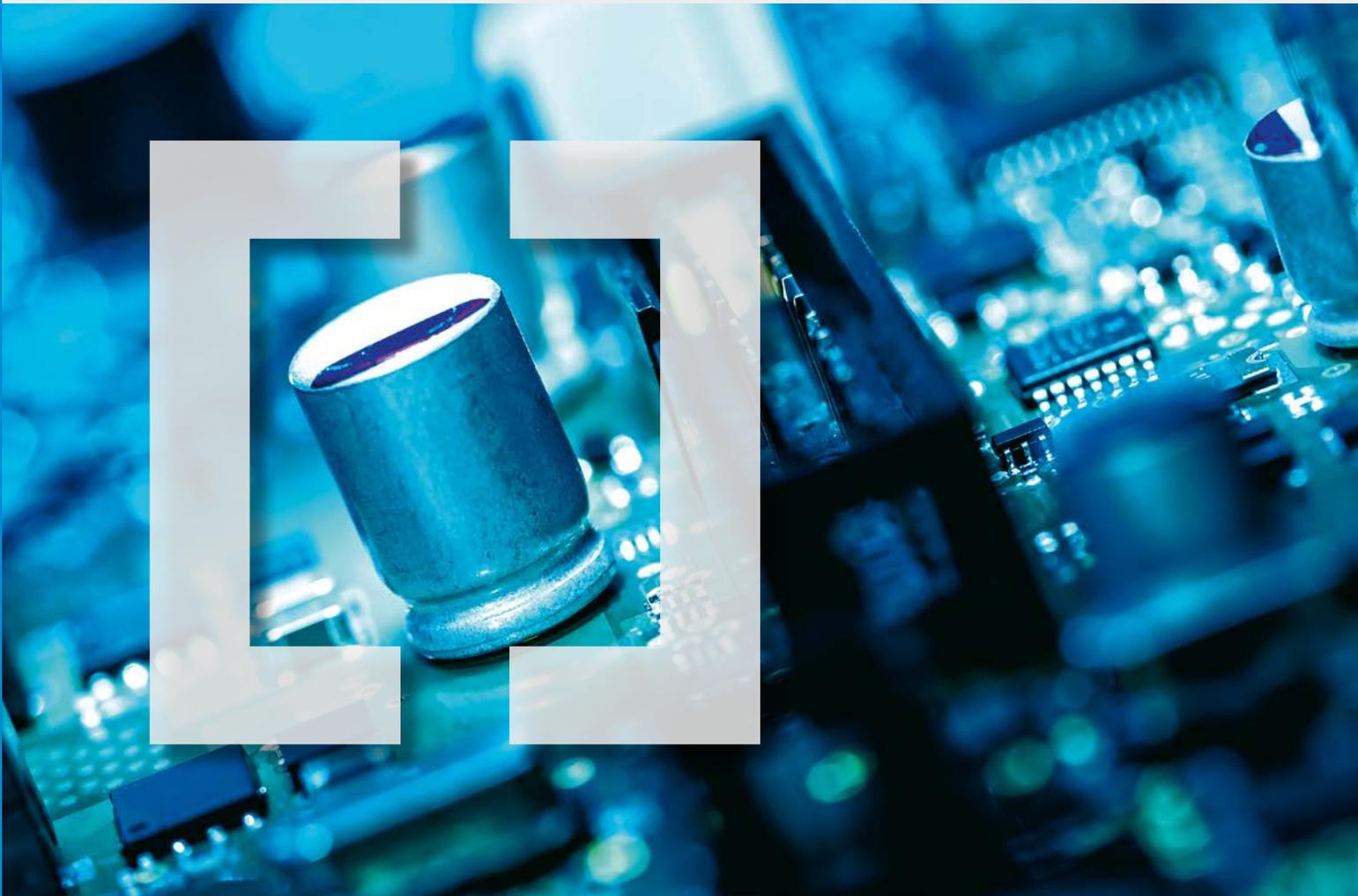
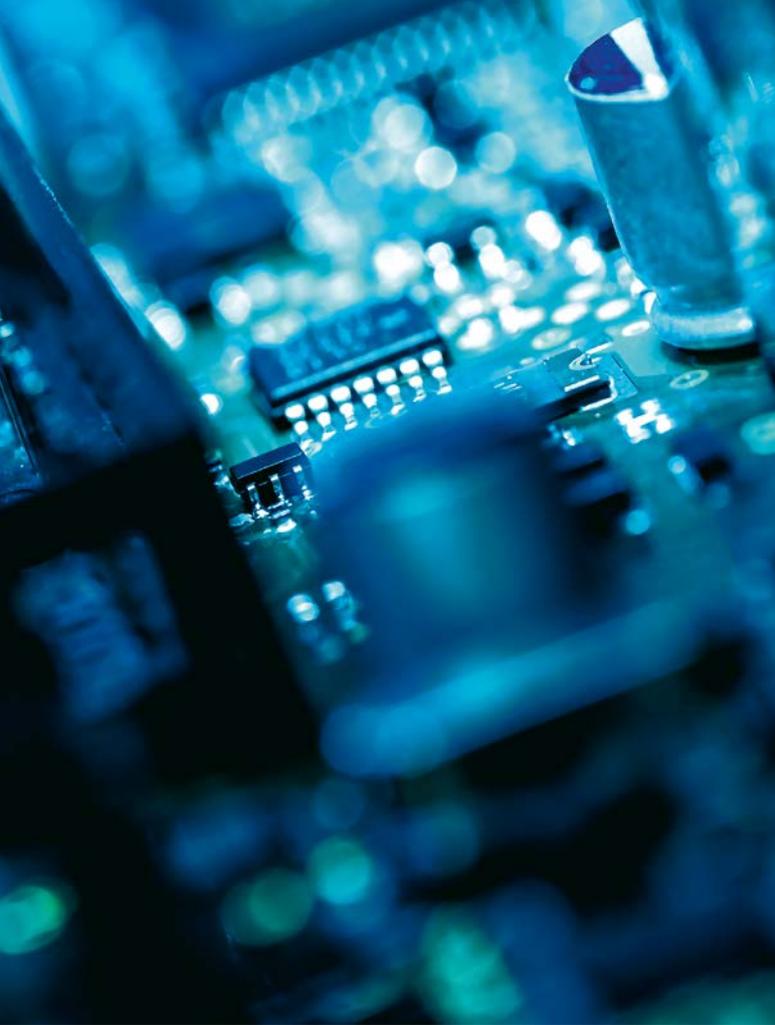


Passive Components Guide





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Our Product Portfolio

 Semiconductors	 Boards & Systems
 Passive Components	 Storage Technologies
 Electromechanical Components	 Wireless Technologies
 Displays & Monitors	

Our Initiatives

			
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Committed to Excellence

Consult – Know-how. Built-in.

The Technical Competence from RUTRONIK

Worldwide and individual consulting on the spot: by competent sales staff, application engineers and product specialists.

Components – Variety. Built-in.

The Product Portfolio from RUTRONIK

Wide product range of semiconductors, passive and electro-mechanical components, displays & monitors, boards & systems, storage and wireless technologies for optimum coverage of your needs.

Logistics – Reliability. Built-in.

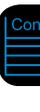
The Delivery Service from RUTRONIK

Innovative and flexible solutions: from supply chain management to individual logistics systems.

Quality – Security. Built-in.

Quality Management without Compromise

The integrated management system (IMS) encompasses quality control, information security, environmental protection, occupational health and safety.



