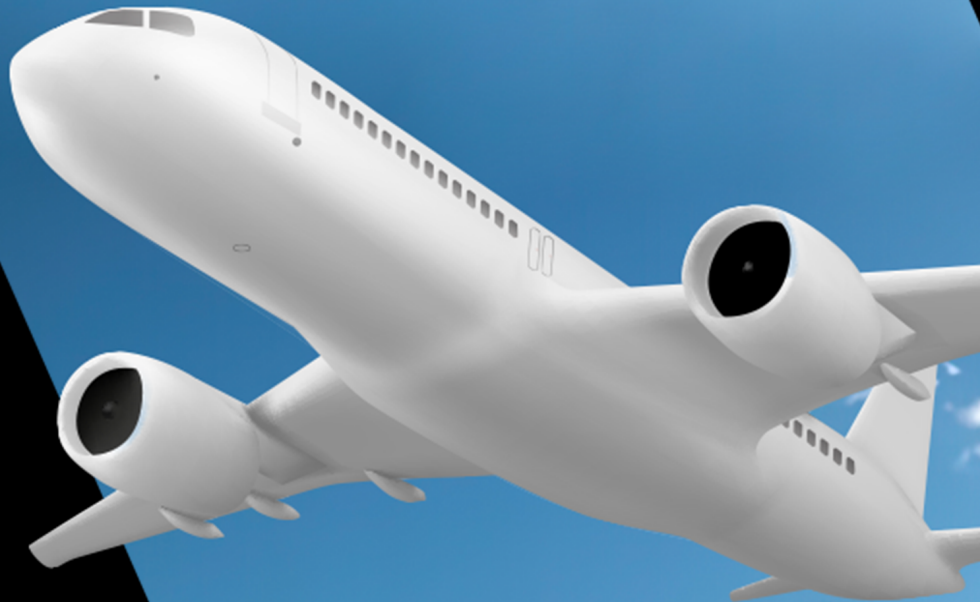




INDUSTRY FOCUS

# Automotive Catalog



Company Overview

# ECS Inc. International



At ECS Inc. our mission is to create relationships that enrich life through advanced technology. For more than 40 years, we have met the growing global demand for frequency control solutions such as crystal oscillators, MultiVolt™ oscillators, AEC-Q200 qualified crystals, power inductors, real time clocks and more.

ECS Inc. prides ourselves on being on the cutting edge of design and engineering in frequency control and timing solutions. We aspire to lead the industry and passionate people to spark technological solutions that create a more advanced world.

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Automotive | Public Transit | Micromobility

# KEY AUTOMOTIVE APPLICATIONS



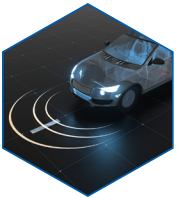
Infotainment



Battery + Power Management



Navigation



ADAS



Wireless Charging



Telematics



Lighting



Seat Control



TPMS



Steering Control



EV Charging Stations



Parking Meters



# AEC-Q200 AUTOMOTIVE GRADE CRYSTALS

ECS Inc. International's high temperature automotive grade frequency control quartz crystals are manufactured in IATF 16949 certified factories and are AEC-Q200 qualified. Offered in the leading surface mount packaging configurations, our AEC-Q200 crystal products are available in a range of frequencies. Automotive grade frequency control products are desirable for many customers in the automotive, industrial, and medical markets. These products meet the most stringent requirements for extremely harsh environments typical in automotive applications. For more product options and information, contact our engineering team at [engineering@ecsxtal.com](mailto:engineering@ecsxtal.com).

