i></p> <ul style="list-style-type: none"> • Pin Configurable LVDS-LVPECL dual output, Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN Package • 10 MHz to 460MHz
	<p>★ ASFLM 5.0 x 3.2 x 0.85mm</p> <ul style="list-style-type: none"> • 1.8Vdc to 3.3Vdc • Plastic QFN Package • LVC MOS output • 1.0MHz to 150MHz
	<p>★ ASFLMB 5.0 x 3.2 x 0.85mm <i>Industrial Grade</i></p> <ul style="list-style-type: none"> • 1.8Vdc to 3.3Vdc • Plastic QFN Package • LVC MOS output • 1.0MHz to 150MHz • 10ppm • -40 to +105°C
	<p>★ ASFLMP 5.0 x 3.2 x 0.85mm <i>Industrial Grade High Performance MEMS Oscillator</i></p> <ul style="list-style-type: none"> • Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN Package • LVPECL/LVDS • HCSL:10MHz to 460MHz LVC MOS: 10MHz to 170MHz
	<p>★ ASVM 7.0 x 5.0 x 0.85mm</p> <ul style="list-style-type: none"> • 1.8Vdc to 3.3Vdc • Plastic QFN Package • LVC MOS output • 1.0MHz to 150MHz
	<p>★ ASVMB 7.0 x 5.0 x 0.85mm <i>Industrial Grade</i></p> <ul style="list-style-type: none"> • 1.8Vdc to 3.3Vdc • Plastic QFN Package • LVC MOS output • 1.0MHz to 150MHz • 10ppm • -40 to +105°C
	<p>★ ASVMP 5.0 x 3.2 x 0.85mm <i>Industrial Grade High Performance MEMS Oscillator</i></p> <ul style="list-style-type: none"> • Low power, and low jitter for high speed data communication • 2.25Vdc to 3.6Vdc • Plastic QFN Package • LVPECL/LVDS/HCSL:10MHz to 460MHz • LVC MOS: 10MHz to 170MHz

SMD Crystal Oscillators


	<p>★ ASCO 1.6 x 1.2 x 0.7mm</p> <ul style="list-style-type: none"> • 1.8, 2.5, 3.3Vdc, LVC MOS • 1.0MHz to 80MHz
	<p>★ ASA, ASA1, ASA2 2.0 x 1.6 x 0.7mm</p> <ul style="list-style-type: none"> • 3.3, 2.5, or 1.8Vdc • LVC MOS • 1MHz to 80MHz
	<p>★ ASD, ASD1, ASD2, ASD3, ASD6</p> <ul style="list-style-type: none"> • 2.5 x 2.0 x 1.0mm • 3.3, 3.0, 2.5 or 1.8Vdc • LVC MOS • 0.75MHz to 60MHz
	<p>ASET 3.2 x 2.5 x 1.2mm <i>Precision Crystal Oscillator</i> • 2.5 to 3.3 Vdc</p> <ul style="list-style-type: none"> • LVC MOS, Industrial grade tight temperature stability • 4MHz to 54MHz • Temp. Stability +/- 10ppm from -40 to +85°C
	<p>★ ASE • 3.2 x 2.5 x 1.2mm</p> <ul style="list-style-type: none"> • 3.3Vdc • LVC MOS • 0.625MHz to 200MHz
	<p>★ ASE2 • 3.2 x 2.5 x 1.2mm</p> <ul style="list-style-type: none"> • 2.5Vdc • LVC MOS • 0.625MHz to 166MHz
	<p>★ ASE3 • 3.2 x 2.5 x 1.2mm</p> <ul style="list-style-type: none"> • 1.8Vdc • LVC MOS • 0.625MHz - 133MHz
	<p>★ ASE4 • 3.2 x 2.5 x 1.2mm</p> <ul style="list-style-type: none"> • 1.5Vdc • LVC MOS • 1MHz to 50MHz
	<p>★ ASE5 • 3.2 x 2.5 x 1.2mm</p> <ul style="list-style-type: none"> • 1.35Vdc • LVC MOS • 1MHz to 50MHz


	<p>★ ASE6 • 3.2 x 2.5 x 1.2mm <i>Low Voltage</i></p> <ul style="list-style-type: none"> • 1.0Vdc • LVC MOS • 1MHz to 50MHz
	<p>ASFLT • 5.0 x 3.2 x 1.05mm <i>Precision Crystal Oscillator</i> • 2.5 to 3.3 Vdc</p> <ul style="list-style-type: none"> • LVC MOS • Industrial grade tight temperature stability • 4MHz to 54MHz • Temp. Stability +/- 10ppm from -40 to +85°C
	<p>ASF1 • 5.0 x 3.2 x 1.1mm</p> <ul style="list-style-type: none"> • 5.0Vdc • TTL/HCMOS • 0.321MHz to 125MHz
	<p>★ ASFL1 • 5.0 x 3.2 x 1.3mm</p> <ul style="list-style-type: none"> • 3.3Vdc • TTL/LVC MOS • 0.321 MHz to 133.33 MHz
	<p>ASFL2 • 5.0 x 3.2 x 1.4mm</p> <ul style="list-style-type: none"> • 2.5Vdc • TTL/LVC MOS • 0.321 MHz to 125 MHz
	<p>★ ASFL3 5.0 x 3.2 x 1.1mm</p> <ul style="list-style-type: none"> • 1.8Vdc • LVC MOS • 0.5MHz to 125MHz
	<p>★ ASV 7.0 x 5.0 x 1.8mm</p> <ul style="list-style-type: none"> • 3.3Vdc, 2.5Vdc, and 1.8Vdc • TTL/LVC MOS • 0.312MHz to 200MHz
	<p>ASV1 7.0 x 5.0 x 1.6mm • 3.3Vdc, 2.5Vdc, and 1.8Vdc • LVC MOS/ TTL • 0.5MHz to 200MHz</p>
	<p>ASV2 7.0 x 5.0 x 1.4mm • 3.3Vdc, 2.5Vdc, and 1.8Vdc • LVC MOS/ TTL • 0.5MHz to 133MHz</p>
	<p>ASL 7.0 x 5.08 x 1.8mm</p> <ul style="list-style-type: none"> • 5Vdc • HCMOS/TTL • 1MHz to 125MHz
	<p>ASL1 7.0 x 5.08 x 1.4mm</p> <ul style="list-style-type: none"> • 5Vdc • HCMOS/TTL • 1MHz to 125MHz
	<p>ABFM 7.0 x 5.0 x 1.8mm <i>Low Phase Noise & Jitter</i></p> <ul style="list-style-type: none"> • 3.3 or 2.5Vdc • LVPECL, LVDS, LVC MOS • 30MHz to 280MHz
	<p>ALD 7.0 x 5.0 x 2.0mm <i>Low Phase Noise & Jitter</i></p> <ul style="list-style-type: none"> • 3.3 or 2.5Vdc • 0.75MHz to 800MHz • LVPECL, LVDS, LVC MOS
	<p>ABNM 7.0 x 5.0 x 1.8mm • 3.3, 2.5Vdc</p> <ul style="list-style-type: none"> • LVC MOS, LVDS, LVPECL • 1 to 160MHz


32.768kHz SMD Crystal Oscillators


	<p>★ ASDK 2.5 x 2.0 x 0.95mm</p> <ul style="list-style-type: none"> • 1.8Vdc, 2.5Vdc, 3.3Vdc • LVC MOS • 32.768kHz • Low current 2.2mA typical @ 3.3Vdc
	<p>★ ASH7KW 3.2 x 1.5 x 1.0mm <i>Tuning Fork Crystal</i></p> <ul style="list-style-type: none"> • 1.2 to 5.5Vdc • LVC MOS • 32.768kHz • -40 to +125°C
	<p>★ ASH7K 3.2 x 1.5 x 1.0mm <i>Tuning Fork Crystal</i></p> <ul style="list-style-type: none"> • 1.5Vdc to 3.6Vdc • 32.768kHz • Low Current Consumption (0.7uA Max)
	<p>★ ASHEK 3.2 x 2.5 x 0.9mm <i>Tuning Fork Crystal</i></p> <ul style="list-style-type: none"> • Ultra low uA current consumption with LVC MOS output • 32.768kHz • 1.5uA max @ 3.3Vdc
	<p>★ ASEK 3.2 x 2.5 x 1.2mm</p> <ul style="list-style-type: none"> • 1.8Vdc, 2.5Vdc, 3.3Vdc • LVC MOS • 32.768kHz • Low current 1.7mA typical @ 3.3Vdc
	<p>★ ASFLK 5.0 x 3.2 x 1.3mm • 2.5Vdc, 3.0Vdc, 3.3Vdc, 5.0Vdc • 32.768kHz • Low current 0.5mA typ @ 2.5 ~ 3.0Vdc, 1.5mA typ @ 5.0Vdc • LVC MOS</p>
	<p>★ ASVK 7.0 x 5.0 x 1.8mm</p> <ul style="list-style-type: none"> • 2.8Vdc, 3.0Vdc, 3.3Vdc • 32.768kHz Supply current 7.0mA max • LVC MOS


SMD Programmable Crystal Oscillators


 ★ **AP2S** 2.5 x 2.0 x 0.9mm
 • 1.8, 2.5, 3.3Vdc • 1.0MHz to 200MHz • LVCMOS
 • Low jitter PLL technology

 ★ **AP3S** 3.2 x 2.5 x 1.2mm
 • 1.8, 2.5, 3.3Vdc • 1MHz - 200MHz • LVCMOS
 • Low jitter PLL technology


 ★ **AP5S** 5.0 x 3.2 x 1.2mm
 • 2.5, 3.3Vdc • 10MHz to 200MHz • LVCMOS
 • Low jitter PLL technology

 ★ **ASSFLP** 5.0 x 3.2 x 1.3mm
 • 2.5, 3.3Vdc • 8MHz to 160MHz • LVCMOS
 • Low EMI
Solves EMI Compliance with low cost Systemic Solution


 ★ **AP7S** 7.0 x 5.0 x 1.6mm
 • 2.5, 3.3Vdc • 10MHz to 200MHz • LVCMOS
 • Low jitter PLL technology


 ★ **ASSVP** 7.0 x 5.0 x 1.4mm
 • 2.5, 3.3Vdc • 10MHz to 160MHz • LVCMOS
 • Low EMI
Solves EMI Compliance with low cost Systemic Solution


SMD Low EMI Oscillators (Integrated Spread Spectrum reduces EMI up to 20dB!)

 **ASSFL** 5.0 x 3.2 x 1.2mm
 • 3.3Vdc • LVCMOS • 6MHz to 160MHz
Drop in replacement for 5 x 3.2mm XO's


 **ASSVJ** 7.0 x 5.0 x 1.8mm *Reduced Jitter Design*
 • 3.3Vdc • LVCMOS • 13 MHz to 200MHz
Drop in replacement for 7 x 5mm XO's


 **ASSV** 7.0 x 5.0 x 1.8mm
 • 3.3Vdc • LVCMOS • 5MHz to 160MHz
Drop in replacement for 7 x 5mm XO's


 **ASSL1, ASSV1** 7.43 x 5.34 x 2.6mm
 • 3.3, 5.0Vdc • CMOS • 8MHz to 128MHz
7 x 5mm XO drop in replacement


 **ASSM, ASSML** 14.27 x 10.7 x 5.0mm
 • 3.3, 5.0Vdc • CMOS • 4MHz to 128MHz
SMD Plastic XO drop in replacement


Thru-Hole TCXO/VCTCXO


 **ACTX1018(A), ACVTX1018(A)** 18.3 x 12.0 x 8.0mm
 • DIP, TTL/CMOS, 3.3Vdc or 5Vdc • 0.01MHz to 200MHz (3.3V), 0.01MHz to 160MHz (5V)

 **ACTX1018S(A), ACVTX1018S(A)** 18.3 x 12.0 x 8.0mm
 • DIP, Clipped, Sine Wave, 3.3Vdc or 5Vdc
 • 8MHz to 61.44MHz



 **ACVX1220** 20.2 x 12.6 x 8.0mm
 • Full-size DIP, 5Vdc, CMOS/TTL
 • 1MHz to 160MHz


 **ACVX1220L** 20.8 x 13.2 x 5.03mm
 • Full-size DIP, 3.3Vdc, LVCMOS/TTL
 • 1MHz to 120MHz


 **ACVX1222** 20.8 x 13.2 x 5.08mm
 • Full-size DIP, 3.3Vdc, LVCMOS/TTL
 • 1MHz to 200MHz


 **ACVX1240** 20.8 x 13.2 x 6.8mm
 • Full-size DIP, 5Vdc, Sinewave output
 • 8MHz to 200MHz


SMD TCXO/VCTCXO


 ★ **ASGTX** 9.0 x 7.0 x 2.24mm
 • LVCMOS, LVPECL, LVDS • 3.3V
 • 10MHz to 1500MHz 


 ★ **ASTX-13, ASVTX-13** 2.0 x 1.6 x 0.8mm
 • Clipped Sine • Seam Sealed SMD • 1.8, 2.8, 3.0Vdc
 • 13MHz to 52MHz


 ★ **ASTX-12, ASVTX-12** 2.5 x 2.0 x 0.9mm
 • Clipped Sine • Seam Sealed SMD
 • 1.8 2.5, 2.8, 3.0Vdc • 13MHz to 52MHz

 ★ **ASTX-H12** 2.5 x 2.0 x 0.9mm
 • LVCMOS • Seam Sealed SMD • 3.3, 2.8, 2.5Vdc
 • 0.675kHz to 55MHz

 ★ **ASTX-H11** 3.2 x 2.5 x 1.0mm
 • LVCMOS • Seam Sealed SMD • 2.5, 2.8, 3.3Vdc
 • 0.675MHz to 55MHz

 ★ **ASTX-11, ASVTX-11** 3.2 x 2.5 x 0.9mm
 • Clipped Sine • Seam Sealed SMD
 • 2.5, 2.8, 3.0, 3.3Vdc • 10MHz to 40MHz

 ★ **ASTX-09, ASVTX-09** 5.0 x 3.2 x 1.5mm
 • Clipped Sine • Seam Sealed SMD
 • 2.5, 3.0, 3.3, 5.0Vdc • 6 MHz to 45MHz


 **ASTX-H09** 5.0 x 3.2 x 1.2mm
 • LVCMOS • Seam Sealed SMD • 3.0, 3.3Vdc
 • 5MHz to 50MHz


 **ASTX-01H** 11.4 x 9.6 x 4.0mm
 • TTL/CMOS • 5.0Vdc • 2MHz to 30MHz


 **ASTX-01HA** 11.4 x 9.6 x 4.0mm
 • TTL/CMOS • 3.3Vdc • 2MHz to 30MHz


Automotive & Industrial Grade Oscillators





 **ASH7KAIG** 3.2 x 1.5 x 1.0 mm
 • 32.768 kHz • 1.5 to 3.6Vdc • LVCMOS • 4 Pad SMD

 **ASAAIG** 2.0 x 1.6 x 0.8 mm
 • 4.0 to 50 MHz • 3.3Vdc, 2.5Vdc, 1.8Vdc
 • LVCMOS • 4 Pad SMD

 **ASDAIG** 2.5 x 2.0 x 0.95 mm
 • 20 to 48 MHz • 3.3Vdc, 3.0Vdc, 2.5Vdc, 1.8Vdc
 • LVCMOS • 4 Pad SMD

 **ASEAIG** 3.2 x 2.5 x 1.2 mm
 • 1.75 to 60 MHz • 3.3Vdc, 3.0Vdc, 2.5Vdc, 1.8Vdc
 • LVCMOS • 4 Pad SMD

 **ASVTXAIG-12/ASTXAIG-12** 2.5 x 2.0 x 0.9mm
 • 13 to 52 MHz • 3.0Vdc, 2.8Vdc • Clipped Sine Wave
 • 6 Pad SMD

 **ASVTXAIG-13/ASTXAIG-13** 2.0 x 1.6 x 0.8mm
 • 13 to 52 MHz • 3.0Vdc, 2.8Vdc, 1.8Vdc
 • Clipped Sine Wave • 4 Pad SMD

TCXO's: Custom Frequencies 10MHz ~ 1.50GHz Shipped in 1~5 Days! NEW

High Frequency; Fixed & Voltage Controlled TCXO's; ASGTX Series

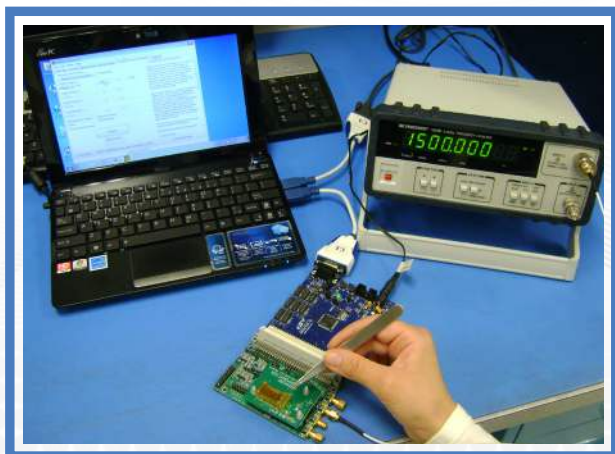
ABRACON's ASGTX series offers a High Frequency Fixed Clock TCXO or Voltage Controlled (VC)TCXO in a small profile 9x7x2.24 mm SMT package. These devices are factory configurable to any desired frequency from 10MHz to 250MHz with LVCMOS Output and 10MHz to 1.50GHz with LVDS or LVPECL Output.

