## Ultra Miniature Ceramic SMD Crystal

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

**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 S15316*
- -40°C to +85°C • 114.285MHz

**ABM9** 4.0 x 2.5 x 0.8mm
- Ceramic Glass Sealed • 12MHz to 50MHz

**ABM3** 5.0 x 3.2 x 1.3mm
- Ceramic Glass Sealed • 8MHz to 80MHz

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

**ABM9** 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

**ABM1** 7.2 x 5.2 x 1.3mm
- Ceramic Seam Sealed • 6MHz to 125MHz

**ABM1** 7.2 x 5.2 x 1.2mm
- Ceramic Seam Sealed • 6MHz to 125MHz

**ABM2** 6.0 x 3.6 x 1.2mm
- Ceramic Seam Sealed • 7.3728MHz to 110MHz

### Distributor Stocking Item

For detail datasheets, please visit: www.abracon.com
For detail datasheets, please visit: www.abracon.com

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<th>Description</th>
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<th>Features</th>
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<td>3.2 x 1.5 x 0.90mm</td>
<td>Low Profile, 32.768kHz</td>
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<tr>
<td>ABS07L</td>
<td>3.2 x 1.5 x 0.38mm</td>
<td>Lowest Profile, Low Height, 32.768kHz</td>
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<tr>
<td>ABS07-120</td>
<td>3.2 x 1.5 x 0.90mm</td>
<td>Low Profile, 6pF, ESR Optimized, 32.768kHz</td>
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<tr>
<td>ABS09</td>
<td>4.10 x 1.5 x 0.9mm</td>
<td>Low Profile, 32.768kHz</td>
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<tr>
<td>ABS10</td>
<td>4.9 x 1.8 x 1.0mm</td>
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<tr>
<td>ABS13</td>
<td>6.9 x 1.4 x 1.3mm</td>
<td>Molded Plastic, 32.768kHz</td>
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<tr>
<td>ABS25</td>
<td>8.0 x 3.8 x 2.5mm</td>
<td>Molded Plastic, 32.768kHz, 30kHz to 100kHz</td>
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<tr>
<td>AB26TRB</td>
<td>6.0 x φ1.9mm</td>
<td>Cylindrical Type Reflowable, 32.768kHz</td>
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<tr>
<td>AB26TRJ</td>
<td>6.0 x 2.5 x 2.1mm</td>
<td>Cylindrical Type Reflowable, 25kHz to 200kHz</td>
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<tr>
<td>AB26TRQ</td>
<td>5.2 x 1.45 x 1.45mm</td>
<td>Cylindrical Type Reflowable, 32.768kHz</td>
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**kHz Cylindrical Thru-Hole Crystals**

<table>
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<tr>
<th>Type</th>
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<th>Features</th>
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</thead>
<tbody>
<tr>
<td>AB15T</td>
<td>5.0 x φ1.4mm</td>
<td>Cylindrical Type, 32.768kHz</td>
<td></td>
</tr>
<tr>
<td>AB26T</td>
<td>6.2 x φ2.1mm</td>
<td>Cylindrical Type, 32.768kHz, 30kHz to 200kHz</td>
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</tr>
<tr>
<td>AB38T</td>
<td>8.3 x φ3.2mm</td>
<td>Cylindrical Type, 32.768kHz</td>
<td></td>
</tr>
</tbody>
</table>

**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 80kΩ, this device is ideally suited for Ultra Low Power - Real Time Clocking solutions, requiring exceptionally low power consumption (Reference: ST Micro STM32L1, F2 & F4 microcontrollers).

**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) < 3µA/V
- Guaranteed maximum ESR of 80kΩ ensures lower overall power consumption & higher Gain Margin
- Tight Frequency Set Tolerance < ±20 ppm into a 4pF Effective Oscillator Loop Load
- Wide Operating Temperature Range (-40ºC to +85ºC)
- < ±175 ppm typical stability over -40ºC to +85ºC; ±250 ppm guaranteed, referenced to measured frequency at 25ºC ±3ºC
- 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 (-40ºC to +85ºC)
- 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.

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**SMD Ceramic Resonators**

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<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AWSZT-CW</strong></td>
<td>2.5 x 2.0 x 1.2mm</td>
<td>Low Resonant Impedance • 20MHz to 60MHz</td>
</tr>
<tr>
<td><strong>AWSZT-CW</strong></td>
<td>2.5 x 2.0 x 1.2mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 20MHz to 60MHz</td>
</tr>
<tr>
<td><strong>AWSZT-CW</strong></td>
<td>3.2 x 1.3 x 1.0mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 8MHz to 12MHz</td>
</tr>
<tr>
<td><strong>AWSZT-CW</strong></td>
<td>3.7 x 3.1mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 8MHz to 13MHz, 16MHz to 60MHz. <strong>Height varies per frequency</strong></td>
</tr>
<tr>
<td><strong>AWSZT-CW</strong></td>
<td>4.5 x 2.0 x 1.2mm</td>
<td>Low Resonant Impedance • 4MHz to 8MHz</td>
</tr>
<tr>
<td><strong>AWSZT-CW</strong></td>
<td>4.5 x 2.0 x 1.2mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 4MHz to 8MHz</td>
</tr>
<tr>
<td><strong>AWSZT-MTD</strong></td>
<td>4.7 x 4.1mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 6MHz to 60MHz. <strong>Height varies per frequency</strong></td>
</tr>
<tr>
<td><strong>AWSZT-MWD</strong></td>
<td>4.7 x 4.1mm</td>
<td>Low Resonant Impedance • 6MHz to 13MHz. <strong>Height varies per frequency</strong></td>
</tr>
<tr>
<td><strong>AWSZT-MXD</strong></td>
<td>4.7 x 4.1mm</td>
<td>Low Resonant Impedance • 13.01MHz to 60MHz. <strong>Height varies per frequency</strong></td>
</tr>
</tbody>
</table>

**Thru-Hole Ceramic Resonators**

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AWSCR-CP</strong></td>
<td>6.0 x 3.0 x 1.7mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 4.0MHz to 12.00MHz</td>
</tr>
<tr>
<td><strong>AWSZT-CW</strong></td>
<td>6.0 x 3.0 x 1.7mm</td>
<td>Low Resonant Impedance • 4.0MHz to 12.00MHz</td>
</tr>
<tr>
<td><strong>AWSZT-MGD</strong></td>
<td>7.4 x 3.4 x 1.8mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 1.84MHz to 8MHz</td>
</tr>
<tr>
<td><strong>AWSZT-MGD</strong></td>
<td>7.4 x 3.4 x 1.8mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 1.84MHz to 8MHz</td>
</tr>
<tr>
<td><strong>AWSZT-MWD</strong></td>
<td>7.4 x 3.4 x 1.8mm</td>
<td>Low Resonant Impedance • 13.01MHz to 60MHz. <strong>Height varies per frequency</strong></td>
</tr>
<tr>
<td><strong>AWSZT-MXD</strong></td>
<td>7.4 x 3.4 x 1.8mm</td>
<td>Low Resonant Impedance • 13.01MHz to 60MHz. <strong>Height varies per frequency</strong></td>
</tr>
<tr>
<td><strong>AWSZT-CP</strong></td>
<td>6.0 x 3.0 x 1.7mm</td>
<td>Built-in Capacitance • Low Resonant Impedance • 4.0MHz to 12.00MHz</td>
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</tbody>
</table>

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

RTC IC + TCXO

- **AB-RTCMK-32.768kHz**
  - 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

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**Basel Timekeeping**

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<td>Crystal Oscillator</td>
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<td>RC Oscillator</td>
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<td>SPI Interface</td>
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<tr>
<td>Watchdog</td>
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<td>RAM</td>
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<td>VTAB Switch</td>
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<td>Reset Management</td>
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<td>Power Switch</td>
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<td>Sleep Manager</td>
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<tr>
<td>Finite State Machine</td>
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**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

---

**RTC IC + TCXO**

- **AB-RTCMK-32.768kHz**
  - 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
**MEMS Oscillators**

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

- **ASDM 2.5 x 2.0 x 0.85mm**
  - 1.8Vdc to 3.3Vdc • Plastic QFN Package
  - LVCMOS output • 1.0MHz to 150MHz

- **ASDMB 2.5 x 2.0 x 0.85mm Industrial Grade**
  - 1.8Vdc to 3.3Vdc • Plastic QFN Package
  - LVCMOS 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 LVCMOS output, Low power, and low jitter for high speed data communication
  - 2.25Vdc to 3.6Vdc • Plastic QFN Package
  - 2.3MHz to 170MHz

- **ASDMF 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
  - LVCMOS: 10MHz to 170MHz

- **ASEM 3.2 x 2.5 x 0.85mm**
  - 1.8Vdc to 3.3Vdc • Plastic QFN Package
  - LVCMOS output • 1.0MHz to 150MHz

- **ASEMB 3.2 x 2.5 x 0.85mm Industrial Grade**
  - 1.8Vdc to 3.3Vdc • Plastic QFN Package
  - LVCMOS output • 1.0MHz to 150MHz
  - -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
  - LVCMOS: 10MHz to 170MHz

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

- **ASEMDIC 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

- **ASEMDL 3.2 x 2.5 x 0.85mm Industrial Grade 3G MEMS Oscillator**
  - Pin Configurable Dual LVCMOS output, Low power, and low jitter for high speed data communication
  - 2.25Vdc to 3.6Vdc • Plastic QFN Package
  - 2.3MHz to 170MHz

