



Aerospace
& Defence

Lighting

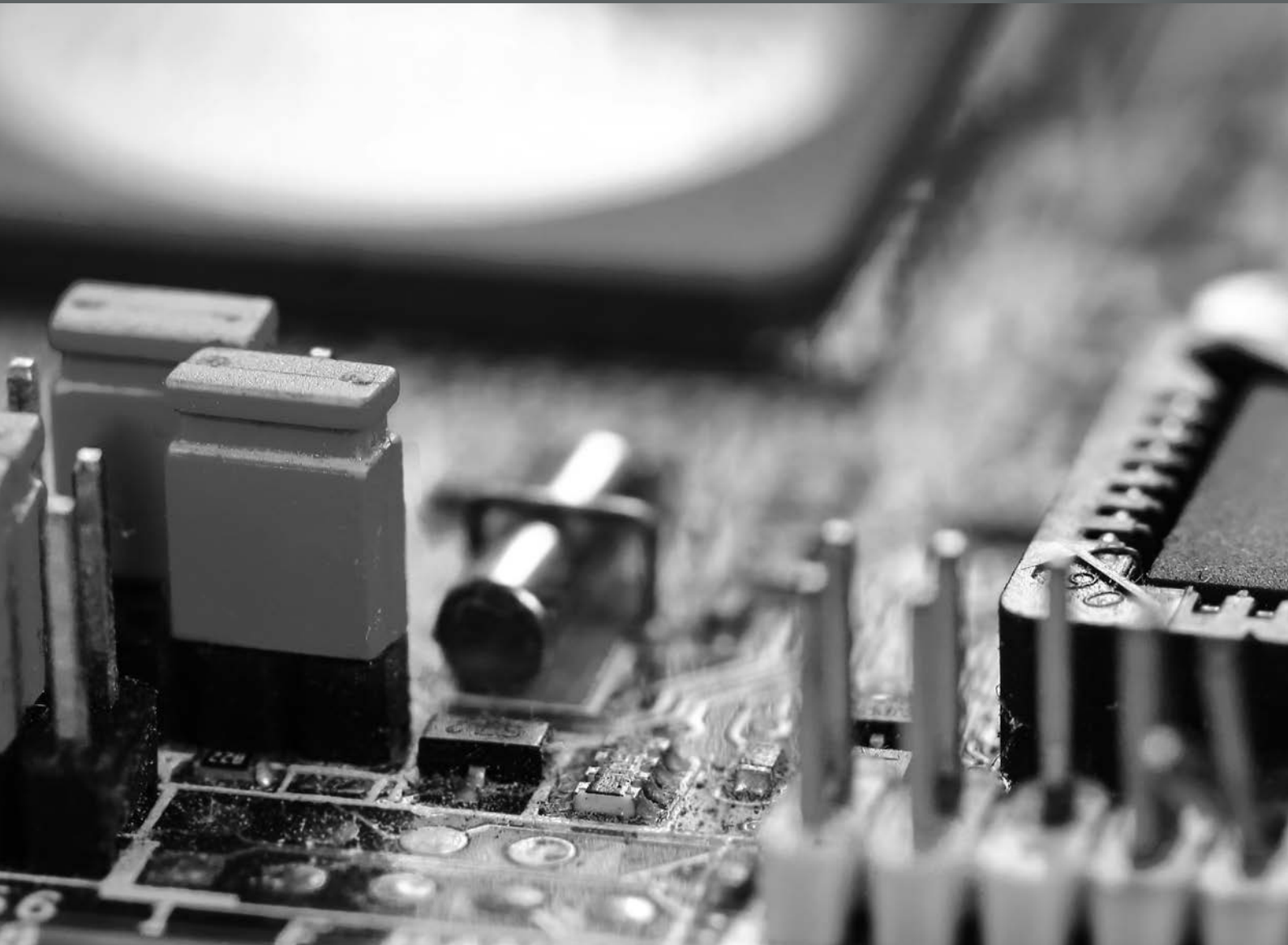
Power
Management

Internet
of Things

Transportation

Components – EMEA

PEMCO News – 4th Quarter 2018



Arrow Electronics Named Distributor of the Year by Amphenol

Arrow Electronics has been named Distributor of the Year by Amphenol for Europe, Middle East and Africa (EMEA). The award is based on sales growth.

Annette Tyler, Corporate Distribution Director, Amphenol, commented: "Arrow and Amphenol have collaborated closely for a number of years resulting in excellent performance in key regions. Arrow's concentration on providing the right solution to meet customers' needs, coupled with its ability to add value in many areas, fits very well with the Amphenol focus and strategy."

Axel Prauss, director marketing - passive, electromechanical and connectors EMEA at Arrow Electronics, said: "Amphenol is a leading manufacturer in the world of interconnect and sensor solutions and its focus, both on the technologies driving the current market as well as future opportunities, is very much in line with Arrow's vision of looking five years out."



Names from left to right

- | | |
|-----------------------|---|
| Dan Long | Global Supplier Management Director |
| Svein Tøndevoldshagen | Technology & Supplier Business Manager EMEA |
| Matthias Hutter | VP Product Management and Supplier Marketing EMEA (all Arrow Electronics) |
| Annette Tyler | Corporate Distribution Director, Amphenol |
| Michael Clarner | Director Distribution Sales EMEA, Amphenol ICC |
| Axel Prauss | Director Marketing PEMCO EMEA, Arrow Electronics |

CONTENT

ABB	
- Ty-Rap High performance cable ties – celebrating 60 years!	4
Abracon	
- Tiny but Mighty: Solutions for the IoT'S most footprint challenged applications	20
Amphenol ICC	
- Universal Flash Storage – Next Generation, Backward Compatible	4
Arrow	
- Arrow Electronics Named Distributor of the Year by Amphenol	2
AVX	
- Ethertronics Antenna for LTE Cat-M1/NB-IoT worldwide coverage	5
Bourns	
- AEC-Q200 Compliant Products from Bourns®	7
CRC	
- Kontakt Chemie Air Dusters	5
Fujitsu	
- How EV Requirements inspire Relay Design Changes	6
HellermannTyton	
- EVO7 Cable Tie Gun.	6
Kemet	
- KEMET Press-Fit Aluminum Electrolytic Capacitors	8
KOA	
- Automotive-Grade Pre-Charge/Discharge Resistors – BGRV/BSRV Series	9
- Automotive-Grade High Voltage Thick Film Chip Resistors – HV73V Series	9
Molex	
- Molex Ready-to-Use Antennas make it easy to create a truly connected IoT application.	10
- The latest Ready-to-Use Antennas now available from Molex	10
Murata	
- Compatible Converter Transformers	11
- Isolated 2W Single Output SM DC-DC Converters	11
Osram	
- Innovative features, high reliability and performance: Discover the new generation of OSRAM 4DIM LED drivers	16
Panasonic	
- High Power SIL PhotoMOS-Relays	12
- S.O.S. Short on MLCCs? Choose Panasonic Polymer Series!	13
Panduit	
- VeriSafe™ Absence of Voltage Tester	14
Schurter	
- Double Stage EMC Filters	15
Tadiran	
- Avoiding the heart attack	16
TE Connectivity	
- ELCON Micro Power Connectors	17
- AmbiMate Sensor Module Development Kit MS4 Series	17
Vishay	
- New 225 EDLC-R ENYCAP™ Series of Ruggedized Energy Storage Capacitors Offers Long Life and High Moisture Resistance.	19
Yageo	
- Automotive-Grade Thick Film Chip Resistors – AC Series	18
- High voltage MLCC – CC series	18

©2018 Arrow Electronics, Inc. Arrow and the Arrow are registered trademarks of Arrow Electronics, Inc. Other trademarks and product information are the property of their respective owners.

