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# Factory Automation Robotic & Collaborative Robotic Application Guide

TTI, Inc., – A Berkshire Hathaway Company



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# The Specialist in Electronic Component Distribution



**Global Distribution Centres  
with more than 195,000m<sup>2</sup>  
of automated warehousing  
in North America, Europe  
and Asia.**

## Why Choose TTI?

Founded in 1971, TTI has steadily grown to become a world leading specialist distributor of electronic components. The company was founded on the premise that passive component purchasing could be made more efficient by offering product specialization, customer-driven service and proprietary supply chain solutions.

## Global Distribution Centres

Our European headquarters is located just outside of Munich, Germany in Maisach-Gernlinden. In total, we have 42,600m<sup>2</sup> of dedicated warehouse space and local sales and technical support in over 40 locations across Europe. TTI has more than 195,000m<sup>2</sup> of automated warehousing in North America, Europe and Asia. All are linked into a global warehouse management system that provides superior customer service and overall business efficiencies. Wherever you are in the world, TTI can support you.

Year after year, customers rate our inventory availability, on-time delivery and accuracy among the very best in the industry – contact us today to find out what a true specialist has to offer.

## Quality and Reliability

TTI's global warehouses are all ISO-registered and have received certification to the ISO 9001 and ISO 14001 Standards. TTI Europe is also certified to EN9120/EN9100, IECQ-CECC and ISO/IEC 27001 Standards. Additionally, our European sales branches are ISO 9001 certified. TTI has one global documentation system that ensures that every TTI branch and warehouse in the world follows the same processes.



## Robotic & Collaborative Robotic Applications

### Robots & Collaborative Robots

- Machine tending
- Material handling
- Welding and gluing
- Polishing
- Screw driving
- Assembly
- Inspection

### AMR – Autonomous Mobile Robots

- Autom. Storage and retrieval
- Pick or sorting assist
- Packaging robots
- Quality inspection

### Service Robots

- Cleaning robots
- Health care robots
- Home service robots

### Associated Devices

- Vision systems
- Tools and grippers
- Navigation systems
- HMI interface



# Connectors

			
<p>Round shielded cables</p>	<p>ix Industrial™ IP20 Connectors</p>	<p>Minitek® Pwr 3.0 Connectors</p>	<p>Rugged Circular Locking Connectors</p>
<ul style="list-style-type: none"> <li>• Twisted pairs reduce crosstalk</li> <li>• Dual shielding with aluminium film foil and copper braid</li> </ul>	<ul style="list-style-type: none"> <li>• 10mm pitch, 2-point metal latches with data performance for 10E Ethernet with PoE capability</li> </ul>	<ul style="list-style-type: none"> <li>• Available in 2 to 24 circuits, current ratings up to 8.5A per circuit and glow wire compliant</li> </ul>	<ul style="list-style-type: none"> <li>• IP67 sealed, available in 2, 3, 4 position power or signal connects with locking option</li> </ul>
			
			
<p>Anytek Terminal Blocks</p>	<p>signalmate® C091 M16 Connectors</p>	<p>Ecomate® Rugged Metal Connector™</p>	<p>Conec B23</p>
<ul style="list-style-type: none"> <li>• Rising clamp system</li> <li>• Wire protector system</li> <li>• Spring clamp system</li> <li>• Screw pluggable system</li> <li>• Spring pluggable system</li> </ul>	<ul style="list-style-type: none"> <li>• Access to all pin layouts of C091 (3–8, 12&amp;14)</li> <li>• Enhanced grip with improved locking ring from C091D+</li> <li>• IP68</li> </ul>	<ul style="list-style-type: none"> <li>• IP68/69k in mated condition</li> <li>• Quick reliable mating – bayonet coupling</li> <li>• Mixed power and signal layouts</li> </ul>	<ul style="list-style-type: none"> <li>• Power supply and data in one single connector</li> <li>• Reducing time and costs for cabling</li> <li>• Each pin layout with min. 2 different codings</li> </ul>
			