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

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

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

- **ASEMDHLPC 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
  - 2.3MHz to 170MHz

- **ASEMDHLY 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
  - 10MHz to 460MHz

- **ASEMHP 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
  - 10MHz to 460MHz

- **ASEMHC 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
  - 10MHz to 460MHz

- **ASEMHDLP 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
  - 10MHz to 460MHz

- **ASEMHDLV 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
  - 10MHz to 460MHz

- **ASEMHC 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
  - 10MHZ to 460MHz

- **ASEMHPC 3.2 x 2.5 x 0.85mm Industrial Grade 3G MEMS Oscillator**
  - Pin Configurable HCSL-LVPECL-CMOS output, Low power, and low jitter for high speed data communication
  - 2.25Vdc to 3.6Vdc • Plastic QFN package
  - 10MHZ to 460MHz
**Distributor Stocking Item**

- **ASEMDLVP** 3.2 x 2.5 x 0.85mm  
  *Industrial Grade 3G MEMS Oscillator*  
  - 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

- **ASFL** 5.0 x 3.2 x 0.85mm  
  - 1.8Vdc to 3.3Vdc • Plastic QFN Package  
  - LVCMOS output • 1.0MHz to 150MHz

- **ASFLMB** 5.0 x 3.2 x 0.85mm  
  *Industrial Grade*  
  - 1.8Vdc to 3.3Vdc • Plastic QFN Package  
  - LVCMOS output • 1.0MHz to 150MHz • 10ppm • -40 to +105°C

- **ASFLMP** 5.0 x 3.2 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 HCCL:10MHz to 460MHz LVCMOS: 10MHz to 170MHz

- **ASVM** 7.0 x 5.0 x 0.85mm  
  - 1.8Vdc to 3.3Vdc • Plastic QFN Package  
  - LVCMOS output • 1.0MHz to 150MHz

- **ASVMB** 7.0 x 5.0 x 0.85mm  
  *Industrial Grade*  
  - 1.8Vdc to 3.3Vdc • Plastic QFN Package  
  - LVCMOS output • 1.0MHz to 150MHz • 10ppm • -40 to +105°C

- **ASVMP** 5.0 x 3.2 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 HCCL:10MHz to 460MHz LVCMOS: 10MHz to 170MHz

**SMD Crystal Oscillators**

- **ASCAO** 1.6 x 1.2 x 0.7mm  
  - 1.8, 2.5, 3.3Vdc, LVCMOS • 1.0MHz to 80MHz

- **ASASA, ASA1, ASA2** 2.0 x 1.6 x 0.7mm  
  - 3.3, 2.5, or 1.8Vdc • LVCMOS • 1MHz to 80MHz

- **ASD, ASD1, ASD2, ASD3, ASD6**  
  - 2.5 x 2.0 x 1.0mm • 3.3, 3.0, 2.5 or 1.8Vdc  
  - LVCMOS • 0.75MHz to 60MHz

- **ASET** 3.2 x 2.5 x 1.2mm  
  *Precision Crystal Oscillator*  
  - 2.5 to 3.3 Vdc  
  - LVCMOS, Industrial grade tight temperature stability • 4MHz to 54MHz  
  - Temp. Stability +/- 10ppm from -40 to +85°C

- **ASE** • 3.2 x 2.5 x 1.2mm  
  - 3.3Vdc • LVCMOS • 0.625MHz to 200MHz

- **ASE2** • 3.2 x 2.5 x 1.2mm  
  - 2.5Vdc • LVCMOS • 0.625MHz to 166MHz

- **ASE3** • 3.2 x 2.5 x 1.2mm  
  - 1.8Vdc • LVCMOS • 0.625MHz - 133MHz

- **ASE4** • 3.2 x 2.5 x 1.2mm  
  - 1.5Vdc • LVCMOS • 1MHz to 50MHz

- **ASE5** • 3.2 x 2.5 x 1.2mm  
  - 1.35Vdc • LVCMOS • 1MHz to 50MHz

- **ASE6** • 3.2 x 2.5 x 1.2mm  
  *Low Voltage*  
  - 1.0Vdc • LVCMOS • 1MHz to 50MHz

- **ASFLT** • 5.0 x 3.2 x 1.05mm  
  *Precision Crystal Oscillator*  
  - 2.5 to 3.3 Vdc • LVCMOS • Industrial grade tight temperature stability • 4MHz to 54MHz • Temp. Stability +/- 10ppm from -40 to +85°C

- **ASFL** • 5.0 x 3.2 x 1.1mm  
  - 5.0Vdc • TTL/LVCMOS • 0.321MHz to 125MHz

- **ASFL2** • 5.0 x 3.2 x 1.4mm  
  - 2.5Vdc • TTL/LVCMOS • 0.321 MHz to 125 MHz

- **ASFL3** • 5.0 x 3.2 x 1.1mm  
  - 1.8Vdc • LVCMOS • 0.5MHz to 125MHz

- **ASV** 7.0 x 5.0 x 1.8mm  
  - 3.3Vdc, 2.5Vdc, and 1.8Vdc • TTL/LVCMOS • 0.312MHz to 200MHz

- **ASV2** 7.0 x 5.0 x 1.4mm  
  - 3.3Vdc, 2.5Vdc, and 1.8Vdc • LVCMOS/TTL • 0.5MHz to 133MHz

- **ASL** 7.0 x 5.08 x 1.8mm  
  - 5Vdc • HCMOS/TTL • 1MHz to 125MHz

- **ASL1** 7.0 x 5.08 x 1.4mm  
  - 5Vdc • HCMOS/TTL • 1MHz to 125MHz

- **ABFM** 7.0 x 5.0 x 1.8mm  
  *Low Phase Noise & Jitter*  
  - 3.3 or 2.5Vdc • LVPECL, LVDS, LVCMOS • 30MHz to 280MHz

- **ALD** 7.0 x 5.0 x 2.0mm  
  *Low Phase Noise & Jitter*  
  - 3.3 or 2.5Vdc • LVPECL, LVDS, LVCMOS • 30MHz to 800MHz

- **ABNM** 7.0 x 5.0 x 1.8mm  
  - 3.3, 2.5Vdc • LVCMOS, LVDS, LVPECL • 1 to 160MHz

**32.768kHz SMD Crystal Oscillators**

- **ASDK** 2.5 x 2.0 x 0.95mm  
  - 1.8Vdc, 2.5Vdc, 3.3Vdc • LVCMOS • 32.768kHz  
  - Low current 2.2mA typical@3.3Vdc

- **ASH7KW** 3.2 x 1.5 x 1.0mm  
  *Tuning Fork Crystal*  
  - 1.2 to 5.5Vdc • LVCMOS • 32.768kHz • -40to+125°C

- **ASH7K** 3.2 x 1.5 x 1.0mm  
  *Tuning Fork Crystal*  
  - 1.5Vdc to 3.6Vdc • 32.768kHz  
  - Low Current Consumption (0.7μA Max)

- **ASHEK** 3.2 x 2.5 x 0.9mm  
  *Tuning Fork Crystal*  
  - Ultra low uA current consumption with LVCMOS output • 32.768kHz • 1.5μA max @3.3Vdc

- **ASEK** 3.2 x 2.5 x 1.2mm  
  - 1.8Vdc, 2.5Vdc, 3.3Vdc • LVCMOS • 32.768kHz  
  - Low current 1.7mA typical @3.3Vdc

- **ASFLL** 5.0 x 3.2 x 1.3mm  
  - 2.5Vdc, 3.0Vdc, 3.3Vdc • 32.768kHz • 0.5mA typ@2.5 ~ 3.0Vdc, 1.5mA typ@5.0Vdc • LVCMOS

- **ASYK** 7.0 x 5.0 x 1.8mm  
  - 2.8Vdc, 3.0Vdc, 3.3Vdc • 32.768kHz Supply current 7.0mA max • LVCMOS
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

- **APSS** 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 • 43 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, 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, 2.5Vdc, 1.8Vdc
  - LVCMOS • 4 Pad SMD

- **ASGTXAIG-12/ASVTXAIG-12** 2.5 x 2.0 x 0.9mm
  - 13 to 52 MHz • Clipped Sine Wave
  - 6 Pad SMD

- **ASGTXAIG-13/ASVTXAIG-13** 2.0 x 1.6 x 0.8mm
  - 13 to 52 MHz • Clipped Sine Wave
  - 6 Pad SMD
TCXO’s: Custom Frequencies 10MHz ~ 1.50GHz Shipped in 1~5 Days!