ARR_Broschuere_PEMCO_News_Q4_1809



Ty-Rap High performance cable ties – celebrating 60 years!

Innovative design and engineered materials make Ty-Rap cable ties the perfect fastening solution where performance really matters. The complete Ty-Rap portfolio includes cable ties specifically designed for the application. Whether the application requires resistance against extreme temperatures, flames, continuous sunlight and UV radiation, aggressive chemicals or requires heavy tensile strength, ABB has a cable tie solution. ABB also provides tools, that facilitate and speed up your time critical assembly or installation process.

Features & Benefits

- The Grip of Steel: Ty-Rap's non-hydroscopic stainless steel locking device ensures maximum strength and extended useful life
- Fewer stress points: Ty-Rap's smooth, notchless body reduces the number of stress points to increase its useful life, while ribs and stipples grip the bundle and prevent slipping specifically in vibrating applications.
- Snag free installation: The low-profile head and its oval shape make it easier to pull bundled cables through bulkheads. Easier on your hands, too.



- Performance in extreme & harsh environments: available in multiple materials to operate in corrosive, chemicals, hot, cold and other demanding environments.

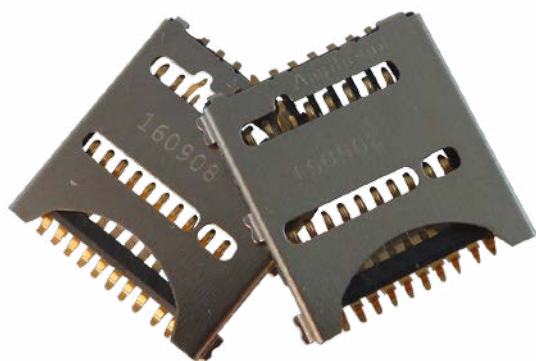
This year, the 60th anniversary, will see the introduction of an improved detectable Ty-Rap cable tie, more detectable than similar cable ties on the market, and the introduction of a line that changes color in the presence of scalding heat.

ORDERABLE SERIE

- Ty-Rap

Universal Flash Storage – Next Generation, Backward Compatible

Amphenol ICC's Universal Flash Storage (UFS) Connector is designed to meet the increasing demands for higher speeds and storage capacity in commercial and non-commercial devices. It supports high read/write and transmission speed required by next-generation applications and is backward compatible with Micro SD.



- Amphenol first to offer card socket products used for both UFS and Micro SD cards
- 5× faster than existing memory card types
- Data transfer speeds of up to 6Gb/s
- 19 pin connector, backward compatible with Micro SD
- High durability

Target Market/Applications

- Mobile Phones
- Tablets
- Virtual Reality
- Cameras
- Unmanned Aerial Vehicles (UAV)

ORDERABLE PART NUMBERS

- 1010170469#2A
- 10101704J6#2A

Ethertronics Antenna for LTE Cat-M1/NB-IoT worldwide coverage

Ethertronics, a subsidiary of AVX®, offers a broad range of antennas for consumer and industrial IoT applications.



Ethertronics' embedded antenna P822601, for LTE Cat-M1 and NB-IoT products, provides state-of-the-art RF performances for global coverage. The P822601 antenna supports all LTE Cat-M1 and NB-IoT frequency bands worldwide, and ensures maximum battery savings due to its superior efficiency performances across all bands with a small keep-out area.

- Size:** 49.6 mm x 8.0 mm x 3.2 mm
- Frequency range:** 698–960 MHz, 1710–2700 MHz
- Impedance:** 50 Ohms
- Assembly:** SMD

Features & Benefits

- Supports all LTE Cat-M1 & NB-IoT Frequency Bands
- High Efficiency
- SMD
- Mechanical Robustness

Typical Applications

- IoT
- Tracking
- Consumer
- Home Appliances
- Smart Metering
- Automation
- Industrial/Professional
- Wearable Devices

See the datasheet for more details

https://www.datasheets.avx.com/ethertronics/AVX-E_P822601-P822602.pdf

ORDERABLE PART NUMBER

- P822601



KONTAKT CHEMIE Air Dusters

As electronics are increasingly used in diverse fields, the KONTAKT CHEMIE product range meets the needs of:

- Technical cleaning
- Maintenance and quality assurance
- Reliable and long-lasting protection
- Special uses



Air Dusters

A range of products made out of a high pressure, non-flammable, liquid gas blend that acts like compressed air. Available in a variety of sizes, all offering a jet of dry gas to remove dust and airborne contamination from very delicate or inaccessible areas of electrical and electronic equipment.

Features & Benefits

- Blows away lint, oxide particles and dry contaminants
- Helps to eliminate failures caused by fluids (water, oil mist etc.) trapped in dust or dirt
- Essential for all cleaning operations where liquid solvents are inappropriate
- Moisture- and oil-free source, replacing laborious and expensive compressed air cleaning

- Quick and safe
- Harmless to plastics, coatings and delicate components
- Non-oxidising
- Leaves no residue or condensation
- Always at hand as part of any service kit

Applications

To be used where it is difficult to remove dust using conventional methods, in industry and at home:

- Magnetic tape heads
- Precision instruments
- Printed circuit boards
- Laboratory equipment
- Miniature assemblies
- Watch mechanisms
- Optics and lenses
- Communication equipment
- Data processing equipment
- Cash dispensers
- Fiberglass cable connections
- Medical instruments

ORDERABLE PART NUMBERS

- 33162-DE Air Duster 360 200 ml
- 33187-DE Air Duster 360 SUPER 200 ml
- 33163-DE Air Duster 67 200 ml
- 33167-DE Air Duster 67 400 ml

How EV Requirements inspire Relay Design Changes

The future of transportation is electrical mobility, requiring more than changes in car manufacturing. Infrastructure and equipment are necessary to accommodate the quick growth in EV. The World Wide growth of 100% electric vehicles between 2016 and 2017 is merely an indication how quickly the growth of EV transportation can set off.



Relays are vitally important for electric vehicles and charging facilities, relays enable safe on and off switching by interrupting the power circuit. Relays support various control functionalities; light breaks, mirrors, e-call, EPS/ABS, etc.

Fujitsu has developed a new range of high current DC power relays (up to 120 A), near future designs cover up to 250 A while on the long-term 400 A will be developed. Relay design and developments remain ongoing and common relays in the 30 A range will be modified to cover up to 450 V.

For charging, a solution to galvanically cut off charging equipment from the power grid in normal events and abnormalities is mandatory. Relays suitable for AC applications and able to galvanically cut-off charging facilities are the FTR K1 (16 A), FTR K3 (32 A),



FTR K4 (120 A) and FTR K5 (32 A sealed) series. Signal relays can be found in battery/motor management and diagnostics. The Fujitsu signal relays (max 2 A) cover versions with a high dielectric strength (500 V) which will be modified to automotive versions. More innovation is expected such as increase of loads, mechanical strength and additional safety solutions.