With standard default temperature stability of ± 1.00 ppm over -30°C to $+70^{\circ}\text{C}$ and ± 2.00 ppm over -40°C to $+85^{\circ}\text{C}$; this series fulfils Any Frequency Timing need up to 1.50GHz. Further, factory configurable mechanism shortens the lead-time to 1~5 business days

ASGTX– High Frequency TCXO/VCTCXO... tight stability, economical...1~5 days lead-time

Applications:

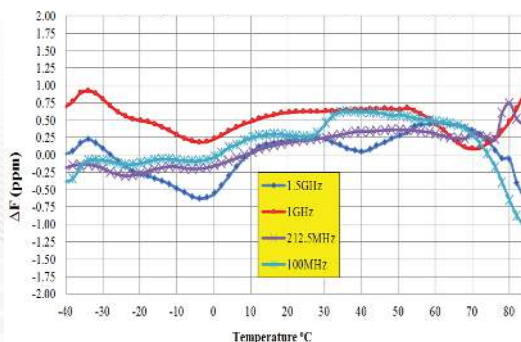
- Satellite Modem Communications Systems
- COTS – Military Communication Circuitry
- WiMax
- LTE, BTS
- CATV, LAN, LMDS
- Test & Measurement Equipment
- Avionics
- A/D and D/A Converters
- DDS based architecture
- Phase Locked Loops
- Point-to-Point Communication Networks



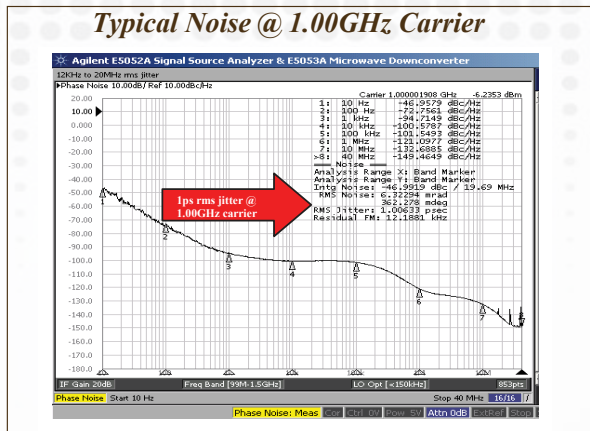
What ASGTX series offers designers?

- **Any Frequency** from 10MHz to 250MHz: LVCMOS
- **Any Frequency** from 10MHz to 1.50GHz: LVDS/LVPECL
- Wide Operating Temperature Range (-40°C to $+85^{\circ}\text{C}$)
- ± 1.00 ppm over -30°C to $+70^{\circ}\text{C}$ and ± 2.00 ppm over -40°C to $+85^{\circ}\text{C}$ stability
- ± 10 ppm Max. All inclusive Stability (including Aging) over 10-years
- ± 10 ppm Minimum Frequency Pull ability in VCTCXO mode
- 1ps typical rms jitter with 1.80ps maximum @ 1.5GHz carrier
- +3.3V ($\pm 5\%$) operating Voltage
- 9.0 x 7.0 x 2.24 mm RoHS Compliant SMT package

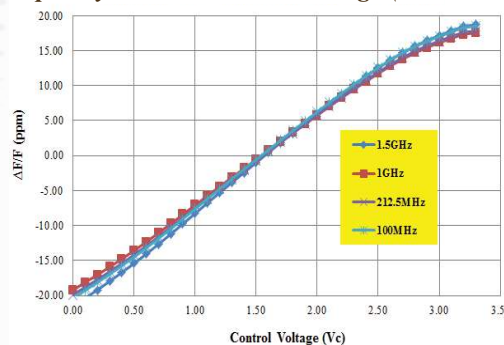
Frequency Stability Vs. Temperature (LVDS Output)



Typical Noise @ 1.00GHz Carrier







Frequency Pull Vs. Control Voltage (LVDS Output)




SMD VCXO's

- | | | |
|---|--|---|
|  | ASLV 3.2 x 2.5 x 1.2mm
• 1.8, 2.5, 2.8, 3.3Vdc • LVC MOS • 1.5MHz to 54MHz | |
|  | ASFV 5.0 x 3.2 x 1.2mm
• 5Vdc, HCMOS • 1.5MHz to 50MHz | |
|  | ASFLV 5.0 x 3.2 x 1.2mm
• 3.3Vdc, LVC MOS • 1.0MHz to 50MHz | |
|  | ★ ASG-C 7.0 x 5.0 x 1.9mm
• 2.5, 3.3Vdc • LVC MOS • 10MHz to 250MHz | |
|  | ★ ASG-D 7.0 x 5.0 x 1.9mm
• 2.5, 3.3Vdc • LVDS • 10MHz to 1.5GHz | |
|  | ★ ASG-P 7.0 x 5.0 x 1.9mm
• 2.5, 3.3Vdc • LVPECL • 10MHz to 1.5GHz | |
|  | ★ ASG2-C 2.5 x 2.0 x 1.0mm
• 2.5, 3.3Vdc • LVC MOS • 8MHz to 200MHz |  |
|  | ★ ASG2-D 2.5 x 2.0 x 1.0mm
• 2.5, 3.3Vdc • LVDS • 8MHz to 1.5GHz |  |
|  | ★ ASG2-P 2.5 x 2.0 x 1.0mm
• 2.5, 3.3Vdc • LVPECL • 8MHz to 1.5GHz |  |

- | | |
|---|---|
|  | ASLV 7.0 x 5.0 x 1.6mm
• 5Vdc, TTL/CMOS • 1MHz to 155.52MHz |
|  | ★ ASVV 7.0 x 5.0 x 1.6mm
• 3.3Vdc, TTL/LVC MOS • 1MHz to 200MHz |
|  | ALVD 7.0 x 5.0 x 1.8mm
• 3.3Vdc • LVPECL, LVDS, LVC MOS
• 0.75MHz to 800MHz |
|  | ★ ABLJO 14.3 x 8.7 x 5.50mm
Ultra-Low Jitter XO/VCXO
• 3.3Vdc • LVC MOS • 80MHz to 200MHz
• 100 fs rms Max jitter |
|  | ★ ABLNO 14.3 x 8.7 x 5.50mm
Ultra Low Phase Noise XO/VCXO
• 3.3Vdc • LVC MOS • 50MHz to 156.25MHz
• -165dBc/Hz Floor |

ASG2 Series

2.5 x 2.0 x 1.0mm Ultra Miniature
8MHz-1.5GHz Configurable; SMD XO & VCXO



ASG2 series is Miniature High Frequency - Precision Crystal Oscillators and VCXOs. It is introduced to meet the trend towards shorter lead times and suppliers' ability to offer low jitter - fixed or voltage controllable oscillators at high carrier frequencies, offering LVC MOS or Differential Output. Its a factory configurable surface mount oscillator capable of outputting any desired frequency between 8MHz and 1.5GHz in a 2.5 x 2.0 x 1.0 mm Ceramic SMT Package.

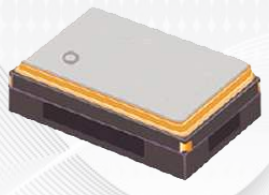
The ASG2 series is designed to offer exceptional, all-inclusive frequency stability of ± 50 ppm (tolerance, stability over temperature and aging) over a 15-year product life. Utilizing innovative architecture, this solution features exceptional Phase Noise characteristics at high carrier frequencies.

Key features:

- LVC MOS, LVDS or LVPECL output option
- +2.5V or +3.3V operation
- -40°C to +85°C standard operating temperature range
- Miniature size 2.5 x 2.0 x 1.0 mm Ceramic SMT Package
- Short lead times

Applications:

- Networking
- SONET/SDH
- WiMax / WLAN
- Computing
- Phase Locked Loops
- Direct Digital Synthesis (DDS)
- DSL/ADSL
- Base Terminal Stations



ABLNO Series

Ultra-Low Phase Noise; Fixed & Voltage
Controlled Crystal Oscillators


ABRACON's ABLNO series offers an Ultra-Low Phase Noise Fixed Clock Oscillator (XO) and Voltage Controlled Crystal Oscillator (VCXO's), in industry standard 9x14mm package. These devices are designed with High "Q", 3rd Overtone AT-Cut Quartz Blanks, enabling exceptionally clean, close-to-the-carrier phase noise. With 75fs maximum rms jitter over 12 kHz to 20MHz Bandwidth, ABLNO offers best-in-class jitter performance at an economical price point.

Key Features:

- Ultra-Low Phase Noise & Exceptionally low rms jitter; 100% tested at room temperature
- Can be used as a Platform Device followed by a simple division scheme to generate ± 2 & ± 4 frequencies. For instance, 100MHz ABLNO can be utilized to generate 100MHz, 50MHz & 25MHz on-board references
- Abracon is also offering an Evaluation Board to assist design engineers in evaluating ± 1 , ± 2 , ± 4 & ± 8 frequencies
- Industry leading frequency stability over temperature, without temperature compensation
- Linear & Monotonic Frequency Pull
- Exceptional long-term Aging
- Guaranteed ALL Inclusive Frequency Stability of ± 28 ppm over 10-year product life

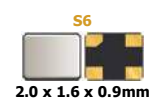
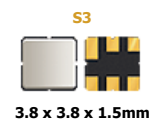
Applications:

- Satellite Modem Communication Systems
- COTS - Military communications
- Low Phase Noise Signal Sources
- High Definition TV
- Test & Measurement
- Ultra-Low Jitter RF Communication Circuitry

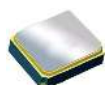


SAW Filters

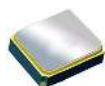
For a Complete listing or our SAW Filters Go to www.abracon.com



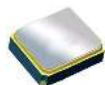
SAW Based Miniature - Band Pass Filters



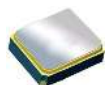
AFS20A05-719.00-T3 2.0 x 1.6 x 0.9mm
• 719MHz; 5MHz BW • Saw Band Pass Filter



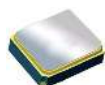
AFS20A26-915.00-T3 2.0 x 1.6 x 0.9mm
• 915MHz; 26MHz BW • Saw Band Pass Filter



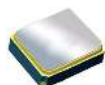
AFS20A20-1227.60-T3 2.0 x 1.6 x 0.9mm
• 1227.6MHz; 20MHz BW • Saw Band Pass Filter



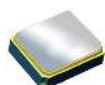
AFS20A02-1575.42-T3 2.0 x 1.6 x 0.9mm
• 1575.42MHz; 2MHz BW • Saw Band Pass Filter



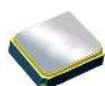
AFS20A42-1575.42-T3 2.0 x 1.6 x 0.9mm
• 1575.42MHz; 42MHz BW • Saw Band Pass Filter



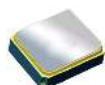
AFS20A53-1575.42-T3 2.0 x 1.6 x 0.9mm
• 1575.42MHz; 53MHz BW • Saw Band Pass Filter



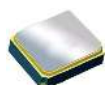
AFS20A05-1672.50-T3 2.0 x 1.6 x 0.9mm
• 1672.5MHz; 5MHz BW • Saw Band Pass Filter



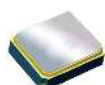
AFS20A20-1910.00-T3 2.0 x 1.6 x 0.9mm
• 1910MHz; 20MHz BW • Saw Band Pass Filter



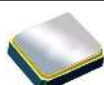
AFS20A15-2017.50-T3 2.0 x 1.6 x 0.9mm
• 2017.5MHz; 15MHz BW • Saw Band Pass Filter



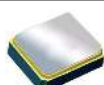
AFS14A11-722.00-T3 1.4 x 1.1 x 0.7mm
• 722MHz; 11MHz BW • Saw Band Pass Filter



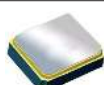
AFS14A26-915.00-T3 1.4 x 1.1 x 0.7mm
• 915MHz; 26MHz BW • Saw Band Pass Filter



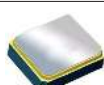
AFS14A34-1588.66-T3 1.4 x 1.1 x 0.7mm
• 1588.66MHz; 34.47MHz BW
• Saw Band Pass Filter



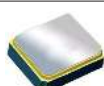
AFS14A35-1591.50-T3 1.4 x 1.1 x 0.7mm
• 1591.5MHz; 35MHz BW • Saw Band Pass Filter



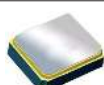
AFS14A35-1902.00-T3 1.4 x 1.1 x 0.7mm
• 1902.0MHz; 35MHz BW • Saw Band Pass Filter



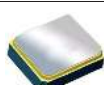
AFS14A40-1900.00-T3 1.4 x 1.1 x 0.7mm
• 1900.0MHz; 40MHz BW • Saw Band Pass Filter



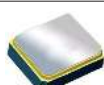
AFS14A15-2017.50-T3 1.4 x 1.1 x 0.7mm
• 2017.5MHz; 15MHz BW • Saw Band Pass Filter



AFS14A30-2185.00-T3 1.4 x 1.1 x 0.7mm
• 2185.0MHz; 30MHz BW • Saw Band Pass Filter



AFS14A72-2436.00-T3 1.4 x 1.1 x 0.7mm
• 2436.0MHz; 72MHz BW • Saw Band Pass Filter



AFS14A04-1575.42-T3 1.4 x 1.1 x 0.7mm
• 1575.42MHz; 4MHz BW • Saw Band Pass Filter

Dielectric Low Pass Filters



ALFC32-1200 3.2 x 2.5 x 1.5mm
• Multi-Layer 1200MHz • Low-Pass Filter



ALFC21-2450 2.0 x 1.25 x 0.9mm
• Multi-Layer 2450MHz • Low-Pass Filter

Dielectric Balun Filter



ADBLF21-2450.00-A-T 2.0 x 1.25 x 1.0mm
• 2450MHz Dielectric Balun Filter

Dielectric Band Pass Filters



ADFC32 3.2 x 2.5 x 1.5mm
• 1890, 2450MHz • Planar Design
• Band Pass Filter



ADFC21 2.0 x 1.25 x 0.95mm
• 2450, 5390, 5800MHz • Planar Design • Band Pass Filter

Ceramic Filters



AFC10.7 7.0 x 7.0 x 4.0mm • 10.7MHz



ASFC10.7M 7.0 x 3.0 x 1.5mm • 10.7MHz



AFC4.5M 9.0 x 7.0 x 4.0 mm • 4.5MHz

Monolithic Crystal Filters



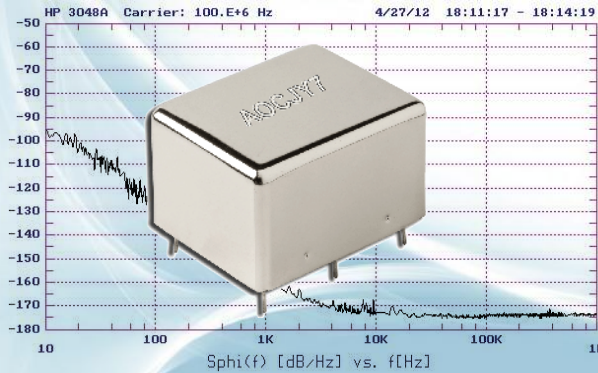
ACF21U Series 7.8 x 8.0 x 3.1mm
• 21.4MHz • Fundamental