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 -30ºC to +70ºC and ±2.00 ppm over -40ºC to +85ºC; this series fulfills 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 Circuity
• 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 (-40ºC to +85ºC)
• ±1.00 ppm over -30ºC to +70ºC and ±2.00 ppm over -40ºC to +85ºC 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 (±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

- ASEV 7.0 x 5.0 x 1.2mm
  - 1.8, 2.5, 2.8, 3.3Vdc • LVCMOS • 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, LVCMOS • 1.0MHz to 50MHz
- ASG-C 7.0 x 5.0 x 1.9mm
  - 2.5, 3.3Vdc • LVCMOS • 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 • LVCMOS • 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

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 LVCMOS 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:
- LVCMOS, 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), 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 Circuity
SAW Filters

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

- Dielectric Balun Filters
  - ADBLF21-2450-00-A-T 2.0 x 1.25 x 1.0mm • Multi-Layer 2450MHz • Low-Pass Filter

- Ceramic Filters
  - AFC32 3.2 x 2.5 x 1.5mm • Multi-Layer 1200MHz • Low-Pass Filter

- Monolithic Crystal Filters
  - ACF21U Series 7.8 x 8.0 x 3.1mm • 45MHz • Fundamental
  - ACF45U Series 7.8 x 8.0 x 3.1mm • 21.4MHz • Fundamental

- TO-39/3B SMD MCF’s
  - 7.0 x 3.0 x 1.5mm • 10.7MHz

- Dielectric Band Pass Filters
  - ADFC32 3.2 x 2.5 x 1.5mm • Multi-Layer 1200MHz • Low-Pass Filter

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

- TO-39/3A Filters
  - 9.5 x 3.3mm

- SAW Based Miniature - Band Pass Filters
  - AFS14A34-1588.66-T3 1.4 x 1.1 x 0.7mm • 1588.66MHz; 34.47MHz 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

- Ceramic Filters
  - AFC10.7 7.0 x 7.0 x 4.0mm • 10.7MHz

- Ceramic Filters
  - AFC10.7M 7.0 x 3.0 x 1.5mm • 10.7MHz

- Ceramic Filters
  - AFC4.5M 9.0 x 7.0 x 4.0mm • 4.5MHz

- Dielectric Balun Filter
  - ADBLF21-2450-00-A-T 2.0 x 1.25 x 1.0mm • Multi-Layer 2450MHz • Low-Pass Filter

- Ceramic Filters
  - AFC10.7 7.0 x 7.0 x 4.0mm • 10.7MHz

- Ceramic Filters
  - AFC10.7M 7.0 x 3.0 x 1.5mm • 10.7MHz

- Ceramic Filters
  - AFC4.5M 9.0 x 7.0 x 4.0mm • 4.5MHz

- Monolithic Crystal Filters
  - ACF21U Series 7.8 x 8.0 x 3.1mm • 21.4MHz • Fundamental

- Monolithic Crystal Filters
  - ACF45U Series 7.8 x 8.0 x 3.1mm • 45MHz • Fundamental

For detail datasheets, please visit: www.abracon.com
OCXO - SMD

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 -20ºC to +70ºC
- 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 0ºC to +50ºC
- 10MHz to 100MHz; ±10 ppb over -20ºC to +70ºC
- 10MHz to 100MHz; ±30 ppb over -40ºC to +75ºC
- -135 dBc/Hz Phase Noise @ 100Hz offset from 10MHz

★ AOCJYR 9.7 x 7.5 x 4.3mm
- 5MHz to 50MHz; ±20ppb to ±100ppb over -40 to 85ºC
- -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 0ºC to +50ºC
- 10MHz to 100MHz; ±200 ppb over -20ºC to +70ºC
- 10MHz to 100MHz; ±500 ppb over -40ºC to +75ºC
- -145 dBc/Hz Phase Noise @ 1kHz offset from 10MHz

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

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

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

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

AOCJY6 51 x 41 x 25mm
- 10MHz; ±50 ppb over -55ºC to +85ºC
- -145 dBc/Hz Phase Noise @ 1kHz offset from 10MHz

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

AST3 7.0 x 5.0 x 2.0mm
- 10 to 26MHz • 3.3, 5.0Vdc • LVCMOS ±280ppb over ±55ºC to ±85ºC
- ±370ppb over ±40 to ±105ºC

AST3TQ 7.0 x 5.0 x 1.90mm
- 10 to 40MHz • 3.3Vdc • LVCMOS ±10ppb per ±20 to ±70ºC
- ±280ppb over ±50 to ±90ºC
- ±500ppb over ±55 to ±95ºC

AST3TQ Series with ±55 to +95ºC 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 5x7x1.9mm SMT package. These devices are available from 10MHz to 40MHz carrier frequencies with LVCMOS output; offering ±500 ppb frequency stability over -55ºC to +95ºC 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, 30.72, 38.40 & 40.00MHz
- LVCMOS Output
- Frequency stabilities to include ±100ppb over ±40ºC to ±85ºC, ±280ppb over ±50ºC to ±90ºC and ±500ppb over ±55ºC to +95ºC 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
Bluesooth Modules

- **APBTM-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

- **APBTM-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

- **APBTM-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
  - Built-in Antenna

- **APBTM-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

- **APBTM-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

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

- **APBTM-NVC-MDCS56** 23.24 x 11.93 x 2.05mm
  - Bluetooth v2.1+EDR (class 2) • UART/FC, PCM • 3.3V
  - HSP, A2DP, AVRCP, SPP, 1AP

- **APBTM-NVC-MDCS71** 19.5 x 12.5 x 2.4mm
  - Single mode Bluetooth 4.0 low energy • UART/FC 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

- **APAE1575R1540AZDB2-F-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 • 50Ω

- **APAE1575R2040ABD2-T** 20.0 x 20.0 x 4.0mm
  - 1575.42MHz • GPS • RHCP • 50Ω

- **APAE1575R2520ABD7-T** 25.0 x 25.0 x 2.0mm
  - 1575.42MHz • GPS • RHCP • 50Ω

Active (Internal) Patch Antenna

- **APAM1268JL02V2.0** 12.0 x 12.0 x 6.8mm
  - 1575.42MHz • GPS • RHCP • 50Ω

- **APAM1368YB13V3.0** 13.0 x 13.0 x 6.8mm
  - 1575.42MHz • GPS • RHCP • 50Ω

- **APAM1348YD13V2.0** 13.0 x 13.0 x 4.8mm
  - 1575.42MHz • GPS • RHCP • 50Ω

- **APAM1568YE15V2.0** 15.0 x 15.0 x 6.8mm
  - 1575.42MHz • GPS • RHCP • 50Ω

- **APAM9068YL01V2.0** 10.0 x 10.0 x 6.8mm
  - 1575.42MHz • GPS • RHCP • 50Ω
For detail datasheets, please visit: www.abracon.com

### 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

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

- **ART923X1015YZ10** Φ10.0 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 • 50Ω
  - 820 to 960MHz (GSM900), 1710 to 1990 (GSM1800)

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

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

- **APAMS-104** 111.0 x Φ6.78mm
  - GSM • Linear • 50Ω • 890 to 960MHz (GSM900), 1710 to 1880MHz (GSM1800)

- **APAMS-105** Φ76.8 x 15.8mm • Active
  - GPS + GSM • RHCP • 50Ω • 1575.42MHz

- **APAMS-106** Φ75 x 14.1mm • Active
  - GPS + GSM • RHCP • 50Ω • 1575.42MHz

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

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

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

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

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

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

- **APAMS-107** 78.0 x Ø12.0mm
  - 890~960MHz/1710~1880MHz • Vertical • 50Ω • GSM External

- **APAMS-108** 77.0 x Ø7.0mm
  - 2350-2450MHZ,5700-5900MHZ • Linear • 50Ω • GSM External

- **APAMS-109** 86.0 x Ø10.0mm
  - 2350-2450MHZ • 5700-5900MHZ • Linear • 50Ω • GSM External

- **APAMS-110** 13.0 x 9.0 x 3.0mm
  - 865-868MHz Frequency Range • RFID Tag

- **APAMS-111** 21.0 x 17.0 x 2.25mm
  - 865-868MHz Frequency Range • RFID Tag

- **APAMS-112** 25.0 x 25.0 x 2.75mm
  - 865-868MHz Frequency range • RFID Tag

- **APAMS-113** 49.2 x 40.0 x 15.2mm
  - 865-868MHz Frequency range • RFID Tag

- **APAMS-114** 38.3 x 35.0 x 12.0mm
  - 865-868MHz Frequency range • RFID Tag

- **APAMS-115** 46.0 x 38.0 x 15.0mm
  - 865-868MHz Frequency range • RFID Tag

- **APAMS-116** 44.0 x 37.0 x 14.5mm
  - 865-868MHz Frequency range • RFID Tag

- **APAMS-117** 44.0 x 37.0 x 14.5mm
  - 865-868MHz Frequency range • RFID Tag

- **APAMS-118** 108.1 x Ø10.0mm
  - GSM900:890-960MHZ (gain: 2db)
  - GSM1800:1710-1880MHZ (gain: 3db) • Linear
  - 50Ω • GSM External

- **APAMS-119** 78.0 x Ø12.0mm
  - 890~960MHz/1710~1880MHz • Vertical • 50Ω • GSM External

- **APAMS-120** 77.0 x Ø7.0mm
  - 2350-2450MHZ,5700-5900MHZ • Linear • 50Ω • GSM External

- **APAMS-121** 86.0 x Ø10.0mm
  - 2350-2450MHZ • 5700-5900MHZ • Linear • 50Ω • GSM External
Chip Antennas

**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

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**Chip Antennas - AMCA Series**

| AMCA52-2R540G-S1F-T | 5.2 x 2.1 x 1.0mm | Wireless Charging Coil Assemblies

**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-107F52H40-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

- **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

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**ANFCA Series; NFC Flexible Peel & Stick Antennas**