Passive Components Guide

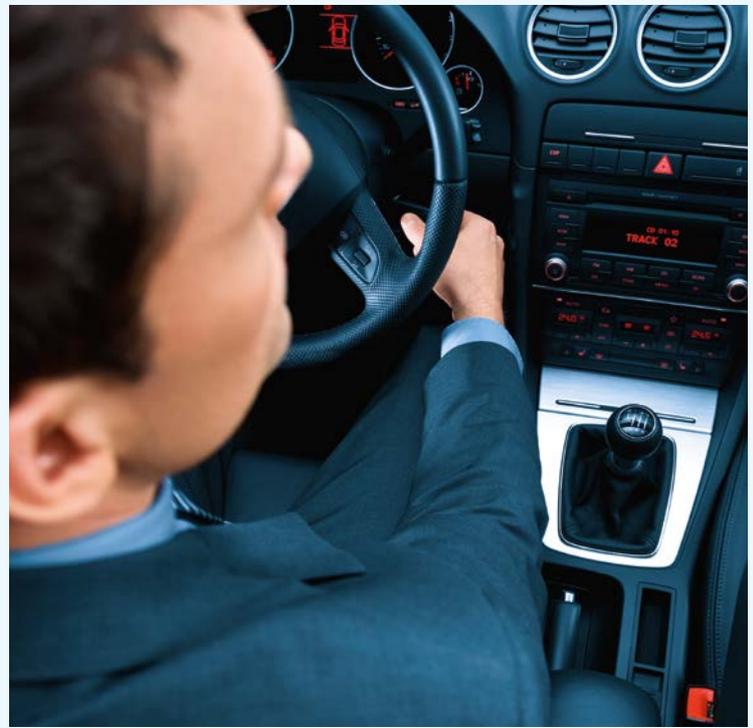
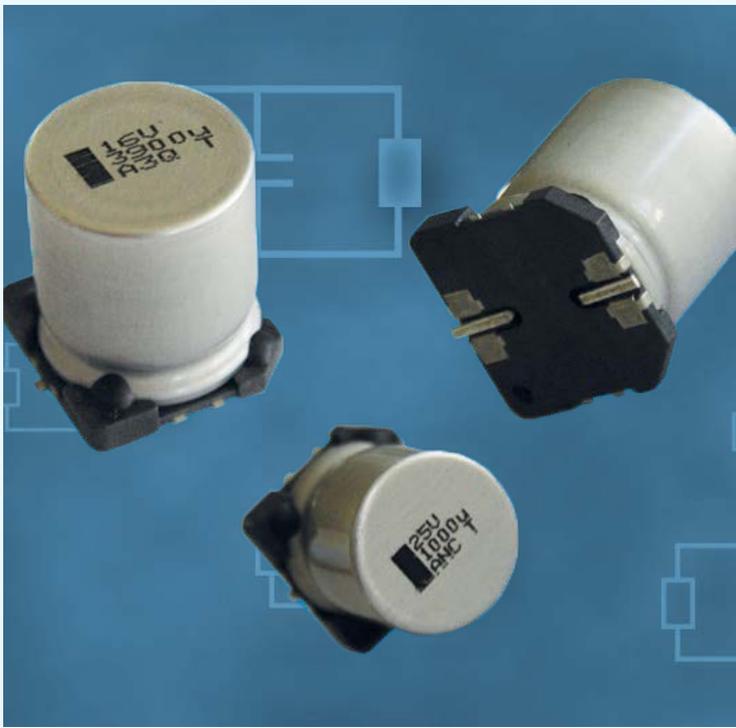
Rutronik & Passive Components

Rutronik provides a comprehensive product portfolio of innovative passive components with high quality and technical standards. Our linecard includes European and global franchises with major manufacturers and world market leaders for electronic components. We offer you high reliability due to our “Second-Source” principle, which consists of having two or more suppliers for each product. With our team of experienced product and marketing specialists, we also offer you commercial and technical support. Our objective is an above-average increase in the activities of the design-in segment, which is in line with the comprehensive expertise of our team. To achieve this, we cooperate closely with our key manufacturers.

To increase the efficiency of our European sales support, we place great emphasis on “one face to the customer” and increased innovation and technology transfer. It is also important to us to continue the expansion of Rutronik’s range of complete solutions in intensive cooperation with the divisions for semiconductors and electromechanical components, storage, displays & boards as well as wireless technologies.

Furthermore, we offer you tailored and consistent logistic solutions with innovative Vendor Managed Inventory (VMI), which secure your supply and optimise your process costs. Our key customer list includes leading companies in the sectors Industrial, Automotive, Consumer, Telecommunications, Information, Communication and Medical. We also focus on application trends of the European market like energy efficiency, renewable energies, hybrid cars, electric drives, solar, inverter, lighting and power supply.





Electrolytic & Polymer Capacitors



Electrolytic Capacitors

SMD Capacitors	★		★	★	★				
Miniature Radial Cap.	★			★	★				
Large Can Radial Cap.	★			★	★		★		
Axial Capacitors								★	
Solid Polymer Cap.			★						
Polymer Hybrid Cap.			★	★					

Supplier Information

Headquarters	China	Taiwan	Japan	Japan	Korea	China		USA	Taiwan
Strength	<ul style="list-style-type: none"> Competitive in SMD items Own foil production Good market price level 	<ul style="list-style-type: none"> Good market price level Big production capacity 	<ul style="list-style-type: none"> Innovative products High quality Own foil production AEC-Q200 available Low ESR SMD + polymer 	<ul style="list-style-type: none"> Innovative products High quality Own foil production AEC-Q200 available Design oriented Wide high temperature portfolio 	<ul style="list-style-type: none"> Good market price level Big production capacity 	<ul style="list-style-type: none"> Radial items and large can type High voltage solid polymer type Items with high technical parameter 	<ul style="list-style-type: none"> High quality Customized solutions 	<ul style="list-style-type: none"> Innovative products High quality AEC-Q200 available 	<ul style="list-style-type: none"> Famous brand identity Wide product portfolio

Rutronik

Focus Products	<ul style="list-style-type: none"> SMD, radial and snapin parts for standard solution 	<ul style="list-style-type: none"> SMD, radial and snapin parts for standard solution 	<ul style="list-style-type: none"> SMD, radial and polymer for: high temperature, long life, lowESR, high ripple 	<ul style="list-style-type: none"> SMD, radial and polymer for: high temperature, long life, lowESR, high ripple 	<ul style="list-style-type: none"> SMD, radial and snapin parts for standard solution 	<ul style="list-style-type: none"> Radial and snapin supplier for standard and high-end solutions 	<ul style="list-style-type: none"> Snapin capacitors 	<ul style="list-style-type: none"> SMD and axial for: high temperature, long life, lowESR, high ripple 	<ul style="list-style-type: none"> SMD, radial and snapin parts for standard solution
Applications	<ul style="list-style-type: none"> Consumer market Standard industrial applications 	<ul style="list-style-type: none"> Consumer market Standard industrial applications 	<ul style="list-style-type: none"> Automotive Digital consumer market Industrial market Embedded boards 	<ul style="list-style-type: none"> Automotive Digital consumer market Lighting products Industrial market 	<ul style="list-style-type: none"> Consumer market Standard industrial applications 	<ul style="list-style-type: none"> Consumer market Power supply and lighting applications Standard and high-end industrial applications 	<ul style="list-style-type: none"> Industrial applications Automotive applications 	<ul style="list-style-type: none"> Automotive Industrial market 	<ul style="list-style-type: none"> Consumer market Standard industrial applications
Advantages for the Customer	<ul style="list-style-type: none"> Additional source for low cost endproducts Short leadtime Reliable supplier and strategic partner for long-term growth 	<ul style="list-style-type: none"> Additional source for low cost endproducts Short leadtime Reliable supplier with long-term strategic partnership 	<ul style="list-style-type: none"> Sales & technical support located in Europe Stock availability Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Customer oriented solution Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Stock availability Rutronik has the largest Samwha E-Cap stock in Europe Sales support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Reliable supplier with good pricing Technical support in Europe Technical comparable to Japanese brands 	<ul style="list-style-type: none"> Customized solutions Support located in Europe 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Line Management established 	<ul style="list-style-type: none"> Sales & technical support located in Europe Short leadtime Important partnership and strategic long-term cooperation