ACF45U Series 7.8 x 8.0 x 3.1mm
• 45MHz • Fundamental

OCXO

Ultra-Low Phase Noise Oven Controlled Crystal Oscillator



AOCJY7 Series - 25.4 x 25.4 x 12.7 mm Leaded


- Exceptional Close to the carrier Maximum Phase Noise of -160dBc/Hz @ 1kHz & -174dBc/Hz @ 10kHz offset from 100.0 MHz Carrier
- SC-Cut, High "Q" resonator based design
- 100.0MHz carrier frequency
- Excellent Frequency Stability of ±50.0 ppb over the operating temperature range of -20°C to +70°C
- Tuned Sinewave output into a 50Ω load
- Industry Standard, 25.4x25.4x12.7 mm, RoHS compliant & Pb free package

OCXO- SMD



- ★ **AOCJY** 25.4 x 22 x 12.7mm
- 10MHz to 100MHz; ±5 ppb over 0°C to +50°C
- 10MHz to 100MHz; ±10 ppb over -20°C to +70°C
- 10MHz to 100MHz; ±30 ppb over -40°C to +75°C
- -135 dBc/Hz Phase Noise @ 100Hz offset from 10MHz



- ★ **AOCJYR** 9.7 x 7.5 x 4.3mm 
- 5MHz to 50MHz; ±20ppb ~ ±100ppb over -40 to 85°C
- -142dBc/Hz typ. Phase Noise @ 1kHz offset from 10MHz

OCXO- Thru Hole



- ★ **AOCJY1** 20.8 x 13.2 x 7.8mm
- 10MHz to 100MHz; ±50 ppb over 0°C to +50°C
- 10MHz to 100MHz; ±200 ppb over -20°C to +70°C
- 10MHz to 100MHz; ±500 ppb over -40°C to +75°C
- -145 dBc/Hz Phase Noise @ 1kHz offset from 10MHz



- ★ **AOCJY2** 21 x 21 x 11mm
- 10MHz to 100MHz; ±5 ppb over 0°C to +50°C
- 10MHz to 100MHz; ±10 ppb over -20°C to +70°C
- 10MHz to 100MHz; ±30 ppb over -40°C to +75°C
- -140 dBc/Hz Phase Noise @ 100Hz offset from 10MHz



- ★ **AOCJY3** 25.4 x 25.4 x 13mm
- 10MHz to 100MHz; ±5 ppb over 0°C to +50°C
- 10MHz to 100MHz; ±10 ppb over -20°C to +70°C
- 10MHz to 100MHz; ±30 ppb over -40°C to +75°C
- -140 dBc/Hz Phase Noise @ 100Hz offset from 10MHz



- ★ **AOCJY4** 36.1 x 27.2 x 13mm
- 10MHz to 40MHz; ±2 ppb over 0°C to +50°C
- 10MHz to 40MHz; ±10 ppb over -20°C to +70°C
- 10MHz to 40MHz; ±10 ppb over -40°C to +75°C
- -140 dBc/Hz Phase Noise @ 100Hz offset from 10MHz



- ★ **AOCJY5** 36.1 x 27.2 x 13mm
- 10MHz; ±50 ppb over -55°C to +85°C
- -145 dBc/Hz Phase Noise @ 1kHz offset from 10MHz



- ★ **AOCJY6** 51 x 41 x 25mm
- 10MHz; ±0.10 ppb over -20°C to +70°C
- 10MHz; ±0.20 ppb over -20°C to +70°C
- 10MHz; ±0.50 ppb over -20°C to +70°C
- -145 dBc/Hz Phase Noise @ 1kHz offset from 10MHz




- ★ **AOCJY7** 25.4 x 25.4 x 12.7mm
- 100MHz; ±50 ppb over -20°C to +70°C
- -174 dBc/Hz Max. Phase Noise @ 10kHz offset from 100MHz

Stratum III



- ★ **AST3** 7.0 x 5.0 x 2.0mm
- 10 to 26MHz • 3.3, 5.0Vdc • LVCMOS
- ±280ppb over -20 to +70°C
- ±370ppb over -40 to +85°C



- ★ **AST3TQ** 7.0 x 5.0 x 1.90mm 
- 10 to 40MHz • 3.3Vdc • LVCMOS
- ±100ppb over -40 to +85°C
- ±280ppb over -50 to +90°C
- ±500ppb over -55 to +95°C

AST3TQ Series

TCXO with -55 to +95°C Operating Temperature in a 5 x 7mm footprint!

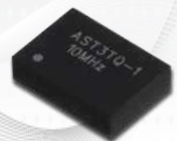
ABRACON's AST3TQ series offers Wide Operating Temperature, Precision Fixed Clock TCXO's in a small profile 5x7x1.9 mm SMT package. These devices are available from 10MHz to 40MHz carrier frequencies with LVCMOS output; offering ±500 ppb frequency stability over -55°C to +95°C operating temperature.

Features:

- Industry standard, RoHS-Reflow Compliant, 5 x 7 x 1.9mm Hermetic Package
- Standard available frequencies: 10.00, 12.80, 19.20, 20.00, 25.00, 26.00, 30.72, 38.40 & 40.00MHz
- LVCMOS Output
- Frequency stabilities to include ±100ppb over -40°C to +85°C, ±280ppb over -50°C to +90°C and ±500ppb over -55°C to +95°C operating temperature range
- Excellent Phase Noise, Harmonics and Spurious content
- Typical rms jitter of 400fs @ 40MHz carrier & 1.0ps @ 10MHz carrier

Applications:

- COTS – Military Communication Circuitry
- WiMax
- LTE, BTS
- CATV, LAN, LMDS
- GPS Tracking with Hold-Over Accuracy



Bluetooth Modules



★ **ABBTM-2.4GHz-31-T** 20.0 x 13.0 x 2.0mm
• Bluetooth Spec v1.2 (class 2) • UART • 1.8V, 3.3V
• HSP, HFP, A2DP, AVRCP



★ **ABBTM-2.4GHz-33-T** 29.0 x 25.5 x 2.8mm
• Bluetooth Spec v1.2 (class 2) • UART • 1.8V, 3.3V
• HSP, HFP, A2DP, AVRCP • Built-in Antenna



★ **ABBTM-2.4GHz-51-T** 20.0 x 13.4 x 2.2mm
• Bluetooth Spec v2.1 (class 2) • UART • 3.3V • HSP,
HFP, A2DP, AVRCP



★ **ABBTM-2.4GHz-52-T** 23.23 x 11.93 x 2.0mm
• Bluetooth Spec v2.1 (class 2) • UART • 3.3V • HSP,
HFP, A2DP, AVRCP



★ **ABBTM-2.4GHz-T** 26.9 x 13.0 x 2.5mm
• Bluetooth Spec v2.0+EDR (class 2) • UART • 3.3V
• SPP, OPP, PBAP • Built-in Antenna



★ **ABBTM-NVC-MDCS42A** 25.8 x 13.4 x 2.2mm
• Bluetooth v2.1+EDR (class 2) • UART, USB • 3.3V
• SPP, HID, iAP



★ **ABBTM-NVC-MDCS56** 23.24 x 11.93 x 2.05mm
• Bluetooth v2.1+EDR (class 2) • UART/I²C, PCM
• 3.3V • HFP, A2DP, AVRCP, SPP, iAP



★ **ABBTM-NVC-MDCS71** 19.5 x 12.5 x 2.4mm
• Single mode Bluetooth v4.0 low energy • UART/I²C
master • 1.8V to 3.6V • Proximity, Find Me, Heart
Rate, HID, iBeacon

Frequency Translators



★ **ABFT-20MHz** 7.0 x 5.0 x 2.0mm
• Input 10MHz; Output 20MHz • 3.3V • 14mA



★ **ABFT-40MHz** 7.0 x 5.0 x 2.0mm
• Input 10MHz; Output 40MHz • 3.3V • 14mA

Passive Patch Antennas



★ **APAE1575R1240ABDD1-T** 12.0 x 12.0 x 4.0mm
• 1575.42MHz • GPS • RHCP • 50Ω



★ **APAE1575R1340ABDD6-T** 13.0 x 13.0 x 4.0mm
• 1575.42MHz • GPS • RHCP • 50Ω



★ **APAE1575R1540AZDB2F-T** 15.0 x 15.0 x 4.0mm
• 1575.42MHz • GPS • RHCP • 50Ω



★ **APAE1575R1820ABDC1-T** 18.0 x 18.0 x 2.0mm
• 1575.42MHz • GPS • RHCP • 50Ω



★ **APAE1575R1840AADB7-T** 18.0 x 18.0 x 4.0mm
• 1575.42MHz • GPS • RHCP



★ **APAE1575R1840BADB1F-T** 18.0 x 18.0 x 4.0mm
• 1575.42MHz • GPS • RHCP • 50Ω



★ **APAE1575R2040ABDD2-T** 20.0 x 20.0 x 4.0mm
• 1575.42MHz • GPS • RHCP • 50Ω



★ **APAE1575R2520ABDD7-T** 25.0 x 25.0 x 2.0mm
• 1575.42MHz • GPS • RHCP • 50Ω



★ **APAE1575R2540AADBE-T** 25.0 x 25.0 x 4.0mm
• 1575.42MHz • GPS • RHCP • 50Ω



★ **APAE1590R1340AKDB2-T** 13.0 x 13.0 x 4.0mm
• 1575.42/1590MHz • GPS + GLONASS • RHCP
• 50Ω



★ **APAE1590R1350AKDB5-T** 13.0 x 13.0 x 5.0mm
• 1575.42/1590MHz • GPS + GLONASS • RHCP
• 50Ω



★ **APAE1590R2540AKDB1-T** 25.0 x 25.0 x 4.0mm
• 1575.42/1590MHz • GPS+GLONASS • RHCP
• 50Ω • GLONASS:1575.42MHz (GPS), 1592.00 to
1608MHz (GLONASS)



★ **APAE2338L2540DDDB1-T** 25.0 x 25.0 x 4.0mm
• 2338.00MHz • SDARS • LHCP • 50Ω



★ **APAE868R2540JBDB2-T** 25.0 x 25.0 x 4.0mm
• 868.00MHz • RFID (EU) • RHCP • 50Ω



★ **APAE915R2540ABDB1-T** 25.0 x 25.0 x 4.0mm
• 915.00MHz • RFID (USA) • RHCP • 50Ω



★ **APAEA1575R0940K14-T** 9.0 x 9.0 x 4.0mm
• 1575/1606MHz • GPS/WLAN • RHCP • 50Ω



★ **APAES1575R1040J34-T** 10.0 x 10.0 x 4.0mm
• 1575/1606MHz • GPS/WLAN • RHCP • 50Ω



★ **APAES868R8060C16-T** 80.0 x 80.0 x 6.0mm
• 868MHz • RFID • RHCP • 50Ω



★ **APAES915R6460C16-T** 62.5 x 62.5 x 6.0mm
• 915MHz • RFID • RHCP • 50Ω



★ **APAES915R80C16-T** 80.0 x 80.0 x 6.0mm
• 915MHz(US) • 868MHz(EU) • RFID • RHCP • 50Ω



★ **APAES923R3640C16-T** 36.0 x 36.0 x 4.0mm
• 923MHz • RFID • RHCP • 50Ω



★ **APAES923R4560C16-T** 45.0 x 45.0 x 6.0mm
• 923MHz • RFID • RHCP • 50Ω

Active (Internal) Patch Antenna



★ **APAM2764YK0175** 27.0 x 27.0 x 6.4mm
• 1575.42MHz • RHCP • 50Ω • Active Internal GPS



★ **APAM1866YA18** 18.0 x 18.0 x 6.6mm
• 1575.42MHz • RHCP • 50Ω • Active Internal GPS



★ **APAM1568YE15V2.0** 15.0 x 15.0 x 6.8mm
• 1575.42MHz • RHCP • 50Ω • Active Internal GPS



★ **APAM1268JL02V2.0** 12.0 x 12.0 x 6.8mm
• 1575.42MHz • RHCP • 50Ω • Active Internal GPS



★ **APAM1368YB13V3.0** 13.0 x 13.0 x 6.8mm
• 1575.42MHz • RHCP • 50Ω • Active Internal GPS



★ **APAM1348YD13V2.0** 13.0 x 13.0 x 4.8mm
• 1575.42MHz • RHCP • 50Ω • Active Internal GPS



★ **APAM1068JL01V2.0** 10.0 x 10.0 x 6.8mm
• 1575.42MHz • RHCP • 50Ω • Active Internal GPS



★ **APAM0968JL03V2.0** 9.0 x 9.0 x 6.8mm
• 1575.42MHz • RHCP • 50Ω • Active Internal GPS

RFID Tag



★ **ART868X130903TX13** 13.0 x 9.0 x 3.0mm
• 865-868MHz Frequency Range • RFID Tag



★ **ART868X2117225TX21** 21.0 x 17.0 x 2.25mm
• 865-868MHz Frequency Range • RFID Tag



★ **ART868X25275YZ25** 25.0 x 25.0 x 2.75mm
• 865-868MHz Frequency Range • RFID Tag



★ **ART915X130930TX13** 13.0 x 9.0 x 3.0mm
• 902-928MHz • FID Tag



★ **ART915X2117225TX21** 21.0 x 17.0 x 2.25mm
• 902-928MHz frequency range • RFID Tag



★ **ART915X25275YZ25** 25.0 x 25.0 x 2.75mm
• 902-928MHz frequency range • RFID Tag



★ **ART923X855406TX02** 85.0 x 54.0 x 0.635mm
• 902-928MHz frequency range • RFID Tag



★ **ART923X1015YZ10** Φ 10.0 x 1.5mm
• 920-925MHz frequency range • RFID Tag

RFID Reader



★ **ARRCN5** 18.0 x 18.0mm
• 915MHz(US) • 868MHz(EU) • RFID Reader



★ **ARRAN5** 25.0 x 25.0mm
• 915MHz(US) • 868MHz(EU) • RFID Reader



★ **ARRRN5** 36.0 x 36.0mm • 915MHz(US)
• 868MHz(EU) • RFID Reader



★ **ARRSN5** 45.0 x 45.0mm
• 915MHz(US) • 868MHz(EU) • RFID Reader



★ **ARRTN5** 63.5 x 63.5mm
• 915MHz(US) • 868MHz(EU) • RFID Reader



★ **ARRUN5** 80.0 x 80.0mm • 915MHz(US)
• 868MHz(EU) • RFID Reader

Active (External) Patch Antennas



★ **APAMS-101** 115.0 x 22.0 x 7.0mm
• GSM • Linear • 50 Ω
• 820 to 960MHz (GSM900),
1710 to 1990 (GSM1800)



★ **APAMS-102** 138.0 x 21.0 x 6.0mm
• GSM • Linear • 50 Ω • 820 to 960MHz (GSM900)
, 1710 to 1880MHz (GSM1800), 1850 to 1990MHz
(GSM1900) 1900 to 2170MHz (UMTS)



★ **APAMS-103** 78.0x25.0x3.8mm
• GSM • Linear • 50 Ω • 820 to 960MHz (GSM900),
1710 to 1880MHz (GSM1800)



★ **APAMS-104** 111.0 x Φ 6.78mm
• GSM • Linear • 50 Ω • 890 to 960MHz (GSM900)
1710 to 1880MHz (GSM1800)



★ **APAMPS-105** Φ 76.8 x 15.8mm • Active
• GPS + GSM • RHCP • 50 Ω • 1575.42MHz



★ **APAMPS-106** Φ 75 x 14.1mm • Active
• GPS + GSM • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-107** 48.6 x 39.2 x 15.2mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-108** 54.5 x 44.5 x 14.8mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-109** 50.6 x 50.6 x 15.1mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-110** 49.2 x 40.0 x 15.2mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-111** 38.3 x 35.0 x 12.0mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-112** 46.0 x 38.0 x 15.0mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-113** 38.0 x 34.0 x 12.0mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-114** 26.0 x 23.0 x 12.0mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-115** 40.0 x 35.0 x 13.1mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-116** 44.0 x 37.0 x 14.5mm
• GPS Active • RHCP • 50 Ω • 1575.42MHz



★ **APAMP-117** 44.0 x 37.0 x 14.5mm
• GPS+GLONASS • RHCP • 50 Ω • 1575.42MHz



★ **APAMS-118** 108.1 x Φ 10.0mm
• GSM900:890-960MHZ (gain: 2db)
• GSM1800:1710-1880MHZ(gain: 3db) • Linear
• 50 Ω • GSM External