			
<p>LTW X-LOK IP68</p>	<p>MPronto-12</p>	<p>M8/M12 Connectors</p>	<p>851 Series</p>
<ul style="list-style-type: none"> <li>• Push lock design</li> <li>• Excellent performance under harsh environmental conditions</li> <li>• Easy-grip design</li> </ul>	<ul style="list-style-type: none"> <li>• Saves more than 80% of installation time</li> <li>• Robust design with auditive sound</li> <li>• Supports A, B, D, L, K, S, T, X coding</li> </ul>	<ul style="list-style-type: none"> <li>• Wide range of M12 for Data Group (Profibus/DeviceNet, Profibus/Interbus, Ethernet)</li> <li>• Wide range of M12 power group (12A to 16A)</li> </ul>	<ul style="list-style-type: none"> <li>• Operating temperature range: -55°C to +125°C</li> <li>• Durability: 500 mating/unmating mating cycles</li> <li>• Salt spray resistance: 500h</li> </ul>
			

# Connectors

 Powering Business Worldwide			
<b>Trim Trio UTGX Series &amp; UTS Series</b>	<b>M40 Series</b>	<b>D-Sub</b>	<b>Micros</b>
<ul style="list-style-type: none"> <li>• IP68/69K dynamic mated (&amp; unmated for Hi-Seal versions)</li> <li>• Up to 500 mating cycles</li> <li>• UL &amp; IEC certified</li> <li>• Operating temp.: -40° + 105°C</li> <li>• UV resistant with F1 material</li> </ul>	<ul style="list-style-type: none"> <li>• 1mm pitch SMT board-to-board/cable-to-board connectors, up to 1A per contact, compact &amp; lightweight</li> </ul>	<ul style="list-style-type: none"> <li>• Robust set of mixed power and signal layouts</li> <li>• Small-to-high pin count: from two, size 8 contacts to as many as 104</li> </ul>	<ul style="list-style-type: none"> <li>• Space-saving, weight-optimized design</li> <li>• Exceptional versatility</li> <li>• Positions: 9, 15, 21, 25, 31, 27, 51, 100</li> </ul>
			
			
<b>Trident</b>	<b>APD Connectors</b>	<b>AX01 Series</b>	<b>JL10 Series</b>
<ul style="list-style-type: none"> <li>• Metal, plastic, circular and rectangular variants</li> <li>• High voltage up to 500VAC</li> <li>• Mixed power (30A) and signal (13A up to 16A)</li> </ul>	<ul style="list-style-type: none"> <li>• Designed according to ISO 15170</li> <li>• Full plastic, robust design</li> <li>• Bayonet locking with secondary locking feature</li> </ul>	<ul style="list-style-type: none"> <li>• 8Gbps + high speed floating board to board connector</li> <li>• 0.635 mm pitch dual row, 30-140 pins</li> </ul>	<ul style="list-style-type: none"> <li>• Utilizes a one-touch bayonet lock style mating</li> <li>• IP67 waterproof and dustproof</li> <li>• Featuring new hybrid types - combining power supply and brake signals</li> </ul>
			
			
<b>CRC (Compact Robotic Connectors)</b>	<b>Contrinex Photoelectric &amp; Inductive Sensors</b>	<b>Brad Ultra-Lock Connector Systems</b>	<b>PCB Connectors</b>
<ul style="list-style-type: none"> <li>• Compact size enables space saving</li> <li>• 7A/15A signal &amp; power options</li> <li>• Front/Rear panel mount options</li> </ul>	<ul style="list-style-type: none"> <li>• Robust, self-contained sensors with an integrated IO-link</li> <li>• Compliant to IP67 and 69K for rugged applications</li> </ul>	<ul style="list-style-type: none"> <li>• Push to lock technology.</li> <li>• Rated to 250V AC/DC, up to 4.0A</li> <li>• Positive-locking for reliable connections</li> </ul>	<ul style="list-style-type: none"> <li>• Intuitive operation</li> <li>• Tool-free lever principle</li> <li>• Distinct lever positions give a reliable feedback</li> </ul>
			