ORDERABLE PART NUMBER

- FTR-K1, FTR-K3 and FTR-K4, FTR-K5 under development

EVO7 Cable Tie Gun

Precise tensioning and cutting of plastic cable ties around sensitive wiring

Designed for operator comfort and repeatable quality, the EVO7 is ideal for manual tensioning and cutting of plastic cable ties up to a strap width of 4.8 mm.

Whereas traditional cable tie guns tighten and cut the strap in one step, the mechanism integrated in the EVO7 locks the strap before the blade cuts it flush behind the head.



The EVO7 Cable Tie Gun for plastic cable ties

The result is elimination of the jarring recoil that can lead to repetitive stress injuries (RSI), prevention of inadvertent stretching of the tie plus significantly improved life of the stainless steel blade – one million cuts before servicing.



The EVO7 can be set to 33 tension settings ranging from 35 N to 165 N. It is factory-calibrated in order to ensure the same tension level with every application.

Lightweight yet robust, the EVO7 is available with a standard grip span (90 mm) or a short grip span (80 mm) for smaller hands.

Type	Orderable Part Numbers	Description
EVO7	110-70129	with standard grip span (90 mm)
EVO7SP	110-70130	with short grip span (80 mm)

AEC-Q200 Compliant Products from Bourns®

Bourns® Multifuse® Products

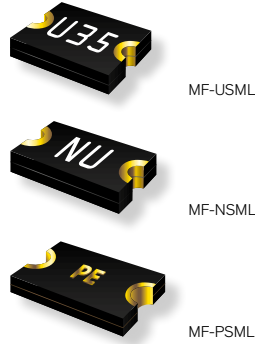
The Bourns® Multifuse® Models MF-USML, MF-NSML, and MF-PSML Series of Polymeric Positive Temperature Coefficient (PPTC) resettable fuses are used in a wide variety of over current circuit protection applications.

Features & Benefits

- Tape & reel packaging
- Industry standard sizes
- freeXpansion™ Design

Applications

- Computers and peripherals
- General electronics
- Battery protection



ORDERABLE PART NUMBERS

- MF-USML
- MF-NSML
- MF-PSML SERIES

High Power Current Sense Resistor Families

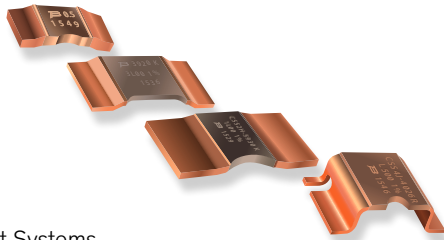
Bourns developed its Model CSS series high power current sense resistors to satisfy the accurate current measurement requirements of a wide range of applications.

Features & Benefits

- Excellent long term stability
- Low inductance
- Low thermal EMF

Applications

- Current sensing
- Battery Management Systems
- Power Modules/Motor Controllers



ORDERABLE PART NUMBERS

- CSS2H-2512
- CSS2H-3920
- CSS2H-5930
- CSS4J-4026

High Current Shielded Power Inductor Series

These power inductor series are wound with flat wire that offers exceedingly low DC resistance and AC resistance, as well. Combined with the low core loss nature of ferrite core construction, these inductors feature low power dissipation which can boost the overall efficiency of your DC/DC converters.

Features & Benefits

- Magnetically shielded
- Flat wirewound
- Low DCR

Applications

- DC/DC converters
- Switch-mode power supplies



ORDERABLE SERIE

- SRR Series
- SRU Series

ChipGuard® ESD Suppressors

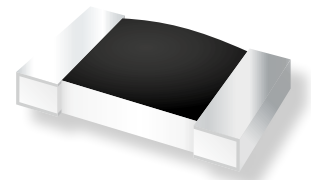
These very fast bidirectional devices provide robust overvoltage protection and stable low leakage performance over a wide temperature range. High performance and reliability make the series a good choice in electrical protection of sunroofs and control units as well as engine management systems, just to name a few.

Features & Benefits

- Meets IEC 61000-4-2 standard
- Multilayered varistor technology

Applications

- HDMI
- CANbus
- Ethernet

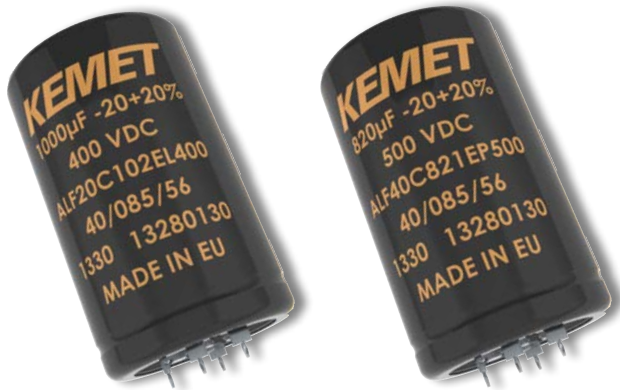


ORDERABLE PART NUMBERS

- CG0603MLC
- CGA0402MLC
- CGA0603MLA

KEMET Press-Fit Aluminum Electrolytic Capacitors

Press-Fit capacitors eliminate the need for solder, and related production and quality issues. With reliable electrical contact, they provide the same vibration performance as soldered snap-in terminals. The capacitors are designed for reliable performance in demanding energy storage and power conversion applications, with voltage ratings up to 600 V and high surge voltage and ripple current capabilities. They are rated for a service life up to 18,000 hours at 85 °C or up to 9000 hours at 105 °C. Capacitors are available in 4-pin or 5-pin configurations with diameters from 35 to 50 mm. Despite their solderless application, KEMET Press-Fit Aluminum Electrolytic Capacitors offer reliable electrical contact and have a retention force of 62 N per pin and meet BS EN 60352-5 requirements.



Features & Benefits

- Eliminates manufacturing problems of soldering onto thick PCB copper tracks which act as heat-sinks
- Eliminates fractured solder joints/cold-solder
- Removal of the solder operation allows for easy insertion after the production washing process
- Ability to exchange components in the field
- Custom optimization of construction available for application-specific balance between required life, temperature, ripple current and physical size

Applications

- Uninterruptible Power Supply (UPS)
- Switch Mode Power Supplies (SMPS)
- Smoothing
- Energy storage
- Demanding power supplies
- Frequency inverters

Series	Capacitance	Rated Voltage	Operating Temperature	Cap Tolerance	Lifetime	Features
ALF20	150 – 100,000 µF	35 – 600 VDC	–40 to +85°C	±20%	Up to 18,000 hours at +85°C (VR, IR applied)	Compact size, long life, high ripple current, high voltage, excellent surge voltage capability
ALF40	120 – 120,000 µF	25 – 500 VDC	–40 to +105°C		Up to 9,000 hours at +105°C (VR, IR applied)	

Automotive-Grade Pre-Charge/Discharge Resistors – BGRV/BSRV Series

KOA's new BGRV-series is designed to withstand the high inrush currents present in Electric Vehicle pre-charge circuits. The new BSRV-series performs the associated capacitor discharge function in the DC/DC converter and in Electric Vehicle discharge circuits. Both series are available with spade/lug terminals for use in wiring harness or connector blocks.