## Innovative Transportation

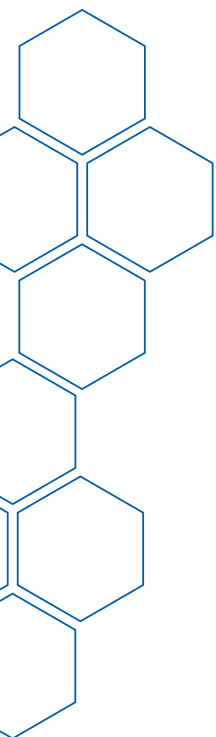
From cell phones and the internet to Wi-Fi and GPS, electronics have become a part of our everyday lives. The automotive industry has seen the most dramatic incorporation of technology through the evolution of collision avoidance, safety measures, infotainment, telematics, and soon we will see fully autonomous cars. The continuing innovation will make transportation easier, faster, and safer. ECS Inc. is continuously developing new technology to provide solutions for tomorrow's needs.

### 32.768 kHz Tuning Fork Crystals

Series	Package Size	Frequency (min-max)	Tolerance		Max. Operating Temperature	Datasheet
			Min.	Max.		
<a href="#">ECX-12Q</a>	2.0 x 1.2 x 0.55 mm	32.768 kHz	±10ppm	±20ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-34Q</a>	3.2 x 1.5 x 0.9 mm	32.768 kHz	±10ppm	±20ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>

### MHz Crystals

Series	Package Size	Frequency (min-max)	Tolerance		Stability		Max. Operating Temperature	Datasheet
			Min.	Max.	Min.	Max.		
<a href="#">ECX-1247Q</a>	1.6 x 1.2 x 0.3 mm	24 ~ 60 MHz	±10ppm	±30ppm	±10ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-1637Q</a>	2.0 x 1.6 x 0.45 mm	16 ~ 60 MHz	±10ppm	±25ppm	±10ppm	±100ppm	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-1637BQ</a>	2.0 x 1.6 x 0.45 mm	16 ~ 50 MHz	±7ppm	±25ppm	±10ppm	±100ppm	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-1637QZ</a>	2.0 x 1.6 x 0.45 mm	20 ~ 40 MHz	±10ppm	±25ppm	±50ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-2236Q</a>	2.5 x 2.0 x 0.5 mm	12 ~ 60 MHz	±10ppm	±25ppm	±10ppm	±100ppm	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-33Q</a>	3.2 x 2.5 x 0.8 mm	8 ~ 54 MHz	±10ppm	±30ppm	±10ppm	±100ppm	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-33QZ</a>	3.2 x 2.5 x 0.8 mm	12 ~ 32 MHz	±10ppm	±25ppm	±50ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-53Q</a>	5.0 x 3.2 x 1.1 mm	8 ~ 54 MHz	±10ppm	±30ppm	±10ppm	±150ppm	-40°C ~ +150°C	<a href="#">Datasheet</a>
<a href="#">ECX-53BQ</a>	5.0 x 3.2 x 0.85 mm	8 ~ 54 MHz	±10ppm	±25ppm	±10ppm	±100ppm	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECX-53BQZ</a>	5.0 x 3.2 x 0.9 mm	13 ~ 26 MHz	±10ppm	±25ppm	±30ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">CSM-8Q</a>	7.0 x 5.0 x 1.3 mm	8 ~ 36 MHz	±10ppm	±25ppm	±10ppm	±100ppm	-55°C ~ +125°C	<a href="#">Datasheet</a>





# AEC-Q200 AUTOMOTIVE GRADE OSCILLATORS



ECS Inc.'s high-temperature automotive frequency control crystal oscillators are AEC-Q200 qualified and are manufactured in IATF 16949 certified factories, making them a top choice for automotive electronic design. Offered in surface mount circuit packaging - the leading choice for electronic engineering - ECS Inc.'s AEC-Q200 qualified oscillators are available in a wide range of frequencies with extended temperature ranges needed for harsh applications. Automotive-grade frequency control products are desirable for many customers in the industrial engineering and medical application industries, as well as the automotive electronics market. These products meet stringent requirements for the extremely harsh environments that are typical in automotive applications.