★ **APAMS-119** 78.0 x Φ 12.0mm
• 890~960MHz/1710~1880MHz • Vertical • 50 Ω
• GSM External



★ **APAMS-120** 77.0 x Φ 7.0mm
• 2350-2450MHZ,5700-5900MHZ • Linear • 50 Ω
• GSM External



★ **APAMS-121** 86.0 x Φ 10.0mm
• 2350-2450MHZ • 5700-5900MHZ • Linear • 50 Ω
• GSM External

Chip Antennas



★ **ACA-101-T** 4.0 x 2.0 x 1.2 mm • Bluetooth/WLAN
• 2442.5MHz • 85MHz BW • 50Ω • Linear



★ **ACA-102-T** 1.4 x 1.1 x 0.7mm • Bluetooth/WLAN
• 2442.5MHz • 85MHz BW • 50Ω • Linear



★ **ACA-103-T** 5.0 x 2.0 x 1.2 mm
• Bluetooth/WLAN • 2442.5MHz & 5487.5MHz
• 85MHz BW & 675MHz BW • 50Ω • Linear



★ **ACA-104-T** 3.0 x 1.5 x 1.2 mm • GPS
• 1575MHz • 10MHz BW • 50Ω • Linear



★ **AMCA31-2R450G-S1F-T** 3.2 x 1.6 x 1.2mm
• Bluetooth/ WLAN • Peak Gain 0.5 dBi typ
• 2450MHz, ≥90MHz B/W 50Ω • Linear



★ **AMCA31-2R800G-S1F-T** 3.2 x 1.6 x 1.2mm
• WLAN / WiMax • Peak Gain 0.5 dBi typ
• 2800MHz, ≥100MHz B/W 50Ω • Linear

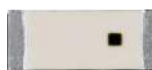


★ **AMCA52-2R350G-S1F-T** 5.2 x 2.1 x 1.0mm
• WCS / WiMax • Peak Gain 2.5 dBi typ
• 2350MHz, ≥150MHz B/W 50Ω • Linear



★ **AMCA52-2R510G-S1F-T** 5.2 x 2.1 x 1.0mm
• WCS / WiMax • Peak Gain 2.5 dBi typ
• 2510MHz, ≥200MHz B/W 50Ω • Linear

Chip Antennas



★ **AMCA52-2R540G-S1F-T** 5.2 x 2.1 x 1.0mm
• WLAN / WiMax • Peak Gain 2.5 dBi typ
• 2540MHz, ≥200MHz B/W 50Ω • Linear



★ **AMCA52-2R710G-S1F-T** 5.2 x 2.1 x 1.0mm
• WLAN / WiMax • Peak Gain 2.5 dBi typ
• 2710MHz, ≥200MHz B/W 50Ω • Linear



★ **AMCA52-2R780G-S1F-T** 5.2 x 2.1 x 1.0mm
• WLAN / WiMax • Peak Gain 2.5 dBi typ
• 2780MHz, ≥200MHz B/W 50Ω • Linear



★ **AMCA62-2R640G-01F-T** 6.0 x 2.0 x 1.0mm
• WLAN / WiMax • Peak Gain 2.5 dBi typ
• 2640MHz, ≥200MHz B/W 50Ω • Linear



★ **AMCA72-2R470G-S1F-T** 7.0 x 2.0 x 1.0mm
• WiFi / Bluetooth / ISM • Peak Gain 2.7 dBi typ
• 2470MHz, ≥200MHz B/W 50Ω • Linear



★ **AMCA72-2R860G-02F-T** 7.0 x 2.0 x 1.0mm
• WLAN / WiMax • Peak Gain 2.7 dBi typ
• 2860MHz, ≥200MHz B/W 50Ω • Linear



★ **AMCA81-3R010G-S1F-T** 8.0 x 1.0 x 1.0mm
• LTE Band 42 / WLAN • Peak Gain 2.0 dBi typ
• 3010MHz, ≥200MHz B/W 50Ω • Linear



★ **AMCA92-2R660G-S1F-T** 9.0 x 2.0 x 1.0mm
• LTE Band 38 / WiMax • Peak Gain 3.0 dBi typ
• 2660MHz, ≥200MHz B/W 50Ω • Linear

Chip Antennas- ACA Series

The ACA Series is a range of solid dielectric chip antennas designed to operate across Bluetooth, WiFi and GPS bands, where their compact size makes them ideal for wireless connectivity solutions.

Key Features:

- Use of high dielectric ceramics materials allows compact design
- Single or multi-band, across a range of bands, making them ideal for multi-band applications like Mobile Phone / Tablets
- They offer low profile, light weight, small form factor suitable for compact applications
- Excellent gain and directivity performance relative to their size
- Ease of matching during application development
- Better SAR response than PCB traces
- Improved isolation allowing multiple antenna applications
- Their omni-directional radiation highly suitable for mobile communications

Applications:

- Bluetooth exists in many products, such as telephones, tablets, media players, and gaming systems
- Bluetooth Headsets / Intercoms
- Bluetooth Audio Headsets
- Keyboards / Mouse
- Games Consoles / Controllers
- Wireless bridge between two Industrial Ethernet networks
- Short range transmission of health sensor data from medical devices to mobile phone, or dedicated “Telehealth” devices
- Personal security applications – tags



Please see page-24 for AWCCA series

Wireless Charging Coil Assemblies AWCCA Series



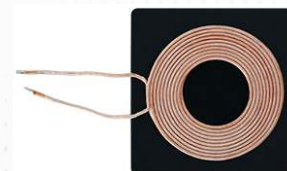
What is Inductive Charging?

Inductive charging sometimes known as “Wireless Charging” uses an electro-magnetic field to transfer energy between two devices.

Energy is sent through the inductive couplings between a base unit and mobile device to charge a battery or power a d.c. electrical device.

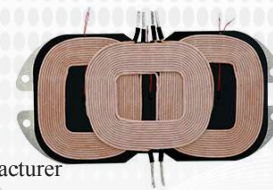
Key Features:

- High Quality Litz windings
- Low dc resistance
- High Q-Factor value
- Competitive prices
- Broad range of sizes, thickness and inductance
- AWCCA-107T52H40-C01-B referenced to IDT9036A



Applications:

- In Car charging Systems
- Batteries and Battery Chargers
- Consumer Electronics
- Digital Cameras and Camcorders
- Infrastructure and Furniture Manufacturer
- Mobile Phone Charging Systems
- Power Supplies
- Hand Power Tools



Abracon offers customization of Wireless Charging Coils to meet different customer or standard requirements

NFC Antennas

NEW



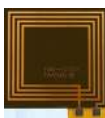
- ★ **ANFCA-6040-A02** 60 x 40mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.9±10% (μH) • Q = 40 • Peel and Stick antenna designs.
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-5040-A02** 50 x 40mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.8±10% (μH) • Q = 40 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-5035-A01** 50 x 35mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 2.7±10% (μH) • Q = 40 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-4545-A01** 45 x 40mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.5±10% (μH) • Q = 40 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-4535-A01** 45 x 35mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.45±10% (μH) • Q = 20 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-4040-A02** 40 x 40mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.7±10% (μH) • Q = 40 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-4030-A01** 40 x 30mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.5±10% (μH) • Q = 25 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-4030-A02** 40 x 30mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.7±10% (μH) • Q = 40 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-3225-A02** 32 x 25mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.8±10% (μH) • Q = 35 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-2525-A02** 25 x 25mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.8±10% (μH) • Q = 35 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-2515-A02** 25 x 15mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.8±10% (μH) • Q = 30 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields



- ★ **ANFCA-1510-A02** 15 x 10mm
- Wide operating temperature range -40°C to +85°C
 - Ultra thin flexible antenna structure (140 - 240 μm)
 - 1.8±10% (μH) • Q = 30 • Peel and Stick antenna designs
 - Ferrite sheet backing optimizes magnetic fields

ANFCA Series; NFC Flexible Peel & Stick Antennas

NEW

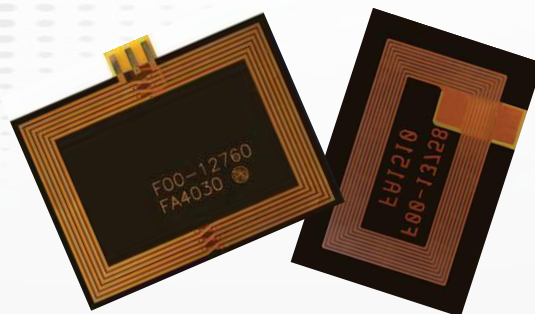
The ANFCA series is a range of NFC antennas designed to operate at 13.56MHz. Its design is constructed from a flexible and very thin-layered structure to form a compact peel and stick NFC antenna

Key Features:

- Ultra thin flexible antenna structure (140 - 240 μm).
- Peel and Stick antenna designs.
- Ferrite backed design that optimizes magnetic fields, increasing the resultant field strength of the antenna.
- -40°C to +85°C operating temperature range.
- Matching to leading NFC controller IC's.
- Wide range of sizes and shapes to meet different application designs.
- Competitive price.
- Customized solutions available.

Applications:

- Cashless Payment Readers
- Physical Access Readers
- Ticket readers
- NFC Wallets
- Rugged PDA's with NFC for industrial use.
- Peer to Peer links to enable other wireless links like WiFi NFC enabled speaker



Circuit Protection- Varistors



★ **AMCV-0201** 0.6 x 0.3 x 0.3mm
 • ESD Protection • DC- 5.5 to 14V • AC- 4 to 10V
 • Energy: 0.005 to 0.01J • Surge Current: 1 to 5A



★ **AMCV-0402** 1.0 x 0.5 x 0.5mm
 • ESD Protection • DC- 5.5 to 26V • AC- 4 to 18.4V
 • Energy: 0.005 to 0.05J • Surge Current: 2 to 10A



★ **AMCV-0402LC** 1.0 x 0.5 x 0.5mm
 • High Speed Circuits • DC-14 to 26V
 • AC- 10 to 18.4V
 • Energy: 0.003 to 0.005J • Surge Current: 1 to 2A



★ **AMCV-0603** 1.6 x 0.8 x 0.8mm
 • ESD Protection • DC- 5.5 to 26V • AC- 4 to 18.4V
 • Energy: 0.005 to 0.05J • Surge Current: 3 to 20A



★ **AMCV-0603LC** 1.6 x 0.8 x 0.8mm
 • High Speed Circuits • DC- 14 to 26V
 • AC- 10 to 18.4V • Energy: 0.003 to 0.005J
 • Surge Current: 1 to 2A



★ **AMCV-0805** 2.0 x 1.25 x 0.85mm
 • ESD Protection • DC- 5.5 to 30V
 • AC- 4 to 21.3V • Energy: 0.005 to 0.05J
 • Surge Current: 3 to 15A



★ **AMCV-1206H** 3.2 x 1.6 x 1.05mm
 • Surge Current • DC- 5.5 to 100V
 • AC- 4 to 75V • Energy: 0.7 to 1.2J
 • Surge Current: 250 to 300A



★ **AMCV-1210H** 3.2 x 2.5 x 1.7mm
 • Surge Current • DC- 5.5 to 100V
 • AC- 4 to 75V • Energy: 0.7 to 2.0J
 • Surge Current: 300 to 400A



★ **AMCV-1812H** 4.5 x 3.2 x 2.5mm
 • Surge Current • DC- 5.5 to 100V
 • AC- 4 to 75V • Energy: 1.0 to 4.0J
 • Surge Current: 600 to 800A



★ **AMCV-2220H** 4.5 x 3.2 x 2.5mm
 • Surge Current • DC- 5.5 to 100V
 • AC- 4 to 75V • Energy: 2.3 to 12.0J
 • Surge Current: 900 to 1200A

Circuit Protection - NTC Thermistors



★ **ABNTC-0402** 1.0 x 0.5 x 0.5mm
 • R25: 3.3 to 680kΩ • B25/50: 3380 to 4400K
 • Power: 100mW



★ **ABNTC-0603** 1.6 x 0.8 x 0.8mm
 • R25: 3.3 to 130kΩ • B25/50: 3450 to 4700K
 • Power: 100mW



★ **ABNTC-0805** 2.0 x 1.25 x 0.85mm
 • R25: 2.0 to 1300kΩ • B25/50: 3450 to 4700K
 • Power: 200mW

Tantalum Capacitors



★ **ATCC-211(A, B, P)**
 A: 3.2 x 1.60 x 1.6mm
 B: 3.5 x 2.80 x 1.9mm
 P: 2.0 x 1.25 x 1.1mm
 • DC - 4 to 50V • Capacitance: 1 to 220uF
 • ESR: 0.5 to 25Ω

Inductors- Air Coil



★ **AIAC-0805C** 2.85 x 1.80 x 2.10mm
 • Range: 3.9~ 68nH • DCR(Max): 2.6 ~ 42.2mΩ • I_{dc} (max): 320 to 1200mA • Q(min): 70 to 80@300MHz
 • SRF(min): 1300 to 3000MHz



★ **AIAC-1008C** 3.20 x 1.90 x 2.20mm
 • Range: 6.8~ 120nH • DCR(Max): 4.0 ~ 63.4mΩ
 • I_{dc}(Max):320 to 1200mA • Q (Min) 70 to 80@300MHz • SRF(Min): 950 to 3000MHz



★ **AIAC-1512C** 3.30 x 2.50 x 2.60mm
 • Range: 2.5~18.5nH • DCR (Max): 0.8~3.9mΩ
 • I_{dc} (Max): 4.0~4.8A • Q (Min): 132~145@150MHz
 • SRF (Min): 2.5 ~ 3GHz



AIAC-1606C 4.04 x 3.10 x 1.37mm
 • Range: 5.6~ 7.15nH • DCR(Max): 9.0 ~ 10.0mΩ
 • I_{dc} (max): 1.6 A • Q(min): 100@800MHz
 • SRF(min): 6.0 to 6.5GHz



★ **AIAC-1812** 4.7 x 3.5 x 3.5mm
 • Range: 22~ 120nH • DCR(Max): 4.8 ~ 11.1mΩ
 • I_{dc}(Max):2.2~3.2A • Q (Min)100@150MHz
 • SRF(Min): 2.2 ~ 3.2GHz



★ **AIAC-2712C** 6.00 x 2.50 x 2.60mm
 • Range: 17.5~43nH • DCR (Max): 4.5~6.7mΩ
 • I_{dc} (Max): 2.5~3.5A • Q (Min):100@150MHz
 • SRF (Min): 1.0~2.2GHz



★ **AIAC-4125C** 9.0 x 4.4 x 4.6mm
 • Range: 90~538nH • DCR (Max): 14~42mΩ
 • I_{dc} (Max): 2.0~3.5A • Q (Min): 100@50MHz
 • SRF (Min): 0.4~1GHz

Inductors- Axial Leaded



AIAM-01 2.41 x φ6.35mm
 • Inductance Range: 0.022~1000μH • DCR (Max):0.025~72Ω • I_{dc} (Max): 28~ 2400mA • Q: 50~25@50~796MHz • SRF (Min): up to 900 MHz



★ **AIAP-01** 9.14 x φ3.3mm - *Epoxy Coated*
 • Range: 1.0~100μH • DCR (Max): 0.018~75Ω
 • I_{dc} (Max): 3300~52mA • SRF (Min): 0.27~190MHz



★ **AIAP-02** 14.0 x φ6.4mm • Range: 3.9~18000μH
 • DCR (Max):0.019~48.3Ω • I_{dc} (Max): 0.09~7.3A



★ **AIAP-03** 22.9 x φ11.4mm
 • Range: 3.9~120000μH • DCR(Max): 0.007~37Ω
 • I_{dc} (Max): 15.5~0.070A



AIAP-05 17.8 x φ6.4mm • Range: 3.9~18000μH
 • DCR (Max): 0.019~48.3Ω • I_{dc} (Max):0.039~1.28mA



AIAS-03 10.4 x φ4.11mm
 • Range: 0.10~100,000μH • DCR (Max):0.025~678Ω
 • I_{dc} (Max): 3~1790mA • Q:18~60@0.079~25MHz
 • SRF (Min): 0.11~250MHz



AIACC-00 4.06 x φ2.54mm
 • Range: 0.22~220μH • DCR (Max): 0.40~ 20Ω
 • I_{dc} (Max): 35~400mA • Q (Min): 35~40MHz@0.796~25.2MHz • SRF (Min): 5~150MHz