Features & Benefits

- High reliability, suitable for automotive applications
- Excellent inrush current withstand characteristics
- Strong against electrical overload
- Quick connect terminals on request
- Special potting compound used in flame-retardant/insulated ceramic case
- 5.1 Ω ... 75 k Ω
- ± 5 % or ± 10 %
- Operating temperatures up to +155 °C
- AEC-Q200 qualified, EU-RoHS compliant

Application Examples

- Battery unit/inverter circuits for automotive electronics (HEV, EV, PHEV, FCV)
- Pre-charge circuit of electric vehicle (BGRV)
- Discharge circuit of electric vehicle (BSRV)
- On board charger
- Industrial Converter/Inverter



ORDERABLE PART NUMBERS

- BGRV 7/10/15/20/30/40: wirewound on glass core, 5.1 Ω ... 390 Ω
- BSRV 5/7/10/15/20: metal oxide film on ceramic core, 430 Ω ... 75 k Ω

Automotive-Grade High Voltage Thick Film Chip Resistors – HV73V Series

KOA's new high voltage type resistor HV73V-series achieves max. working voltages 2.5 times higher than standard chip resistors. This means that fewer resistors are used in voltage detecting circuits saving PCB space. The special resistor design allows high voltage operation with improved temperature cycling stability compared to standard resistors.

Features & Benefits

- Thick film chip for high voltage
- 800 V working voltage in 1206 inch
- 10 k Ω to 51 M Ω
- 0603, 0805 and 1206 inch
- ± 0.5 %, ± 1 %, ± 2 % and ± 5 %
- Operating temperatures up to +155 °C
- AEC-Q200 qualified, EU-RoHS compliant
- Anti-Sulfuration type also available (HV73V_RT)

Application Examples

- Automotive
- Power supplies
- Lighting ballasts
- Motor control units
- Camera flashlight
- AC Adapters
- LCD back-lights



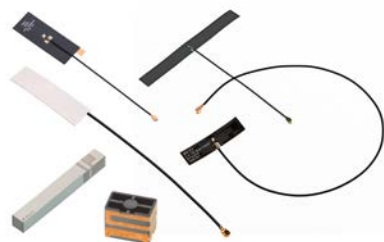
ORDERABLE PART NUMBERS

- HV73V1JTTD: High voltage, automotive, 0603, 0.1 W, 350 V
- HV73V2ATTD: High voltage, automotive, 0805, 0.25 W, 400 V
- HV73V2BTTD: High voltage, automotive, 1206, 0.25 W, 800 V
- HV73V1JRTTD: High voltage, automotive, anti-sulfuration, 0603
- HV73V2ARTTD: High voltage, automotive, anti-sulfuration, 0805
- HV73V2BRTTD: High voltage, automotive, anti-sulfuration, 1206

Molex Ready-to-Use Antennas make it easy to create a truly connected IoT application

In today's connected world, antennas enable devices to communicate wirelessly - even across great distances. This not only allows people to move freely without compromising their connectivity, but also provides the ability to create wireless networks of devices and sensors. Antennas make it easy and cost effective for connected homes, automated building networks and remotely controlled applications to become a reality.

Molex has extensive experience in antenna technologies from concept to completion, using state of the art simulation software and measuring equipment. The Molex range of ready-to-use antennas, featuring patented technologies, are compact, high performing and available in multiple form factors for all common antenna protocols and frequencies used in IoT, automotive, industrial and medical applications.



With frequencies up to 6GHz and various mounting options available such as SMT, cabled or adhesive, the Molex portfolio of ready-to-use antennas includes:

- Internet of Things (IoT) Antennas: Wi-Fi, Bluetooth, Zigbee
- LTE Cellular Antennas
- GNSS/GPS Antennas
- Combo Antennas
- Near Field Communication (NFC) Antennas
- Ultra-Wideband (UWB) PCB Antenna with Balanced Transmission
- Industrial, Scientific and Medical (ISM) Antennas
- PowerLife Wireless Charging Coils

To find out more, contact your Molex representative at Arrow or visit www.molex.com and search Antenna Solutions.

ORDERABLE PART NUMBERS

- <https://www.arrow.com/en/manufacturers/molex/rf-and-microwave/rf-other/antennas>

The latest Ready-to-Use Antennas now available from Molex

External Antennas

206866 Series: 3-in-1

(4G/Wi-Fi/GPS) External Antennas

- Fully balanced, IP66-rated antenna that offers high 4G, Wi-Fi and GPS signal performance in telematics, remote monitoring and other applications
- Compact and waterproof enabling space efficiency and easy integration into applications requiring IP66 protection
- 3m cables extend connectivity between the antenna and the application's 3 radio devices for their respective 4G, Wi-Fi and GPS operations
- Cable connectors allow customisation with other connectors including SMA, MMCX and more



GNSS Antennas

GNSS Active Patch and Flexible antennas compliment ceramic and LDS-chip selections for superior signal processing and ground impedance over a wide range of navigation and tracking applications.

206640 Series:

GNSS Active Patch Antenna with Low-Noise Amplifier

- Ceramic patch antenna delivers high gain, high radiation efficiency performance for the most demanding GPS applications
- Microcoaxial RF connectors secure to the application's device radio
- PCB with integrated LNAs and SAW filter

206560 Series: GNSS Flexible Antenna

- Topside of the poly-flexible antenna makes for easy peel-and-stick mounting
- Double-sided adhesive on the antenna reverse enables instant application on the inner wall of the device chassis
- 6 micro-coaxial cable length options extend connectivity for maximum design flexibility
- UFL-type connector secures to the application's device radio



ORDERABLE SERIES

- 206866, 206560 and 206640

Compatible Converter Transformers

The 782100 series of converter transformers are specifically designed for use with the pSemi PE22100 chip set to provide isolated power supplies for transceivers in isolated interface applications.

Features & Benefits

- pSemi PE22100 compatible
- 3.3 V and 5 V versions
- Isolation tested to 4 kVDC
- Toroidal construction
- Low profile
- Industry-standard pinout
- UL 94 V-0 package materials
- Industrial temperature range
- J-STD-020D reflow (SM versions)
- RoHS compliant
- Backwards compatible with Sn/Pb soldering systems



Applications

- Isolated Interfaces
- Instrumentation
- RS485, CAN, USB
- Process control

Order Code	Input Voltage V	Output Voltage V	Isolation* Voltage V _{DC}	Turns Ratio	Package Type
782100/33VC	3.3	3.3	4000	1CT:1.33CT	DIL
782100/53VC	5	3.3	4000	1.14CT:1CT	
782100/35JVC	3.3	5.0	4000	1:2.14	SM
782100/55JVC	5.0	5.0	4000	1:1.33	

* Flash tested for 1 second

Isolated 2W Single Output SM DC-DC Converters

The NXJ2 series is a new range of lower profile, fully automated manufacture surface mount DC-DC converters. The NXJ2 series automated manufacturing process with substrate embedded transformer, offers increased product reliability and repeatability of performance in a halogen free, iLGA inspectable package. The NXJ2 series has a MSL rating 2, and is compatible with a peak reflow solder temperature of 260 °C as per J-STD-020.