Film Capacitors



Film Capacitors	AVX	BM	Iskra	Panasonic	TDK EPCOS	VISHAY	WIMA
SMD Capacitors	★						★
Leaded Capacitors					★	★	★
Interference Suppression Capacitors			★		★	★	
Power Capacitors			★		★	★	★
Motor Capacitors					★		

Supplier Information							
Headquarters	USA	China	Slovenia	Japan	Japan	USA	Germany
Strength	<ul style="list-style-type: none"> High quality Good technical support 	<ul style="list-style-type: none"> Innovative products 	<ul style="list-style-type: none"> Flexibility Short lead-time Experience 	<ul style="list-style-type: none"> High quality Experience 	<ul style="list-style-type: none"> Experience Wide portfolio 	<ul style="list-style-type: none"> Innovative products Wide product portfolio Leading at film capacitors 	<ul style="list-style-type: none"> Innovative products Customized solutions High quality products
Rutronik							
Focus Products	<ul style="list-style-type: none"> SMD capacitors 	<ul style="list-style-type: none"> X2 RFI capacitors DC-Link capacitors 	<ul style="list-style-type: none"> Y2 RFI capacitors Motor capacitors 	<ul style="list-style-type: none"> SMD capacitors 	<ul style="list-style-type: none"> X2 RFI capacitors (standard & high reliability) Leaded standard capacitors Medium power (DC-Link) 	<ul style="list-style-type: none"> X2 RFI capacitors (standard & high reliability) Leaded standard capacitors Medium power (DC-Link) 	<ul style="list-style-type: none"> SMD capacitors Standard leaded & Pulse capacitors Medium power (DC-Link) Snubber capacitors
Applications	<ul style="list-style-type: none"> Industrial applications Automotive electronic Power supply medical Alternative energy Wind power / photovoltaic cells 						
Advantages for the Customer	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Support located in Germany New source via Rutronik 	<ul style="list-style-type: none"> Customized solutions Stock availability / lead-time Support located in Europe 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> customized solutions Support located in Europe 	<ul style="list-style-type: none"> Stock availability Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Germany Important partnership and strategic long-term cooperation

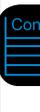


Electric Double Layer Capacitors (EDLC)

	AVX	EATON <i>Powering Business Worldwide</i>	KORCHIP <i>ENERGY STORAGE INNOVATOR</i>	Maxwell <i>TECHNOLOGIES</i> <i>Enabling Energy's Future™</i>
Electric Double Layer Capacitors (EDLC)				
Flat packs	★			
SMD / Coins		★	★	
Radial	★	★		★
Screw / Weldable	★			★
Module	★			★

Supplier Information				
Headquarters	USA	Japan	Korea	USA
Strength	<ul style="list-style-type: none"> High quality Long experience for Pulse 	<ul style="list-style-type: none"> High quality Product range (SMD) Well known on the market 	<ul style="list-style-type: none"> Competitive in coin cells and small radial cells 	<ul style="list-style-type: none"> High quality Strong technical and commercial support
Rutronik				
Focus Products	Pulse Capacitors	Coin Cells / 3V series	Coin Cells	1F - 3400F & Modules
Applications	<ul style="list-style-type: none"> Bar code scanners Metering personal locators (GPS/GSM) 	<ul style="list-style-type: none"> RTC (e.g. white goods) Metering 	<ul style="list-style-type: none"> RTC (e.g. white goods) Metering UPS 	<ul style="list-style-type: none"> Metering UPS Transportation Automated Guided Vehicle (AGV)
Advantages for the Customer	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe 	<ul style="list-style-type: none"> Additional source for low cost endproducts 	<ul style="list-style-type: none"> Local sales and technical support

★ Focus program Product available

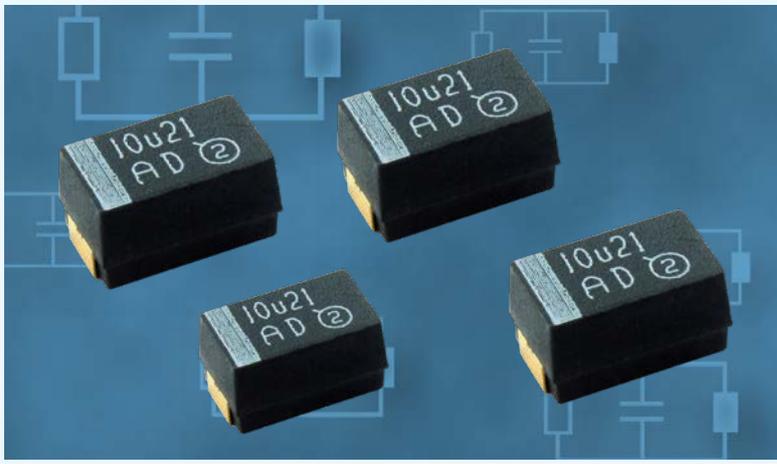




	Panasonic	SAMWHA	sech
Electric Double Layer Capacitors (EDLC)			
Flat packs			★
SMD / Coins			
Radial			★
Screw / Weldable			★
Module			★

Supplier Information			
Headquarters	Japan	Korea	Switzerland
Strength	<ul style="list-style-type: none"> High quality Long experience Well known on the market 	<ul style="list-style-type: none"> Wide product range 	<ul style="list-style-type: none"> High-performance ultracapacitors with ultra low ESR State-of-the-art single cell voltage of 3V Customized systems and solutions
Rutronik			
Focus Products	Coin Cells	Small Radial	Ultracapacitors with 3V
Applications	<ul style="list-style-type: none"> RTC (e.g. white goods) Metering 	<ul style="list-style-type: none"> UPS Emergency lights Door actuators Road signs Automated Guided Vehicle (AGV) 	<ul style="list-style-type: none"> Automotive Transportation Grid UPS Industrial
Advantages for the Customer	<ul style="list-style-type: none"> Stock program for high-runner parts Sales & technical support located in Munich 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Worldwide support Tailor-made solutions Sales and technical support located in Switzerland

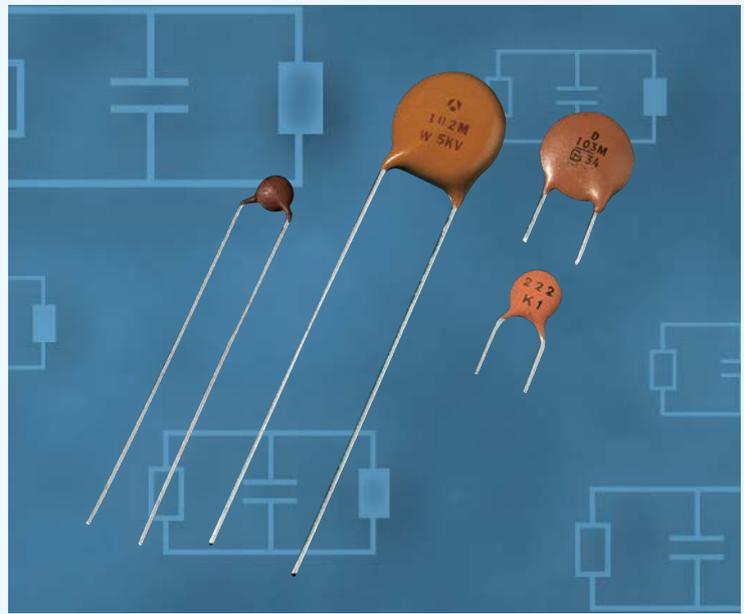
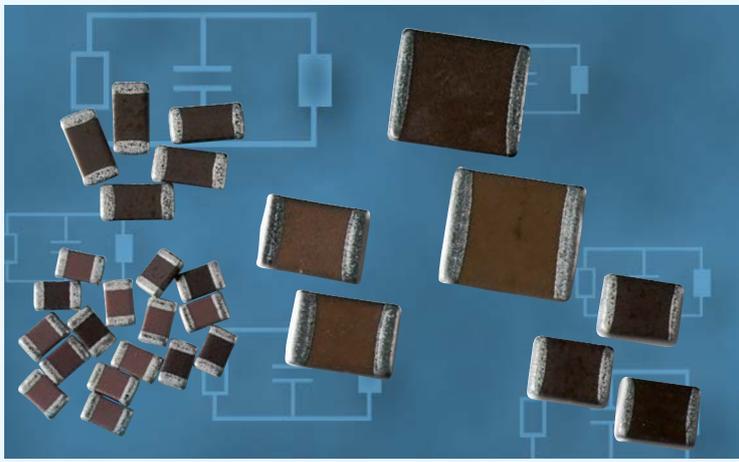
★ Focus program Product available