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>ESD Protection</th>
<th>DC-</th>
<th>AC-</th>
<th>Energy</th>
<th>Surge Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMCV-0201</td>
<td>0.6 x 0.3 x 0.3mm</td>
<td>•</td>
<td>-5.5 to 14V</td>
<td>4 to 10V</td>
<td>0.005 to 0.01J</td>
<td>1 to 5A</td>
</tr>
<tr>
<td>AMCV-0402</td>
<td>1.0 x 0.5 x 0.5mm</td>
<td>•</td>
<td>-5.5 to 26V</td>
<td>4 to 18.4V</td>
<td>0.005 to 0.05J</td>
<td>2 to 10A</td>
</tr>
<tr>
<td>AMCV-0402LC</td>
<td>1.0 x 0.5 x 0.5mm</td>
<td>• High Speed Circuits</td>
<td>DC-14 to 26V</td>
<td>AC- 10 to 18.4V</td>
<td>0.003 to 0.005J</td>
<td>1 to 2A</td>
</tr>
<tr>
<td>AMCV-0603</td>
<td>1.6 x 0.8 x 0.8mm</td>
<td>• ESD Protection</td>
<td>DC-</td>
<td>-5.5 to 26V</td>
<td>4 to 18.4V</td>
<td>0.005 to 0.05J</td>
</tr>
<tr>
<td>AMCV-0603LC</td>
<td>1.6 x 0.8 x 0.8mm</td>
<td>• High Speed Circuits</td>
<td>DC-</td>
<td>14 to 26V</td>
<td>AC- 10 to 18.4V</td>
<td>0.003 to 0.005J</td>
</tr>
<tr>
<td>AMCV-0805</td>
<td>2.0 x 1.25 x 0.85mm</td>
<td>• ESD Protection</td>
<td>DC-</td>
<td>-5.5 to 30V</td>
<td>AC- 4 to 21.3V</td>
<td>0.005 to 0.05J</td>
</tr>
<tr>
<td>AMCV-1206H</td>
<td>3.2 x 1.6 x 1.05mm</td>
<td>• Surge Current</td>
<td>DC-</td>
<td>5.5 to 100V</td>
<td>AC- 4 to 75V</td>
<td>Energy: 0.7 to 1.2J</td>
</tr>
<tr>
<td>AMCV-1210H</td>
<td>3.2 x 2.5 x 1.7mm</td>
<td>• Surge Current</td>
<td>DC-</td>
<td>5.5 to 100V</td>
<td>AC- 4 to 75V</td>
<td>Energy: 0.7 to 2.0J</td>
</tr>
<tr>
<td>AMCV-1812H</td>
<td>4.5 x 3.2 x 2.5mm</td>
<td>• Surge Current</td>
<td>DC-</td>
<td>5.5 to 100V</td>
<td>AC- 4 to 75V</td>
<td>Energy: 1.0 to 4.0J</td>
</tr>
<tr>
<td>AMCV-2220H</td>
<td>4.5 x 3.2 x 2.5mm</td>
<td>• Surge Current</td>
<td>DC-</td>
<td>5.5 to 100V</td>
<td>AC- 4 to 75V</td>
<td>Energy: 2.3 to 12.0J</td>
</tr>
</tbody>
</table>

### Circuit Protection - NTC Thermistors

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>ESR</th>
<th>Capacitance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABNTC-0402</td>
<td>1.0 x 0.5 x 0.5mm</td>
<td>0.5 to 25Ω</td>
<td>1 to 220μF</td>
</tr>
<tr>
<td>ABNTC-0603</td>
<td>1.6 x 0.8 x 0.8mm</td>
<td>3.3 to 130μΩ</td>
<td>2.0 to 1.25 x 1.1mm</td>
</tr>
<tr>
<td>ABNTC-0805</td>
<td>2.0 x 1.25 x 0.85mm</td>
<td>3.2 x 1.6 x 0.3mm</td>
<td>3.5 x 2.8 x 0.9mm</td>
</tr>
</tbody>
</table>

### Tantalum Capacitors

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>ESR</th>
<th>Capacitance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATCC-211(A, B, P)</td>
<td>A: 3.2 x 1.60 x 1.6mm</td>
<td>0.5 to 25Ω</td>
<td>3.5 x 2.8 x 0.9mm</td>
</tr>
<tr>
<td></td>
<td>B: 3.5 x 2.8 x 0.9mm</td>
<td>3.2 x 1.6 x 0.3mm</td>
<td>2.0 x 1.25 x 1.1mm</td>
</tr>
<tr>
<td></td>
<td>DC - 4 to 50V</td>
<td>2.0 x 1.25 x 1.1mm</td>
<td>3.5 x 2.8 x 0.9mm</td>
</tr>
</tbody>
</table>

### Inductors - Air Coil

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>DCR (Max)</th>
<th>Idc (Max)</th>
<th>Q (Min)</th>
<th>SRF (Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIAC-0805C</td>
<td>2.85 x 1.80 x 2.10mm</td>
<td>2.6 to 42.2mΩ</td>
<td>320 to 1200mA</td>
<td>70 to 80@300MHz</td>
<td>1300 to 3000MHz</td>
</tr>
<tr>
<td>AIAC-1008C</td>
<td>3.20 x 1.9 x 2.20mm</td>
<td>4.0 to 63.4mΩ</td>
<td>320 to 1200mA</td>
<td>70 to 80@300MHz</td>
<td>950 to 3000MHz</td>
</tr>
<tr>
<td>AIAC-1512C</td>
<td>3.30 x 2.5 x 2.60mm</td>
<td>4.0 to 4.8A</td>
<td>132 to 145@150MHz</td>
<td>2.5 to 3GHz</td>
<td>2.5 to 3GHz</td>
</tr>
<tr>
<td>AIAC-1606C</td>
<td>4.04 x 3.10 x 1.37mm</td>
<td>7.15mH</td>
<td>100@800MHz</td>
<td>6.0 to 6.5GHz</td>
<td>6.0 to 6.5GHz</td>
</tr>
<tr>
<td>AIAC-1812</td>
<td>4.7 x 3.5 x 3.5mm</td>
<td>1200mH</td>
<td>100@150MHz</td>
<td>2.2 to 3.2GHz</td>
<td>2.2 to 3.2GHz</td>
</tr>
<tr>
<td>AIAC-2712C</td>
<td>6.00 x 2.50 x 2.60mm</td>
<td>4.5 to 6.7mΩ</td>
<td>100@150MHz</td>
<td>1.0 to 2.2GHz</td>
<td>1.0 to 2.2GHz</td>
</tr>
<tr>
<td>AIAC-4125C</td>
<td>9.0 x 4.4 x 4.6mm</td>
<td>39 to 1800μH</td>
<td>100@50MHz</td>
<td>0.4 to 1GHz</td>
<td>0.4 to 1GHz</td>
</tr>
<tr>
<td>AIAM-01</td>
<td>2.41 x φ6.35mm</td>
<td>100μH</td>
<td>3.9 to 18000μH</td>
<td>0.029 to 1000μH</td>
<td>0.029 to 1000μH</td>
</tr>
<tr>
<td>AIAP-01</td>
<td>9.14 x φ3.3mm</td>
<td>1.0 to 100μH</td>
<td>3.9 to 18000μH</td>
<td>0.018 to 75Ω</td>
<td>0.018 to 75Ω</td>
</tr>
<tr>
<td>AIAP-02</td>
<td>14.0 x φ4.4mm</td>
<td>3.9 to 18000μH</td>
<td>1.0 to 100μH</td>
<td>0.019 to 48.3Ω</td>
<td>0.019 to 48.3Ω</td>
</tr>
<tr>
<td>AIAP-03</td>
<td>22.9 x φ11.4mm</td>
<td>3.9 to 18000μH</td>
<td>1.0 to 100μH</td>
<td>0.019 to 48.3Ω</td>
<td>0.019 to 48.3Ω</td>
</tr>
<tr>
<td>AIAP-05</td>
<td>17.8 x φ6.4mm</td>
<td>3.9 to 18000μH</td>
<td>1.0 to 100μH</td>
<td>0.019 to 48.3Ω</td>
<td>0.019 to 48.3Ω</td>
</tr>
<tr>
<td>AIAS-03</td>
<td>10.4 x φ4.11mm</td>
<td>3.9 to 18000μH</td>
<td>1.0 to 100μH</td>
<td>0.019 to 48.3Ω</td>
<td>0.019 to 48.3Ω</td>
</tr>
<tr>
<td>AICC-00</td>
<td>4.06 x φ2.54mm</td>
<td>3.9 to 18000μH</td>
<td>1.0 to 100μH</td>
<td>0.019 to 48.3Ω</td>
<td>0.019 to 48.3Ω</td>
</tr>
<tr>
<td>AICC-01</td>
<td>7.11 x φ3.05mm</td>
<td>3.9 to 18000μH</td>
<td>1.0 to 100μH</td>
<td>0.019 to 48.3Ω</td>
<td>0.019 to 48.3Ω</td>
</tr>
<tr>
<td>AICC-02</td>
<td>6.22 x φ2.8mm</td>
<td>3.9 to 18000μH</td>
<td>1.0 to 100μH</td>
<td>0.019 to 48.3Ω</td>
<td>0.019 to 48.3Ω</td>
</tr>
</tbody>
</table>
For detail datasheets, please visit: www.abracon.com

**AIUR-03** 12.0 x φ9.0mm
- Range: 1–1000μH • DCR (Max): 0.013–2.9Ω
- Ir (A): 0.29–10 • Q (Min): 20@0.252–7.96MHz
- SRF (Min): 1.3–150MHz