Features & Benefits

- Patent protected
- Lower profile
- UL60950 recognition pending for Reinforced insulation to a working voltage of 250Vrms

- ANSI/AAMI ES60601-1 pending for 2MOOP, 1MOPP
- Short circuit protection
- Halogen Free

Applications

- Motor Drives/Motion Control
- Solar Inverters
- UPS
- Battery powered systems
- Process control systems



Order Code ¹	Nominal Input Voltage	Output Voltage	Rated Input Current	Output Current	Load Regulation (Typ)	Load Regulation (Max)	Output Ripple & Noise (Typ)	Output Ripple & Noise (Max)	Efficiency (Min)	Efficiency (Typ)	Switching Frequency (Typ)	Isolation Capacitance	MTTF ²	
	V	V	mA	mA	%	%	mVp-p		%	%	kHz	pF	MIL-217	Telecordia
NXJ2S0505MC	5	5	550	400	7.5	10	50	110	68.5	72.5	140	2	2874	40967
NXJ2S1212MC	12	12	215	167	7	9	30	70	72	75	120	2	1766	65080
NXJ2S1215MC	12	15	215	133	8	10	25	60	75	77.5	110	2.2	1334	49049
NXJ2S2405MC	24	5	110	400	8	10	70	170	73	76.5	100	2.4	2026	33111
NXJ2S2415MC	24	15	105	133	6.5	8	20	50	74.5	78.5	95	2.4	1232	44260

¹ Components are supplied in tape and reel packaging, please refer to package specification section. Orderable part numbers are NXJ2SXXXXMC-R7 (135 pieces per reel), or NXJ2SXXXXMC-R13 (600 pieces per reel).

² Calculated using MIL-HDBK-217 FN2 and Telecordia SR-332 calculation model at TA=25°C with nominal input voltage at full load.

High Power SIL PhotoMOS-Relays

Panasonic's new AQZ Series High Power PhotoMOS Relays combines the benefits of electromechanical relays with advanced semiconductor technology.

Modern semiconductor technology enables fast, quiet, bounce-free switching, even in miniature sizes. PhotoMOS relays nevertheless enjoy an almost unlimited lifetime if used according to the specifications. Moreover, they are extremely reliable, unaffected by vibrations, and their ON-resistance remains stable throughout their entire lifetime.

High Power PhotoMOS-Relais

The new **AQZ series High Power PhotoMOS Relays** from Panasonic Electric Works combine the benefits of electro-mechanical relays with state-of-the-art semiconductor technology.

Depending on type, they permit reliable, non-wearing, silent switching of AC and DC loads up to 600V or 4A in a compact 4-pin SIL package (L x W x H = 21 mm x 3,5 mm x 12,5 mm). Their typical on-resistance is a minimal 35 mOhm.

Typically 1mA is sufficient to actuate the LED at the input, enabling highly energy-efficient applications to be realized.

The AQZ relays are therefore ideal in control applications, such as for heating elements, motors or lamps.

In addition to the high currents, very low signal loads can also be switched without error. A very low offset voltage enables control of low-level analog signals with no distortion.

The low on-resistance and resultant little variation across the temperature range also opens up numerous potential applications in measurement and testing, especially where a consistent loop resistance or limiting voltage drop at the switching contact is vital.



PhotoMOS high power relays are ideal for any applications which demand long service life and consistent electrical properties. The relays are used, for example, to produce maintenance-free PLC output units, industrial machinery, and measuring equipment.

Features & Benefits

- Low operate current
- Extremely long lifetime
- Stable ON-resistance over the entire lifetime
- High load current

Applications

- Industrial control systems
- Outputs for programmable controllers
- Measuring devices and technology
- Medical technology

Datasheet/Video

<https://www.panasonic-electric-works.com/eu/photomos-catalogue.htm>

The key data at a glance

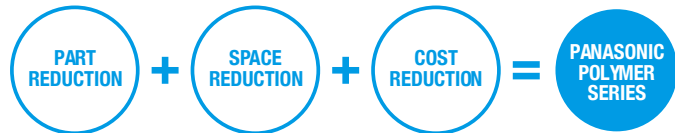
	Load voltage (peak AC DC) [V]	Load current [A]	On-resistance [Ω]	I/O insulation [kV]	Package
AQZ205G	100	4,0	0,035	2,5	SIL
AQZ206G2	600	1,0	0,52		

S.O.S. Short on MLCCs? Choose Panasonic Polymer Series!

Supply shortages and depleted stocks have made Multi Layer Ceramic Capacitors (MLCC) the biggest problem point in the electronics industry supply chain. A sustainable replacement for ceramic chip capacitors are polymer electrolytic capacitors.

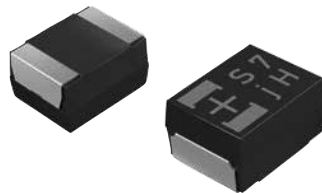
The entire industry is in a state of flux – everything is being electrified and SMART. However, this also means that there will be increased requirements in the infrastructure: 80% of the data volume of the present has been created in the last 2–3 years, which will massively outstretch the technological development of data storage, server and HMI in the next few years. Conversely, this means that the demand for MLCCs will increase uncontrollably, leaving little possibility of easing in the short-term. If that continues, relaxation is unlikely until 2021–22.

S.O.S. Short on MLCCs? Choose Panasonic Polymer Series!



SP-Cap

- Voltage: 2 to 35 VDC
- Cap: 2.2 μ F to 560 μ F
- Ripple up to 10.2Arms
- Lowest ESL/ESR: 1nH/3m Ω



POSCAP

- Voltage: 2 to 35 VDC
- Cap: 3.9 μ F to 1500 μ F
- Size: 2.0x1.25 to 7.3x4.3mm
- ESR: as low as 5m Ω



OS-CON

- Voltage: 2 to 100 VDC
- Cap: 3.3 μ F to 2700 μ F
- Ripple up to 7.2Arms
- ESR: as low as 5m Ω



Hybrid

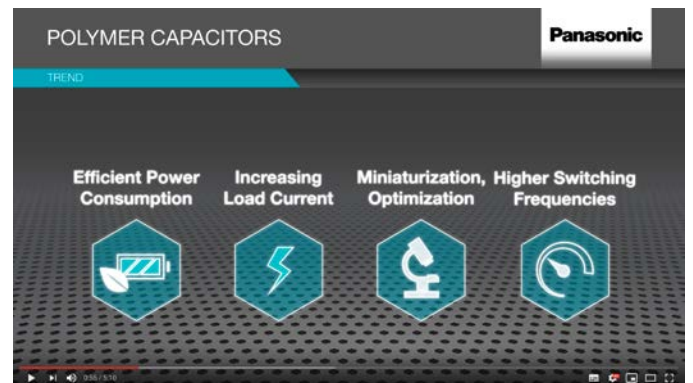
- Voltage: 25 to 80 VDC
- Temp: Up to 145°C
- Ripple up to 4.0Arms
- AECQ-200 Compliant

A strong contender for replacing MLCC are polymer capacitors, which are mainly used in power supplies and ICT market of integrated electronic circuits as decoupling, bypass and buffer capacitors.

- OS-CON: Preferred for applications with high current ripple, high voltage and high capacitor capacity requirement.
- SP-Caps: Similar to OS-CON but a chip-type capacitor. Other key features are a very low ESR. The only downside to consider here – size options are limited.
- Hybrid: Because all hybrid capacitors are automotive-qualified, this is your alternative to MLCCs when addressing safety-critical applications.
- POSCAP: They can be a bit difficult, but they have many size variations – starting with 2mm (A-case size).

