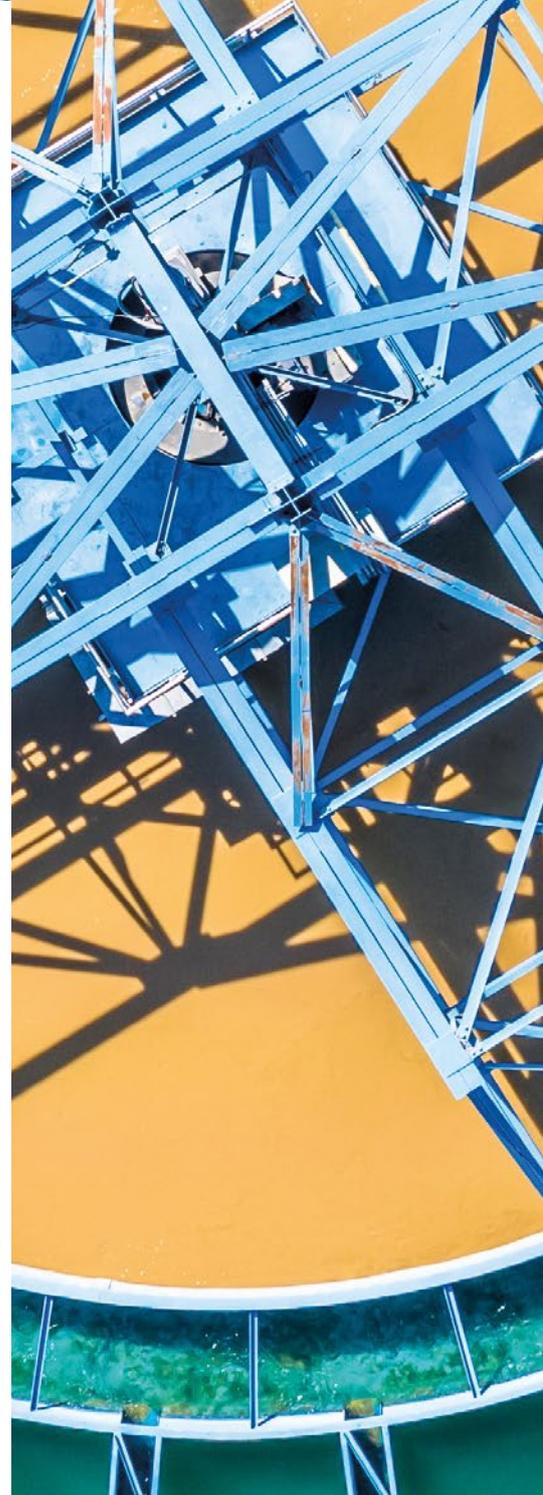




# IP&E News

1<sup>st</sup> Quarter 2023

ARROW



# Powerful Components for Renewables

The share of renewable energies is still increasing very rapidly. The reasons for this are obvious: on the one hand, it is about reducing CO2 emissions, on the other hand, it is about conserving valuable resources. Photovoltaics and wind energy are the two most important pillars of renewable energies.

## Photovoltaic

The further expansion of photovoltaics is a central core element of the energy transition. In addition, the need to balance supply and demand will result in increasing demand for storage systems (ESS), both in the domestic sector and on an industrial scale. These systems require inverters to convert the direct current generated by the photovoltaic system into alternating current so that the energy can be fed into the grid or into one's own household. Inverters require passive components with the highest reliability and resilience with long operating times.

Typical representatives here are EPCOS snap-in aluminum electrolytic capacitors for the DC link circuitry of inverters, which are characterized by great compactness, low ESR values and high ripple current capability. Because of the high DC voltages and currents, safe connection and disconnection of panel and EES systems is required. This is provided by the TDK HVCs (High-Voltage Contactors), which are designed for voltages of 1200 V and currents of 500 A.



Scan QR-Code for all relevant products for Photovoltaic.

### High-Voltage Contactor (HVC) Series

The necessary change to environmentally friendly use of energy leads to the high demand for high-voltage and high-current DC applications.

TDK offers the High-Voltage Contactors (HVC) series which meets the requirements for High-Voltage DC emergency disconnection applications up to 600 A in electric cars, trucks, busses and DC fast chargers and ESS (energy storage systems).



HVC series features excellent extinguishing characteristics in combination with a bipolar design for charging and discharging.



Scan QR-Code for more information.



## Wind Power

For years, wind power generation has been experiencing steady growth and, along with photovoltaics, is the most important core element of renewable energies. Modern wind turbines achieve outputs of more than 10 MW and operate with converters in order to always be operated at optimum performance even under changing wind conditions. TDK has been providing extremely reliable and durable components for this market segment for years.

Modern systems increasingly use fast-switching SiC-based semiconductors in the inverter unit. They place special demands on the DC link capacitors with regard to minimum ESL. TDK offers the new ModCap® HF (Series B25647) especially for this purpose, which is characterized by ESR values of only 8 nH. Thanks to the cubic design, these capacitors can be installed very close to the power semiconductors, which means that snubber capacitors are generally not required.

For photovoltaics and wind power, EMC is crucial. For this purpose, TDK offers a very wide range of special interference suppression capacitors as well as inductors and ferrites. But TDK's extensive portfolio also includes protective components such as varistors, inrush current limiters and temperature sensors for thermal monitoring.



Scan QR-Code for all relevant products for Wind Power.

### Power Capacitor Series

Power Capacitor Series B2569\* Resin Top is a DC link capacitor with high partial discharge (PD) for extinction voltage requirements (>1.6 kVac (10 pC)) specially designed for "Solar Inverter applications".



Their construction design UL approved with Metallized polypropylene film (Self-healing property) with Non-PCB (hard polyurethane resin) offers a high reliability together with long lifetime.

It is available with different terminal configurations (Male/female terminals) and electrical parameters with Voltage of 700 to 3000 V DC and Rated capacitance of 40 to 5500  $\mu$ F. Thanks to their simple design (round winding in an aluminum can), these widely used components offer high reliability at the same time.