Tantalum & Polymer Tantalum Capacitors

		Panasonic		
Tantalum & Niobium Capacitors				
Standard SMD Capacitors	★			★
SMD Low ESR Capacitors	★			★
SMD Polymer Capacitors	★	★		★
SMD Conformal Coated				★
SMD Automotive & High Temperature	★			★
Leaded Capacitors	★			
Niobium Capacitors	★			

Supplier Information				
Headquarters	USA	Japan	Korea	USA
Strength	<ul style="list-style-type: none"> High product quality Innovative products High voltage polymer tantalum capacitors AEC-Q200 available 	<ul style="list-style-type: none"> Wide product portfolio in polymer tantalum capacitors 15 years experience AEC-Q200 available 		<ul style="list-style-type: none"> High product quality Innovative products Wide product portfolio AEC-Q200 available
Rutronik				
Focus Products	<ul style="list-style-type: none"> Polymer tantalum capacitors High reliability e.g. Automotive, high temperature (up to 200°C) Low ESR Ultra Low ESR 	<ul style="list-style-type: none"> Polymer tantalum capacitors 	<ul style="list-style-type: none"> Polymer tantalum capacitors 	<ul style="list-style-type: none"> High reliability e.g. automotive, high temperature (up to 200°C) Low ESR Ultra Low ESR D & E case sizes
Applications	<ul style="list-style-type: none"> Automotive (sensors, door control, tire pressure monitoring, climate control) Industry (power supply, automatic door lock, fire detectors) Measuring (positioning systems, flow meter, gas monitor) Lighting (LED headlamp, traffic lights, display & signs) Medical engineering (hearing aid device, heart pacemaker, handheld devices) 			
Advantages for the Customer	<ul style="list-style-type: none"> Stock availability Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe 	<ul style="list-style-type: none"> Stock availability Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established



Ceramic Capacitors



Ceramic Capacitors

	AVX	muRata	SAMSUNG	TDK	VISHAY	YAGEO
Standard Multilayer Chip Capacitors			★			★
High Cap MLCC		★	★			★
Automotive MLCC	★	★	★	★		
High Voltage MLCC			★			★
Multilayer Leaded Capacitors (MLC)		★			★	
Singlelayer Leaded					★	
Suppression/Safety Capacitors		★				
Special Capacitors (i.e. Stacked MLCC)	★	★		★	★	

Supplier Information

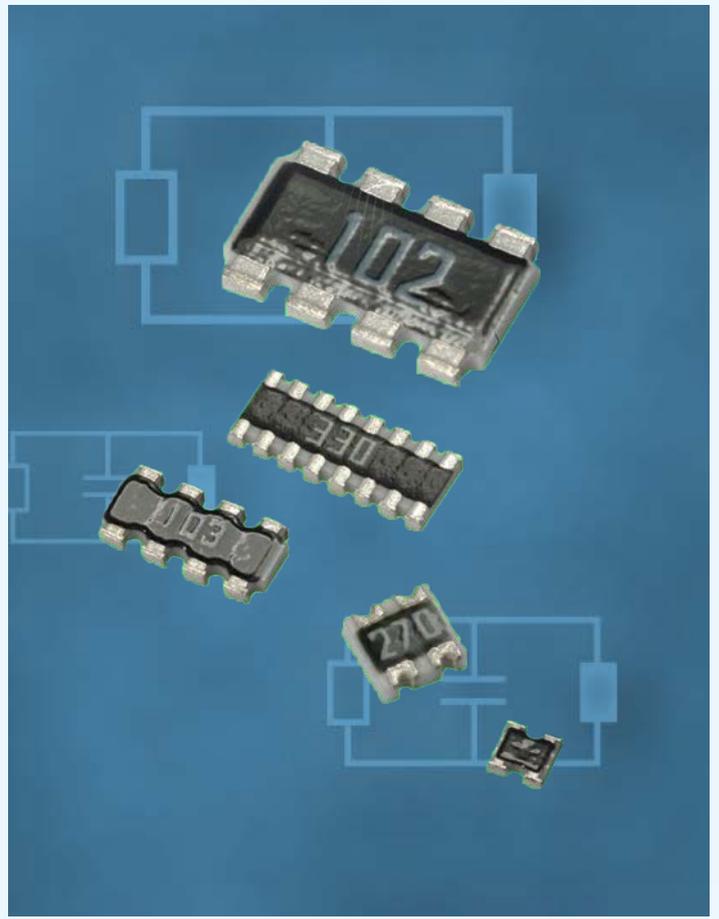
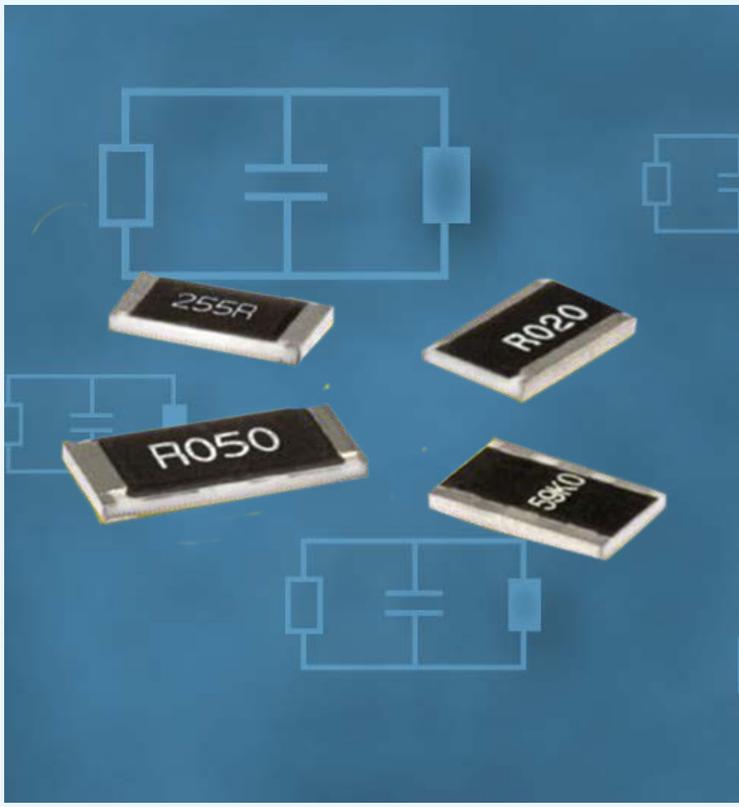
Headquarters	USA	Japan	Korea	Japan	USA	Taiwan
Ranking	<ul style="list-style-type: none"> Top 10 MLCC manufacturer worldwide 	<ul style="list-style-type: none"> Top 10 MLCC manufacturer worldwide 	<ul style="list-style-type: none"> Top 10 MLCC manufacturer worldwide 	<ul style="list-style-type: none"> Top 10 MLCC manufacturer worldwide 	<ul style="list-style-type: none"> Top 10 MLCC manufacturer worldwide 	<ul style="list-style-type: none"> Top 10 MLCC manufacturer worldwide
Strength	<ul style="list-style-type: none"> Innovative products (flexiterm, flexisafe, high temperature, stacked MLCC) Longtime experience in automotive business Own ceramic powder production 	<ul style="list-style-type: none"> Innovative products (high caps, soft termination, stacked MLCC, high frequency) Long-time experience in automotive business Own ceramic powder production 	<ul style="list-style-type: none"> Innovative products (high caps, soft termination, open mode, high frequency) Shows a remarkable technology leap in R&D of high cap MLCC over the last years Own ceramic powder production 	<ul style="list-style-type: none"> Innovative products (stacked MLCC) Long-time experience in automotive business Own ceramic powder production 	<ul style="list-style-type: none"> Innovative products (All kind of special capacitors, a lot of customized solutions) Long-time experience in automotive business Own ceramic powder production 	<ul style="list-style-type: none"> Own ceramic powder production Expanding product-portfolio (automotive, soft term etc.)