Polymer capacitors offer commercial and technical advantages, such as space savings through component reduction, high rippling currents, high capacitance, no voltage derating, high stability against frequency and temperature, etc. However, the greatest advantage is their availability.

 **Video** <https://www.youtube.com/watch?v=xdhIPpzT9mw&t=32s>



VeriSafe™ Absence of Voltage Tester

The Safe Way to Verify the Absence of Voltage

When servicing electrical equipment, workers must comply with safety regulations that require a voltage verification test to validate the absence of voltage. This process includes a number of stages that can be complex and time-consuming when using hand-held portable test instruments.



The patent-pending VeriSafe™ Absence of Voltage Tester from Panduit simplifies this process by automating the voltage verification process.

Once installed, a simple push of a button enables qualified electrical workers to verify the absence of voltage and see an active indication when the absence of voltage is confirmed. This provides a new and innovative way to safely, reliably, and efficiently verify the absence of voltage before accessing potentially dangerous electrical equipment.

By automating this process, the VeriSafe™ Absence of Voltage Tester

- Reduces the risk of exposure of electrical hazards for improved worker safety
- Reduces testing procedure time and complexity to improve productivity
- Supports compliance when used as part of the lockout/tagout process described in NFPA 70E*

The VeriSafe™ Absence of Voltage Tester minimizes risk by verifying the absence of voltage before equipment is accessed, making it easier for qualified electrical workers to determine an electrically safe environment in a fraction of the time compared to hand-held portable test instruments.

Features & Benefits

Improved Safety & Risk Reduction

- Determine voltage status BEFORE equipment is accessed
- Prevents direct exposure to electrical hazards

Increased Productivity

- Easy to use, initiate test with the push of a button
- No additional tools required
- Provides visual alert to abnormal power conditions

Simplified Process for Easier Compliance

- Test sequence based on the steps in NFPA 70E for verification of an electrically safe work condition
- Automated test helps reduce operator errors

Reliable Results

- Fail-safe design with active indications
- Safety functions meet SIL 3 per IEC 61508-1

Flexible Applications

- Designed for testing three-phase circuits up to 600V
- Install on line or load side of electrical disconnect
- Detects absence of AC and DC voltage



ORDERABLE SERIES

- VeriSafe

* The VeriSafe Absence of Voltage Tester satisfies the requirements for permanently mounted test devices described in NFPA 70E-2018 120.5 (7) Exception 1 when it is installed in accordance with the ratings and instructions in the VeriSafe AVT Installation Manual.

Double Stage EMC Filters

More and more devices on the power grid must function smoothly without interfering with each other. Not so easy, since switching power supplies and highly clocked integrated circuits are used in almost all electronic devices. EMC filters can help here. Where necessary in multi-stage design.

In Electromagnetic compatibility (EMC) has become an indispensable quality feature of any electronic device. The conformity of the devices with the protective objectives of the EMC directive must be declared by the manufacturer by a declaration of conformity and by affixing the CE mark on the device and also on the packaging. As a result, the manufacturer assumes the responsibility before the legislator for compliance with the interference emission and immunity requirements applicable to the device.

Countermeasures

It makes sense to pay attention to EMC problems at the earliest design phase. In particular, disturbances caused by radiation coupling can only be compensated for retrospectively at high costs. Conducted interference is reduced most efficiently by means of mains filters. An EMC line filter is usually a low pass filter. It has no influence on the mains frequency (50/60 Hz), but attenuates high-frequency interference (>10 kHz). The filter is an LC network consisting of X and Y suppression capacitors and a current-compensated choke.

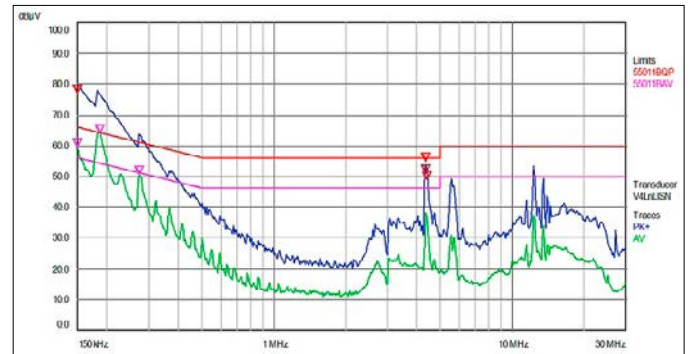
Multistage filters

In practice, it is possible that the attenuation is not yet sufficient despite the use of a filter. In such cases, several filter stages optimized for the specific interference signals are then connected in series, which in interaction significantly better attenuate both differential and common-mode interference. Usually you get very good results with a double-stage filter. However, triple-stage filters are also conceivable, feasible and available.

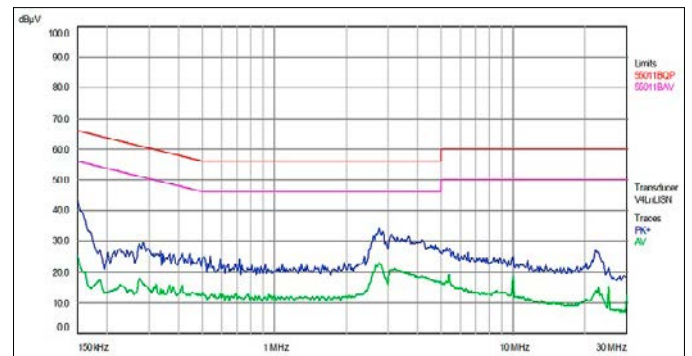


Comparison mains filter: single-stage vs. double-stage

The following is an impressive comparison of power entry modules with fuse holders from SCHURTER: the models DD12 [1] and DD14 [2]. The DD12 uses a single-stage filter and the new model DD14 has a double-stage filter. A commercially available switching power supply with an output of around 150 W for lighting was used as a source of interference for this test.



SCHURTER DD12: With the exception of small flaws, the single-stage filter does quite well. Nevertheless, it does not fully meet the requirements.



SCHURTER DD14: The double-stage filter does all the work. The EMC requirements are fully met.

Conclusion

In the measurement setup, the products mentioned are measured under load and the emissions are recorded in accordance with the EMC requirements. Even the use of a single-stage filter (DD12) is not yet adequate to sufficiently attenuate the interference. Only the use of the double-stage filter (DD14) ensures that the limit values for interference emissions are maintained over the entire frequency range.

ORDERABLE PART NUMBER

- Power Entry Modules DD12

Innovative features, high reliability and performance:
Discover the new generation of OSRAM 4DIM LED drivers

Long lifetime, low maintenance costs and high efficiency are very important for outdoor and industrial applications. Thanks to the high flexibility of the programmable OPTOTRONIC® 4DIMLT2 generation 2 LED drivers, LED luminaire systems can be optimally adapted to the on-site conditions and their cost can be optimized. With the four integrated dimming functions (4DIM), significant energy savings can be achieved.

The NFC interface implemented in the 4DIMLT2 G2 family enables an easy and safe way of programming LED drivers during the production process and also in the field. Due to the large operating window (voltage/current), both OSRAM LED modules for outdoor applications and customer-specific LED modules can be operated.