# Connectors

			
<p>M8/M12</p>	<p>HDC Series</p>	<p>M8/M12</p>	<p>Intercontec</p>
<ul style="list-style-type: none"> <li>• Plug and produce: quick and reliable connection</li> <li>• Greater flexibility: one M12 device connection for screw and push-pull connectors</li> </ul>	<ul style="list-style-type: none"> <li>• Up to 650A and 5000V</li> <li>• Different signal types such as power, signal, and data, in a unique connector</li> <li>• Up to 1000M data transmission speed</li> </ul>	<ul style="list-style-type: none"> <li>• X-coded connectors for higher bandwidth up to 10Gb/s</li> <li>• A, B, D, X, S, T coding available</li> <li>• IP67 and IP68</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanic solidity and highly shock and vibration resistant</li> <li>• Radial seal high IP protection class IP 67+</li> <li>• Complete EMC shield connection</li> </ul>
			
			
<p>HDC</p>	<p>Dynamic</p>	<p>Industrial Mini I/O</p>	<p>Industrial RJ45</p>
<ul style="list-style-type: none"> <li>• Designed for harsh environment</li> <li>• Improved operational efficiency</li> <li>• Reliable &amp; high density contact</li> </ul>	<ul style="list-style-type: none"> <li>• Vibration resistant</li> <li>• Housings are keyed preventing mis-mating and misalignment</li> <li>• Positive audible locking sound</li> </ul>	<ul style="list-style-type: none"> <li>• Type I and Type II I/F</li> <li>• LCP materials</li> <li>• Industrial temperature range</li> </ul>	<ul style="list-style-type: none"> <li>• Single piece common core</li> <li>• Cat. 6A plug with tool-less installation</li> <li>• Automatic wire cut-off function</li> </ul>
			
			
<p>Industrial USB</p>	<p>Mate-N-Lok</p>	<p>CPC</p>	<p>D-Sub</p>
<ul style="list-style-type: none"> <li>• 4 contact position – max. 1.5A</li> </ul>	<ul style="list-style-type: none"> <li>• .250 [6.35] centreline</li> <li>• 600VAC or VDC, 19A maximum</li> <li>• 30 – 10 AWG wire range</li> </ul>	<ul style="list-style-type: none"> <li>• Versatile, rugged, cost effective design</li> </ul>	<ul style="list-style-type: none"> <li>• Right angle PCB</li> <li>• Vertical PCB</li> <li>• Cable mounted</li> </ul>
			

# Power Supplies & Sensors

			
<p><b>CoolX 1800</b></p>	<p><b>RCB-1600 Series</b></p>	<p><b>TDR Series DIN Rail Power</b></p>	<p><b>RST-5000</b></p>
<ul style="list-style-type: none"> <li>• Modular power supply</li> <li>• Up to 1800W</li> <li>• Up to 12 outputs</li> <li>• All outputs isolated (1850VAC)</li> <li>• PMBus™ for digital communications and control</li> </ul>	<ul style="list-style-type: none"> <li>• Charger for lead-acid &amp; Li-ion batteries</li> <li>• Built in default 3 stage charging curves</li> <li>• Output voltage and current programmable</li> </ul>	<ul style="list-style-type: none"> <li>• Slim width</li> <li>• Built-in passive PFC function</li> <li>• Three-Phase 340 ~ 550VAC wide range input</li> </ul>	<ul style="list-style-type: none"> <li>• Built-in active PFC function</li> <li>• High efficiency up to 90.5%</li> <li>• Forced air cooling by built in DC fan</li> </ul>
			