**AIUR-04** 11.2 x φ8.5mm
- Range: 100–27000μH • DCR (Max): 2–80Ω
- Ir (A): 30–200mA • Q (Min): 30@0.796–796kHz
- SRF (Min): 0.3–5.3MHz

**AIUR-05** 9.0 x φ8.5mm
- Range: 2.2–1500μH • DCR (Max): 0.012–3.5Ω
- Ir (A): 0.15–3A • Q (Min): 10@0.252–7.96MHz
- SRF (Min): 1.2–50MHz

**AIUR-06** 18.3 x φ12.7mm
- Range: 3.9–15000μH • DCR (Max): 0.016–20.5Ω
- Ir (A): 0.1–6.5

**AIUR-07** 4.6 x φ6.0mm
- Range: 10–1000μH • DCR (Max): 0.1–6.3Ω
- Ir (A): 0.1–1.05 • Q (Min): 24@0.1–2.52MHz

**AIUR-08** 10.0 x φ10.0mm
- Range: 10–1000μH • DCR (Max): 0.03–1.7Ω
- Ir (A): 0.53–5.3

**AIUR-09** 6.0 x φ10.0mm
- Range: 100–1000μH • DCR (Max): 0.044–3.3Ω
- Ir (A): 0.36–3.6

**AIUR-10** 7.5 x φ8.0 mm
- Range: 5.6–10000μH • DCR (Max): 0.08–25Ω
- Ir (A): 0.1–2.45

**AIUR-11** 11.43 x φ9.53mm
- Range: 3.9–68000μH • DCR (Max): 0.022–115Ω
- Ir (A): 0.036–1.6

**AIUR-12** 7.20 x φ8.20mm
- Range: 10–47000μH • DCR (Max): 0.07–18Ω
- Ir (A): 0.07–1.5 • Q (Min): 30@0.1MHz
- SRF (Min): 0.3–20MHz

**AIUR-15** 20.0 x φ18.0mm
- Range: 22–1000μH • DCR (Max): 0.03–0.71Ω
- Ir (A): 1–5.7

**AIUR-16** 9.50 x φ7.00mm
- Range: 3.9–33000μH • DCR (Max): 0.02–100Ω
- Ir (A): 0.03–1.3

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**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 a 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

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**Distributor Stocking Item**
**Inductors- Ferrite**

- **AIML-0402** 1.0 x 0.5 x 0.5mm
  - Range: 1–2.7μH • DCR (Max):0.9–2Ω
  - Idc (Max): 10–15mA • Q (Min): 20@10MHz
  - SRF (Min): 22–40MHz

- **AIML-0603** 1.6 x 0.8 x 0.8mm
  - Range: 0.047–27μH • DCR (Max):0.2–2.75Ω
  - Idc (Max): 1–50mA • Q (Min):15–35@1–50MHz
  - SRF (Min): 12–600MHz

- **AIML-0603HC High Current** 1.6 x 0.8 x 0.8mm
  - Range: 3.3–4.7μH • DCR (Max):0.40–0.50Ω
  - Idc (Max): 60–80mA • SRF (Min): 50–70MHz

- **AIML-0805** 2.00 x 1.25 x 0.85mm
  - Range:0.047–47μH • DCR (Max): 0.2–1.8Ω
  - Idc (Max): 4–300mA • Q (Min):15–55@1–50MHz
  - SRF (Min): 12–350MHz

- **AIML-0805HC High Current** 2.00 x 1.25 x 1.15mm
  - Range: 1.0–22.0μH • DCR (Max):0.15–0.70Ω
  - Idc (Max): 40–400mA • SRF (Min): 18–75MHz

- **AIML-1008HC High Current** 2.50 x 2.00 x 0.85mm
  - Range: 1.0–4.7μH • DCR (Max):0.085–0.12Ω
  - Idc (Max): 150–300mA • SRF (Min): 20–60MHz

- **AIML-1206** 3.2 x 1.6 x 1.1mm
  - Range: 0.047–390μH • DCR (Max):0.15–3Ω
  - Idc (Max): 5–300mA • Q (Min):20–50@1–50MHz
  - SRF (Min): 11–320MHz

- **AIML-1206HC High Current** 3.20 x 1.60 x 1.10mm
  - Range: 1.0–10.0μH • DCR (Max):0.10–0.50Ω
  - Idc (Max): 100–300mA • SRF (Min): 28–90MHz

**Ferrite Chip Beads- Chip Bead Array**

- **ACSB-04** 5.60 x 5.00 x 1.50mm
  - Impedance: 50Ω@100MHz • DCR (Max): 9Ω
  - Idc (Max): 5A

- **ACSB-05** 5.60 x 4.80 x 3.00mm
  - Impedance: 35Ω@100MHz • DCR (Max): 3mΩ
  - Idc (Max): 5A

**Ferrite Chip Beads- General Purpose**

- **ACML-2021** 0.6 x 0.3 x 0.3mm
  - Impedance Range: 60–600Ω@100MHz
  - DCR (Max): 0.4–1.2Ω • Idc (Max): 200mA

- **ACML-4042** 1.0 x 0.5 x 0.5mm
  - Impedance Range: 5–1500Ω@100MHz
  - DCR (Max): 0.05–1.6Ω • Idc (Max): 100–500mA

- **ACML-0603** 1.60 x 0.80 x 0.80mm
  - Impedance Range: 6–2000Ω@100MHz
  - DCR (Max): 0.05–1Ω • Idc (Max): 200–1000mA

- **ACML-0603U** 1.65 x 0.80 x 0.80mm
  - Impedance Range: 22–600Ω@100MHz
  - DCR (Max): 0.05–0.8Ω • Idc (Max): 200–2200mA

- **ACML-1206** 3.2 x 1.6 x 0.9 mm
  - Impedance Range: 19–3000Ω@50–100MHz
  - DCR (Max): 0.05–1Ω • Idc (Max): 200–2000mA

**Ferrite Chip Beads- High Current**

- **ACML-0402H** 0.6 x 0.3 x 0.3mm
  - Impedance Range: 60–600Ω@100MHz
  - DCR (Max): 0.4–1.2Ω • Idc (Max): 200mA

- **ACML-0402HC** 1.00 x 0.50 x 0.50mm
  - Impedance Range: 5–300Ω@100MHz
  - DCR (Max): 0.05–0.3Ω • Idc (Max): 1000–2000mA

- **ACML-0603H** 1.60 x 0.80 x 0.80mm
  - Impedance Range: 5–600Ω@100MHz
  - DCR (Max): 0.03–0.35Ω • Idc (Max): 800–2000mA

- **ACML-0805H** 2.00 x 1.25 x 0.85mm
  - Impedance Range: 30–600Ω@100MHz
  - DCR (Max): 0.02–0.25Ω • Idc (Max): 500–3000mA

- **ACSB-02** 8.50 x 3.10 x 2.60mm
  - Impedance: 90Ω@100MHz • DCR (Max): 0.9mΩ
  - Idc (Max): 5A

- **ACSB-03** 4.00 x 3.10 x 2.60mm
  - Impedance: 47Ω@100MHz • Idc (Max): 5A

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**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

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**Distributor Stocking Item**
### Inductors - Low Profile Wire-Wound

- **ASPI-0310FS** 3.0 x 3.0 x 1.0mm
  - L Range: 1~47μH • DCR (Max): 50~1600mΩ
  - Idc (Max): 0.28~2.3A

- **ASPI-0312FS** 3.0 x 3.0 x 1.2mm
  - L Range: 1~47μH • DCR (Max): 50~1450mΩ
  - Idc (Max): 0.25~1.49A

- **ASPI-0315FS** 3.0 x 3.0 x 1.5mm
  - L Range: 1~100μH • DCR (Max): 28~2100mΩ
  - Idc (Max): 0.25~2.3A

- **ASPI-0410FS** 4.0 x 4.0 x 1.0mm
  - L Range: 1~47μH • DCR (Max): 100~1810mΩ
  - Idc (Max): 0.24~1.8A

- **ASPI-0412FS** 4.0 x 4.0 x 1.2mm
  - L Range: 0.82~100μH • DCR (Max): 0.065~2.873Ω
  - Idc (Max): 0.25~1.65A

- **ASPI-0418FS** 4.0 x 4.0 x 1.88mm
  - L Range: 0.82~220μH • DCR (Max): 16~2960mΩ
  - Idc (Max): 0.28~4A

- **ASPI-0628** 6.0 x 6.0 x 2.8mm
  - L Range: 0.9~100μH • DCR (Max): 13~600mΩ
  - Idc (Max): 0.65~4.6A

- **ASPI-0645** 6.0 x 6.0 x 4.5mm
  - L Range: 1~220μH • DCR (Max): 10~920mΩ
  - Idc (Max): 0.5~6.5A

- **ASPI-0840** 8.0 x 8.0 x 4.0mm
  - L Range: 0.47~6.8μH • DCR (Max): 0.059~0.816Ω
  - Idc (Max): 0.52~2.3A

- **ASPI-2010** 2.0 x 2.0 x 1.2mm
  - L Range: 0.47~6.8μH • DCR (Max): 0.059~0.816Ω
  - Idc (Max): 0.52~2.3A