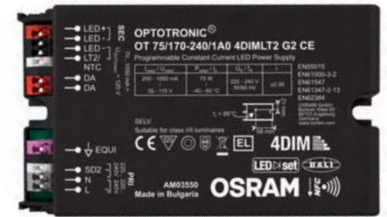
The new “Driver Guard” functionality allows the luminaire manufacturer to easily set the thermal behavior of a luminaire without the need for additional components; this can significantly improve the lifetime and reliability of a luminaire and will be the standard for future luminaire designs.

Features & Benefits

- High quality all-in-one LED driver offering easy and fast wireless luminaire programming
- Reduced number of luminaire types for cities and luminaire manufacturers by using Tuner4TRONIC Field smartphone app
- Innovative features for intelligent luminaire designs
- Wide current output range:
200 mA...1050 mA
- Great flexibility due to wide operating temperature range

Applications

- Street and urban lighting
- Industry applications



ORDERABLE PART NUMBER

- 4052899981942



tadiranbatteries.de

Avoiding the heart attack

Since many countries started or are already in the middle of utility metering rollouts this industry is facing a first level of maturity now, where meter manufacturers and operators are looking for more cost effective solutions. Besides establishing highly integrated manufacturing processes huge cost impacts can be generated by clever purchasing strategies, especially for the expensive components.

For a power network independent device, like most utility meters, the only energy source available is a battery. This part carries a fundamental responsibility for the lifetime of the system. That is the reason why Tadiran calls them the “Heart of your Device”. Everybody knows about the fatal effect a weak heart could have. So do you really want to risk a heart attack?

Tadiran offers reliable solutions for the metering business. Its battery solutions keep what they promised – as proven in hundreds of millions of meters worldwide. A well tried method to determine the battery’s lifetime based on real time test results combined with an expert design-in service ensures to have a “best- fit” and not a ready-made “one fits all” solution.

The result is a bunch of benefits:

- The battery can extend the meter's life-time
- Unplanned and expensive field failures stay away
- You can focus on your business and not on complaint handling
- Your product will be recognized as high quality
- Your reputation will move in the right direction



ELCON Micro Power Connectors

TE Connectivity's (TE) ELCON Micro wire-to-board power connectors provide a high current at 12.5 A per pin in the common industry footprint of 3.0 mm. This high current density in a compact design is useful for servers, switches, storage devices and testing machines. A common industry footprint also allows for easy upgrades to existing designs.

Features & Benefits

- High current density at 12.5 A per pin maximum in the common industry footprint of 3.0 mm (contact pitch)
- Common industry footprint allows for easy upgrades to existing designs
- Support 2 to 24 pin configurations and different currents with multiple combinations of different wire sizes
- ELCON Micro headers are PCB footprint compatible with other suppliers
- Easy assembly with virtually fool-proof mating features
- Perform reliably in harsh environments with maximum operating temperature of 105 °C
- Made with halogen-free material
- Low contact resistance of 5 mΩ max provides lower temperature rise and lower power loss on the connector

Materials

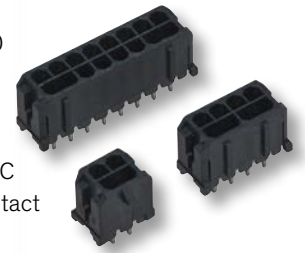
- Contacts: Copper alloy, tin plating
- Housing: thermo plastic, UL 94-V0
- Halogen-free




Ratings

- Voltage rating: 600 V max AC or DC
- Current rating: 12.5 A max per contact
- Contact resistance: 5 mΩ max
- Temperature rating: -40 °C to 105 °C

Specifications

- Product specs: 108-128068
- Qualification test report: 501-128069



		TE Part Number
	Vertical header, 4 position	1-2204801-8
	Vertical header, 8 position	3-2204801-8
	Vertical header, 16 position	7-2204801-8

AmbiMate Sensor Module Development Kit MS4 Series

AmbiMate Sensor Module MS4 Development Kits allow a developer, with use of some downloadable code, to connect to either a Raspberry Pi or Arduino and start collecting data within 30 minutes. The sensor module is an application specific set of sensors on a ready to attach PCB assembly for easy integration into a host product. Design resources are freed and time to market accelerated by integrating the MS4 series pre-engineered, four core sensor solution for Motion/Light/Temperature/Humidity into your next product.

Other MS4 series sensor modules include VOC (Volatile Organic Compound), eCO₂ (equivalent carbon dioxide) and sound detection. Add the capability to monitor air quality through the capture of VOC concentrations. Select an MS4 series with a microphone to augment motion detection or to listen for sound events.

All MS4 series sensor modules offer the flexibility of sharing a common seven position connection. This allows the designer to layout a single PCB footprint accommodating all the available sensor configurations at production.



Features & Benefits

- Accelerate time to market with a pre-engineered sensor solution
- Integrate the AmbiMate sensor module easily using the I2C communication protocol
- All the parts required to interface with a Raspberry Pi and Arduino
- Save space with a compact design
- Provide a versatile solution with multiple attachment methods
- Allow for multiple sensor configurations and flexibility in design with one footprint



ORDERABLE PART NUMBERS

- 2331211-1
- 2331211-2
- 2331211-3

TE Connectivity and TE connectivity (logo) are trademarks.

Automotive-Grade Thick Film Chip Resistors – AC Series

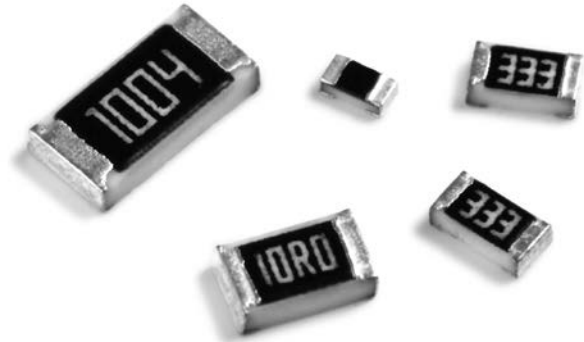
Yageo's automotive grade thick film chip resistor – AC series is AEC-Q200 qualified resistor designed for automotive electronics, industrial, and power supply. It offers case size from 0201 to 2512, resistance range from 1 Ω to 22 M Ω , tolerance of $\pm 0.5\%$, $\pm 1\%$, $\pm 5\%$ and low TCR of ± 100 , ± 200 ppm/ $^{\circ}\text{C}$ (± 50 ppm/ $^{\circ}\text{C}$ available for size 0402 to 1206), with power rating of 1/20 W – 2 W. AC series offers high power rating and wide terminal (0612, 1020, 1225) for excellent heat dissipation.

Features & Benefits

- AEC-Q200 qualified
- Production Part Approval Process (PPAP) available
- Soldering is compliant with J-STD-020D
- Highly reliable electrode construction
- 100 % performed by automatic optical inspection prior to taping

Applications

- All general-purpose applications
- Automotive – Infotainment, lighting, BMS
- Power supply
- Industrial



ORDERABLE PART NUMBERS

- AC0402
- AC0603
- AC0805
- AC1206
- AC1210
- AC1218
- AC2010
- AC2512

High voltage MLCC – CC series

Yageo's high voltage MLCCs are capable of operating at high voltage levels in devices or equipment for power transmission. Leading in SMD technology, Yageo's MLCCs satisfy power requirements for energy-saving, reliability, small footprint, and competitive pricing for applications such as: switching power supplies, lighting ballasts, LED drivers, DC/DC converters, AC/DC power modules, and battery management. High-voltage MLCC range has been developed specifically for power systems such as SMPS, DC-DC converters and DC-AC inverters. Manufactured using the most modern mass-production techniques, the range is available in rated voltages of 100 V, 200 V, 500 V, 1 kV, 2 kV, and 3 kV making them ideally suited for a wide range of power applications.