Scan QR-Code for more information.

# IP&E by Arrow

## Providing components for success

### Components – EMEA

	Content
	<b>Arrow</b>
11	IP&E Linecard
22	Smart UV-C Disinfection
	<b>Amphenol</b>
5	Lighting Solutions
	<b>HellermannTyton</b>
7	Connector Clips
	<b>KOA</b>
6	High Precision & High Reliability Chip Resistors
	<b>KyoceraAVX</b>
8	Kyocera AVX Supercapacitors
	<b>Littelfuse</b>
9	Battery Fuses
	<b>Molex</b>
10	Connecting Patients to Healthcare Benefits
	<b>Panasonic Industry</b>
16	HE: A new Era of PCB based Power Relays
17	HE Series' Flagships: HE-R and HE-S
	<b>Panduit</b>
11	Highly Efficient Solar Solutions
	<b>Qualcomm</b>
18	Qualcomm® ultraBAW™ Filters for Wi-Fi 5 to 7 GHz
	<b>TDK</b>
2	Powerful Components for Renewables
15	Robust FILM Capacitors
	<b>TE Connectivity</b>
20	ECK: New 1,000 VDC Contactors
21	DDR5 DIMM Sockets
	<b>ZF</b>
7	Energy Harvesting Switches

# Lighting Solutions

## Building Automation and Smart Cities

Lighting plays a key role in smart cities and building automation. The use of LED Lighting products and systems is growing substantially for both new and existing applications. Amphenol is a leader in the commercial and industrial markets with an expanding range of lighting interconnect products.

Modern street lighting for smart cities come with sensors that sense live traffic and pedestrian information and feed this back to monitoring centers concerned about safety and resource utilization. Amphenol offers lighting connectors for dimming and sensor applications in IoT based street lighting, which is governed by two well-known lighting standards in the industry, ANSI/NEMA and Zhaga.

Beyond street and road lighting, modern indoor and outdoor lighting in automated buildings in commercial and industrial sectors are equipped with enhanced competences. Amphenol has designed Ethernet solutions that support Power over Ethernet (PoE), are capable of Cat5E performance, and protect against harsh weather with IP67 sealing.

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Orderable at [arrow.com](https://arrow.com)

– FLA-R4162-30



Scan QR-Code for all relevant products for Lighting Solutions.



## IP67 Sealed Waterproof Wire-to-wire Connector

FLH Series Mini Sealed 2.50mm pitch connectors provide a wire-to-wire IP67 sealing in mated conditions. Its waterproof characteristics make it ideal for applications in harsh environments. These connectors can generally be used in industrial, lighting appliances, HVAC and smart home. The compact design of FLH series is suitable for space-saving applications.

- Wire-to-wire IP67 sealing in mated and unmated conditions
- Compact design
- Easy installation
- RoHS compliant
- High current capabilities up to 7 A with 18AWG wire gauge



Scan QR-Code for more information.



# High Precision & High Reliability Chip Resistors

## Thin Film Technology – RN73R/RN73H-Series

KOA's RN73H-series thin-film chip resistors have been designed to offer highest precision resistor solutions for tough environments, especially in automotive and industrial applications. Tolerances are available to  $\pm 0.05\%$  and TCR to as low as  $\pm 5$  ppm/K. A special protection layer in combination with a high heat resistant epoxy coating on top of the enhanced resistive element yields superior moisture stability.

### Features and Benefits

- $\pm 0.05\%$ ,  $\pm 0.1\%$ ,  $\pm 0.25\%$ ,  $\pm 0.5\%$  or  $\pm 1\%$
- T.C.R.:  $\pm 5$ ,  $\pm 10$ ,  $\pm 25$ ,  $\pm 50$  or  $\pm 100$  ppm/K
- $\pm 0.1\%$  ~ Long term stability
- $10\ \Omega$  to  $1.5\ M\Omega$
- 0402, 0603, 0805, 1206, 1210 inch
- Ni/Cr metal thin film resistive element
- Excellent heat resistance, high power rating
- RN73R: **NEW** standard thin film version
- RN73H: for automotive with improved moisture resistance by additional inner  $\text{SiO}_2$  protection
- EU-RoHS compliant, AEC-Q200 tested

### Applications

- Automotive
- Motor controls
- AC adapters
- A/D signal conversion
- Switching boards
- Industrial equipment and measurement
- Medical equipment



### Orderable at arrow.com

- RN73R (High Precision, High Heat Resistance, High Reliability)
- RN73H (High Precision, High Heat Resistance, High Reliability, Automotive)

## Thick Film Technology – RS73-Series

KOA's new RS73-series are ESD transient tolerant high precision and high reliability resistors using thick film technology. The RS73-series is ideal for precision designs such as high-accuracy sensing or voltage detection circuits, where ESD sensitivity is an issue. This new series also features excellent long term stability. It is an ideal alternative in applications where thin film precision devices cannot be used.

### Features and Benefits

- $\pm 0.1\%$ ,  $\pm 0.25\%$ ,  $\pm 0.5\%$  or  $\pm 1\%$
- T.C.R.:  $\pm 25$  or  $\pm 50$  ppm/K
- $\pm 0.2\%$  ~ Long term stability
- $10\ \Omega$  to  $10\ M\Omega$
- 0402, 0603, 0805, 1206 inch
- Ideal for applications where thin film is not suitable
- Anti-Sulfuration type also available (RS73-RT)
- EU-RoHS compliant, AEC-Q200 tested

### Applications

- High precision circuits for automotive and industrial
- Motor controls
- AC adapters
- A/D signal conversion
- Switching boards
- Industrial equipment & measurement
- Medical equipment



### Orderable at arrow.com

- RS73F: T.C.R.  $\pm 25$  ppm/K, 0402, 0603, 0805, 1206
- RS73G: T.C.R.  $\pm 50$  ppm/K, 0402, 0603, 0805, 1206
- RS73F\_RT: Anti-sulfuration, T.C.R.  $\pm 25$  ppm/K, 0402, 0603, 0805, 1206
- RS73G\_RT: Anti-sulfuration, T.C.R.  $\pm 50$  ppm/K, 0402, 0603, 0805, 1206

# Connector Clips

Speed and reliability are of the essence when it comes to fastening wiring harnesses on assembly lines. Precisely engineered connector clips ensure that cable sets can be installed quickly and firmly by hand, without the need for tools.