	 <p>INNOVATOR IN ELECTRONICS</p>		
<p><b>UHP Series Fanless PSU</b></p>	<p><b>PQU650 Series</b></p>	<p><b>HSFPAR Series Force Sensors</b></p>	<p><b>SS360/460 Series Magnetic Position Sensors</b></p>
<ul style="list-style-type: none"> <li>• Slim and Low profile</li> <li>• Fanless and conduction-cooled design</li> <li>• Withstand 300VAC surge input for 5 seconds</li> </ul>	<ul style="list-style-type: none"> <li>• Voltage (+15%) adjustment of Main V1 Output</li> <li>• +5Aux/Standby and 12V Fan outputs</li> <li>• 4" x 6" industry standard footprint</li> </ul>	<ul style="list-style-type: none"> <li>• Small footprint with low profile</li> <li>• Can sense force levels of 0.01N</li> <li>• High sensitivity</li> <li>• 1.5v or 3.6v supply voltage</li> </ul>	<ul style="list-style-type: none"> <li>• Fast response &amp; high sensitivity</li> <li>• Latching digital hall sensor</li> <li>• Durable design</li> <li>• Wide operating voltage 3 – 24Vdc</li> </ul>
			
	 <p>AUTHORIZED DISTRIBUTOR</p>	 <p>AUTHORIZED DISTRIBUTOR</p>	
<p><b>FMA Series MicroForce Sensors</b></p>	<p><b>M3200 - Compact Industrial Pressure Sensors</b></p>	<p><b>FX29 Series: Compression Load Cell</b></p>	<p><b>RAMK060 Position Sensors</b></p>
<ul style="list-style-type: none"> <li>• Small form factor: 5 x 5mm</li> <li>• Accuracy: ±2% FSS typical</li> <li>• SPI or I2C-digital output</li> <li>• Internal diagnostic functions available</li> </ul>	<ul style="list-style-type: none"> <li>• One piece stainless steel construction</li> <li>• Digital or analog pressure &amp; temperature output</li> <li>• Accuracy ±1,5% TEB</li> <li>• Pressure Range up to 700bar</li> </ul>	<ul style="list-style-type: none"> <li>• Compact design in robust packaging</li> <li>• Low power consumption</li> <li>• mV or amplified analogue output</li> <li>• Optional I2C digital interface</li> </ul>	<ul style="list-style-type: none"> <li>• High resolution &gt; 18 bits over 360° (0.001°)</li> <li>• Repeatability &gt; 16 bits</li> <li>• Accuracy &gt; 13 bits</li> <li>• Single or multi turns</li> <li>• Output Biss-C, SSI or SPI</li> </ul>
			

# Relays & Switches

<p><b>OMRON</b></p>	<p><b>OMRON</b></p>	<p><b>Panasonic INDUSTRY</b></p>	<p><b>Panasonic INDUSTRY</b></p>
<p>G5RL</p>	<p>G5NB-EL</p>	<p>SFM</p>	<p>SFY</p>
<ul style="list-style-type: none"> <li>• 15.7mm low-profile relay with various models (high inrush, low noise, TV8, bistable and AC coil)</li> </ul>	<ul style="list-style-type: none"> <li>• 7mm slim compact relay with 7A switching capacity</li> <li>• IEC/EN 60079-15 version available</li> </ul>	<ul style="list-style-type: none"> <li>• 1NO/1NC forcibly guided relay, EN 61810-3</li> <li>• Extremely low height of 7.8mm</li> <li>• THR version available</li> </ul>	<ul style="list-style-type: none"> <li>• 4- and 6pole forcibly guided relays, EN 61810-3</li> <li>• Low height of 14.5mm</li> <li>• Degree of protection RTIII</li> </ul>
			