Features & Benefits

- Operates at high voltage
- For high frequency snubber
- High reliability with no polarity

Applications

- Power & alternative energy
- Telecommunication
- Industrial controls and drives
- Telecom
- Computing
- Lighting



ORDERABLE PART NUMBERS

- CC1206KKX7R0BB104
- CC1206KRX7R0BB333
- CC1206JRNPOABN100
- CC1206KKX7RYBB683
- CC1812KKX7REBB102
- CC1812JKNPOCBN102
- CC1812JKNPOBBN222
- CC1210JKNPOBBN331
- CC1210KKX7RCBB472
- CC1210KKX7RBBB473

New 225 EDLC-R ENYCAP™ Series of Ruggedized Energy Storage Capacitors Offers Long Life and High Moisture Resistance

Vishay Intertechnology introduces a new series of ruggedized ENYCAP electrical double-layer energy storage capacitors for energy harvesting and power backup applications in harsh, high humidity environments.

Features & Benefits

- Long useful life of 2000 hours at +85 °C
- Moisture resistance meets the biased 85/85 1000-hours test
- Available in eight small case sizes ranging from 16 mm by 20 mm to 18 mm by 40 mm
- High power density to 4.1 Wh/kg
- Capacitance values from 20 F to 60 F
- Maximum rated voltage of 2.7 V
- AEC-Q200 qualified available (on request)
- RoHS-compliant

Datasheet

www.vishay.com/doc?28449

Applications

- Power backup
- Burst power support
- Storage device for energy harvesting
- Micro UPS power source
- Energy recovery
- Smart metering
- Fault indicator



ORDERABLE PART NUMBERS

- MAL222591003E3
- MAL222591006E3
- MAL222591004E3
- MAL222591007E3
- MAL222591002E3
- MAL222591001E3
- MAL222591008E3
- MAL222591009E3

ARROW | arrow.com

The Online Resource for Engineers



Millions of products available to ship same day



Inventory expanding daily



Small quantities available on 90% of products



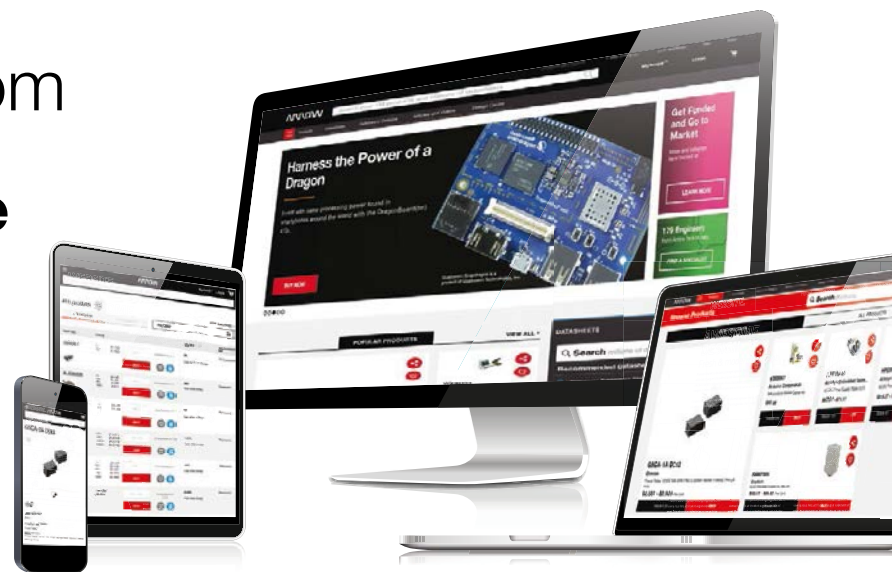
Datasheets for 300M+ products



Over 30K reference designs – plus new OrCAD™ design tool



Hundreds of articles and videos with new content added daily



Visit
www.arrow.com

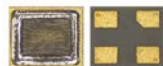
ABRACON[®] LLC

Tiny But Mighty

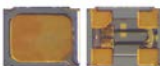
SOLUTIONS FOR THE IoT'S MOST FOOTPRINT CHALLENGED APPLICATIONS



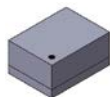
Miniature 32kHz XO
ASAKMP
1.6 x 1.2mm footprint
0.6mm profile



Miniature XTAL for the IoT
ABM13W
1.2 x 1.0mm footprint
0.33mm profile



Miniature 32kHz XTAL for the IoT
ABS04W
1.2 x 1.0mm footprint
0.35mm profile



Power Optimized MEMS XO
AMJM/AMPM/AMJD/AMPD
1.6 x 1.2mm footprint
Low 0.85mm profile



MEMS 32kHz Oscillator
ASTMTXK
1.54 x 0.84mm footprint
0.6mm profile



GPS/GLONASS/BEIDOU Chip Antenna
ACAR0301-SG3
3.05 x 1.6mm footprint
0.55mm profile



Chip Antenna
ACAG0201-2450-T
2.0 x 1.25mm footprint
0.6mm profile



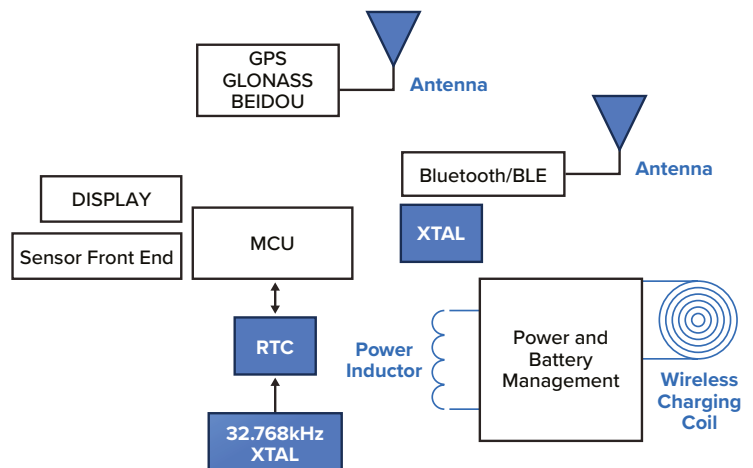
Chip Inductor
ASMPL
1.6 x 0.8mm footprint
0.5mm profile



Wireless Charging Coils
AWCCA-12R12H11-C01-B
12 x 12mm footprint
1.1mm profile



Wireless Charging Coils
AWCCA-15N15H06-C01-B
Ø15.0 footprint
0.6mm profile



APPLICATIONS

- Wearables
- IoT
- AR / VR
- Drones
- Financial Payment Access
- Consumer Medical / Fitness Monitoring

FEATURES

- Compact footprint
- Industry leading lowest profile
- Power saving for energy efficient designs



SCAN QR CODE TO LEARN MORE