The most common mounting points for fastening the wiring and hoses in vehicles and machinery are round or oval holes in sheet metal. For these scenarios, HellermannTyton provides a wide range of standard connector clips with arrowhead and fir tree foot parts with low manual push-in forces. Integrated discs and wings assure optimal sealing results and a very firm hold.

Design constraints often dictate that holes or weld studs are unavailable as mounting points. In this case, EdgeClips come into their

own. The HellermannTyton connector clip portfolio includes EdgeClips for mounting on panel edges of varying thickness and includes a variety of geometries and orientations for ideal processing and alignment of the cable set.



High-quality connector clips ensure efficient assembly and easier maintenance

---

Orderable at [arrow.com](https://arrow.com)

- 151-01807
- 151-00429



# Energy Harvesting Switches



## Is the window open or closed?

With an integrated energy harvesting switch, the window handle can inform of each opening or closing of the window. The mechanical actuation of the RF Switch is created by the change of the window handle status, a small voltage is generated which transmits an RF protocol. This information is used to monitor the status

of the window. The completely batteryfree and wireless technology is flexible in use and can be realized with different RF protocols such as Bluetooth®, EnOcean® or customer-specific RF protocols. The system can also be used for diverse applications within building automation like lighting, shutters, doors and windows. With the help of the ZF products, comfort, safety and energy efficiency can be increased and improved in a smart way. Energy harvesting switches are a smart, energy-saving solution for the smart home. They work without batteries and are completely maintenance-free.

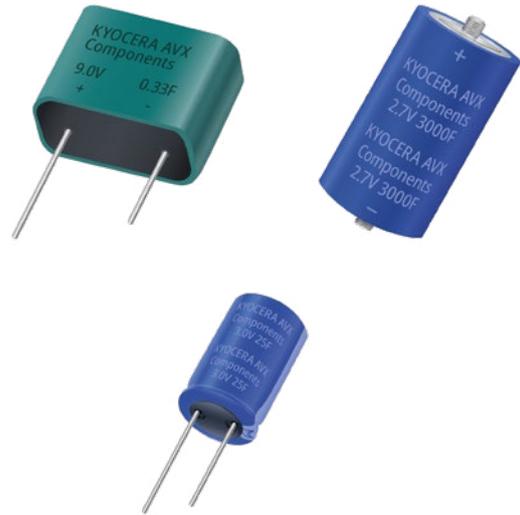
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Orderable at [arrow.com](https://arrow.com)

- AFIG-0007

# Kyocera AVX Supercapacitors

SuperCapacitors or Double Layer Capacitors have rapidly become recognized, not only as an excellent compromise between “electronic” or “dielectric” capacitors such as ceramic, tantalum, film and aluminum electrolytic, and batteries, but also as a valuable technology for providing a unique combination of characteristics, particularly very high pulse power and capacitance densities. Kyocera AVX is offering a wide row of the Supercapacitors. On below you can see the key features, applications and benefits offered by our portfolio.



## Key Features

- Low ESR – Always ready to provide the current that your application demands
- At least 500 000 charge/discharge cycles make these products ideal for long-life applications, where standard batteries wear off too soon
- Fast charging and discharging in level of seconds, compared to battery solution in levels of minutes/hours
- Superior reliability - KAVX passes 4000 hours life tests with results still within specification

## Key Applications

- Backup power supply – Providing energy to safely shutdown the application
- Pulse power handling – Assisting primary power supply in cases of high current peak consumption
- Energy harvesting – Optimizing the energy usage through power regeneration or capturing the power from the environment

## Key Benefits

- 6.3 mm diameter cell option available as the smallest in industry
- Molded case encapsulation option for better performance in humid environment
- Customized options available



Scan QR-Code for more information.

# Battery Fuses

## ESR Fuses

The Littelfuse Energy Storage Rack (ESR) series of fuses is designed specifically to protect battery racks in energy storage systems, inverters, and many other dc applications. The 1500 V dc high-speed square body fuse is extremely fast-acting to respond quickly to a range of fault currents to safeguard the battery module or other devices. This Class aBat partial range fuse has superior short circuit protection and a low minimum breaking capacity (MBC) – from 300 % or 3 times the fuse’s rated current to 175 kA (250 kA self-certified) – to cover a range of over currents that traditional high-speed partial range fuses do not protect against. The ESR fuse safely interrupts most faults in a battery storage system to avoid catastrophic failures and costly shutdowns.