## Standard MHz Oscillators

Series	Package Size	Frequency (min-max)	Stability Min.	Stability Max.	Max. Operating Temperature	Datasheet
ECS-2520Q	2.5 x 2.0 x 0.8 mm	0.75 ~ 60 MHz	±30ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
ECS-3225Q	3.2 x 2.5 x 0.9 mm	0.75 ~ 50 MHz	±30ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>

## 32.768 kHz MultiVolt™ Oscillators

Series	Package Size	Frequency (min-max)	Stability Min.	Stability Max.	Max. Operating Temperature	Datasheet
ECS-327ATQMV	3.2 x 2.5 x 0.9 mm	32.768 kHz	±25ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
ECS-327ATQ2016MV	2.0 x 1.6 x 0.85 mm	32.768 kHz	±25ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
ECS-327ATQ2520MV	2.5 x 2.0 x 0.8 mm	32.768 kHz	±25ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>

## MultiVolt™ MHz Oscillators

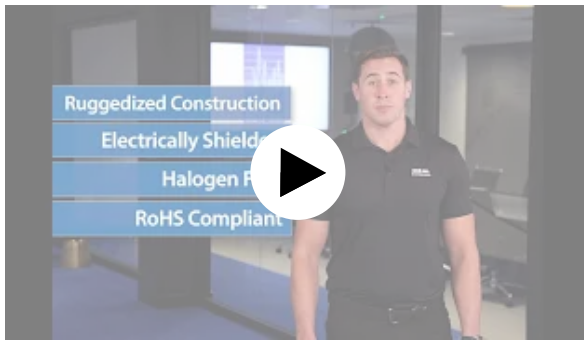
Series	Package Size	Frequency (min-max)	Stability Min.	Stability Max.	Max. Operating Temperature	Datasheet
ECS-2016MVQ	2.0 x 1.6 x 0.85 mm	1 ~ 54 MHz	±20ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
ECS-2520MVQ	2.5 x 2.0 x 0.8 mm	1 ~ 160 MHz	±20ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>
ECS-3225MVQ	3.2 x 2.5 x 1.0 mm	1 ~ 160 MHz	±20ppm	±100ppm	-40°C ~ +125°C	<a href="#">Datasheet</a>





# AEC-Q200 AUTOMOTIVE GRADE POWER INDUCTORS

## Power Inductors



ECS Inc. offers a wide selection of small form factor power inductors for DC/DC power applications. A power inductor, also known as a coil or choke, is a two-terminal passive electronic component used to clean up the output from high frequency switching power supplies. They offer low magnetic radiation for low noise environments. They do this by storing energy in the form of a magnetic field. ECS Inc.'s small form factor shielded power inductors offer low DC resistance and wide temperature ranges. Let ECS Inc. International be your one-stop shop for power inductors.

Series	Package Size	Inductance Range	$I_{sat}$ (Amps)	DCR (mΩ)	Operating Temperatures	Datasheet
<a href="#">ECS-MPI4040R1</a>	4.7 x 4.31 x 1.2 mm	0.09 - 10 $\mu$ H $\pm$ 20%	2.8 - 32	8.5 - 370	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECS-MPI4040R2</a>	4.7 x 4.31 x 1.5 mm	0.47 - 10 $\mu$ H $\pm$ 20%	3.1 - 12.2	12 - 240	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECS-MPI4040R3</a>	4.7 x 4.31 x 1.85 mm	0.22 - 22 $\mu$ H $\pm$ 20%	2.2 - 20	5.8 - 408	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECS-MPI4040R4</a>	4.7 x 4.31 x 2.0 mm	0.22 - 22 $\mu$ H $\pm$ 20%	1.8 - 15	5.3 - 316	-55°C ~ +125°C	<a href="#">Datasheet</a>
<a href="#">ECS-HCMPI-0503Q</a>	5.5 x 5.3 x 2.9 mm	0.15 - 4.7 $\mu$ H $\pm$ 20%	8.2 - 36	2.31 - 36.3	-40°C ~ +125°C	<a href="#">Datasheet</a>