 <p>AUTHORIZED DISTRIBUTOR</p>	 <p>AUTHORIZED DISTRIBUTOR</p>	<p><b>C&amp;K</b></p>	<p><b>Honeywell</b></p>
<p>PCN</p>	<p>SRL7</p>	<p>KSC3</p>	<p>NGC</p>
<ul style="list-style-type: none"> <li>• 1NO and 5A relay with anti-explosive version which meets ANSI/ISA – 12.12.01</li> <li>• Only 5mm wide</li> </ul>	<ul style="list-style-type: none"> <li>• Force guided relay with</li> <li>• Seven poles – 2NC and 5NO reinforced</li> <li>• Insulation on all NO contacts</li> </ul>	<ul style="list-style-type: none"> <li>• KSC3 IP67 sealed tact switches for SMT have adaptable tactile feeling which is perfect for industrial applications</li> </ul>	<ul style="list-style-type: none"> <li>• Compact limit switch that allow the customer to choose SPDT or DPDT circuitry</li> </ul>
			
<p><b>IDEC</b></p>	<p><b>IDEC</b></p>	<p><b>OMRON</b></p>	<p><b>Panasonic INDUSTRY</b></p>
<p>HE2G</p>	<p>HE3B</p>	<p>B3F-8000</p>	<p>ESB-30</p>
<ul style="list-style-type: none"> <li>• Two contacts are provided in a 3-position enabling switch</li> </ul>	<ul style="list-style-type: none"> <li>• ø16mm rectangular three-position enabling switches</li> </ul>	<ul style="list-style-type: none"> <li>• Security oriented tactile switch with protective cover</li> </ul>	<ul style="list-style-type: none"> <li>• Low profile, h=6.0mm</li> <li>• SMD type (embossed taping) available</li> <li>• 2-pole 2-throws are available</li> </ul>
			

# Circuit Protection, E-Magnetics & Resistors

			
<p>Slow Blow Fuses</p>	<p>Square Body Fuses</p>	<p>HMOV Varistors</p>	<p>Low Profile Inductors</p>
<ul style="list-style-type: none"> <li>• Slow Blow Fuse for overcurrent protection</li> <li>• 3216 (EIA 1206) miniature footprint</li> <li>• Wire core SMD design</li> <li>• cUL and TUV Certifications</li> </ul>	<ul style="list-style-type: none"> <li>• Best in class DC performance</li> <li>• Extremely current limiting</li> <li>• Superior cycling capability</li> </ul>	<ul style="list-style-type: none"> <li>• High operating temperature 125°C</li> <li>• High surge current withstanding capability up to 10kA</li> <li>• Complies with 1000 cycle, -55°C to 125°C</li> </ul>	<ul style="list-style-type: none"> <li>• Shielded construction</li> <li>• Metal alloy powder core</li> <li>• Very low profile: &lt; 2mm</li> </ul>
			
			
<p>Power Inductors</p>	<p>Compact Crystal Unit</p>	<p>Short Range Antennas</p>	<p>Shunt Resistors</p>
<ul style="list-style-type: none"> <li>• 3 tech. (metal composite, thin-film, magnetic shield wound)</li> <li>• Wide current capability up to 38A</li> <li>• Temperature range up to 125°C</li> </ul>	<ul style="list-style-type: none"> <li>• Small size enabling higher mounting density</li> <li>• Economical &amp; robust design</li> <li>• Ideal for communication clocks</li> </ul>	<ul style="list-style-type: none"> <li>• For Sub-GHz/Short-range, 169/315/433/870/915MHz</li> <li>• Linear polarization</li> <li>• Omni-directional</li> </ul>	<ul style="list-style-type: none"> <li>• 0.5mΩ to 20mΩ</li> <li>• 1W (0805 inch) to 5W (2512 inch)</li> <li>• Current ratings up to 100A</li> </ul>
			