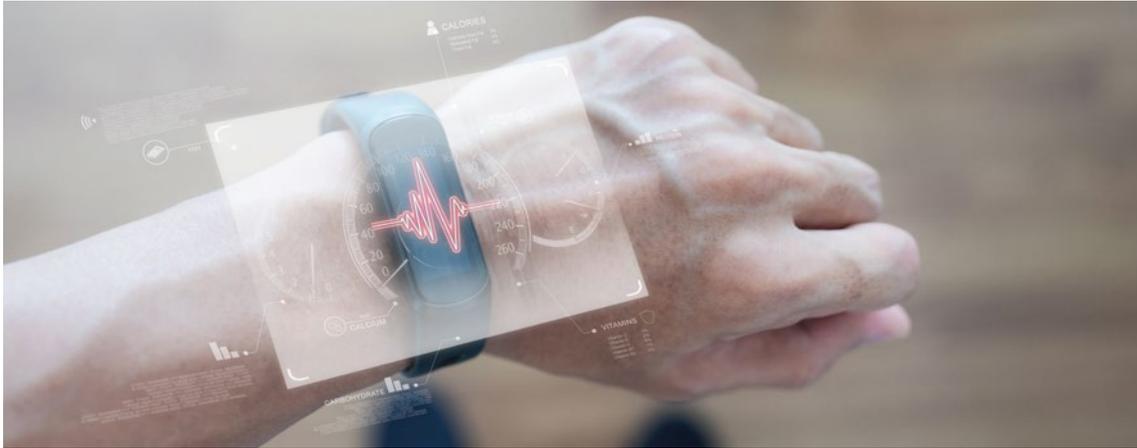
## PSX Fuses

Littelfuse PSX series 1500 V dc high-speed square body fuses are specially designed to protect battery energy storage systems (BESS), photovoltaic inverters, and many of dc applications such as dc common bus systems, larger industrial regenerative drives, rectifiers and, metal processing equipment. The PSX series fuses are extremely fast-acting, offering high-speed performance up to 1500 V dc, ranging from 80 A to 1400 A in the smallest NH XL package sizes. The PSX series is available with multiple mounting terminations including flush-end style, DIN-style and bolted-blade style. Visual blown fuse indication is standard on all fuses and optional micro-switch is available for external indication. The PSX series is certified to UL 248-13 and compliant with the IEC 60269-7 (Class aBat) battery protection fuse standard.



Orderable at [arrow.com](https://arrow.com)  
– Battery Fuses

# Connecting Patients to Healthcare Benefits



The familiarity of touchscreen controls has been embraced by many other markets. Even the most ordinary domestic equipment now boasts advanced controls, from washing machines to coffee makers. These innovations have been further enhanced by the other aspect of mobile phone technology that has become commonplace – the Internet of Things (IoT). For most of us, our smartphones provide a gateway to the IoT, allowing us to connect to our house when we are away, control our air conditioning or even start our car remotely.

The IoT has been made possible by the introduction of fast internet connections. The introduction of the 5G wireless communication network allows the sharing of an enormous volume of data without the need for physical connections. Devices can now use the internet wherever they are to exchange information with each other, responding quickly to changing needs and conditions. However, the true potential of the IoT lies outside the consumer market. Some of the most interesting innovations, with the potential to dramatically improve lives, can be found in the medical sector.

has used them to create the next generation of medical equipment. Their small size and portability mean that these sophisticated devices are no longer limited to the confines of the hospital. Instead, these latest medical devices can be carried or worn by the patient.

These devices have little in common with the large and cumbersome machines found in hospitals. Miniaturized electronic design and simple touch screen controls have enabled the new generation of wearable technology to give patients freedom to carry on their daily lives, even while being monitored and even treated as a function of the data...

## Improving Lives

The latest generation of remote healthcare technology is improving the lives of patients around the world. Wearable devices are allowing patients to live more fulfilled lives away from hospitals or health centers. They can also be monitored far more effectively on a minute-by-minute basis, allowing quicker diagnosis of developing conditions and providing improved outcomes.



### Innovations in Healthcare

The healthcare industry has embraced several of the innovations that originated in the smartphone market and



Scan the QR-Code to read how Molex and Arrow are delivering innovation opportunities for tomorrow's medical technology.









# Highly Efficient Solar Solutions

## Panduit Cable Ties – Nylon 612

Mechanical and chemical attributes of black weather resistant nylon 612 cable ties shall provide resistance to UV rays and chemical attack when exposed to various concentrations of salts, hydrocarbons, chlorinated hydrocarbons bases and acid rain.



Key Features and Benefits	
<b>Nylon 612 material</b>	Resist chemical attack when exposed to salts, hydrocarbons, chlorinated hydrocarbons, bases, and corrosive (zinc chloride, and diluted acids), and low temperature indoor or outdoor applications.
<b>Black UV resistant properties</b>	Allows ties to withstand exposure to sunlight; contributes to weathering life expectancy of 20 years*
<b>One-piece design with locking wedge</b>	Provides low thread force for easy and reliable installation; improves productivity and reduces operator fatigue
<b>Curved, tapered tip</b>	Threads easily into head; installs quickly for improved productivity

## Solar Clips

Solar farms consist of thousands of solar panels to provide a green power alternative. These solar panels are installed on metal frames that support the weight of the solar panels and provide a pathway to route wire and cabling from the solar panel to the inverter.



Panduit provides a variety of clips that can be used to improve installation efficiency in the field and offer a robust solution that can withstand the UV environment. These clips are manufactured from materials that is expected to offer a lifespan of 20 years. Being manufactured from a polymer material, the concerns of galvanic corrosion and any scratches to the solar panel frame are eliminated, assuring a reliable solution.

Key Features and Benefits	
<b>Polyoxymethylene resin material</b>	Eliminates concern of dis-similar metals and prevents scratches to the solar panel frame
<b>Outdoor Durability</b>	Resin material is rated for an outdoor lifespan of 20 years, eliminating rework and providing a long term, quality, cost effective solution
<b>Patented Retention Lock Pin Design</b>	Assures a secure installation on a wide range of solar panel frame
<b>Toolless Installation</b>	Eliminates the need to carry and maintain tools required to install the product
<b>Integral Spring</b>	Holds wire(s) securely within the cable retention area
<b>Multiple mounting options</b>	Threads easily into head; installs quickly for improved productivity

\*This is an estimated life expectancy and not a guarantee of life in an application.

# Robust FILM Capacitors

TDK presents the B3271\*H\* series, new EPCOS film capacitors for DC link applications that feature high energy and power density. The capacitors are rated for voltages from 500 V DC to 1600 V DC, offer capacitance values from 0.47  $\mu$ F to 170  $\mu$ F and are suitable for a maximum operating temperature of up to 105 °C. At a rated voltage and operating temperature of 70 °C, the typical life of the rugged, self-healing and RoHS-compliant capacitors is 95,000 hours.

The capacitors are available in lead spacings of 27.5, 37.5 and 52.5 mm, with both 2-pole and 4-pole versions. This results in more than 90 types, offering high design flexibility. For the selection of the suitable DC link capacitor TDK offers the tool CLARA.