# ECS Inc. International Digital Resources

## AUTOMOTIVE + TRANSPORTATION

### Articles

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#### Timing in Modern Vehicles

[Read Now](#)

Explore the future of automotive technology with our article, “Timing in Modern Vehicles”. Learn how advances in safety, reliability, performance and fuel efficiency have led to vehicles requiring over 60 processors and electronic controllers. Discover the role of precision timing products in enabling smarter automobiles and the increasing use of ADAS. Understand the growing demand for performance, comfort and connectivity in vehicles, and how ECS Inc. International’s automotive grade crystals and oscillators meet these needs.

#### Understanding IATF 16949 and AEC-Q200 Quality Management Systems

[Read Now](#)

Dive into our article, “Understanding IATF 16949 And AEC-Q200 Quality Management Systems”, to learn about the global standards for automotive-grade products. Discover how the IATF 16949 quality management system focuses on continual improvement, defect prevention and reduction of variation and waste in the supply chain. Understand the AEC-Q200 qualification, the global standard for stress resistance that all passive electronic components must meet if they are intended for use within the automotive industry. Learn how ECS Inc. International adheres to these standards to ensure the quality and safety of its products.

#### The Important Role of Quartz Oscillators in Automotive Applications

[Read Now](#)

Discover the crucial role of quartz oscillators in automotive applications in our informative article. Learn how a clean, stable signal from a timing circuit enables performance, safety and entertainment features in modern vehicles. Understand how ECS Inc.’s high-performing quartz crystal oscillators meet the precise requirements of engineers in the automotive industry. The article also highlights significant applications that depend on timing circuits, such as ABS brakes, collision avoidance technology, and electric vehicle power management.

### Videos

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#### Precision in Motion: Navigating the Future of Transportation with ECS Inc. International

Uncover the pulse of transportation with ECS Inc. International! Join us as we delve into the market landscape, explore automotive end-use cases, and showcase our precision timing solutions that drive the future of the industry.

[Watch Video](#)

# ECS Inc. International AUTHORIZED DISTRIBUTORS

## GLOBAL DISTRIBUTORS



## AMERICAS DISTRIBUTORS



## EMEA DISTRIBUTORS



## ASIA DISTRIBUTORS





A Thank You

# FROM OUR CEO

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To our valued ECS Inc. customer –

We want to thank you for reviewing our product catalog.

We have spent the last 44 years working tirelessly to ensure that every time you select an ECS Inc. International component for your design, you can count on excellent quality and performance. We will continue to be a leader in the frequency control and magnetics industry as we continue to develop new products to meet emerging technologies with cutting edge solutions to fill gaps in traditional product development.

We strive to provide so much more than just a component. As an ECS Inc. International customer, you are our priority. It is every team member's daily goal to provide you with concentrated attention, support, and care that is unparalleled while ensuring we are always looking ahead at the new advancements in technology. We want to be there for every customer because no matter if you purchase a thousand pieces per year or ten thousand pieces per year, we truly appreciate you.

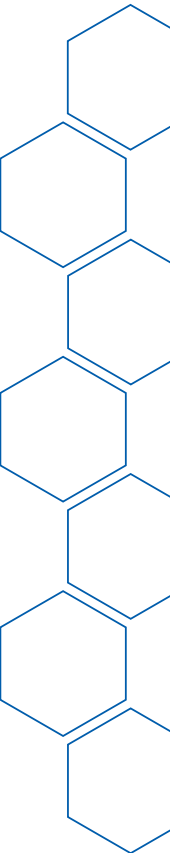
Looking toward the future, we intend to expand our teams both domestically and internationally with enhanced engineering staff, sales representatives, distribution partners, and educational resources.

We understand that you have choices when designing every board, so on behalf of us and all our team members internationally, we want to personally thank you for choosing to be a part of the ECS Inc. International family.

We are your Electronic Component Solution.



Eric Slatten  
President and CEO, ECS Inc. International





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