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Focus Products	<ul style="list-style-type: none"> Automotive MLC Leaded High Rel and Advanced 	<ul style="list-style-type: none"> High caps Automotive MLC leaded Suppression/safety capacitor 	<ul style="list-style-type: none"> High caps Automotive Commodities 	<ul style="list-style-type: none"> Mega caps Automotive 	<ul style="list-style-type: none"> Suppression/safety capacitor Singlelayer leaded MLC leaded Special capacitors (plates, pots, discs, etc.) 	<ul style="list-style-type: none"> High caps Commodities High volt
Applications	<ul style="list-style-type: none"> Automotive (engine control, sensors, entertainment) Industrial (power supply, fire detectors) Measuring (gas monitor, flow meter) Lighting (LED headlamp, display & signs) Consumer engineering (home electric, etc) 					
Advantages for the Customer	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation

★ Focus program

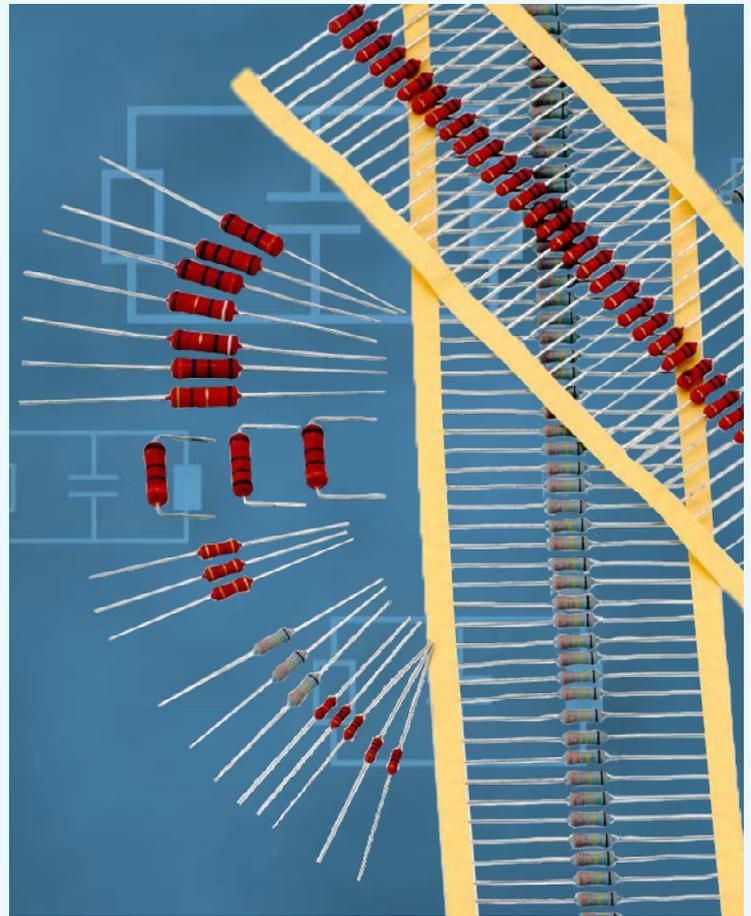
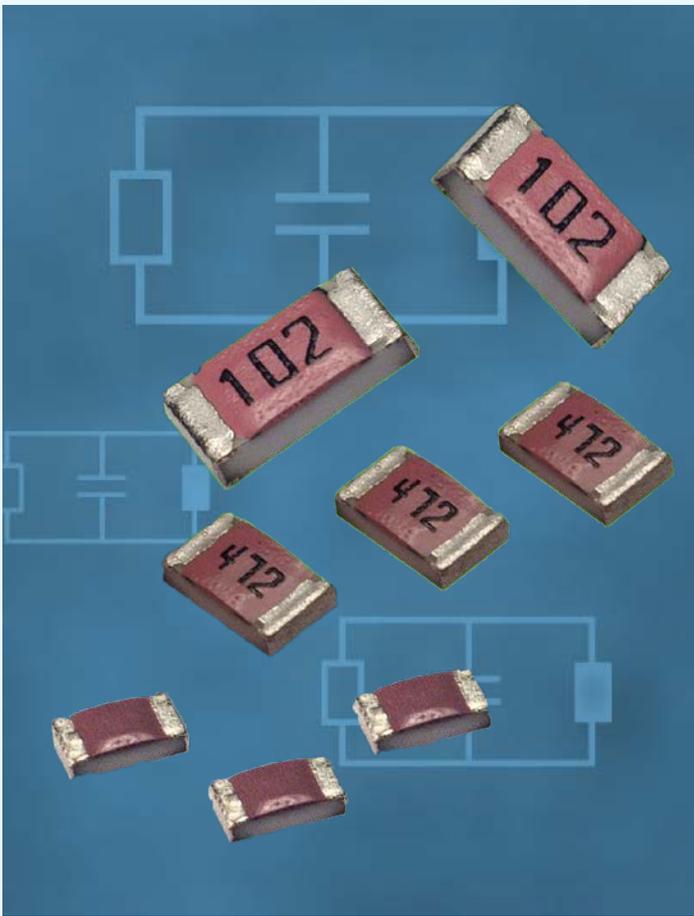
Product available



Fixed Resistors

	A S J	釜屋電機株式会社 KAMAYA ELECTRIC CO., LTD.	KOA Your Partner Solution	KRAH www.krah.com	Panasonic
Fixed Resistors					
Thickfilm	★				
Thinfilm			★		
Shunt			★		★
Special					
MELF					
Leaded Resistors					
Low Power Wirewound Res.					
High Power Wirewound Res.				★	
Resistor Arrays	★				

Supplier Information					
Headquarters	Singapore	Japan	Japan	Germany	Japan
Strength	<ul style="list-style-type: none"> Short delivery times 		<ul style="list-style-type: none"> Broad portfolio High product quality Innovative products 	<ul style="list-style-type: none"> Broad portfolio Innovative products 	<ul style="list-style-type: none"> Very good technical and commercial solutions High product quality
Rutronik					
Focus Products	<ul style="list-style-type: none"> Thickfilm arrays Thickfilm 	<ul style="list-style-type: none"> Leaded resistor (carbon composition only) 	<ul style="list-style-type: none"> Thinfilm Shunt 	<ul style="list-style-type: none"> Power resistors 	<ul style="list-style-type: none"> Shunt
Applications	<ul style="list-style-type: none"> Automotive (engine control, airbag, climate control) Industrial (power supplies / tools, scanner, current detection) Medical (monitoring system, electronic scales, diagnostic) Consumer (home electronic, lighting control) 			<ul style="list-style-type: none"> Industrial Alternative energy Medical 	<ul style="list-style-type: none"> Automotive Industrial Medical Consumer
Advantages for the Customer	<ul style="list-style-type: none"> Rutronik is the only distributor in Europe Stock available 		<ul style="list-style-type: none"> Sales & technical support located in Europe Partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Partnership and strategic long-term cooperation Stock availability for shunt resistors



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Fixed Resistors						
	ROHM	SSMSUSUMU	Viking	VISHAY	VITROHM	YAGEO
Thickfilm						★
Thinfilm		★		★		★
Shunt				★		★
Special				★		★
MELF			★	★		
Leaded Resistors						★
Low Power Wirewound Res.				★	★	★
High Power Wirewound Res.				★		
Resistor Arrays						★