Scan the QR-Code.

The low self-inductances of only 11.5 nH to 23 nH combined with the high ripple current capability make the new capacitors particularly well suited for SiC-based inverters operating at high switching frequencies. The series is qualified to IEC 61071, AEC-Q200 as well as UL 810 and enables use in typical industrial applications such as frequency converters, photovoltaic inverters, EV fast chargers and automotive applications such as onboard chargers and auxiliary and power inverters.



## Main application areas

- Frequency converter
- Photovoltaic inverter
- EV fast chargers
- Onboard chargers
- Auxiliary and power inverters

## Main features and benefits

- Voltages from 500 V DC to 1600 V DC
- Capacitance values from 0.47  $\mu$ F to 170  $\mu$ F
- Maximum operating temperature 105 °C
- 2-pole and 4-pole versions available
- Low self-inductances of only 11.5 nH to 23 nH
- High ripple current carrying capacity

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## Orderable at arrow.com

- B3271\*H\* series

# HE: A new Era of PCB based Power Relays



Whenever it came to the task of handling high loads, application engineers suffered some headache in terms of relays. High power environments usually required the use of rather large, stand-alone contactors that had to be mounted as separate units with wired connections to a control board.

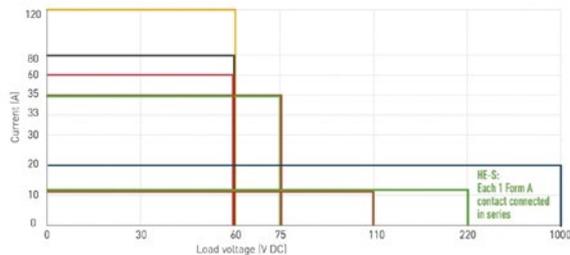
In the end, this resulted in higher component and material costs, additional manual assembly efforts and sometimes even the risk of poor operational reliability, because every single connection from the board to the cables and the socket to the relay connection can turn out to cause reliability issues.

To overcome these shortcomings and to serve the growing demands for safe, robust and energy-efficient ways to switch relatively large

amounts of power on the PCB, Panasonic Industry introduced its HE relay series nearly 20 years ago, at this time with a focus on the solar energy plants market.

The lineup grew over the years, and now in 2022 HE relays can handle loads up to 120 A (HE-N) and up to 1000 VDC

(HE-V) in ambient temperatures of up to 85 °C. This makes the PCB relay series a perfect choice for high power applications, such as solar inverters, automotive charging stations, or battery storage systems – while coming in remarkably compact dimensions. HE-S, for instance is as compact as 30 x 36 x 40 mm.



Load Performance

### Orderable at [arrow.com](https://www.arrow.com)

- HE1AN\*
- HE2AN\*

Series	HE-V	HE-S	HE-R	HE-Y5	HE-Y6	HE-Y7
Switching current	20 A DC	35 A AC	40 A AC	48 A AC	90 A AC	120 A AC
Contact arrangement	2FormA	2FormA, 2FormA, 1FormB	4FormA, 4FormA, 1FormB	1FormA	1FormA	1FormA
Max. switching voltage	1000 V DC	480 V AC	480 V AC	277 V AC	277 V AC	800 V AC
Contact gap	3.8 mm	3.2 mm	3.6 mm	2.5 mm	3.0 mm	3.6 mm
Dimensions	41 x 50 x 39.4 mm	30 x 36 x 40 mm	35 x 58 x 47 mm	38 x 33 x 36.3 mm	38 x 33 x 38.8 mm	50 x 40 x 43 mm
Holding power*	210 mW	170 mW	490 mW	310 mW	310 mW	400 mW

\*with reduced coil holding voltage

# HE Series' Flagships: HE-R and HE-S

## **HE-R: The small box for the wall box**

The latest member of the HE relays family: The new HE-R is the world's first PCB relay that can be used as the main switching element in three-phase systems.

Designed specifically for mode 3 AC charging stations up to 22 kW, the HE-R is meant to take charging technology safety to the next level: Each of the four normally open contacts is designed for carrying and switching 40 A within the series' usual temperature range of up to +85 °C. An optional NC contact, designed as a mirror contact according to IEC 60947-4-1, switches signal loads up to 10 mA / 5VDC.

In addition to the HE-R's small size of 35 x 58 x 47 mm, its minimal power consumption would be a key feature. This could be achieved by using a pulse width modulation to reduce the coil voltage to only 35 % of the nominal voltage. This results in a remarkably low power dissipation of only 490 mW. Positive side effect: A lower waste heat renders ventilation redundant in most of the cases.

The IEC62955 VDE-certified HE-R relay now allows to implement three-phase systems with just one relay directly on the PCB. This is not only an option for demanding garage and carport wall box designs, but also for public charging stations and completely different application areas such as industrial automation or energy harvesting.

## **HE-S: The industry's smallest, high capacity, low power multi-contact power relays**

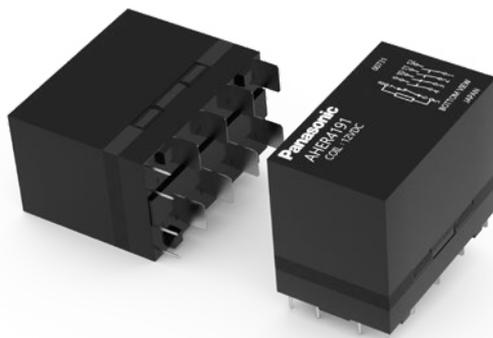
Compact size 2a and 2a1b 40 A power relays for energy management, industrial equipment or inverters: The HE-S series is coming with a high resistive load of 35 A to 277 V AC for 50,000 cycles. The mirror contact structure is EN60947-4-1 compliant and uses 2 formA coupled with 1formB contact assembly. The HE-S series has an contact gap of 3.2 mm, making this relay compliant to VDE0126 for the European photovoltaic standard. HE-S offers also a perfect switching solution for charging stations up to 22 kW thanks to the safety contact mechanism conform to EN 61851-1.