			
<p>Metal Element Inverse Shunts</p>	<p>Welded Shunt Resistors</p>	<p>Vitreous Resistors</p>	<p>Aluminium Housed Resistors</p>
<ul style="list-style-type: none"> <li>• Inverse 1020 &amp; 1225 SMD shunt, 0.1 to 3mOhms, down to 1%</li> <li>• Ultra-low ohmic values support high energy efficiency in the end product</li> </ul>	<ul style="list-style-type: none"> <li>• Low measurement error</li> <li>• Low ohmic values reduce power loss</li> <li>• Robust construction improves equipment reliability</li> </ul>	<ul style="list-style-type: none"> <li>• High power rating up to 1000W</li> <li>• Excellent pulse load capability</li> <li>• Low ohmic values &lt; 1Ohm</li> </ul>	<ul style="list-style-type: none"> <li>• High power rating: 75W – 500W</li> <li>• Wirewound resistors, high power, aluminium housed, heatsink type</li> <li>• Resistance range: 0.1Ω – 51KΩ</li> </ul>
			

# Capacitors

 Powering Business Worldwide	 a YAGEO company	 a YAGEO company	 PRECISION DEVICES COMPLEX - DLI - JOHANSDON MFG NOVACAP - SYFER - VOLTRONICS
<b>Supercap Modules</b>	<b>Screw Terminal Capacitors</b>	<b>T521 Polymer Capacitors</b>	<b>SMD Safety Capacitors</b>
<ul style="list-style-type: none"> <li>• Operating lifespan of up to 20 years</li> <li>• No monitoring or user controls required</li> <li>• No chemical reaction</li> </ul>	<ul style="list-style-type: none"> <li>• Compact size with High CV</li> <li>• Long life, up to 20,000 hours</li> <li>• High ripple current</li> </ul>	<ul style="list-style-type: none"> <li>• Low ESR</li> <li>• Volumetrically efficient</li> <li>• Stable temperature characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• High voltage MLCC capability</li> <li>• Safety certified ranges</li> <li>• Safety capacitors with 4mm minimum creepage/clearance</li> </ul>
			
	 INNOVATOR IN ELECTRONICS	<b>Panasonic INDUSTRY</b>	<b>Panasonic INDUSTRY</b>
<b>Prizmacaps</b>	<b>Polymer Capacitors</b>	<b>Electrolytic Capacitors</b>	<b>ZKU Hybrid Capacitors</b>
<ul style="list-style-type: none"> <li>• Capacitance: 3.5F to 15F</li> <li>• Widest temperature range: -55°C to +65°C at 2.1V -55°C to +90°C at 1.1V</li> <li>• Profile as low as 0.8mm &amp; light weight</li> </ul>	<ul style="list-style-type: none"> <li>• Murata's ECAS series of polymer capacitors – the low ESR with high &amp; stable capacitance</li> </ul>	<ul style="list-style-type: none"> <li>• Wide temperature range (-55°C to +125°C)</li> <li>• Low ESR values (down to 80mΩ)</li> <li>• Long life (Up to 10,000 hours at 105°C)</li> </ul>	<ul style="list-style-type: none"> <li>• Less board space by reduction of necessary number and size of capacitors</li> <li>• 30g vibration proof types available</li> <li>• Large capacitance</li> </ul>
			
			<b>YAGEO</b>
<b>AC Output Caps</b>	<b>MKP1848C Capacitors</b>	<b>159 Snap In Capacitors</b>	<b>MLCC HVC Series</b>
<ul style="list-style-type: none"> <li>• Optimized AC voltage performance</li> <li>• High ripple current capability</li> <li>• THB: 60°C / 95% RH &amp; / Vrac / 1000h</li> </ul>	<ul style="list-style-type: none"> <li>• Broad voltage and capacitance range</li> <li>• High density design: more capacitance per mm<sup>3</sup></li> <li>• High RMS current capabilities up to 55ARMS</li> </ul>	<ul style="list-style-type: none"> <li>• 500V products with a useful life of 5000h at +105°C</li> <li>• High ripple current capability, robust design</li> </ul>	<ul style="list-style-type: none"> <li>• High capacitance and high voltage at once</li> <li>• Size: 0805-1812</li> <li>• TC: X7R (-55°C – 125°C)</li> </ul>
			