Supplier Information						
Headquarters	Japan	Japan	Taiwan	USA	Portugal	Taiwan
Strength	<ul style="list-style-type: none"> High product quality 	<ul style="list-style-type: none"> Broad portfolio, high product quality Innovative products State-of-the-art technology based on long experience Superior long term reliability under harsh environment Unique structure of shunt resistors with excellent thermal behavior 	<ul style="list-style-type: none"> Broad product portfolio Innovative products 	<ul style="list-style-type: none"> Broad portfolio High product quality Innovative products AEC-Q200 available 	<ul style="list-style-type: none"> Broad portfolio Production in Europe 	<ul style="list-style-type: none"> Broad portfolio Biggest supplier for commodities
Rutronik						
Focus Products		<ul style="list-style-type: none"> Thin film 	<ul style="list-style-type: none"> MELF 	<ul style="list-style-type: none"> Thinfilm Shunt MELF Fusible wirewound safety resistors 	<ul style="list-style-type: none"> Wirewound resistors Fusible wirewound safety resistors Ceramic wirewound resistors (axial, radial) 	<ul style="list-style-type: none"> Thickfilm Thinfilm Shunt Leaded resistors Arrays
Applications	<ul style="list-style-type: none"> Automotive (engine control, airbag, climate control) Industrial (power supplies / tools, scanner, current detection) 			<ul style="list-style-type: none"> Medical (monitoring system, electronic scales, diagnostic) Consumer (home electronic, lighting control) 		
Advantages for the Customer	<ul style="list-style-type: none"> Sales & technical support located in Europe Linemanagement established 	<ul style="list-style-type: none"> Sales & technical support located in Europe Ultra-precision thin film resistors with affordable prices Various custom solution for thin film network resistors 		<ul style="list-style-type: none"> Sales & technical support located in Europe Partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Partnership and strategic long-term cooperation Stock availability 	<ul style="list-style-type: none"> Sales & technical support located in Europe Partnership and strategic long-term cooperation Stock available

★ Focus program Product available

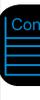


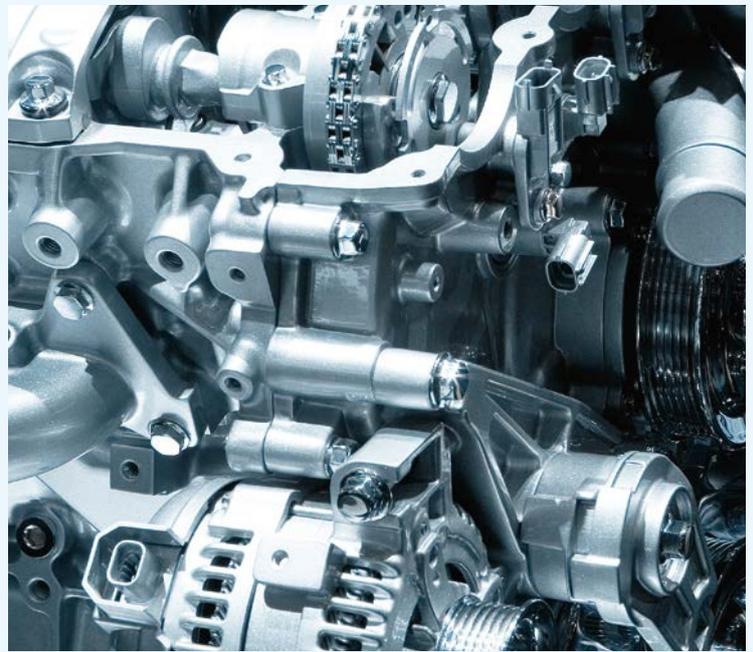
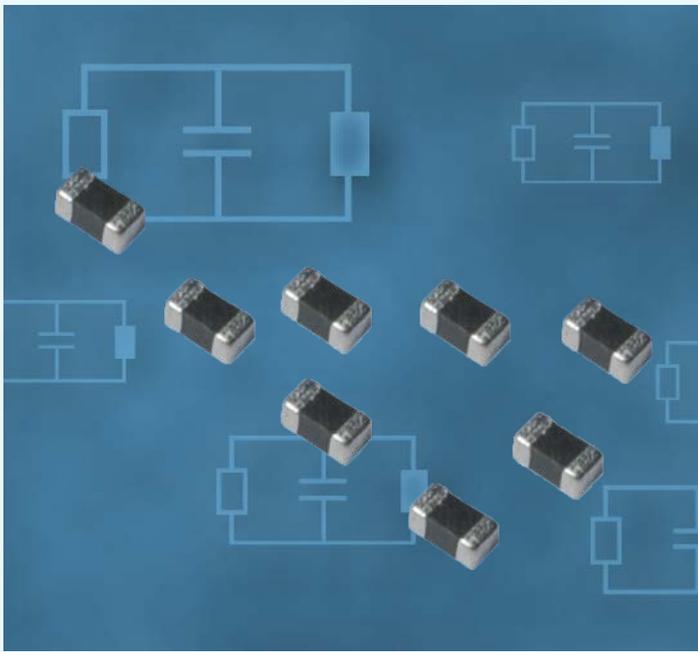
Nonlinear & Variable Resistors



Nonlinear Resistors								
PTC Thermistors			★					
NTC Thermistors	★		★					
Thermistor Probes			★					
Platin Sensors				★				
SMD Varistors	★		★			★		★
THT Varistors			★					★
Variable Resistors								
Potentiometers								
Trimmers								

Supplier Information									
Headquarters	USA	Ireland	Japan	Germany	Taiwan	Slovenia	Japan	USA	
Strength	<ul style="list-style-type: none"> High product quality Good technical support AEC-Q200 available 	<ul style="list-style-type: none"> Broad product portfolio 	<ul style="list-style-type: none"> High product quality 	<ul style="list-style-type: none"> Establishing customized solutions 	<ul style="list-style-type: none"> Broad product portfolio Able to cross products of nearly all other suppliers 	<ul style="list-style-type: none"> Broad product portfolio High quality AEC-Q200 available Production in Europe Short delivery times 	<ul style="list-style-type: none"> Broad product portfolio High quality Innovative products 	<ul style="list-style-type: none"> Broad product portfolio High quality Samples are available at short notice Short delivery times AEC-Q200 available 	<ul style="list-style-type: none"> Broad product portfolio High quality Samples are available at short notice Short delivery times AEC-Q200 available
Rutronik									
Focus Products	<ul style="list-style-type: none"> SMD varistors NTC thermistors 	<ul style="list-style-type: none"> SMD varistors 	<ul style="list-style-type: none"> Trimmers 	<ul style="list-style-type: none"> Platin sensors 	<ul style="list-style-type: none"> THT varistors Thermistor probes 	<ul style="list-style-type: none"> SMD varistors 	<ul style="list-style-type: none"> PTC Thermistors 	<ul style="list-style-type: none"> SMD & THT varistors 	
Applications	<ul style="list-style-type: none"> Automotive Industrial Consumer market 	<ul style="list-style-type: none"> Medical Industrial 	<ul style="list-style-type: none"> Consumer Industrial 	<ul style="list-style-type: none"> Consumer Automotive Medical 	<ul style="list-style-type: none"> Industrial applications Consumer market 	<ul style="list-style-type: none"> Automotive Industrial Alternative energy 	<ul style="list-style-type: none"> Automotive Industrial Medical 	<ul style="list-style-type: none"> Automotive Industrial Medical 	<ul style="list-style-type: none"> Automotive Industrial Medical
Advantages for the Customer	<ul style="list-style-type: none"> Stock availability Sales & technical support located in Europe Partnership and strategic long-term cooperation 			<ul style="list-style-type: none"> Sales & technical support located in Europe 		<ul style="list-style-type: none"> Sales & technical support located in Europe 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation Stock availability 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation Stock availability





