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endrich NEWS

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Wish
you
a
Merry
Christmas

✦ & ✦

HAPPY NEW YEAR

Vielen Dank für Ihr Vertrauen und wir freuen uns auf
eine weiterhin gute Zusammenarbeit!

Wenn Sie die endrich news nicht mehr per Post wünschen, schreiben Sie bitte eine E-Mail an newsletter@endrich.com

INTRODUCING THE MSR SERIES: HIGH PRECISION METAL ALLOY SENSING RESISTORS



The new MSR Shunts from Susumu enable highly precise current measurements, thanks to their low

tolerance of down to $\pm 0,5\%$ and the low temperature coefficient (TCR), ranging from $25\text{ppm}/^\circ\text{C}$ to $200\text{ppm}/^\circ\text{C}$. The resistors are based on a manganin metal alloy and are available with resistance values from $0,2\text{m}\Omega$ to $5\text{m}\Omega$ and rated power between $2,5\text{W}$ and 15W (depending on the size).

The "trimming free" technology and welding the shunt with a vacuum electron beam, enables low EMF values, consistently high current-carrying capacity and prevents the emergence of hot spots.

All sizes (2512, 3920 and 5930) of the MSR series are AEC-Q200 qualified

Size	Power rating	Resistance	Tolerance	TCR	Thermal Resistance ($^\circ\text{C}/\text{W}$)
2512	2,5W - 6W	$0,3\text{m}\Omega$ - $5\text{m}\Omega$	$\pm 0,5\%$, $\pm 1\%$, $\pm 5\%$	$\pm 25\text{PPM}/^\circ\text{C}$ - $\pm 200\text{PPM}/^\circ\text{C}$	4,1 - 31,1
3920	3W - 12W	$0,2\text{m}\Omega$ - $5\text{m}\Omega$	$\pm 0,5\%$, $\pm 1\%$, $\pm 5\%$	$\pm 25\text{PPM}/^\circ\text{C}$ - $\pm 200\text{PPM}/^\circ\text{C}$	3,6 - 38,4
5930	9W - 15W	$0,2\text{m}\Omega$ - $3\text{m}\Omega$	$\pm 0,5\%$, $\pm 1\%$, $\pm 5\%$	$\pm 25\text{PPM}/^\circ\text{C}$ - $\pm 200\text{PPM}/^\circ\text{C}$	2,6 - 19,1

FEATURES

- High-Precision Low-TCR Alloy for superior performance.
- Tight resistance tolerance of $\pm 0.5\%$ with no trimming required.
- Low thermoelectric power to minimize thermal fluctuations.
- Operates reliably across a wide temperature range: -55°C to 170°C .
- Available in various sizes (2512, 3920, 5930) to suit different applications.

APPLICATIONS

- Automotive
- Precision Power Supply
- Instrumentation
- Medical Equipment

NEWS

PAN1783- LE AUDIO



The PAN1783 is a Bluetooth 5.3 Low Energy (LE) module built around the Nordic nRF5340 single-chip controller, available with either an onboard chip antenna or an RF bottom pad.

This module leverages Bluetooth 5.3 features, including isochronous channels and LE audio, and supports high throughput of 2 Mbps, advertising extensions, and long-range communication. It integrates the extensive capabilities of the nRF52 Series, enhancing performance and memory while keeping power consumption low.

With improved sensitivity and LE coded PHY, the PAN1783 is particularly well-suited for advanced computer peripherals, I/O devices, sophisticated wearables, and wireless audio devices. Its ultra-low power consumption makes it an excellent choice for battery-powered applications.

Equipped with two Cortex®-M33 processors—one as an application processor (operating at 128 MHz or 64 MHz, with 512 kB RAM and 1 MB of built-in flash memory) and the other as a network processor (operating at 64 MHz, with 64 kB RAM and 256 kB flash)—the PAN1783 can function in standalone mode, eliminating the need for an external processor, which reduces complexity, space requirements, and cost.

Additionally, the PAN1783 supports Bluetooth direction finding with angle of arrival (AoA) and angle of departure (AoD) capabilities. It also includes Type 2 Near Field Communication (NFC-A) support for simplified pairing and payment solutions, though an external antenna is required for NFC functionality.