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### **Orderable at [arrow.com](https://arrow.com)**

- AHER\*
- AHES\*



# Qualcomm<sup>®</sup> ultraBAW<sup>™</sup> Filters for Wi-Fi 5 to 7 GHz

**Qualcomm Technologies, Inc. – a leader in SAW and BAW filters**

More and more devices in homes and public and industrial areas are connected for seamless operation, almost all of them using Wi-Fi. Wi-Fi uses two major carrier frequency areas at 2.4 GHz and 5 to 7 GHz. While Wi-Fi at 2.4 GHz and 5 GHz is well established since years, the bands between 6 and 7 GHz are in use as of recently, with release of Wi-Fi 6/6E and now Wi-Fi 7.

**Why Qualcomm ultraBAW filters for Wi-Fi 5 to 7 GHz**

The emergence of Wi-Fi 5, then 6/6E and 7 is driven by the demand for increasing network capacity, increasing channel bandwidth and enabling Multi-User MIMO.

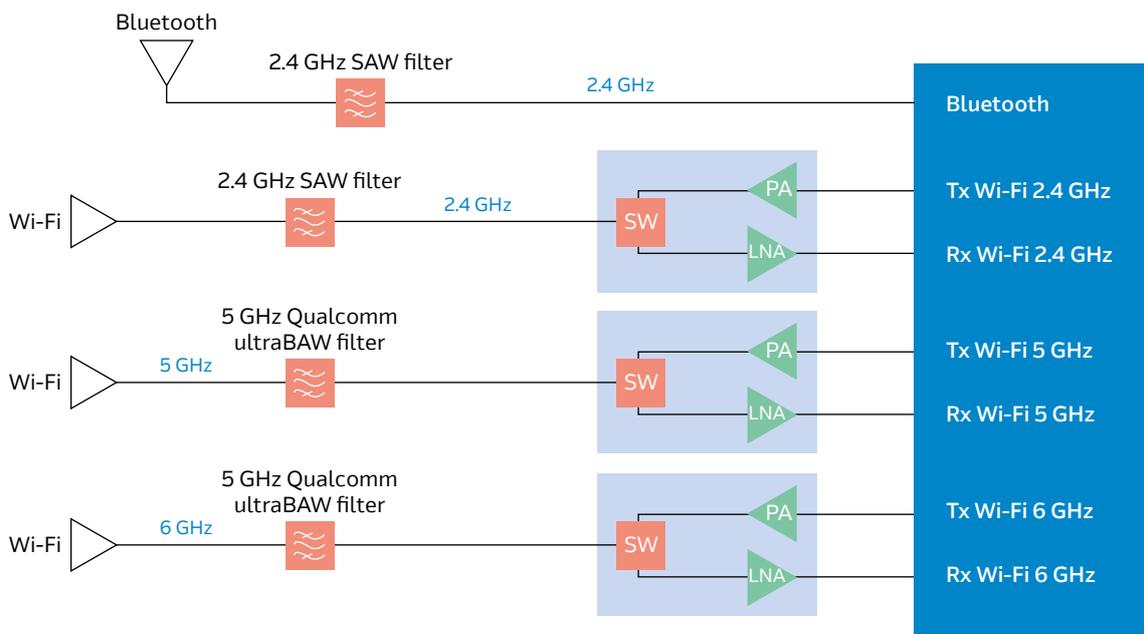
Qualcomm ultraBAW filters combine low insertion loss with high near-by selectivity. This performance enables a simultaneous

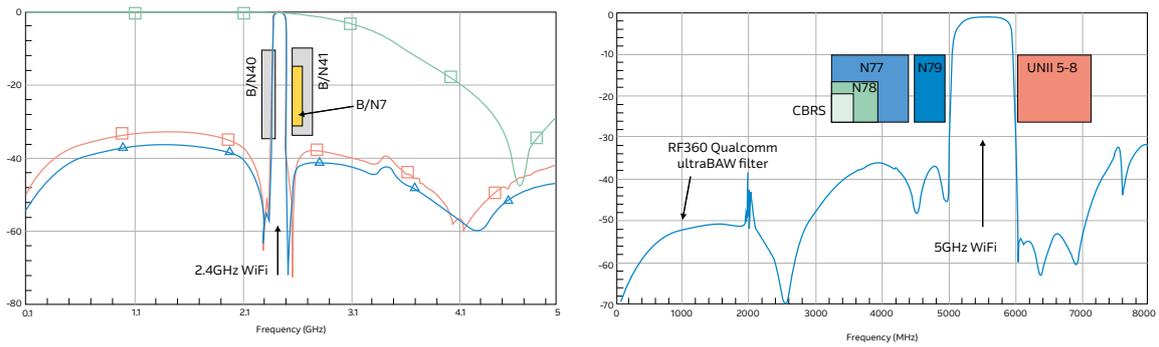
operation at different bands which is a must for high data rates and takes the advantages Wi-Fi 6, 6E and 7 offers.

Qualcomm ultraBAW filters also offers high out-of band attenuations enabling RF systems to cope with demanding coexistence requirements generated by proximity of licensed spectrum.

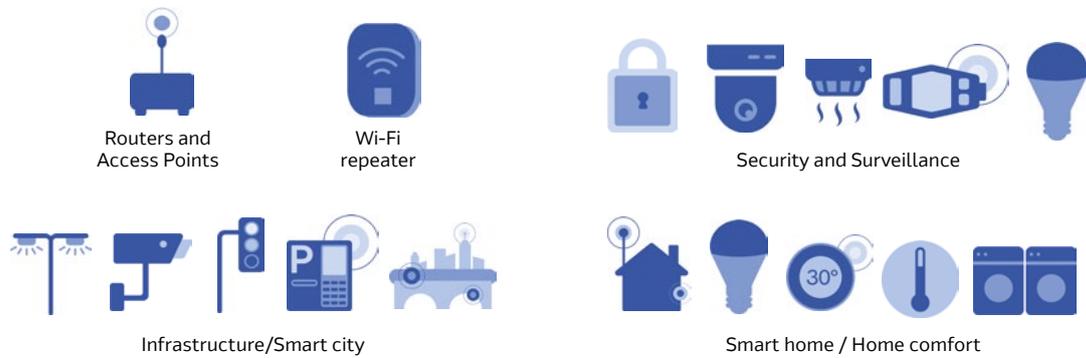
The 2.4 GHz Wi-Fi channel is adjacent to LTE/5G Bands 41, 40, and 7, while 5-7 GHz Wi-Fi is adjacent to the 5G NR n79 and n77/n78. In addition, Qualcomm ultraBAW filters provides high isolation between the 5 GHz bands and 6 GHz bands enabling seamless SBS (Single Band Simultaneous) operation.