Nonlinear Resistors

PTC Thermistors	★					★	
NTC Thermistors	★		★			★	
Thermistor Probes						★	
Platin Sensors							
SMD Varistors							
THT Varistors							

Variable Resistors

Potentiometers				★		★	
Trimmers							

Supplier Information

Headquarters	Japan	Japan	Japan	Spain	Japan	USA	Japan
Strength	<ul style="list-style-type: none"> Broad product portfolio High quality AEC-Q200 available Samples are available at short notice 	<ul style="list-style-type: none"> High product quality 	<ul style="list-style-type: none"> High technical and commercial support 	<ul style="list-style-type: none"> Production in Europe Short delivery times Customized products available 	<ul style="list-style-type: none"> High product quality AEC-Q200 available Innovative products 	<ul style="list-style-type: none"> Broad product portfolio High quality AEC-Q200 available Innovative products Good technical support 	<ul style="list-style-type: none"> High product quality AEC-Q200 available Innovative products
Rutronik							
Focus Products	<ul style="list-style-type: none"> Thermistors 	<ul style="list-style-type: none"> Trimmers 	<ul style="list-style-type: none"> SMD & THT varistors NTC 	<ul style="list-style-type: none"> Potentiometer 	<ul style="list-style-type: none"> SMD varistors NTC 	<ul style="list-style-type: none"> NTC & PTC Thermistors Platin sensors Thermistor probes 	<ul style="list-style-type: none"> SMD varistors NTC
Applications	<ul style="list-style-type: none"> Automotive Industrial Consumer market 	<ul style="list-style-type: none"> Consumer Industrial 	<ul style="list-style-type: none"> Industrial Consumer 	<ul style="list-style-type: none"> Automotive Industrial Consumer market 	<ul style="list-style-type: none"> Consumer Industrial 	<ul style="list-style-type: none"> Automotive Industrial Medical Alternative energy 	<ul style="list-style-type: none"> Consumer Industrial
Advantages for the Customer	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established 		<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Stock availability Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation



Inductors & Ferrites

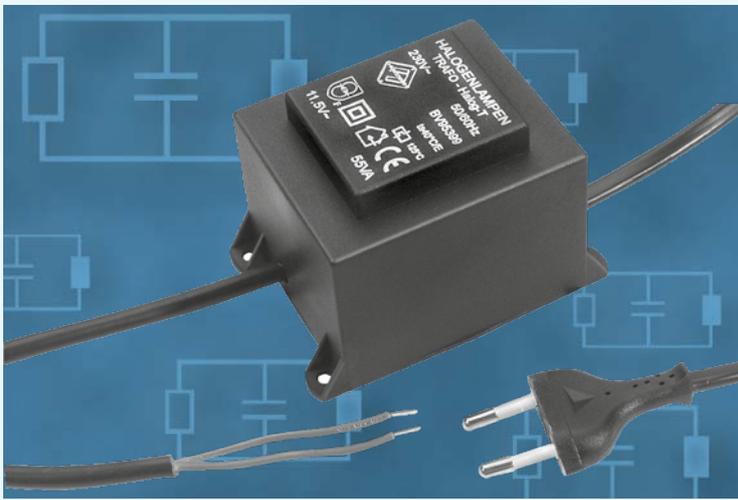
		 CHILSIN ELECTRONICS CORP.		 INNOVATOR IN ELECTRONICS	Panasonic
Inductors & Ferrites					
Power/ RF/ Storage Chokes		★	★	★	
Common Mode Choke			★	★	
Current Sense Transformer					
Ferrites					
Ferrite Beads				★	
EMI Filters				★	
Ferrite Cores			★		

Supplier Information					
Headquarters	Taiwan	Taiwan	Japan	Japan	Japan
Strength	<ul style="list-style-type: none"> Customer specific parts 	<ul style="list-style-type: none"> Automotive certified by DIN ISO/TS 16949 AEC-Q200 on demand Wide product portfolio Inhouse powder mixing technology 	<ul style="list-style-type: none"> Well-known global player AEC-Q200 certified Wide product portfolio 	<ul style="list-style-type: none"> Wide portfolio High quality Partially automotive certification AEC-Q200 Innovative products 	<ul style="list-style-type: none"> Ultra high power induction Designed for harsh environments
Rutronik					
Focus Products	<ul style="list-style-type: none"> Leaded inductors 	<ul style="list-style-type: none"> Inductors Power chokes Multilayer 	<ul style="list-style-type: none"> Inductors Power chokes Multilayer 	<ul style="list-style-type: none"> Inductors Power chokes EMI Filter Multilayer 	<ul style="list-style-type: none"> Power chokes Inductors
Applications	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit 	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit 	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit 	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit 	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit
Advantages for the Customer	<ul style="list-style-type: none"> Attractive price-performance ratio 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Sales & technical support located in Europe Stock program available 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Stock program available Sales & technical support located in Europe Line Management established 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation



Inductors & Ferrites					
Power/ RF/ Storage Chokes	★			★	★
Common Mode Choke	★			★	
Current Sense Transformer	★				
Ferrites					
Ferrite Beads				★	
EMI Filters					
Ferrite Cores					

Supplier Information					
Headquarters	USA	Korea	Japan	Japan	USA
Strength	<ul style="list-style-type: none"> Innovative products Strong partner of controller manufacturer Automotive certification AEC-Q200 	<ul style="list-style-type: none"> Worldwide leader of MLCC technology transfer to inductors 	<ul style="list-style-type: none"> Strong partner of custom inductors Good technical support Automotive certified by DIN ISO/TS 16949 Wide product portfolio 	<ul style="list-style-type: none"> Well-known global player AEC-Q200 certified Wide product portfolio 	<ul style="list-style-type: none"> Wide product portfolio on SMD Power Inductors for automotive
Rutronik					
Focus Products	<ul style="list-style-type: none"> Inductors Current sensors Power chokes 	<ul style="list-style-type: none"> Multilayer inductors 	<ul style="list-style-type: none"> Power chokes Wirewound Inductors 	<ul style="list-style-type: none"> Inductors Power chokes Multilayer 	<ul style="list-style-type: none"> Power chokes
Applications	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit 	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit 	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit 	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit 	<ul style="list-style-type: none"> High frequency EMI prevention Suppression of noise in power line, resonance circuit, PLL circuit
Advantages for the Customer	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Sales & technical support located in Europe 		<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Sales & technical support located in Europe Stock program available 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Sales & technical support located in Europe Stock program available 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established



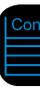
Transformers

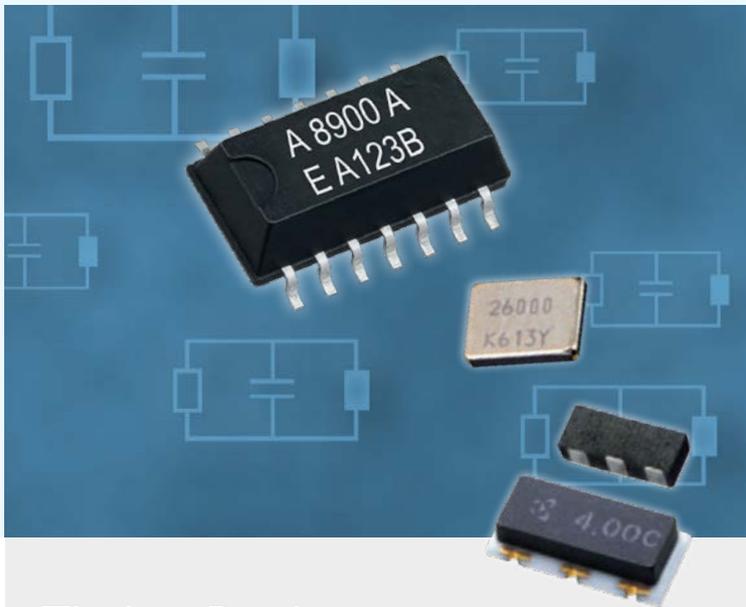


Ferrites Transformers							
RF/ Power Transformers	★	★		★			
Telecom & Datacom Transformers				★			
Iron Laminated Transformers							
50-60Hz Transformers	★						