- **ASPI-2010HC** 2.0 x 1.6 x 1.0mm
  - L Range: 0.24~10μH • DCR (Max): 0.040~0.826Ω
  - Idc (Max): 0.65~3.00A • SRF (Min): 15~145MHz

- **ASPI-2012** 2.0 x 2.0 x 1.2mm
  - L Range: 0.16~33μH • DCR (Max): 0.031~2.16Ω • Idc (Max): 0.30~2.5A

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### Inductors - Molded Wire-Wound

- **ASPI-2410** 2.4 x 2.4 x 1.0mm
  - Low Profile Wire Wound • L Range: 0.68~22μH • DCR (Max): 60~1470mΩ • Idc (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 • Idc (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 • Idc (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 • Idc (Max): 0.75~2.8A

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### Low Profile Wire Wound

- **ASPI-2010HC** 2.0 x 1.6 x 1.0mm
  - L Range: 0.24~10μH • DCR (Max): 0.040~0.826Ω
  - Idc (Max): 0.65~3.00A • SRF (Min): 15~145MHz

- **ASPI-2012** 2.0 x 2.0 x 1.2mm
  - L Range: 0.16~33μH • DCR (Max): 0.031~2.16Ω • Idc (Max): 0.30~2.5A

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### Distributor Stocking Item

- **ASPI-0410FS** 4.0 x 4.0 x 1.0mm
  - L Range: 1~220μH • DCR (Max): 12~2300mΩ • Idc (Max): 0.2~3A

- **ASPI-0612FS** 6.0 x 6.0 x 1.2mm
  - L Range: 2.2~100μH • DCR (Max): 78~2171mΩ • Idc (Max): 0.32~1.8A

- **ASPI-0615FS** 6.0 x 6.0 x 2.0mm
  - L Range: 0.5~47μH • DCR (Max): 9~370mΩ • Idc (Max): 3.0~0.77A

- **ASPI-0628** 6.0 x 6.0 x 2.8mm
  - L Range: 0.9~100μH • DCR (Max): 13~600mΩ • Idc (Max): 0.65~4.6A

- **ASPI-0645** 6.0 x 6.0 x 4.5mm
  - L Range: 1~220μH • DCR (Max): 10~920mΩ • Idc (Max): 0.5~6.5A

- **ASPI-0840** 8.0 x 8.0 x 4.0mm
  - L Range: 0.47~6.8μH • DCR (Max): 0.059~0.816Ω • Idc (Max): 0.52~2.3A

- **ASPI-2010** 2.0 x 2.0 x 1.2mm
  - L Range: 0.47~6.8μH • DCR (Max): 0.059~0.816Ω • Idc (Max): 0.52~2.3A

- **ASPI-2010HC** 2.0 x 1.6 x 1.0mm
  - L Range: 0.24~10μH • DCR (Max): 0.040~0.826Ω • Idc (Max): 0.65~3.00A • SRF (Min): 15~145MHz

- **ASPI-2012** 2.0 x 2.0 x 1.2mm
  - L Range: 0.16~33μH • DCR (Max): 0.031~2.16Ω • Idc (Max): 0.30~2.5A

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### For detail datasheets, please visit: www.abracon.com
### Inductors - Power

<table>
<thead>
<tr>
<th>Inductor</th>
<th>L Range</th>
<th>DCR (Max)</th>
<th>Idc (Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPI-1367</td>
<td>14.0 x 12.9 x 6.7mm</td>
<td>0.1–10.0μH</td>
<td>0.005–0.019Ω</td>
</tr>
<tr>
<td>ASPI-4020H</td>
<td>4.5 x 4.1 x 2.1mm</td>
<td>0.1–3.3μH</td>
<td>2.5–12.0Ω</td>
</tr>
<tr>
<td>ASPI-7318</td>
<td>7.3 x 6.8 x 3.0mm</td>
<td>0.1–22μH</td>
<td>2.73–230μΩ</td>
</tr>
</tbody>
</table>

**ASPI-**7318
- L Range: 0.1–22μH, DCR (Max): 2.73–230μΩ
- Idc (Max): 2–30A

**ASPI-1367**
- L Range: 14.0 x 12.9 x 6.7mm, High Current
- DCR (Max): 0.005–0.019Ω
- Idc (Max): 10–16A

**ASPI-4020H**
- L Range: 4.5 x 4.1 x 2.1mm, High Current
- DCR (Max): 2.5–12.0Ω

### Inductors - Thin Film

<table>
<thead>
<tr>
<th>Inductor</th>
<th>L Range</th>
<th>DCR (Max)</th>
<th>Idc (Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPI-0638S</td>
<td>6.7 x 6.7 x 4.0mm</td>
<td>3.3–100μH</td>
<td>0.02–0.36Ω</td>
</tr>
<tr>
<td>ASPI-0703S</td>
<td>7.3 x 7.3 x 3.2mm</td>
<td>2.2–1000μH</td>
<td>0.032–9.4Ω</td>
</tr>
</tbody>
</table>