# Discrete Semiconductors

		 <small>Kingbright Electronic Europe GmbH</small>	
<p><b>TBU-RSxxx-300</b> High-Speed Protectors</p>	<p><b>656 Series</b> High Intensity LED PMI</p>	<p><b>KPT-1608LVZGCK</b> 0603 LED 525nm</p>	<p><b>IXA40PG1200DHGLB</b> XPT IGBT</p>
<ul style="list-style-type: none"> <li>• Small DFN Package</li> <li>• Dual channel protector for RS-485 interfaces</li> <li>• Fast protection response time (1µs)</li> </ul>	<ul style="list-style-type: none"> <li>• Large variety of voltages 5 - 120VDC and 230VAC</li> <li>• Domed or flat let lens versions</li> <li>• Quick connect terminals or wire leads connections</li> </ul>	<ul style="list-style-type: none"> <li>• Low power consumption</li> <li>• Wide viewing angle</li> <li>• Ideal for backlight and indicator</li> </ul>	<ul style="list-style-type: none"> <li>• Low saturation voltage</li> <li>• Fast switching</li> <li>• Short tail current for optimized performance in resonant circuits</li> </ul>
			
			
<p><b>DMA90U1800LB</b> Standard Rectifier</p>	<p><b>IXA40RG1200DHGLB</b> XPT IGBT</p>	<p><b>OPB350 Series</b> Tube Liquid Sensors</p>	<p><b>VSMA10 Series</b> High power IR emitters</p>
<ul style="list-style-type: none"> <li>• Rectifier diode</li> <li>• Isolated back surface</li> <li>• Low coupling capacity between pins and heatsink</li> <li>• Enlarged creepage towards heatsink</li> </ul>	<ul style="list-style-type: none"> <li>• Low saturation voltage</li> <li>• Fast switching</li> <li>• Short tail current for optimized performance in resonant circuits</li> </ul>	<ul style="list-style-type: none"> <li>• Liquid identification in clear tubes</li> <li>• Opaque plastic housing enhances ambient light rejection</li> <li>• Through hole mounting or 24 (610 mm) 26AWG wires</li> </ul>	<ul style="list-style-type: none"> <li>• SMD</li> <li>• 850 nm, 940 nm</li> <li>• Emission angle: <math>\phi(^{\circ}) = \pm 28, \pm 40, \pm 60</math></li> <li>• High currents up to 1.5A (DC), 5A (AC)</li> </ul>
			
			
<p><b>SIC46x microBUCK</b> DC/DC Converters</p>	<p><b>TCUT1630X01 3-CH</b> Transmissive Sensors</p>	<p><b>XMC7K24CA</b> 7KW TVSDiode</p>	<p><b>SiR580DP</b> N-Channel 80V (D-S) MOSFET</p>
<ul style="list-style-type: none"> <li>• 4.5V to 60V input voltage</li> <li>• 2A (SiC464), 4A (SiC463), 6A (SiC462), 10A (SiC461)</li> <li>• Highly efficient – 98% peak efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• “Turn and Push” Encoding</li> <li>• SMD package</li> <li>• Gap (in mm): 3</li> <li>• Phototransistor outputs</li> <li>• AEC-Q101 qualified</li> </ul>	<ul style="list-style-type: none"> <li>• 7KW snapback Bi-directional in DO-214AB (SMC)</li> <li>• Low clamping voltage with high surge current.</li> <li>• Extremely stable breakdown voltage (VBR)</li> </ul>	<ul style="list-style-type: none"> <li>• TrenchFET® Gen V power MOSFET</li> <li>• Excellent efficiency performance in power supplies</li> <li>• Optimized <math>Q_{gd} / Q_{gs}</math> ratio</li> <li>• Ideal for 48V Motor drives</li> </ul>
			



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