The schematic below shows an example of a Wi-Fi Triband front-end design (per antenna) for simultaneous operation at 2.4 GHz, 5 GHz and 6 GHz:



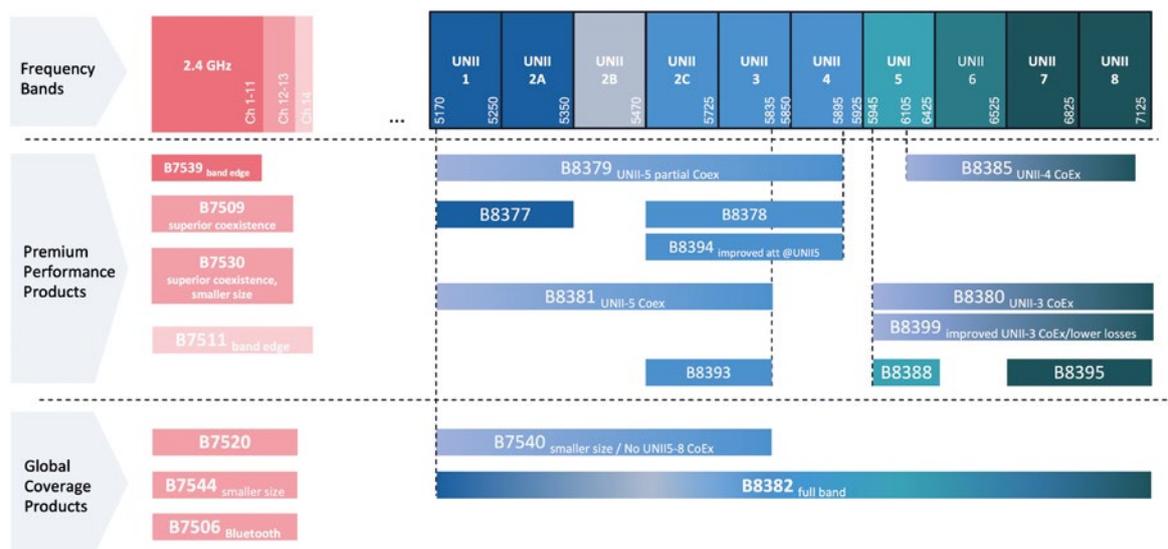


## Industrial, IoT and consumer application examples



## Product range

Beside the wide product range of Qualcomm ultraBAW filters for the Wi-Fi frequency bands from 5 to 7 GHz, Qualcomm provides superior SAW filters for 2.4 GHz as well.



# ECK: New 1,000 VDC Contactors

TE Connectivity (TE) introduces the ECK 150/ 200/ 250 high-voltage DC contactor series designed for new energy applications.

As the world shifts to e-mobility and electric vehicles (EVs) specifically, there is an increasing demand for charging infrastructure, and it is becoming part of our daily life.

Direct Current (DC) charging stations relate to a very quick charging rate as little as 30 minutes. The rapid, global growth of electric vehicles requires the development of a charging infrastructure that is faster, safer, smaller, and more flexible, which creates design challenges for engineers around the world. Designed with deep expertise and advanced technology, TE Connectivity's (TE) robust portfolio of DC contactors answers the challenges engineers face and fits the diverse needs of DC charging stations on a global basis, no matter what their power level or charging speed requirements.

Together with TE, we make a greener world by empowering the future of e-mobility infrastructure.

TE Connectivity (TE) introduces the ECK 150/ 200/ 250 high-voltage DC contactor series which is designed for control in new energy applications. The ECK product line is an innovative and reliable solution for EV charging stations, solar inverters, battery energy storage systems, automated-guided vehicles (AGV) and e-Forklifts, The ECK series is hermetically sealed with ceramic sealing technology making it safe and reliable. These contactors can be used in 1,000VDC system applications.

## Features

- Hermetically sealed with ceramic technology and filled with hydrogen gas
- Switching voltage up to 1,000VDC
- Carrying current up to 500A
- Built-in PWM economizer withhold power 1.7W and optional auxiliary contact
- CE, UL, CCC and TÜV approved



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## Orderable at arrow.com

- 2071567-2
- 2071567-1
- 1-2071567-2
- 1-2071567-1
- 2-2071567-2
- 2-2071567-1

# DDR5 DIMM Sockets

TE Connectivity's (TE) DDR5 DIMM socket is the next generation offering of memory hardware designed for high performance computing and server platforms.

With the ability to support up to 6.4 GT/s (giga transfers per second) in bandwidth, and DDR5 sockets deliver on performance while maintaining the quality and robustness expected by the end user.

## Target Markets

- Data Center
- High Performance Computing (HPC)
- Consumer Electronics
- Communications Industry

## Applications

- Servers
- Communications Equipment
- Workstations
- Storage
- Embedded System
- Desktop PCs
- Instrument Equipment



## Key Benefits

- Higher data rates: supporting up to 6.4 GT/s
- Narrow latch types and space saving features allow for better airflow between components
- Better coplanarity and easy to install design prevents difficult soldering rework
- Stronger latch tower and available hooking options allow for increased reliability
- Customization options available at order
- Increased reliability to withstand higher system shock and vibration

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## Orderable at [arrow.com](https://arrow.com)

- 2-2355626-1
- 2-2355627-1

# Smart UV-C Disinfection

## Smart sterilizer for mouth and nose coverings

With its 12-month European Graduate Program, Arrow offers university graduates the chance to apply their ambitions, talents, and potential in practice, preparing them to work on customer projects. One project from the Arrow Graduate Program is “Smart UV-C Disinfection”.