**ASPI-0638S**
- L Range: 6.7 x 6.7 x 4.0mm, High Current
- DCR (Max): 0.02–0.36Ω
- Idc (Max): 0.65–3.5A

**ASPI-0703S**
- L Range: 7.3 x 7.3 x 3.2mm, High Current
- DCR (Max): 0.032–9.4Ω
- Idc (Max): 0.16–3.2A

**ASPI-13065**
- L Range: 12 x 12 x 6mm, High Current
- Idc (Max): 0.68–8A

**ASPI-0403S**
- L Range: 6.6 x 4.45 x 2.92mm, High Current
- DCR (Max): 0.02–3A

**ASPI-13065**
- L Range: 12 x 12 x 6mm, High Current
- Idc (Max): 0.68–8A

**ASPI-0403S**
- L Range: 6.6 x 4.45 x 2.92mm, High Current
- DCR (Max): 0.02–3A

**ASPI-0804TS**
- L Range: 0.91–120μH, DCR (Max): 0.013–1.35Ω
- Idc (Max): 0.42–4.15A

**ASPI-0402S**
- L Range: 4.0 x 4.0 x 2.0mm, High Current
- DCR (Max): 0.02–3A

**ATFC-0201**
- Range: 0.6 x 0.3 x 0.23mm
- DCR (Ω): 0.2–3.5
- Idc (mA): 80–300
- Q: 8/g@500MHz
- SRF (Min): Up to 9GHz

**ATFC-0201HQ High Q**
- Range: 0.6 x 0.3 x 0.23mm
- DCR (Ω): 0.2–3.5
- Idc (mA): 80–300
- Q: 14/g@500MHz
- SRF (Min): Up to 14GHz
<table>
<thead>
<tr>
<th>Inductors- Unshielded</th>
<th></th>
<th>Inductors- Wire Wound</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AISC-1206H</strong></td>
<td>3.2 x 1.6 x 1.8mm</td>
<td><strong>ASPI-1306T</strong></td>
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<tr>
<td>• Range: 0.045~100μH</td>
<td>• Idc (Max): 1~175mA</td>
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</tr>
<tr>
<td>• DCR (Max): 0.027~8.45Ω</td>
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<td></td>
</tr>
<tr>
<td><strong>AISC-1210H</strong></td>
<td>3.5 x 2.5 x 2.5mm</td>
<td><strong>ASPI-1907HC</strong></td>
</tr>
<tr>
<td>• Range: 0.15~680μH</td>
<td>• Idc (Max): 0.15~1.36A</td>
<td>• Q (Min): 13~26@250MHz</td>
</tr>
<tr>
<td>• DCR (Max): 0.03~1.08A</td>
<td>• SRF (Min): Up to 12.7GHz</td>
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<tr>
<td><strong>AISC-1812H</strong></td>
<td>4.5 x 3.2 x 2.6mm</td>
<td><strong>ASPI-5619</strong></td>
</tr>
<tr>
<td>• Range: 1.0~2200μH</td>
<td>• Idc (Max): 1.5~47μH</td>
<td>• DCR (Max): 0.033~0.703Ω</td>
</tr>
<tr>
<td>• DCR (Max): 0.08~65Ω</td>
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<td></td>
</tr>
<tr>
<td><strong>AISC-2220H</strong></td>
<td>5.7 x 5.0 x 4.7mm</td>
<td></td>
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<tr>
<td>• Range: 0.12~10000μH</td>
<td>• Idc (Max): 0.65~3.5A</td>
<td></td>
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<tr>
<td>• DCR (Max): 0.01~140Ω</td>
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<tr>
<td><strong>ASPI-0309</strong></td>
<td>3.0 x 3.0 x 0.8mm</td>
<td><strong>AISC-0402</strong></td>
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<tr>
<td>• Range: 2.2~47μH</td>
<td>• Idc (Max): 1.4~2.0A</td>
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<tr>
<td>• DCR (Max): 0.04~1.12Ω</td>
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<tr>
<td><strong>ASPI-0302</strong></td>
<td>3.5 x 3.0 x 2.3mm</td>
<td><strong>AISC-0402HP</strong></td>
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<tr>
<td>• Range: 10~390μH</td>
<td>• Idc (Max): 320~2100mA</td>
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</tr>
<tr>
<td>• DCR (Max): 0.02~0.2Ω</td>
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<td></td>
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<tr>
<td><strong>ASPI-0403</strong></td>
<td>4.5 x 4.0 x 3.2mm</td>
<td><strong>AISC-0603</strong></td>
</tr>
<tr>
<td>• Range: 1.0~68μH</td>
<td>• Idc (Max): 700~1000mA</td>
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</tr>
<tr>
<td>• DCR (Max): 0.03~17.5Ω</td>
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<td></td>
</tr>
<tr>
<td><strong>ASPI-0504</strong></td>
<td>5.8 x 5.2 x 4.5mm</td>
<td><strong>AISC-0603H</strong></td>
</tr>
<tr>
<td>• Range: 4.7~1000μH</td>
<td>• Idc (Max): 1800~2400mA</td>
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<tr>
<td>• DCR (Max): 0.04~14.4Ω</td>
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<tr>
<td><strong>AISC-0703</strong></td>
<td>7.8 x 7.0 x 3.5mm</td>
<td><strong>AISC-0603HP</strong></td>
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<tr>
<td>• Range: 10~330μH</td>
<td>• Idc (Max): 1800~2400mA</td>
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<tr>
<td>• DCR (Max): 0.081~1.495Ω</td>
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<tr>
<td><strong>AISC-0705</strong></td>
<td>7.8 x 7.0 x 5.0mm</td>
<td><strong>AISC-0805</strong></td>
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<tr>
<td>• Range: 10~470μH</td>
<td>• Idc (Max): 1800~2400mA</td>
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<tr>
<td>• DCR (Max): 0.07~1.96Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AISC-1004</strong></td>
<td>10.0 x 9.0 x 4.2mm</td>
<td><strong>AISC-0805F</strong></td>
</tr>
<tr>
<td>• Range: 10~560μH</td>
<td>• Idc (Max): 150~600mA</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 0.053~1.904Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AISC-1005</strong></td>
<td>10.0 x 9.0 x 5.4mm</td>
<td><strong>AISC-1005</strong></td>
</tr>
<tr>
<td>• Range: 10~1000μH</td>
<td>• Idc (Max): 0.65~3.5A</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 0.06~2.75Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AISC-0402T</strong></td>
<td>6.60 x 4.45 x 2.92mm</td>
<td><strong>AISC-1008</strong></td>
</tr>
<tr>
<td>• Range: 1.0~1000μH</td>
<td>• Idc (Max): 150~600mA</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 0.05~13.8Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AISC-0706HC</strong></td>
<td>9.1 x 6.1 x 4.7mm</td>
<td><strong>AISC-1008F</strong></td>
</tr>
<tr>
<td>• Range: 0.18~47μH</td>
<td>• Idc (Max): 10~200mA</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 0.003~0.47Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AISC-0802T</strong></td>
<td>12.9 x 9.4 x 3.0mm</td>
<td></td>
</tr>
<tr>
<td>• Range: 10~1000μH</td>
<td>• Idc (Max): 0.05~2A</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 0.11~8.4Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AISC-0804HC</strong></td>
<td>13.5 x 10.2 x 6.0mm</td>
<td></td>
</tr>
<tr>
<td>• Range: 0.33~100μH</td>
<td>• Idc (Max): 0.3~9A</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 2~271mΩ</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AISC-0804T</strong></td>
<td>13.5 x 9.5 x 5.5mm</td>
<td></td>
</tr>
<tr>
<td>• Range: 1~1000μH</td>
<td>• Idc (Max): 0.1~6.8A</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 0.009~3Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AISC-0810T</strong></td>
<td>12.9 x 9.4 x 11.4mm</td>
<td></td>
</tr>
<tr>
<td>• Range: 1~1000μH</td>
<td>• Idc (Max): 0.1~6.8A</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 0.009~3Ω</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ASPI-1306HC</strong></td>
<td>22.4 x 16.0 x 8.0mm</td>
<td></td>
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<tr>
<td>• Range: 0.78~220μH</td>
<td>• Idc (Max): 2.6~30A</td>
<td></td>
</tr>
<tr>
<td>• DCR (Max): 2.6~357mΩ</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For detail datasheets, please visit: www.abracon.com
**AISC-1008HQ** 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

**AISC-1008LP** 2.92 x 2.79 x 1.4mm
- Range: 3.3–1000nH • DCR (Max): 0.03–3.7Ω • Idc (Max): 300–1000mA • Q (Min): 35–72@15–500MHz • SRF (Min): Up to 6GHz

**AISC-1206** 3.56 x 2.16 x 1.52mm
- Range: 3.3–1200nH • DCR (Max): 0.07–3.2Ω • Idc (Max): 200–1000mA • Q (Min): 20–60@150–300MHz • SRF (Min): Up to 6.2GHz

**AISC-1210** 3.65 x 2.95 x 2.70mm
- Range: 3.9–8600nH • DCR (Max): 0.05–1.1Ω • Idc (Max): 220–800mA • Q (Min): 10@1MHz • SRF (Min): Up to 150MHz

**AISC-1210HS High SRF** 3.2 x 3.05 x 1.3mm
- Range: 2.2–33nH • DCR (Max): 0.5–5Ω • Idc (Max): 1000mA • Q (Min): 20@1GHz

**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.

**LAN Magnectics**

**ALAN-101** 11.43 x 9.24 x 5.51 mm
- 10/100 Base-T • 1CT : 1CT • IL: -1.1dB 0.1 to 100MHz • RL: -18dB @ 30MHz, -14dB @ 60MHz, -11.5dB @ 80MHz

**ALAN-102** 12.7 x 9.30 x 6.35 mm
- 10/100 Base-T • 1CT : 1CT • IL: -1.1dB 0.1 to 100MHz • RL: -20dB @ 30MHz, -14dB @ 60MHz, -11.5dB @ 80MHz

**ALAN-134** 12.70 x 9.30 x 6.35 mm
- 10/100 Base-T POE • 1CT : 1CT • IL: -1.1dB 0.1 to 100MHz • RL: -18dB @ 2-30MHz, -14.4dB @ 40MHz, -13.1dB @ 50MHz, -12 @ 60-80MHz

**ALAN-508** 12.70 x 9.30 x 6.35 mm
- 1000 Base-T • 1CT : 1CT • IL: -1.0dB 0.1 to 100MHz • PoE+: 750mA

**ALAN-511** 18.03 x 15.70 x 6.90 mm
- 1000 Base-T • 1CT : 1CT • IL: -1.0dB 0.1 to 100MHz • PoE+: 750mA

**APT-106** 11.43 x 9.24 x 5.51 mm
- 10/100 Base-T • 1CT : 1CT • IL: -1.1dB 0.1 to 100MHz • RL: -18dB @ 30MHz, -14dB @ 60MHz, -11.5dB @ 80MHz

**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
### 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

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**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 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

**ARJ11C Series**
- 16.2 x 13.55 x 25.3mm/ 16.0 x 13.55 x 21.1mm
- Tap Up, 10/100/1000 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

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

**ARJ12A**
- 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

**ARJ21A**
- 16.80 x 28.91 x 25.78mm
- Tap Up and Down, 10/100 Base-T, Dual USB Combo

**ARJ14A**
- 16.78 x 21.08 x 26.00 mm
- Tap Up, 10/100 Base-T Single USB

**ARJU21A**
- 17.40 x 30.40 x 26.10mm
- Tap Up, 10/100 Base-T Dual USB

**ARJU31A**
- 18.85 x 30.52 x 27.40 mm
- Tap Up, 10/100/1000 Base-T Dual USB

**ARJU31B**
- 31.28 x 13.60 x 21.50 mm
- Tap Up and Down, 10/100/1000 Base-T

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**ARJ144A**
- Tap Down, 10/100/1000 Base-T with PoE