AIACC-01 7.11 x φ3.05mm -
 • Range: 0.022~1000μH • DCR (Max): 0.40~33Ω
 • I_{dc} (Max): 40~400mA • Q (Min):35~50MHz@0.796~25.2MHz • SRF (Min): 1.4~150MHz




AIACC-02 6.22 x φ2.8mm • Range: 0.27~1000μH
 • DCR (Max): 0.08~20Ω • I_{dc} (Max): 60~1110mA
 • Q (Min): 40~60MHz @0.796~25.2MHz • SRF (Min): 360~1.2MHz






AIACC-03 9.53 x ϕ 3.30mm
 • Range: 0.022~1000 μ H • DCR (Max): 0.21~14 Ω
 • I_{dc} (Max): 100~880mA
 • Q (Min): 25~85@0.796~25.2MHz
 • SRF (Min): 1.4~380MHz




AIACC-04 7.62 x ϕ 3.00mm
 • Range: 0.10~1000 μ H • DCR (Max): 0.08~27.4 Ω
 • I_{dc} (Max): 28~1380mA • Q (Min): 38
 ~60MHz@0.796~25.2MHz • SRF (Min): 1.8~680MHz


Inductors- Ceramic




★ **AIMC-0201** 0.6 x 0.3 x 0.3mm
 • Range: 1~47nH • DCR (Max): 0.2~3.6 Ω
 • I_r (mA): 0.05~0.3 • Q (Min): 4~5@100MHz
 • SRF (Min): 1.6~12GMHz




★ **AIMC-0402** 1.0 x 0.5 x 0.5mm
 • Range: 1~120nH • DCR (max): 0.08~2.8 Ω
 • I_r (A): 0.15~0.4 • Q (Min): 9@100MHz
 • SRF (MHz): 0.6~10GHz



★ **AIMC-0402HQ High Q** • 1.0 x 0.6 x 0.5mm
 • Range: 1~15nH • DCR (max): 0.05~0.22 Ω
 • I_r (A): 0.43~1 • Q (Min): 20~22@250MHz
 • SRF (MHz): 4~6GMHz




★ **AIMC-0603** 1.6 x 0.8 x 0.8mm
 • Range: 1~220nH • DCR (max): 0.05~2.1 Ω
 • I_r (A): 0.3~0.5 • Q (Min): 8~12@50~100MHz
 • SRF (Min): 0.4~10GHz




★ **AIMC-0805** 2.0 x 1.25 x 0.85mm
 • Range: 1.5~220nH DCR (max): 0.1~1.4 Ω
 • I_r (A): 0.3~0.6 • Q (Min): 10~15@50~100MHz
 • SRF (Min): 0.35~6GHz


Inductors- Drum Core




★ **AIRD-01 - Radial** 21.0 x ϕ 16.5 mm
 • Range: 1~680uH • DCR (Max): 3~700m Ω
 • I_r (A): 0.8~9




★ **AIRD-02 - Radial** 21.0 x ϕ 21.0 mm
 • Range: 1~2200uH • DCR (Max): 0.003~1.54 Ω
 • I_r (A): 0.8~11.4




★ **AIRD-03 - Radial** 21.0 x ϕ 28.0 mm
 • Range: 1~19000uH • DCR (Max): 0.003~9 Ω
 • I_r (A): 0.5~21




★ **AIRD-06 - Radial** 21.0 x ϕ 21.0 mm
 • Range: 1~2200uH • DCR (Max): 0.003~1.54 Ω
 • I_r (A): 0.8~11.4 • Q (Min): 15@0.1MHz




★ **AISR-01 - Radial** 14.0 x ϕ 10.8mm
 • Range: 1000~120000uH • DCR (Max): 3.4~97 Ω
 • I_r (mA): 8~90 • Q (Min): 70~100@0.05MHz



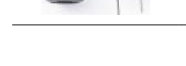
★ **AISR-04 - Radial** 10.0 x ϕ 10.30mm
 • Range: 10~1000uH • DCR (Max): 0.02~1.5 Ω
 • I_r (A): 0.39~3.9 • SRF (Min): 1.5~32MHz




★ **AISR-875 - Radial** 7.5 x ϕ 7.8mm
 • Range: 10~10000uH • DCR (Max): 0.05~33 Ω
 • I_r (mA): 84~2900




AIUR-01 - Radial 7.5 x ϕ 8.5mm
 • Range: 100~15000uH • DCR (Max): 2~80 Ω
 • I_r (mA): 30~200 • Q (Min): 10@79.6~796kHz
 • SRF (Typ): 0.5~6.1MHz




★ **AIUR-02H - Radial** 12.0 x ϕ 8.5mm
 • Range: 1~1000uH • DCR (Max): 0.021~1.18 Ω
 • I_r (A): 0.22~3.5 • Q (Min): 15~20@0.25~7.96MHz




★ **AIUR-03 - Radial** 12.0 x ϕ 9.0mm
 • Range: 1~1000uH • DCR (Max): 0.013~2.9 Ω
 • I_r (A): 0.29~10 • Q (Min): 20@0.252~7.96MHz
 • SRF (Min): 1.3~150MHz




★ **AIUR-04 - Radial** 11.2 x ϕ 8.5mm
 • Range: 100~27000uH • DCR (Max): 2~80 Ω
 • I_r (A): 30~200mA • Q (Min): 30~40@79.6~796kHz
 • SRF (Min): 0.3~5.3MHz




★ **AIUR-05 - Radial** 9.0 x ϕ 8.5mm
 • Range: 2.2~1500H • DCR (Max): 0.012~3.5 Ω
 • I_r (A): 0.15~3A • Q (Min): 10@0.252~7.96MHz
 • SRF (Min): 1.2~50MHz




★ **AIUR-06 - Radial** 18.3 x ϕ 12.7mm
 • Range: 3.9~15000uH • DCR (Max): 0.016~20.5 Ω
 • I_r (A): 0.1~6.5




★ **AIUR-07 - Radial** 4.6 x ϕ 6.0mm
 • Range: 10~1000uH • DCR (Max): 0.1~6.3 Ω
 • I_r (A): 0.1~1.05 • Q (Min): 24~60@0.1~2.52MHz




★ **AIUR-08 - Radial** 10.0 x ϕ 10.0mm
 • Range: 10~1000uH • DCR (Max): 0.03~1.7 Ω
 • I_r (A): 0.53~5.3




★ **AIUR-09 - Radial** 6.0 x ϕ 10.0mm
 • Range: 100~1000uH • DCR (Max): 0.044~3.3 Ω
 • I_r (A): 0.36~3.6




★ **AIUR-10 - Radial** 7.5 x ϕ 8.0 mm
 • Range: 5.6~10000uH • DCR (Max): 0.08~25 Ω
 • I_r (A): 0.1~2.45




★ **AIUR-11 - Radial** 11.43 x ϕ 9.53mm
 • Range: 3.9~68000uH • DCR (Max): 0.022~115 Ω
 • I_r (A): 0.036~1.6



AIUR-12 - Radial 7.20 x ϕ 8.20mm
 • Range: 10~4700uH • DCR (Max): 0.07~18 Ω
 • I_r (A): 0.07~1.5 • Q (Min): 30@0.1MHz
 • SRF (Min): 0.3~20MHz



AIUR-15 - Radial 20.0 x ϕ 18.0mm
 • Range: 22~1000uH • DCR (Max): 0.03~0.71 Ω
 • I_r (A): 1~5.7



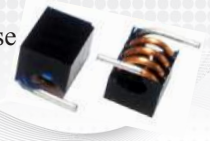
AIUR-16 - Radial 9.50 x ϕ 7.00mm
 • Range: 3.9~33000uH • DCR (Max): 0.02~100 Ω
 • I_r (A): 0.03~1.3

AIAC-1606C Series
SMT Air Coil Inductor in low profile
 4.04 x 3.10 x 1.37mm

Abracon's AIAC-1606C Series air core inductors combine Q factor of up to 100 and SRF as high as 6.5GHz, making them ideal for IF/RF applications. Constructed with 1.37mm height package, it can work over wide temperature range of -40°C to 125°C.

Features:

- Small and low profile air core inductors feature high Q and SRF
- Wide Range Frequency Response
- Tolerance as low as 2%
- Standard flat top jacket suitable for pick and place



Inductors- Ferrite



★ **AI ML-0402** 1.0 x 0.5 x 0.5mm
 • Range: 1~2.7μH • DCR (Max):0.9~2Ω
 • I_{dc} (Max): 10~15mA • Q (Min): 20@10MHz
 • SRF (Min): 22~40MHz



★ **AI ML-0603** 1.6 x 0.8 x 0.8mm
 • Range: 0.047~27μH • DCR (Max):0.2~2.75Ω
 • I_{dc} (Max): 1~50mA • Q (Min):15~35@1~50MHz
 • SRF (Min): 12~600MHz



★ **AI ML-0603HC High Current** 1.6 x 0.8 x 0.8mm NEW
 • Range: 3.3~4.7μH • DCR (Max):0.40~0.50Ω
 • I_{dc} (Max): 60~80mA • SRF (Min): 50~70MHz



★ **AI ML-0805** 2.00 x 1.25 x 0.85mm
 • Range:0.047~47μH • DCR (Max): 0.2~1.8Ω
 • I_{dc} (Max): 4~300mA • Q (Min):15~55@1~50MHz
 • SRF (Min): 12~350MHz



AI ML-0805HC High Current NEW
 2.00 x 1.25 x 1.15mm
 • Range: 1.0~22.0μH • DCR (Max):0.15~0.70Ω
 • I_{dc} (Max): 40~400mA • SRF (Min): 18~75MHz



AI ML-1008HC High Current NEW
 2.50 x 2.00 x 0.85mm
 • Range: 1.0~4.7μH • DCR (Max):0.085~0.12Ω
 • I_{dc} (Max): 150~300mA • SRF (Min): 20~60MHz

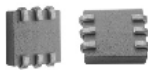


★ **AI ML-1206** 3.2 x 1.6 x 1.1mm
 • Range: 0.047~390μH • DCR (Max): 0.15~3Ω
 • I_{dc} (Max): 5~300mA • Q (Min): 20~50@1~50MHz
 • SRF (Min): 11~320MHz

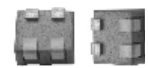


AI ML-1206HC High Current NEW
 3.20 x 1.60 x 1.10mm
 • Range: 1.0~10.0μH • DCR (Max):0.10~0.50Ω
 • I_{dc} (Max): 100~300mA • SRF (Min): 28~90MHz

Ferrite Chip Beads- Chip Bead Array



★ **ACS B-04** 5.60 x 5.00 x 1.50mm
 • Impedance: 50Ω@100MHz • DCR (Max): 9Ω
 • I_{dc} (Max): 5A



★ **ACS B-05** 5.60 x 4.80 x 3.00mm
 • Impedance: 35Ω@100MHz • DCR (Max): 3mΩ
 • I_{dc} (Max): 5A

Ferrite Chip Beads- General Purpose



★ **AC ML-0201** 0.6 x 0.3 x 0.3mm
 • Impedance Range: 60~600Ω@100MHz
 • DCR (Max): 0.4~1.7Ω • I_{dc} (Max): 200mA



★ **AC ML-0402** 1.0 x 0.5 x 0.5mm
 • Impedance Range: 5~1500Ω@100MHz
 • DCR (Max): 0.05~1.6Ω • I_{dc} (Max): 100~500mA



★ **AC ML-0603** 1.60 x 0.80 x 0.80mm
 • Impedance Range: 6~2000Ω@100MHz
 • DCR (Max): 0.05~1Ω • I_{dc} (Max): 200~1000mA



AC ML-0603U 1.65 x 0.80 x 0.80mm
 • Impedance Range: 22~600Ω@100MHz
 • DCR (Max): 10~150mΩ • I_{dc} (Max): 1000~6000mA



★ **AC ML-0805** 2.00 x 1.25 x 0.85mm
 • Impedance Range: 7~2000Ω@50~100MHz
 • DCR (Max): 0.05~0.8Ω • I_{dc} (Max): 200~2200mA



AC ML-1206 3.2 x 1.6 x 0.9 mm
 • Impedance Range: 19~3000Ω@50~100MHz
 • DCR (Max): 0.05~1Ω • I_{dc} (Max): 200~2000mA



★ **AL FB-01** Φ3.50 x 4.70mm NEW
 • Impedance Range: 110Ω min@100MHz

Ferrite Chip Beads- High Current



AC ML-0402H 0.6 x 0.3 x 0.3mm
 • Impedance Range: 60~600Ω@100MHz
 • DCR (Max): 0.4~1.7Ω • I_{dc} (Max): 200mA



★ **AC ML-0402HC** 1.00 x 0.50 x 0.50mm
 • Impedance Range: 5~300Ω@100MHz
 • DCR (Max): 0.05~0.30Ω • I_{dc} (Max): 1000~2000mA



★ **AC ML-0603H** 1.60 x 0.80 x 0.80mm
 • Impedance Range: 5~600Ω@100MHz
 • DCR (Max): 0.03~0.35Ω • I_{dc} (Max): 800~2000mA



AC ML-0805H 2.00 x 1.25 x 0.85mm
 • Impedance Range: 30~600Ω@100MHz
 • DCR (Max): 0.02~0.25Ω • I_{dc} (Max): 500~3000mA



★ **ACS B-02** 8.50 x 3.10 x 2.60mm
 • Impedance: 90Ω@100MHz • DCR (Max): 0.9mΩ
 • I_{dc} (Max): 5A



★ **ACS B-03** 4.00 x 3.10 x 2.60mm
 • Impedance: 47Ω@100MHz • I_{dc} (Max): 5A

ASPI-2010HC Series- 2.0 x 1.6 x 1.0mm SMD

High Current, Wirewound Power Inductor with Metalized Ferrite Core

Abracon's ASPI-2010HC series of SMD power inductors is designed for consumer products and portable equipment with demanding current handling requirements. Constructed with a metalized ferrite core, specialized copper wire, the core is coated with a magnetic resin compound for shielding. This unique combination yields the ability to handle large amounts of current with lower RDC, compared to traditional ferrite power inductors.