### Objective

The SARS-CoV-2 virus changed our working and living environment worldwide in an unprecedented way. An important measure to combat the rapid spread of Covid-19 was and is the wearing of mouth and nose masks. With the mass use of such masks, the focus is also on the problem of proper disposal. For reasons of environmental protection and economic efficiency, more consideration should be given to the repeated use of the masks.

The aim of Claudia Dalilah De Oliveira Asbun’s bachelor thesis at the Beuth University of Applied Sciences, Berlin was therefore to develop a smart sterilization device for mouth and nose coverings.

As a result, a prototype for the sterilization and drying of face and nose masks using UV-C was to be developed. Optionally, the device should be Internet of Things (IoT)-capable. The sterilization system should be suitable for sterilizing all types of masks and should not be larger than 40 x 40 x 40 cm.

### Solution Approach

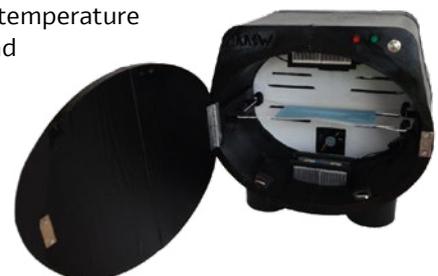
The masks are placed in the sterilization system with UV-C LEDs inside and fans for drying. Two LEDs are found in the upper part and two in the lower, each with the function of destroying DNA in viruses and bacteria in physical surfaces.

Since short-wave ultraviolet rays can be harmful to human skin and eyes, the prototype incorporates a safety operating system with two microswitches to ensure that the door is completely closed during operation and no UV rays leave the system. Furthermore, overheating is to be avoided so that the LEDs and the system itself are not damaged.

### Implementation

As a result of the bachelor’s thesis, a functional prototype of a sterilization system Smart UV-C Sterilizer was developed, which kills viruses and bacteria via UV-C irradiation. The application is quick and easy for the user to handle, which also applies to inserting the mask into the housing. The user can start and stop the system at any time via Bluetooth using a smartphone.

Information about the time remaining until the disinfection of the mask is completed is also provided. In addition, the system has a temperature sensor so that the operating temperature of the LEDs and the electrical components is not exceeded.





## IP&E Products for Smart UV-C Disinfection



### Sensors

- DS18B20 Temperature sensor



### Power Suppliers & Thermal Management

- 12V 1.5A power supply
- 2 Heat sink for the LEDs



### Passives & EMI

- 2 Fans and circuit board



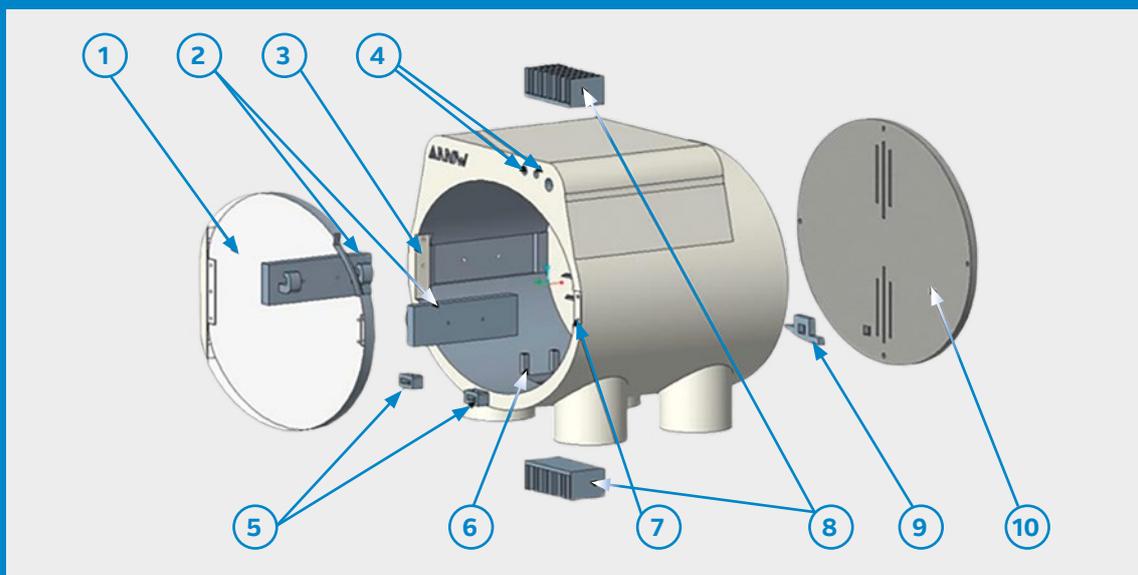
### Relays and Switches

- Micro Switch
- BTS3060TF Smart Switch



### Connectors & Cable Assemblies

- DC power supply socket connector
- Cables
- On/Off push button



Schematische Darstellung des Smart UV-C Sterilizer

- 1) Vordertür, 2) Hakenplatten, 3) Scharnier, 4) Anzeige-LEDs und Ein/Aus-Taste,
- 5) Schaltergehäuse, 6) Kühlkörperhalterung, 7) Türmagnet, 8) Kühlkörper,
- 9) DC-Buchsengehäuse, 10) Hintertür

Author: Dalilah De Oliveira – EMEA  
Engineering Graduate 2021  
Today supporting exciting and innovative  
customer projects in Berlin, Germany



**Arrow Electronics, Inc.**  
**Components**  
**Frankfurter Straße 211**  
**63263 Neu-Isenburg, Germany**

In Person  
+49 (0) 6102 5030 0  
Call to talk or set up a face-to-face meeting with one of our knowledgeable representatives.

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