**ARJ145A**
- Tap Down, 10/100/1000 Base-T

**ARJ21A**
- Tap Up and Down, 10/100/1000 Base-T

**ARJE-0029**
- Tap Up and Down, 10/100 Base-T, Dual USB Combo

**ARJE-0032**
- Tap Up, 10/100 Base-T, Single USB Combo

**ARJU21A**
- Tap Up, 10/100/1000 Base-T Single USB

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**RJ45 Jack- Single port**

**ARJ-114**
- 16.60 x 13.50 x 32.60mm
- Tap Up, 10/100/1000 Base-T with PoE

**ARJ-11A**
- 16.26 x 13.84 x 21.59mm
- Tap Down, 10 Base-T

**ARJ-11B**
- 16.26 x 13.84 x 21.59mm
- Tap Down, 10/100 Base-T

**ARJ-11C**
- 16.26 x 13.84 x 21.59mm
- Tap Up, 10/100 Base-T

**ARJ-11D**
- 16.26 x 13.84 x 21.59mm
- Tap Up, 10/100 Base-T

**ARJ-11E**
- 16.26 x 13.84 x 21.59mm
- Tap Down, 1000 Base-T

**ARJ-11F**
- 16.26 x 13.84 x 21.59mm
- Tap Up, 10/100/1000 Base-T

**ARJ-11G**
- 16.26 x 13.84 x 21.59mm
- Vertical, 10/100/1000 Base-T

**ARJ 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
**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 1.2mm
  - 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): 0.30~0.4Ω • 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): 0.30~1.2Ω • 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- 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
  - DCR (Max): 4.5~40mΩ • Idc (Max): 3~6A
- **ALFT-04** 28.58 x 16.26 x 21.6mm
  - Inductance Range: 0.6~105mH
  - DCR (Max): 0.2~3A • Idc (Max): 0.3~1.4A
- **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: 0.42~299.87uH
  - DCR (Max): 4~672mΩ • Idc (Max): 0.62~7A
- **ASTC-03** 8.9 x 11.4 x 4.7mm
  - Inductance Range: 0.42~299.87uH
  - DCR (Max): 4~672mΩ • Idc (Max): 0.62~7A
- **ASTC-04** 11.4 x 13.9 x 6.35mm
  - Inductance Range: 0.42~299.87uH
  - DCR (Max): 4~672mΩ • Idc (Max): 0.62~7A
- **ASTC-07C-702-1R5** 16.38 x 14.22 x 8.89mm
  - Inductance Range: 7000uH
  - DCR (Max): 0.3mΩ • Idc (Max): 2A
- **ASTC-4H** 14 x 14 x 6.4mm
  - Inductance Range: 0.31~1000uH
  - DCR (Max): 3~1500mΩ • Idc (Max): 0.25~12.2A
- **ASTC-01** 8.9 x 11.4 x 4.7mm
  - Inductance Range: 0.42~299.87uH
  - DCR (Max): 4~672mΩ • Idc (Max): 0.62~7A
- **ASTC-02** 11.4 x 13.9 x 6.35mm
  - Inductance Range: 0.42~299.87uH
  - DCR (Max): 4~672mΩ • Idc (Max): 0.62~7A
- **ASTC-03** 8.9 x 11.4 x 4.7mm
  - Inductance Range: 0.42~299.87uH
  - DCR (Max): 4~672mΩ • Idc (Max): 0.62~7A
- **ASTC-04** 11.4 x 13.9 x 6.35mm
  - Inductance Range: 0.42~299.87uH
  - DCR (Max): 4~672mΩ • Idc (Max): 0.62~7A
- **ASTC-07C-702-1R5** 16.38 x 14.22 x 8.89mm
  - Inductance Range: 7000uH
  - DCR (Max): 0.3mΩ • Idc (Max): 2A

**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: 35Ω@10MHz, 790Ω@50MHz, 550Ω@100MHz
- **AWBC-09** Φ6.00 x 10.00mm
  - Impedance: 598Ω@25MHz, 800Ω@100MHz

**Transformer**

- **AITC-449** 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

**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

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**For detail datasheets, please visit:** www.abracon.com

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**Chokes- Line Filter**

- **ALFT-02A** 18.6 x 13 x 20.6mm
- **ALFT-03A** 23.9 x 18 x 21.6mm
- **ALFT-04** 28.58 x 16.26 x 21.6mm
- **ALFT-09V** 16.5 x 11.5 x 17.0mm
- **ALFT-16** 13.97 x 11.43 x 6.35mm
- **ASTC-01** 8.9 x 11.4 x 4.7mm
- **ASTC-02** 11.4 x 13.9 x 6.35mm
- **ASTC-03** 8.9 x 11.4 x 4.7mm
- **ASTC-04** 11.4 x 13.9 x 6.35mm
- **ASTC-07C-702-1R5** 16.38 x 14.22 x 8.89mm

**For detail datasheets, please visit:** www.abracon.com

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**Chokes- Wide Band Choke**

- **AWBC-03** Φ6.00 x 10.00mm
- **AWBC-05** Φ6.00 x 10.00mm
- **AWBC-09** Φ6.00 x 10.00mm

**Transformer**

- **AITC-449** 8.20 x 6.60 x 5.40mm
- **ASTC-01** 8.9 x 11.4 x 4.7mm
- **ASTC-02** 11.4 x 13.9 x 6.35mm
- **ASTC-03** 8.9 x 11.4 x 4.7mm
- **ASTC-04** 11.4 x 13.9 x 6.35mm
- **ASTC-07C-702-1R5** 16.38 x 14.22 x 8.89mm

**For detail datasheets, please visit:** www.abracon.com

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**Distributor Stocking Item**
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABLNO Precision Frequency Divider Eval Board</strong></td>
<td>- ABLNO-EVAL is a Frequency Divider Evaluation Board designed to facilitate oscillator signal characterization&lt;br&gt;- Built-in Divider scheme with exceptionally low Additive Jitter to characterize $\div 1$, $\div 2$, $\div 4$ or $\div 8$ combination of the reference signal&lt;br&gt;- Contains Standard SMA connectors providing VDD, Vc, RF Output and External Oscillator signal connectivity&lt;br&gt;- Ideally suited to characterize Phase Noise, jitter, frequency pull &amp; frequency stability over temperature characterization&lt;br&gt;- Rated for 10MHz to 200MHz frequency range</td>
<td>- 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&lt;br&gt;- Optional SMA connector port to characterize an external oscillator signal&lt;br&gt;- Rated for -40°C to +85°C operation enabling frequency stability over temperature characterization of an oscillator device</td>
</tr>
<tr>
<td><strong>ABPSM-ULN-A</strong></td>
<td>- AC Adapter Input Voltage 100VAC to 240VAC; 50Hz and 60Hz cycles - World Wide Capability&lt;br&gt;- Four DC Output Ports, 1.8V, 2.5V, 3.3V &amp; 5.0V&lt;br&gt;- Current Sourcing Capability 200mA max each port&lt;br&gt;- Exceptional low noise density; $&lt; 7nV / \sqrt{Hz} @ 1kHz$ offset Typical&lt;br&gt;- Better than 0.30uVrms over 0.1Hz to 1kHz bandwidth (best-in-class)&lt;br&gt;- Convenient, Ultra Low Noise Solution offering most common bias levels&lt;br&gt;- Portable - Small form factor [3.50&quot; * 1.50&quot; * 0.65&quot;] Mached Aluminum enclosure&lt;br&gt;- No external heat sinking is required&lt;br&gt;- Low Cost</td>
<td>- Lab Grade Power Supply designed to replace bulky &amp; noisy power supplies for everyday use&lt;br&gt;- A must have for Noise Sensitive Measurements such as, S/N ratio, Spectral Purity, Jitter, Phase Noise &amp; Harmonic Distortion&lt;br&gt;- Ideal for testing circuits including:&lt;br&gt;- Audio - Medical Diagnostic&lt;br&gt;- RF - Jitter Sensitive Digital&lt;br&gt;- Microwave</td>
</tr>
<tr>
<td><strong>Pierce Analyzer System (PAS)</strong></td>
<td>- Circuit characterization; providing best possible match between Quartz Crystal, oscillator loop and associated components&lt;br&gt;- Eliminates probability of oscillator start-up issues related to inadequate design or marginal component performance&lt;br&gt;- Eliminates production launch issues related to crystal oscillator based timing circuit&lt;br&gt;- Solves for design margin uncertainty&lt;br&gt;- 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.&lt;br&gt;- For additional information, please contact Abracon at: <a href="mailto:tech-support@abracon.com">tech-support@abracon.com</a></td>
<td>Abracon provides a detailed test report encompassing:&lt;br&gt;- Stand alone Quartz Crystal characteristics including:&lt;br&gt;- Motional parameters (Cm, Lm, ESR &amp; Co)&lt;br&gt;- Narrow Band Frequency Response Plot&lt;br&gt;- Wide Band Frequency Response Plot&lt;br&gt;- Frequency dependence versus load capacitance plot&lt;br&gt;- Oscillator loop&lt;br&gt;- Initial frequency accuracy and drive level as seen by the crystal with measured ESR&lt;br&gt;- Worst case projected drive level with maximum specified ESR&lt;br&gt;- Safety Factor of the oscillator loop under both typical and maximum ESR&lt;br&gt;- Recommendation on proper component selection (C1, C2 &amp; Rs when applicable) for best compromise with respect to Safety Factor and Frequency accuracy&lt;br&gt;- Recommendation on the Abracon Crystal part # with proper plating load and other key attributes to enable the most robust design, specific to the microcontroller/processor implemented</td>
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<td><strong>SYNC-10.00MHz</strong></td>
<td>Stand Alone 10.00MHz Portable Precision Frequency Reference - World Wide Capability&lt;br&gt;- Built-in Stratum-III stability, 10.00MHz Signal tuned into 50Ω’s&lt;br&gt;- 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&lt;br&gt;- Integrated re-chargeable batteries to provide true stand-alone capability in the field&lt;br&gt;- Once sync’d; guaranteed $\pm 300$ ppb stability over 0°C to 60°C&lt;br&gt;- Pocket Size - 3.50&quot; * 1.50&quot; * 1.00&quot;; machined aluminum durable enclosure</td>
<td>- Ideally suited as an in-field Calibrated Precision 10.00MHz reference for trouble shooting or tuning hardware and Base Station related equipment&lt;br&gt;- Reference source for lab use&lt;br&gt;- Reference source to drive frequency counters and other timing related hardware or instruments&lt;br&gt;- Precision Portable reference for inspection of in-field wireless transmitters</td>
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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

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
• Circuit characterization; provides best possible match between Quartz Crystal, oscillator loop and associated components
• 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

For detail datasheets, please visit: www.abracon.com

- Distributor Stocking Item
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 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

PERRY JOHNSON REGISTRARS, INC.
Certificate of Registration

Perry Johnson Registrars, Inc. has assessed the Quality Management System of
Abracon Corporation
30332 Esperanza, Rancho Santa Margarita, CA 92688 United States

Design, Manufacture, and Distribution of Electronic Components

This Registration is granted subject to the system rules governing the Registration referral to above, and the Organization hereby guarantees the Abraham, hereby to observe and comply with the said rules.

Terry Boboige, President

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