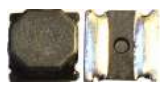
Applications:

- Smart Phones, Tablets, Notebooks, Desktops
- Servers
- Blu-Ray Disc Recorders, Set Top Boxes, Portable Gaming Consoles and Navigation Devices

Key features include:

- A metalized ferrite core that provides saturation current as high as 4.5A
- A DCR as low as 40mΩ to reduce power loss
- Magnetic resin shielding to minimize leakage flux and EMI
- A core design resulting in excellent shock resistance
- A wide operating temperature range from -40°C to +125°C
- Space saving 2.0x1.6x1.0mm, RoHS compliant and lead-free SMD package



Inductors- Low Profile Wire-Wound

★ **ASPI-0310FS** 3.0 x 3.0 x 1.0mm
Low Profile Wire Wound
 • L Range: 1~47μH • DCR (Max): 50~1600mΩ
 • I_{dc} (Max): 0.28~2.3A



★ **ASPI-0312FS** 3.0 x 3.0 x 1.2mm
Low Profile Wire Wound
 • L Range: 1~47μH • DCR (Max): 50~1450mΩ
 • I_{dc} (Max): 0.25~1.49A



★ **ASPI-0315FS** 3.0 x 3.0 x 1.5mm
Low Profile Wire Wound
 • L Range: 1~100μH • DCR (Max): 28~2100mΩ
 • I_{dc} (Max): 0.25~2.3A



★ **ASPI-0410FS** 4.0 x 4.0 x 1.0mm
Low Profile Wire Wound
 • L Range: 1~47μH • DCR (Max): 100~1810mΩ
 • I_{dc} (Max): 0.24~1.8A



★ **ASPI-0412FS** 4.0 x 4.0 x 1.2mm
Low Profile Wire Wound
 • L Range: 0.82~100μH • DCR (Max): 0.065~2.873Ω
 • I_{dc} (Max): 0.25~1.65A



★ **ASPI-0418FS** 4.0 x 4.0 x 1.88mm
Low Profile Wire Wound
 • L Range: 0.82~220μH • DCR (Max): 16~2960mΩ
 • I_{dc} (Max): 0.28~4A



ASPI-0425 4.0 x 4.0 x 2.5mm
Low Profile Wire Wound
 • L Range: 1~220μH • DCR (Max): 12~2300mΩ
 • I_{dc} (Max): 0.2~3A



★ **ASPI-0612FS** 6.0 x 6.0 x 1.2mm
Low Profile Wire Wound
 • L Range: 2.2~100μH • DCR (Max): 78~2171mΩ
 • I_{dc} (Max): 0.32~1.8A



★ **ASPI-0615FS** 6.0 x 6.0 x 2.0mm
Low Profile Wire Wound
 • L Range: 0.5~47μH • DCR (Max): 9~370mΩ
 • I_{dc} (Max): 3.0~0.77A



ASPI-0628 6.0 x 6.0 x 2.8mm
Low Profile Wire Wound
 • L Range: 0.9~100μH • DCR (Max): 13~600mΩ
 • I_{dc} (Max): 0.65~4.6A



ASPI-0645 6.0 x 6.0 x 4.5mm
Low Profile Wire Wound
 • L Range: 1~220μH • DCR (Max): 10~920mΩ
 • I_{dc} (Max): 0.5~6.5A



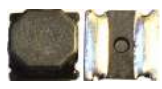
★ **ASPI-0840** 8.0 x 8.0 x 4.0mm
Low Profile Wire Wound
 • L Range: 0.47~6.8μH • DCR (Max): 0.059~0.816Ω
 • I_{dc} (Max): 0.52~2.3A



★ **ASPI-2010** 2.0 x 2.0 x 1.2mm
Low Profile Wire Wound
 • L Range: 0.47~6.8μH • DCR (Max): 0.059~0.816Ω
 • I_{dc} (Max): 0.52~2.3A



★ **ASPI-2010HC** 2.0 x 1.6 x 1.0mm
Low Profile Wire Wound
 • L Range: 0.24~10μH • DCR (Max): 0.040~0.826Ω
 • I_{dc} (Max): 0.65~3.00A • SRF (Min): 15~145MHz



ASPI-2012 2.0 x 2.0 x 1.2mm
Low Profile Wire Wound • L Range: 0.16~33μH •
 DCR (Max): 0.031~2.16Ω • I_{dc} (Max): 0.30~2.5A



★ **ASPI-2410** 2.4 x 2.4 x 1.0mm
Low Profile Wire Wound • L Range: 0.68~22μH •
 DCR (Max): 60~1470mΩ • I_{dc} (Max): 0.4~2.5A



★ **ASPI-2510** 2.5 x 2.0 x 1.0mm
Low Profile Wire Wound
 • L Range: 0.47~10μH • DCR (Max): 38~712mΩ
 • I_{dc} (Max): 0.56~2.5A



★ **ASPI-2512** 2.5 x 2.0 x 1.2mm
Low Profile Wire Wound
 • L Range: 0.47~10μH • DCR (Max): 47~630mΩ
 • I_{dc} (Max): 0.59~2.15A



★ **ASPI-2515** 2.5 x 2.0 x 1.5mm
Low Profile Wire Wound
 • L Range: 0.47~10μH • DCR (Max): 35~445mΩ
 • I_{dc} (Max): 0.75~2.8A

Inductors- Molded Wire-Wound

AISM-1008 2.5 x 2.0 x 1.8mm
 • Range: 0.01~100μH • DCR (Max): 0.26~21Ω
 • I_{dc} (Max): 530~60mA
 • Q (Min): 25~15@25.2~0.796MHz
 • SRF (Min): Up to 230MHz



★ **AISM-1210** 3.2 x 3.5 x 2.2mm
 • Range: 0.01~330μH • DCR (Max): 0.13~34Ω
 • I_{dc} (Max): 5~2500mA • Q (Min):
 15~30@0.796~100MHz • SRF (Min): Up to 2500MHz



★ **AISM-1812** 4.8 x 3.5 x 3.5mm
 • Range: 0.1~820μH • DCR (Max): 0.2~43Ω
 • I_{dc} (Max): 30~800mA • Q (Min):
 30~50@0.796~25.2MHz • SRF (Min): Up to 300MHz



AISM-1812H 4.5 x 3.2 x 3.2mm
 • Range: 1.0~330μH • DCR (Max): 0.11~13Ω
 • I_{dc} (Max): 90~1050mA • Q (Min):
 10~20@0.796~7.96MHz • SRF (Min): Up to 200MHz



AISM-2220 5.8 x 5.2 x 5.2mm
 • Range: 1.0~1000μH • DCR (Max): 0.03~15Ω
 • I_{dc} (Max): 85~1800mA
 • Q (Min): 10~20@0.252~7.96MHz
 • SRF (Min): Up to 95MHz



★ **ASPI-0520LR** 5.6 x 5.2 x 2.0mm
Low Resistance • L Range: 1.0~5.6μH
 • DCR (Max): 0.0185~0.075Ω • I_{dc} (Max): 3.3~7.5A



★ **ASPI-0530HI** 5.6 x 5.2 x 3.0mm
High Current • L Range: 1.5~2.2μH
 • DCR (Max): 0.014~0.035Ω • I_{dc} (Max): 5.5~7A



★ **ASPI-0530LR** 5.6 x 5.2 x 3.0mm
Low Resistance • L Range: 1.5~5.6μH
 • DCR (Max): 0.02~0.065Ω • I_{dc} (Max): 4.0~7.0A



★ **ASPI-0630HI** 7.2 x 6.65 x 3.0mm
High Current • L Range: 1.0~10.0μH
 • DCR (Max): 0.010~0.105Ω • I_{dc} (Max): 3~11.0A






★ **ASPI-0630LR** 7.2 x 6.65 x 3.0mm
Low Resistance • L Range: 0.47~22.0μH
 • DCR (Max): 0.004~0.167Ω • I_{dc} (Max): 2.5~18.0A




★ **ASPI-1040HI** 11.15 x 10.0 x 4.0mm
High Current • L Range: 0.16~10.0μH
 • DCR (Max): 0.065~0.3Ω • I_{dc} (Max): 7.5~40.0A











ASPI-1338 12.9 x 13.8 x 3.8mm *High Current*
 • L Range: 0.22~8.2μH • DCR (Max): 1.3~31mΩ
 • I_{dc} (Max): 8~38.5A




	ASPI-1367 14.0 x 12.9 x 6.7mm <i>High Current</i> <ul style="list-style-type: none"> • L Range: 0.1~10.0μH • DCR (Max): 0.005~0.019Ω • Idc (Max): 10~16A
	ASPI-4020HI 4.5 x 4.1 x 2.1mm <i>High Current</i> <ul style="list-style-type: none"> • L Range: 0.1~3.3μH • DCR(Max): 4.0~87mΩ • Idc (Max): 2.5~12.0A
	ASPI-7318 7.3 x 6.8 x 3.0mm <i>High Current</i> <ul style="list-style-type: none"> • L Range: 0.1~22μH • DCR (Max): 1.7~230mΩ • Idc (Max): 2~30A

Inductors- Power




















	★ ASMCI-0603 1.6 x 0.8 x 0.8mm <ul style="list-style-type: none"> • L Range: 0.1~10μH • DCR (Max): 0.14~0.9Ω • Idc (Max): 50~700mA
	★ ASMCI-0805 2.0 x 1.25 x 1.25mm <ul style="list-style-type: none"> • L Range: 0.1~10μH • DCR (Max): 0.07~0.5Ω • Idc (Max): 60~1000mA
	★ ASMPH-0603 1.6 x 0.8 x 0.8mm <ul style="list-style-type: none"> • L Range: 0.22~2.2μH • DCR (Max): 0.1~0.3Ω • Idc (Max): 300~1250mA
	★ ASMPH-0805 2.0 x 1.25 x 0.9mm <ul style="list-style-type: none"> • L Range: 0.47~4.7μH • DCR (Max): 0.08~0.25Ω • Idc (Max): 280~1200mA
	★ ASMPH-0806 2.0 x 1.6 x 0.9mm <ul style="list-style-type: none"> • L Range: 0.47~4.7μH • DCR (Max): 0.08~0.14Ω • Idc (Max): 220~1500mA
	★ ASMPH-1008 2.5 x 2.0 x 0.9mm <ul style="list-style-type: none"> • L Range: 0.47~4.7μH • DCR (Max): 0.04~0.11Ω • Idc (Max): 320~1500mA
	ASPI-0312S 3.2 x 3.2 x 1.2mm <ul style="list-style-type: none"> • L Range: 1.2~22μH • DCR (Max): 78~1187mΩ • Idc (Max): 0.31~1.4A
	★ ASPI-0316S 3.2 x 3.2 x 1.5mm <ul style="list-style-type: none"> • L Range: 1.0~33μH • DCR (Max): 70~1283mΩ • Idc (Max): 0.29~1.9A
	★ ASPI-0320S 3.2 x 3.2 x 2.0mm <ul style="list-style-type: none"> • L Range: 1.5~47μH • DCR (Max): 95~1157mΩ • Idc (Max): 0.32~1.4A
	★ ASPI-0412S 4.2 x 4.2 x 1.2mm <ul style="list-style-type: none"> • L Range: 1.2~27μH • DCR (Max): 71~989mΩ • Idc (Max): 0.39~1.88A
	★ ASPI-0418S 4.2 x 4.2 x 1.8mm <ul style="list-style-type: none"> • L Range: 1.2~33μH • DCR (Max): 63~524mΩ • Idc (Max): 0.61~1.9A
	★ ASPI-0315S 3.8 x 3.8 x 1.8mm <ul style="list-style-type: none"> • L Range: 3.3~330μH • DCR (Max): 0.085~9.45Ω • Idc (Max): 0.32~1.10A
	★ ASPI-0428S 4.7 x 4.7 x 3.0mm <ul style="list-style-type: none"> • L Range: 1.2~180μH • DCR (Max): 0.024~1.54Ω • Idc (Max): 0.22~2.56A
	ASPI-0503S 5.7 x 5.7 x 3.0mm <ul style="list-style-type: none"> • L Range: 2.5~470μH • DCR (Max): 0.018~2.69Ω • Idc (Max): 0.26~0.20A
	★ ASPI-0602S 6.7 x 6.7 x 3.0mm <ul style="list-style-type: none"> • L Range: 3.3~100μH • DCR (Max): 0.024~0.535Ω • Idc (Max): 0.54~3A




	ASPI-0638S 6.7 x 6.7 x 4.0mm <ul style="list-style-type: none"> • L Range: 3.3~100μH • DCR (Max): 0.02~0.36Ω • Idc (Max): 0.65~3.5A
	ASPI-0703S 7.3 x 7.3 x 3.2mm <ul style="list-style-type: none"> • L Range: 2.2~1000μH • DCR (Max): 0.032~9.4Ω • Idc (Max): 0.16~3.2A
	★ ASPI-0704S 7.3 x 7.3 x 4.5mm <ul style="list-style-type: none"> • L Range: 2.2~1000μH • DCR (Max): 0.03~6.0Ω • Idc (Max): 0.18~5.0A
	★ ASPI-104S 10.1 x 10.0 x 3.8mm <ul style="list-style-type: none"> • L Range: 1~330μH • DCR (Max): 0.006~1.09Ω • Idc (Max): 0.7~13.6A
	ASPI-1205S 12 x 12 x 6mm <ul style="list-style-type: none"> • L Range: 1.3~330μH • DCR (Max): 0.01~0.51Ω • Idc (Max): 0.68~8A
	ASPI-1207S 12 x 12 x 8mm <ul style="list-style-type: none"> • L Range: 1.0~330μH • DCR (Max): 0.006~0.471Ω • Idc (Max): 1.2~14A
	★ ASPI-0403S 6.6 x 4.45 x 2.92mm <ul style="list-style-type: none"> • L Range: 1~10000μH • DCR (Max): 0.04~32.8mΩ • Idc (Max): 0.02~3A
	★ ASPI-1306S 18.54 x 15.24 x 7.62mm <ul style="list-style-type: none"> • L Range: 10.0~1,000μH • DCR (Max): 0.04~2.01Ω • Dc (Max): 0.53~3.9A
	ASPI-0804TS 12.95 x 9.04 x 5.08mm <ul style="list-style-type: none"> • L Range: 1~1000μH • DCR (Max): 0.025~1.45Ω • Isat (Max): 0.085~4A
	★ ASPI-3012S 3.2 x 3.2 x 1.2mm <ul style="list-style-type: none"> • L Range: 1.2~22μH • DCR (Max): 0.078~1.187Ω • Idc (Max): 0.3~1.4A
	★ ASPI-4020S 4.0 x 4.0 x 2.0mm <ul style="list-style-type: none"> • L Range: 1~100μH • DCR (Max): 0.029~1.55Ω • Idc (Max): 0.31~2.15A
	★ ASPI-4030S 4.0 x 4.0 x 3.0mm <ul style="list-style-type: none"> • L Range: 0.91~120μH • DCR (Max): 0.013~1.35Ω • Idc (Max): 0.42~4.15A
	ASPI-5040S 5.0 x 5.0 x 4.0mm <ul style="list-style-type: none"> • L Range: 1.5~47μH • DCR (Max): 0.024~0.372Ω • Idc (Max): 0.9~3.6A
	★ ASPI-6045S 6.0 x 6.0 x 4.5mm <ul style="list-style-type: none"> • L Range: 0.82~330μH • DCR (Max): 0.008~1.27Ω • Idc (Max): 0.57~5.9A
	★ ASPI-8040S 8.0 x 8.0 x 4.2mm <ul style="list-style-type: none"> • L Range: 0.82~330μH • DCR (Max): 0.008~0.889Ω • Idc (Max): 0.64~6.3A

Inductors- Thin Film

	★ ATFC-0201 0.6 x 0.3 x 0.23mm <ul style="list-style-type: none"> • Range: 0.1~22nH • DCR (Ω): 0.2~3.5 • Idc (mA): 80~300 • Q: 8@500MHz • SRF (Min): Up to 9GHz
	★ ATFC-0201HQ High Q 0.6 x 0.3 x 0.23mm <ul style="list-style-type: none"> • Range: 0.1~4nH • DCR (Ω): 0.05~0.4 • Idc (mA): 350~850 • Q: 14@500MHz • SRF (Min): Up to 6GHz
	★ ATFC-0402 1.0 x 0.5 x 0.32mm <ul style="list-style-type: none"> • Range: 0.2~33nH • DCR (Ω): 0.1~4.5 • Idc (mA): 75~800 • Q: 13@500MHz • SRF (Min): Up to 14GHz
	★ ATFC-0402HQ High Q 0.6 x 0.3 x 0.23mm <ul style="list-style-type: none"> • Range: 1.3~4.7nH • DCR (Ω): 0.12~0.5 • Idc (mA): 330~730 • Q: 16@500MHz • SRF (Min): Up to 7GHz

Inductors- Unshielded

	AISC-1206H 3.2 x 1.6 x 1.8mm • Range: 0.045~100µH • DCR (Max):0.027~8.45Ω • Idc (Max): 1~175mA
	★ AISC-1210H 3.5 x 2.5 x 2.5mm • Range: 0.15~680µH • DCR (Max):21~40000mΩ • Idc (Max): 0.04~4.4A
	★ AISC-1812H 4.5 x 3.2 x 2.6mm • Range: 1.0~2200µH • DCR (Max): 0.08~65Ω • Idc (Max): 0.03~1.08A • SRF (Min): 1.3~120MHz
	AISC-2220H 5.7 x 5.0 x 4.7mm • Range: 0.12~10000µH • DCR (Max): 0.01~140Ω • Idc (Max): 0.05~6A
	★ ASPI-0309 3.0 x 3.0 x 0.8mm • Range: 2.2~47µH • DCR (Max): 170~3300mΩ • Idc (Max): 0.021~0.98A
	ASPI-0302 3.5 x 3.0 x 2.3mm • Range: 10~390µH • DCR (Max):0.23~7.8Ω • Idc (Max): 0.115~0.76A
	ASPI-0403 4.5 x 4.0 x 3.2mm • Range: 1.0~68µH • DCR (Max): 0.049~1.12Ω • Idc (Max): 0.37~2.56A
	★ ASPI-0504 5.8 x 5.2 x 4.5mm • Range: 4.7~1000µH • DCR (Max): 0.04~14.4Ω • Idc (Max): 0.15~3.5A
	ASPI-0703 7.8 x 7.0 x 3.5mm • Range: 10~330µH • DCR (Max): 0.081~1.495Ω • Idc (Max): 0.28~1.44A
	ASPI-0705 7.8 x 7.0 x 5.0mm • Range: 10~470µH • DCR (Max): 0.07~1.96Ω • Idc (Max): 0.34~2.3A
	ASPI-1004 10.0 x 9.0 x 4.2mm • Range: 10~560µH • DCR (Max): 0.053~1.904Ω • Idc (Max): 0.32~2.38A
	ASPI-1005 10.0 x 9.0 x 5.4mm • Range: 10~1000µH • DCR (Max): 0.06~2.75Ω • Idc (Max): 0.22~2.6A
	ASPI-0402T 6.60 x 4.45 x 2.92mm • Range: 1.0~1000µH • DCR (Max):0.05~13.8Ω • Isat (Max): 0.07~2.9A
	ASPI-0706HC 9.1 x 6.1 x 4.7mm • Range: 0.18~47µH • DCR (Max): 0.003~0.47Ω • Idc (Max): 0.72~10A
	ASPI-0802T 12.9 x 9.4 x 3.0mm • Range: 10~1000µH • DCR (Max): 0.11~8.4Ω • Idc (Max): 0.05~2A
	★ ASPI-0804HC 13.5 x 10.2 x 6.0mm • Range: 0.33~100µH • DCR (Max): 2~271mΩ • Idc (Max): 1.2~16A
	ASPI-0804T 13.5 x 9.5 x 5.5mm • Range: 1~1000µH • DCR (Max): 0.009~3Ω • Idc (Max): 0.3~9A
	★ ASPI-0810T 12.9 x 9.4 x 11.4mm • Range: 1~1000µH • DCR (Max): 0.01~2Ω • Idc (Max): 0.1~6.8A
	ASPI-1306HC 22.4 x 16.0 x 8.0mm • Range: 0.78~220µH • DCR (Max): 2.6~357mΩ • Idc (Max): 2.6~30A