Supplier Information							
Headquarters	Germany (Japan)	Hong Kong	Japan	USA	Japan	Japan	USA
Strength	<ul style="list-style-type: none"> Good technical support Very good quality level Reliable supplier 	<ul style="list-style-type: none"> Short lead time Good quality level Good technical support 	<ul style="list-style-type: none"> High quality Innovative products 	<ul style="list-style-type: none"> Innovative products Strong partner of IC manufacturer Automotive certification AEC-Q200 	<ul style="list-style-type: none"> Strong partner of customized inductors Good technical support Automotive certified by DIN ISO/TS 16949 	<ul style="list-style-type: none"> Well-known global player 	<ul style="list-style-type: none"> Well-known global player
Rutronik							
Focus Products	<ul style="list-style-type: none"> 230V/115V transformers SMPS transformers 	<ul style="list-style-type: none"> 230V/115V transformers SMPS transformers 	<ul style="list-style-type: none"> SMPS transformers 	<ul style="list-style-type: none"> SMPS transformers Network transformers 	<ul style="list-style-type: none"> SMPS transformers 	<ul style="list-style-type: none"> SMPS transformers 	<ul style="list-style-type: none"> SMPS transformers
Applications	<ul style="list-style-type: none"> Power supply DC-DC converter 	<ul style="list-style-type: none"> Power supply DC-DC converter 	<ul style="list-style-type: none"> Power supply DC-DC converter 	<ul style="list-style-type: none"> Power supply DC-DC converter Telecom Datacom Ethernet CAN 	<ul style="list-style-type: none"> Power supply DC-DC converter 	<ul style="list-style-type: none"> Power supply DC-DC converter 	<ul style="list-style-type: none"> Power supply DC-DC converter
Advantages for the Customer	<ul style="list-style-type: none"> Sales & technical support located in Germany Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Sales & technical support located in Europe Line Management established 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Stock programm available Support located in Europe 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation Support located in Europe 	<ul style="list-style-type: none"> Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established

★ Focus program Product available



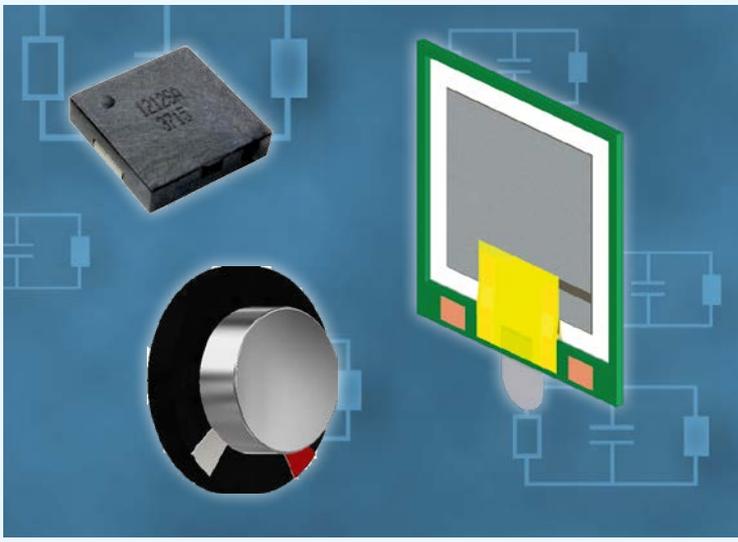


Timing Devices

	KYOCERA	EPSON EXCEED YOUR VISION	HKC 香港晶體	DIODES INCORPORATED	muRata INNOVATOR IN ELECTRONICS
Timing Devices					
Crystal	★	★	★		★
Oscillator	★	★			
Real Time Clock		★			
Resonators					
SMD Resonators					
Leaded Resonators					
Filter					
Ceramic Filter					★
SAW Filter					★

Supplier Information

Headquarters	Japan	Japan	Hong Kong	USA	Japan
Strength	<ul style="list-style-type: none"> No.2. market share holder for timing devices in the automotive sector Design and evaluation service 	<ul style="list-style-type: none"> No.1. market share holder for timing devices in the industrial sector Most vertically integrated crystal supplier 	<ul style="list-style-type: none"> Real manufacturer of quartz crystal products Design and evaluation service Manufacturer of quartz measurement equipment (Kolinker Group) 	<ul style="list-style-type: none"> Real manufacturer of quartz crystal products Design and evaluation service 	<ul style="list-style-type: none"> No.1 market share holder for resonators Big player in automotive
Rutronik					
Focus Products	<ul style="list-style-type: none"> kHz-Crystal MHz-Crystal Oscillator 	<ul style="list-style-type: none"> kHz-Crystal MHz-Crystal Oscillator Real Time Clock 	<ul style="list-style-type: none"> kHz-Crystal MHz-Crystal 	<ul style="list-style-type: none"> kHz-Crystal MHz-Crystal Oscillator 	<ul style="list-style-type: none"> Resonator MHz-Crystal Filter
Applications	<ul style="list-style-type: none"> Automotive Automation Industrial Medical Security Wireless Telecom 	<ul style="list-style-type: none"> Automation Industrial Medical Security Wireless Telecom Automotive 	<ul style="list-style-type: none"> Automotive Automation Industrial Medical Security Wireless Telecom 	<ul style="list-style-type: none"> Automation Industrial Medical Security Wireless Telecom 	<ul style="list-style-type: none"> Automotive Automation Industrial Medical Home Appliance Communication
Advantages for the Customer	<ul style="list-style-type: none"> Stock availability Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established 	<ul style="list-style-type: none"> Approved reference designs for many IC brands Stock availability Sales & technical support located in Europe Important partnership and strategic long-term cooperation 	<ul style="list-style-type: none"> Stock availability Important partnership and strategic long-term cooperation Fast response for samples and customer specific products 	<ul style="list-style-type: none"> Fast sample availability Sales & technical support located in Europe Line Management established 	<ul style="list-style-type: none"> Stock availability Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established



Acoustic Components

			
Acoustic Components			
Buzzers	★	★	★
Microphones	★		★
Micro Speakers	★		★

Supplier Information			
Headquarters	Taiwan	Japan	USA
Strength	<ul style="list-style-type: none"> Market leader in acoustic components Industrial and automotive standard Customer specific solutions 	<ul style="list-style-type: none"> Well known global player Industrial and automotive standard 	<ul style="list-style-type: none"> Broad product portfolio Customer specific solutions
Rutronik			
Focus Products	<ul style="list-style-type: none"> Buzzer Micro speaker Electret condenser microphone 	<ul style="list-style-type: none"> Buzzer 	<ul style="list-style-type: none"> Buzzer Micro speaker Electret condenser microphone
Applications	<ul style="list-style-type: none"> Home appliances Consumer Safety / Security Medical Industrial Communication Automotive 	<ul style="list-style-type: none"> Automotive Automation Industrial Medical Home appliance Communication 	<ul style="list-style-type: none"> Home appliances Safety / Security Medical Industrial Communication Consumer
Advantages for the Customer	<ul style="list-style-type: none"> Sample support Stock availability Technical support 	<ul style="list-style-type: none"> Stock availability Sales & technical support located in Europe Important partnership and strategic long-term cooperation Line Management established 	<ul style="list-style-type: none"> Sample support Stock availability Important partnership and long-term cooperation Technical support

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AUTOMOTIVE Products

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- Drive Train
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- Consulting



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POWER Products

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**RUTRONIK
EMBEDDED**

Combine Technologies
Realize **EMBEDDED** Designs

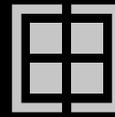
- Wireless
- Boards & Systems
- Displays
- Storage



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Discover the Internet of Things
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- Security
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