	★ ASPI-1306T 15.24 x 18.54 x 7.11mm • Range: 1~1000µH • DCR (Max): 0.009~1.8mΩ • Idc (Max): 0.56~8.6A
	ASPI-1907HC 19.4 x 13.3 x 6.8mm • Range: 0.47~100µH • DCR (Max): 0.003~0.206Ω • Idc (Max): 1.8~25.1A
	ASPI-5619 5.6 x 5.6 x 1.9mm • Range: 1.5~47µH • DCR (Max): 0.033~0.703Ω • Idc (Max): 0.65~3.5A

Inductors- Wire Wound

	★ AISC-0402 1.0 x 0.5 x 0.5mm • Range: 1.0~47nH • DCR (Max): 45~750mΩ • Idc (Max): 0.15~1.36A • Q (Min):13~26@250MHz • SRF (Min): Up to 12.7GHz
	★ AISC-0402HP High Current 1.0 x 0.55 x 0.5mm • Range: 2~68nH • DCR (Max): 0.038~0.95Ω • Idc (Max): 320~2100mA • Q (Min): 22~26@200~250MHz • SRF (Min): Up to 8.5GHz
	★ AISC-0603 1.8 x 1.12 x 1.02mm • Range: 1.8~560nH • DCR (Max): 0.043~8.1Ω • Idc (Max): 700~1000mA • Q (Min): 18~40@100~250MHz • SRF (Min): Up to 6GHz
	★ AISC-0603F 1.6 x 1.0 x 1.0mm • Range: 47~22000nH • DCR (Max): 0.06~11.4Ω • Idc (Max): 70~1200mA • SRF (Min): Up to 2.35GHz
	AISC-0603HC High Current 1.8 x 1.12 x 1.02mm • Range: 1.6~24nH • DCR (Max): 0.03~0.105Ω • Idc (Max): 1800~2400mA • Q (Min): 24~42@250MHz • SRF (Min): Up to 12.5GHz
	★ AISC-0603HP High Current 1.8 x 1.12 x 1.02mm • Range: 1.7~390nH • DCR (Max): 0.033~3.8Ω • Idc (Max): 1800~2100mA • Q (Min): 13~40@100- 250MHz • SRF (Min): Up to 8.5GHz
	★ AISC-0805 2.3 x 1.7 x 1.55mm • Range: 12~1000nH • DCR (Max): 0.15~17.5Ω • Idc (Max): 150~600mA • Q (Min): 20~60@50- 500MHz • SRF (Min): Up to 4.1GHz
	★ AISC-0805F 2.3 x 1.7 x 1.55mm • Range: 1~68uH • DCR (Max): 1.2~17.5Ω • Idc (Max): 40~245mA • Q (Min): 8~15@2.5- 7.9MHz • SRF (Min): Up to 63MHz
	★ AISC-0805HQ High Current 2.29 x 1.73 x 1.52mm • Range: 2.5~51nH • DCR (Max): 0.02~0.12Ω • Idc (Max): 1000~1600mA • Q (Min): 65~98@2.5- 7.9MHz • SRF (Min): Up to 63MHz
	★ AISC-0805LP 2.29 x 1.73 x 1.03mm • Range: 1.8~1000nH • DCR (Max): 0.03~3.5Ω • Idc (Max): 1.7~800mA • Q (Min): 16~60@50- 1500MHz • SRF (Min): Up to 9.4GHz
	★ AISC-1008 2.92 x 2.79 x 2.29mm • Range: 4.7~8200nH • DCR (Max): 0.11~10.7Ω • Idc (Max): 150~1000mA • Q (Min): 17~65@25- 1500MHz • SRF (Min): Up to 6GHz
	★ AISC-1008F 2.92 x 2.79 x 2.29mm • 2.92 x 2.79 x 2.29mm • Range: 330~10000nH • DCR (Max): 0.17~2.95Ω • Idc (Max): 300~700mA • Q (Min): 15~50@7.9- 100MHz • SRF (Min): Up to 600MHz

	<p>★ AISC-1008HQ 2.92 x 2.79 x 2.29mm</p> <ul style="list-style-type: none"> • Range: 330~1000nH • DCR (Max): 0.17~2.95Ω • I_{dc} (Max): 300~700mA • Q (Min): 15~50@7.9-100MHz • SRF (Min): Up to 600MHz
	<p>★ AISC-1008LP 2.92 x 2.79 x 1.4mm</p> <ul style="list-style-type: none"> • Range: 3.3~1000nH • DCR (Max): 0.03~3.7Ω • I_{dc} (Max): 300~1000mA • Q (Min): 35~72@15-500MHz • SRF (Min): Up to 6GHz
	<p>★ AISC-1206 3.56 x 2.16 x 1.52mm</p> <ul style="list-style-type: none"> • Range: 3.3~1200nH • DCR (Max): 0.07~3.2Ω • I_{dc} (Max): 300~1000mA • Q (Min): 20~60@150-300MHz • SRF (Min): Up to 6.2GHz
	<p>★ AISC-1210 3.65 x 2.95 x 2.70mm</p> <ul style="list-style-type: none"> • Range: 3.9~8600nH • DCR (Max): 0.05~1.1Ω • I_{dc} (Max): 200~1000mA • Q (Min): 15~60@150-300MHz • SRF (Min): Up to 6.0GHz
	<p>★ AISC-1210HS High SRF 3.2 x 3.05 x 1.3mm</p> <ul style="list-style-type: none"> • Range: 2.2~33nH • DCR (Max): 0.5~5Ω • I_{dc} (Max): 220~800mA • Q (Min): 10@1MHz • SRF (Min): Up to 150MHz

LAN Magnetics	
	<p>★ ALAN-101 11.43 x 9.24 x 5.51 mm</p> <ul style="list-style-type: none"> • 10/100 Base-T • 1CT : 1CT • IL: -1.1dB 0.1 to 100MHz • RL: -18dB @ 30MHz, -14dB @ 60MHz, -11.5dB @ 80MHz
	<p>★ ALAN-102 12.70 x 9.30 x 6.35 mm</p> <ul style="list-style-type: none"> • 10/100 Base-T • 1CT : 1CT • IL: -1.1dB 0.1 to 100MHz • RL: -20dB @ 30MHz, -14dB @ 60MHz, -11.5dB @ 80MHz
	<p>★ ALAN-134 12.70 x 9.30 x 6.35 mm</p> <ul style="list-style-type: none"> • 10/100 Base-T • 1CT : 1CT • IL: -1.0dB 0.3 to 100MHz • RL: -18dB @ 2-30MHz, -14.4dB @ 40MHz, -13.1dB @ 50MHz, -12 @ 60-80MHz
	<p>★ ALAN-508 12.70 x 9.30 x 6.35 mm</p> <ul style="list-style-type: none"> • 10/100 Base-T POE • 1CT : 1CT • IL: -1.1dB 0.1 to 100MHz • RL: -18dB @ 30MHz, -14dB @ 60MHz, -11.5dB @ 80MHz
	<p>★ ALAN-511 18.03 x 15.70 x 6.90 mm</p> <ul style="list-style-type: none"> • 1000 Base-T • 1CT : 1CT • IL: -1.0dB 0.1 to 100MHz • PoE+: 750mA
	<p>★ APT-106 11.43 x 9.24 x 5.51 mm</p> <ul style="list-style-type: none"> • 10/100 Base-T • 1CT : 1CT • IL: -1.1dB 0.3 to 100MHz • RL: -20dB @ 30MHz, -14dB @ 60MHz, -11.5dB @ 80MHz

AISC- 0603HP

High Q, High SRF, High Current RF Wirewound Chip Inductors in 1.80 x 1.12 x 1.02mm SMD Package


Abracon's AISC-0603HP series of SMD inductors is designed for high volume RF applications. Constructed with low loss ceramic core wound with wire, it has high-Q, high self resonant frequency and high current to optimize performance at RF frequencies.

RF applications:

Smart Phone, Cordless Phone, Remote Control, Wireless LAN, Wireless Mouse, Wireless Keyboard, GPS, RFID, Base Station, Repeater, RF Transceiver, Bluetooth

Broadband Applications:
LED TV Filter, Tuner, Cable Modem, Set Top Box.

Other Applications:
USB2.0, IEEE1394.



Key features include:

- Higher Q and current than the standard AISC-0603 series.
- Tight inductance tolerance of 2% available.
- Wide operating temperature range of -40°C to +125°C.
- RoHS Compliant and lead free.


ALAN-511

1000 Base-T, Power over Ethernet Plus (PoE+) LAN Transformer in 24-pin with 6.90mm Maximum Height SMD Package

Abracon's ALAN-511 LAN Transformer is designed to work with gigabit PHY ICs. With the Power over Ethernet Plus (PoE+) capability, it enables power transmission over Ethernet cabling, eliminating the need for separate data and power wires to each network device.

Applications:

- IP phones and Cameras
- Network Infrastructure
- Mobile Devices
- RFID Tag Readers
- Game Consoles and other PoE-enabled devices



What ALAN-511 offers designers?

- Works with gigabit Ethernet with 750mA current capacity
- Supports 4 pairs of Category 5 UTP cables
- Provides a minimum inductance of 350μH and 1500Vrms isolation per IEEE 802.3 requirements
- Offers industry-leading insertion loss of 1.0dB maximum over 100kHz to 100MHz
- Operates over commercial temperature range of 0°C to +70°C
- Standard 18.03 x 15.70 x 6.90mm, RoHS compliant, SMT package

RJ45 Jack- Single port



★**ARJ-146** 16.60 x 13.50 x 32.60mm
• Tap Down, 10/100/1000 Base-T with PoE



★**ARJ11A** 16.26 x 13.84 x 21.59mm
• Tap Down, 10 Base-T



★**ARJ11B** 16.26 x 13.84 x 21.59mm
• Tap Down, 10/100 Base-T



★**ARJ11C** 16.26 x 13.84 x 21.59mm
• Tap Up, 10/100/1000 Base-T



★**ARJ11D** 16.26 x 13.84 x 21.59mm
• Tap Up, 10/100 Base-T



★**ARJ11E** 16.26 x 13.84 x 21.59mm
• Tap Down, 1000 Base-T



★**ARJ11F** 16.26 x 13.84 x 21.59mm
• Tap Up, 10/100/1000 Base-T



★**ARJ11G** 16.26 x 13.84 x 21.59mm
• Vertical, 10/100/1000 Base-T



★**ARJC Series**
16.2 x 13.55 x 25.3mm/ 16.0 x 13.55 x 21.1mm
• Tap Up, 10/100 Base-T



★**ARJE Series** Size varies
• Tap Up, 10/100/1000 Base-T



★**ARJP11A** 16.26 x 13.84 x 21.59 mm
• Tap Down, 10/100 Base-T, PoE & PoE+



★**ARJP11B** 16.26 x 13.84 x 21.59 mm
• Tap Down, 10/100 Base-T, PoE & PoE+



★**ARJP11C** 16.6 x 13.5 x 32.6 mm
• Tap Up, 10/100 Base-T, PoE

RJ45 Jack- Multi port



★**ARJ14A**
59.12 x 13.60 x 21.50 mm / 58.40 x 11.50 x 17.60 mm
• Tap Down, 10/100/1000 Base-T



★**ARJ21A** 17.27 x 28.40 x 25.30 mm
• Tap Up and Down, 10/100/1000 Base-T



★**ARJE-0029** 16.80 x 28.91 x 25.78mm
• Tap Up and Down, 10/100 Base-T, Dual USB Combo



★**ARJE-0032** 16.20 x 21.05 x 29.11mm
• Tap Up, 10/100 Base-T, Single USB Combo



★**ARJU21A** 16.78 x 21.08 x 26.00 mm
• Tap Up, 10/100 Base-T Single USB



★**ARJU31A** 17.40 x 30.40 x 26.10mm
• Tap Up, 10/100 Base-T Dual USB



★**ARJU31B** 18.85 x 30.52 x 27.40 mm
• Tap Up, 10/100/1000 Base-T Dual USB



★**ARJ12A** 31.28 x 13.60 x 21.50 mm
• Tap Up and Down, 10/100/1000 Base-T

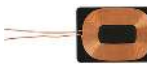
Wireless Charging Coils



★**AWCCA-107T52 Series**
107.95mm x 52.5mm x 4mm
• Linear Array of Primary Coils, 2 lower coils (12.0μH), 1 upper coil (11.5μH) • For Tx applications working with 12V • High Permeability Shielding



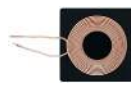
★**AWCCA-38R32 Series**
107.95mm x 52.5mm x 4mm • Linear Array of Primary Coils, 2 lower coils (12.0μH), 1 upper coil (11.5μH) • For Tx applications working with 12V • High Permeability Shielding



★**AWCCA-48R32 Series**
48.5mm x 32.5mm x 1.2mm • Wireless Charging Receiver single Coil (10.5μH) • For Tx or Rx Applications • High Permeability Shielding



★**AWCCA-50N50 Series** 50mm x 50mm,
Height options 3.5mm, 4.0mm or 5.0mm
• Wireless Charging Coil for Transmitter or Receiver applications • 6.3μH & 24μH options
• High Permeability Shielding



★**AWCCA-53N53 Series**
53mm x 53mm x 5.0mm • Wireless Charging Coil for Transmitter or Receiver applications • 6.3μH & 24μH options • High Permeability Shielding

Common Mode Choke



★ **ACM-0603** 1.60 x 0.85 x 1.10mm
 • Impedance Range: 22~250Ω@100MHz
 • DCR (Max): 0.08~0.28Ω • Idc (Max): 400~500mA



ACM-21 2.0 x 1.2 x 1.2 mm
 • Impedance Range: 67~370Ω@100MHz
 • DCR (Max): 0.25~0.4Ω • Idc (Max): 280~400mA



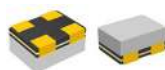
ACM-21H for HDMI 2.0 x 1.2 x 1.2mm
 • Impedance Range: 67~120Ω@100MHz
 • DCR (Max): 0.30~0.40Ω • Idc (Max): 280~320mA



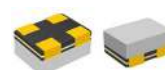
ACM-21U for USB3.0 2.0 x 1.2 x 1.2mm
 • Impedance Range: 90Ω@100MHz
 • DCR (Max): 0.40Ω • Idc (Max): 280mA



ACM-31 3.2 x 1.6 x 1.8mm
 • Impedance Range: 90~2200Ω@100MHz
 • DCR (Max): 0.30~1.20Ω • Idc (Max): 200~370mA



★ **ACMF-03** 0.88 x 0.68 x 0.5mm
 • Impedance Range: 35~90Ω@100MHz
 • DCR (Max): 1.8~2.8Ω • Idc (Max): 100mA



★ **ACMF-04** 1.25 x 1.00 x 0.50mm
 • Impedance Range: 90Ω@100MHz
 • DCR (Max): 2.8Ω • Idc (Max): 100mA

Chokes- Wide Band Choke



★ **AWBC-03** Φ6.00 x 10.00mm
 • Impedance: 320Ω@10MHz, 780Ω@50MHz, 580Ω@100MHz



AWBC-05 Φ6.00 x 10.00mm
 • Impedance: 355Ω@10MHz, 790Ω@50MHz, 550Ω@100MHz



AWBC-09 Φ6.00 x 10.00mm
 • Impedance: 598Ω@25MHz, 800Ω@100MHz,

Transformer



★ **AITC-449** NEW
 8.20 x 6.60 x 5.40mm
 • Inductance: 264uH min @100kHz
 • DCR (Max): 1.5Ω • Turns Ratio: 1:1:1
 • SRF (Min): 2.5MHz • Hipot: 500VDC, 1.0mA, 1sec

Chokes- Line Filter



ALFT-02A 18.6 x 13 x 20.6mm
 • Inductance Range: 0.4~39mH
 • DCR (Max): 0.06~1.9Ω • Idc (Max): 0.4~2.6A



ALFT-03A 23.9 x 18 x 21.6mm
 • Inductance Range: 0.6~105mH • Idc (Max): 0.2~3A



★ **ALFT-04** 28.58 x 16.26 x 5.85mm
 • Inductance Range: 120~10000uH
 • DCR (Max): 4.5~40mΩ • Idc (Max): 3~6A



ALFT-09V 16.5 x 11.5 x 17.0mm
 • Inductance Range: 0.5~10mH
 • DCR (Max): 0.2~3.6mΩ • Idc (Max): 0.3~1.4A



ALFT-16 13.97 x 11.43 x 6.35mm
 • Inductance Range: 35~1600uH
 • DCR (Max): 5~300mΩ • Idc (Max): 1~6A



ASTC-01 8.9 x 11.4 x 4.7mm
 • Inductance Range: 0.42~299.87uH
 • DCR (Max): 6~1525mΩ • Idc (Max): 0.32~5.5A



ASTC-02 11.4 x 13.9 x 6.35mm
 • Inductance Range: 0.49~298.93uH
 • DCR (Max): 5~1003mΩ • Idc (Max): 0.54~7.9A



ASTC-03 8.9 x 11.4 x 4.7mm
 • Inductance Range: 0.4~302.5uH
 • DCR (Max): 5~1432mΩ • Idc (Max): 0.22~5.5A



ASTC-04 11.4 x 13.9 x 6.35mm
 • Inductance Range: 0.44~298.12uH
 • DCR (Max): 4~672mΩ • Idc (Max): 0.62~7A

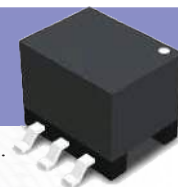


ASTC-4H 14 x 14 x 6.4mm
 • Inductance Range: 0.31~1000uH
 • DCR (Max): 3~1500mΩ • Idc (Max): 0.25~12.2A



ASTC-07C-702-1R5 16.38 x 14.22 x 8.89mm
 • Inductance Range: 7000uH
 • DCR (Max): 0.3mΩ • Idc (Max): 2A

AITC-449 SMT Gate Drive Transformers



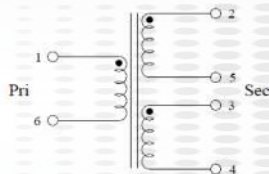
Abracon AITC-449 transformer is designed for high switching speed, transformer coupled MOSFET and IGBT gate drive circuits.

Key features include:

- Wide operating frequency from 50kHz to 2MHz
- Standard EP5 SMT package
- A wide operating temperature range from -40°C to +125°C
- Space saving 8.2 x 6.6 x 5.4mm, RoHS compliant SMD package

Applications:

- DC/AC Converter
- AC/AC Converter
- DC/DC Converter
- Motor Controller



Parameters	Minimum	Typical	Maximum	Units	Notes
Operating Temperature	-40		125	°C	
Storage Temperature	-40		125	°C	
Operating Frequency	50kHz		2MHz		
Turns Ratio (±2%)		1:1:1			(1-6):(2-5):(3-4)
Inductance (Ls)	264			uH	@100kHz, 0.1Vrms, 0Adc, (1-6)
Leakage Inductance			0.30	uH	@100 KHz, 0.1Vrms, (1-6), short (2-5), (3-4)
Capacitance			95	pF	@100 KHz, 0.1Vrms Pri to Sec
DCR			1.5	Ω	(1-6)
			1.5	Ω	(2-5)
			1.5	Ω	(3-4)
SRF	2.5			MHz	
Volt-time product		24.5		V-usec	
Hipot	500VDC, 1.0mA, 1Sec				Pri to Sec

Part Number	Description	Applications
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★ **ABLNO Precision Frequency Divider Eval Board**



- ABLNO-EVAL is a Frequency Divider Evaluation Board designed to facilitate oscillator signal characterization
- Built-in Divider scheme with exceptionally low Additive Jitter to characterize ± 1 , ± 2 , ± 4 or ± 8 combination of the reference signal
- Contains Standard SMA connectors providing VDD, Vc, RF Output and External Oscillator signal connectivity
- Ideally suited to characterize Phase Noise, jitter, frequency pull & frequency stability over temperature characterization
- Rated for 10MHz to 200MHz frequency range

- With on-board 9x14 mm XO/VCXO lay out, a standard device, such as ABLNO VCXO can be soldered onto the board and fully characterized
- Optional SMA connector port to characterize an external oscillator signal
- Rated for -40°C to $+85^{\circ}\text{C}$ operation enabling frequency stability over temperature characterization of an oscillator device

★ **ABPSM-ULN-A**



- AC Adapter Input Voltage 100VAC to 240VAC; 50Hz and 60Hz cycles - World Wide Capability
- Four DC Output Ports, 1.8V, 2.5V 3.3V & 5.0V
- Current Sourcing Capability 200mA max each port
- Exceptional low noise density; $< 7\text{nV} / \text{vHz} @ 1\text{kHz}$ offset Typical
- Better than $0.30\mu\text{Vrms}$ over 0.1Hz to 1kHz bandwidth (best-in-class)
- Convenient, Ultra Low Noise Solution offering most common bias levels
- Portable - Small form factor [3.50" * 1.50" * 0.65"] Machined Aluminum enclosure
- No external heat sinking is required
- Low Cost

- Lab Grade Power Supply designed to replace bulky & noisy power supplies for everyday use
- A must have for Noise Sensitive Measurements such as, S/N ratio, Spectral Purity, Jitter, Phase Noise & Harmonic Distortion
- Ideal for testing circuits including:
 - Audio - Medical Diagnostic
 - RF - Jitter Sensitive Digital
 - Microwave

★ **Pierce Analyzer System (PAS)**



• Circuit characterization; providing best possible match between Quartz Crystal, oscillator loop and associated 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 circuit

• Solves for design margin uncertainty

• Provides customer's oscillator circuit overview in the form of a detailed report, which could be an ideal 3rd party assessment for the design history file or PPAP documentation. This report encompasses both the stand-alone crystal performance, as well as in-circuit behavior outlining safety factor as a function of crystal's ESR, etc.

• For additional information, please contact Abracon at: tech-support@abracon.com

Abracon provides a detailed test report encompassing:

- Stand alone Quartz Crystal characteristics including:
 - Motional parameters (Cm, Lm, ESR & Co)
 - Narrow Band Frequency Response Plot
 - Wide Band Frequency Response Plot Admittance versus Susceptance Plot
 - Frequency dependence versus load capacitance plot
- Oscillator loop
 - Initial frequency accuracy and drive level as seen by the crystal with measured ESR
 - Worst case projected drive level with maximum specified ESR
 - Safety Factor of the oscillator loop under both typical and maximum ESR
 - Recommendation on proper component selection (C1, C2 & Rs when applicable) for best compromise with respect to Safety Factor and Frequency accuracy
 - Recommendation on the Abracon Crystal part # with proper plating load and other key attributes to enable the most robust design, specific to the μ controller/processor implemented

★ **SYNC-10.00MHz**



Stand Alone 10.00MHz Portable Precision Frequency Reference - World Wide Capability

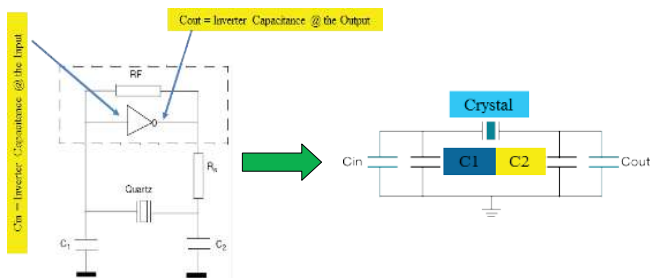
- Built-in Stratum-III stability, 10.00MHz Signal tuned into 50Ω 's
- Synchronization circuitry providing dynamic sync capability, enabling Calibration to a known source such as; a GPS Tracked 10.00MHz reference/10.00MHz Rubidium Source/10.00MHz OCXO based reference
- Integrated re-chargeable batteries to provide true stand-alone capability in the field
- Once sync'd; guaranteed ± 300 ppb stability over 0°C to 60°C
- Pocket Size - 3.50" * 1.50" * 1.00"; machined aluminum durable enclosure

- Ideally suited as an in-field Calibrated Precision 10.00MHz reference for trouble shooting or tuning hardware and Base Station related equipment
- Reference source for lab use
- Reference source to drive frequency counters and other timing related hardware or instruments
- Precision Portable reference for inspection of in-field wireless transmitters

PAS (Pierce Analyzer System) Abracon's Advanced Board Characterization Service

Today, majority of electronic circuits are based on clocked logic (including microprocessors, microcontrollers, FPGAs and CPLDs), requiring a timing source. Depending on the frequency accuracy requirements, some employ oscillators while others use off-the-shelf quartz crystals in conjunction with the built-in oscillator circuit; embedded in most microcontrollers and microprocessors.

Most if not all embedded solutions use the Pierce Oscillator configuration, integrated as part of the SOC (system-on-chip). The obvious advantages include cost, size and power compared to a stand-alone oscillator; while the key limitation is the proper matching of the quartz crystal with the on-board Pierce Oscillator.



The loop capacitors primarily influence the overall oscillator loop capacitance, as seen by the crystal. This effective loop capacitance determines how far the oscillator loop is resonating, relative to the desired resonant frequency. However, the overall long-term performance of the oscillator loop is influenced by the following factors:

- The reactive impedance (**Xc**) of these loop capacitors
 - The Inverter Amplifier's transconductance (**gm**)
 - The presence or absence of the current limiting resistor (**Rs**)
 - The presence or absence of the Automatic Gain Control (**AGC**) or Automatic Level Control (**ALC**); with-in the integrated oscillator circuit
- These factors collectively set the boundary condition of the design. This boundary condition, commonly referred to as the Safety Factor (SF), is an important parameter to ensure that the product design has sufficient margin to accommodate part-to-part and lot-to-lot variations; as well as, eliminating product-performance-uncertainty in production volume.

Historically, design engineers have optimized their circuit performance via trial & error, at the expense of significant investment in time. Further, to properly determine the oscillator loop dynamics, the most accurate determination is made by breaking the oscillator loop and conducting key measurements using specialized equipment such as a Current Probe.

Lastly, these measurements become increasingly sensitive if the timing loop is driven by a Tuning Fork (**32.768kHz**) crystal. These crystals are extremely sensitive to loading effects and to accurately determine the in-circuit behavior of these components, extreme care and accuracy is essential.

For instance, Automotive, Medical and Consumer Electronics solutions typically utilize Tuning Fork Crystals for their Real-Time-Clocking (RTC) needs. If the selected SOC has limited gain margin, there is a high probability that some percentage of these Crystals will not properly start under adverse conditions, such as cold operating temperature (-40°C).

Another example would be a product designed to address the Zigbee related solutions, which typically have a hard boundary condition of ±40 ppm relative to the carrier, for proper operation. This ±40 ppm operational window actually needs to account for:

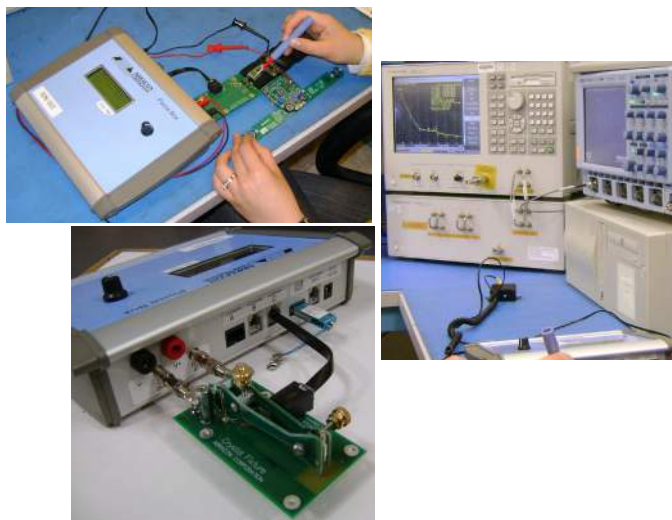
- Quartz Crystal set tolerance
- Shift through reflow

- Stability over temperature
- Aging during product-life-cycle
- Frequency pushing & pulling.

If the oscillator loop is not optimized, most of the ±40 ppm can potentially be consumed by the set tolerance of the quartz crystal alone; thereby causing potential field failures. These frequency domain failures could be primarily attributed to the oscillator frequency drifting over temperature or long term aging; to the point that the oscillator loop is no longer with-in the allocated ±40 ppm operational window. Besides the issues related to the oscillator loop accuracy in frequency domain, the oscillator loop drive level must also be properly quantified to ensure acceptable product performance over temperature and time.

Although relatively low on the checklist of design engineers, the Pierce Oscillator driven by an external resonator - such as a quartz crystal can present significant challenge during a typical product launch. Characterizing the oscillator loop during the design phase should be a priority to mitigate the risk during product launch, as well as, field returns down the road.

To overcome these challenges and provide an accurate assessment of the oscillator loop dynamics; Abracon's Advanced Engineering Team has developed a Proprietary Pierce Analyzer System (PAS); which is designed to analyze both the stand alone crystal, as well as the performance of that particular crystal in the final circuit.



Key Features:

- Circuit characterization; provides best possible match between Quartz Crystal, oscillator loop and associated 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 circuit
- Solves for design margin uncertainty
- Provides customer's oscillator circuit overview in the form of a detailed report, which could be an ideal 3rd party assessment for the design history file or PPAP documentation. This report encompasses both the stand-alone crystal performance, as well as in-circuit behavior outlining safety factor as a function of crystal's ESR, etc.

• For additional information, please contact Abracon at: tech-support@abracon.com

ABRACON PRODUCT CATALOG

About Abracon

Abracon Corporation is a global manufacturer of frequency control, signal conditioning, clock distribution and magnetic components. Abracon offers a wide selection of Quartz Crystals, Crystal and MEMS Oscillators, Real Time Clocks, Bluetooth Modules, Ceramic Resonators, SAW Filters and Resonators, Inductors, Transformers and Circuit Protection Components. The company is ISO9001-2008 certified with design & Application Engineering resources in California & Illinois; and Sales offices in Texas, California, China, Taiwan, Singapore, Scotland, and Germany. Abracon's products are offered through its Global Distribution Network.

ABRACON CORPORATION was established on August 5th, 1992 with the vision of becoming a top tier global manufacturer, with un-parallel Application Engineering & Sales support. In pursuit of this vision, Abracon obtained ISO9001-2008 quality certification, made select equity investments in both North American & off-shore manufacturing facilities and

California Headquarters



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Texas - Order Fulfillment Center



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technology partners, established channel partnerships with up-coming technology companies and instituted a state-of-the-art engineering laboratory at its California location.

In November of 2013, Abracon established a new Midwest order fulfillment center in Austin, Texas. The expansion was necessary because of Abracon's rapid growth and to better serve our East Coast and European customers.

Abracon offers a broad product line servicing commercial, industrial, consumer and select COTS-Military applications.

Standard Warranty

Abracon warrants that the Products will, for a period of one (1) year, be free from defects in material and workmanship and conform to the Abracon published specifications for the Products, in each case under normal use, conditions, and service. Abracon agrees to replace, without charge, any defective Products which are returned to Abracon and which are confirmed, by Abracon's inspection, to be defective within the terms of this warranty. The warranty period commences on the date of original sale by Abracon.

ISO9001:2008



ABRACON[®]
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The Power of Linking Together

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