Specification:

RF technology	Bluetooth Low Energy (LE)
Chipset	nRF5340
Operating temperature	-40 to +85 °C
Antenna option	Chip Antenna or Bottom Pad
Certification	CE RED / FCC / ISED

APPLICATIONS

- Wearables
- I/O devices
- Audio devices

COMPLETE GREEN TVS ARRAY FOR AUTOMATION SENSOR IO LINK

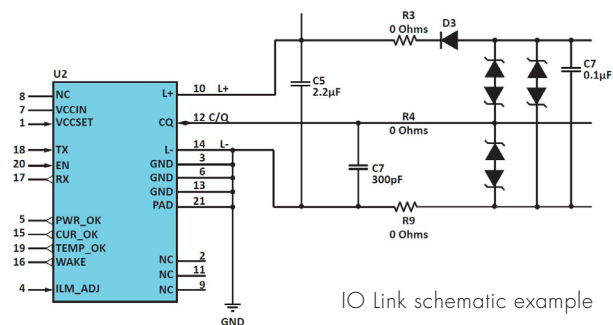
ProTek Devices introduced a new transient voltage suppressor array (TVS array) that delivers circuit protection in industrial automation equipment, sensors, and power or data line applications. The new TVS array is a high surge green device, having no lead content.

The new PSM36A can deliver circuit protection in IO-link sensor transceiver interfaces, 2-wire sensors, and 3-wire DC proximity switches, amongst other industrial or sensor applications. Circuit protection includes defense from electrostatic discharge (ESD), tertiary lightning, and switching transients.

The TVS array is provided in a molded JEDEC SOT-23 package and is compatible with several IEC standards. These include 61000-4-2 (ESD): air ± 30 kV, contact ± 30 kV, with 61000-4-4 (EFT): 40A, 5/50ns, and with IEC 61000-4-5 (surge): Class 2, 1kV, $R_{eq} = 42$ Ohms. It features 2400 watts peak pulse power

per line (typical = 8/20 microseconds) and a low clamping voltage of less than 60V @ 40Apk 8/20 microseconds surge.

It also provides for unidirectional configuration and has a low leakage of 200nA at 36V. As a lead-free component, it is essentially a green device. It also is RoHS and REACH compliant.



IO Link schematic example

FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air ± 30 kV, Contact ± 30 kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- Compatible with IEC 61000-4-5 (Surge): Class 2, 1kV, $R_{eq} = 42$ Ohms
- 2400 Watts Peak Pulse Power per Line ($t_p = 8/20\mu s$)
- Stand-Off Voltage VWM: 36V
- Low Clamping Voltage: Less than 52V @ 25Apk, 8/20µs Surge
- Low Leakage: 200nA @ 36V
- Typical Capacitance: 1.9pF
- Green Component - ROHS & REACH compliant (without exemptions)



APPLICATIONS

- IO-Link Sensor Transceiver Interface
- 2-Wire Sensors
- 3-Wire DC Proximity Switch



NEWS

CSPD SEV SERIES

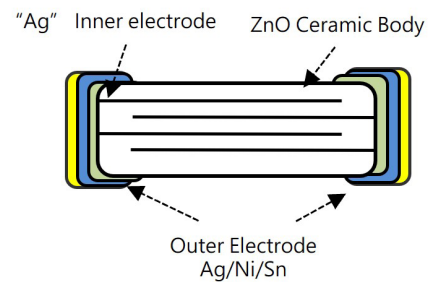
SURGE PROTECTION FOR AUTOMOTIVE APPLICATIONS



The SEV series will provide overvoltage protection for electric vehicle systems. Also, it avoids overvoltage effects in circuits such as DC-DC converter ICs in automobiles or linear regulators, where the clamping voltage will be lower than 60V/80V. To ensure reliability, automotive requirements for surge protection are ISO7637-2 Pulse 1 and ISO16750 Pulse 5b. Insufficient surge protection can affect and damage automotive equipment.

SPECIFICATION	WORKING VOLTAGE	BREAKDOWN VOLTAGE	CLAMPING VOLTAGE	CLAMPING VOLTAGE	PEAK VOLTAGE MAX.
UNIT	VDC	V_b @1mA	VC @8/20 μ s (A)	Vc @ Pulse 1	Vpeak
SFI0806EV280-L4	16V	27-30	45	60	150
SFI0806EV450-L4	32V	43-47	66	80	600
SFI0806EV550-L4	43V	54-59	80	110	600
SFI0806EV600-L4	48V	59-65	90	120	600
SFI0806EV720-L4	60V	71-78	105	140	600

SPECIFICATION	JUMP START VOLTAGE	WITHSTAND VOLTAGE
UNIT	Vc @ Pulse 1	V
SFI0806EV280-L4	30V	18
SFI0806EV450-L4	46V	36
SFI0806EV550-L4	57V	36
SFI0806EV600-L4	62V	36
SFI0806EV720-L4	74V	36



FEATURES

- SMD type to save space (0806)
- DC 16V/32V/43V/48V/60V
- Meet AEC-Q200 Rev-C requirement
- Ultra low leakage current
- High temperature characteristic (-40 °C – 125 °C)
- Bidirectional clamping function

APPLICATIONS

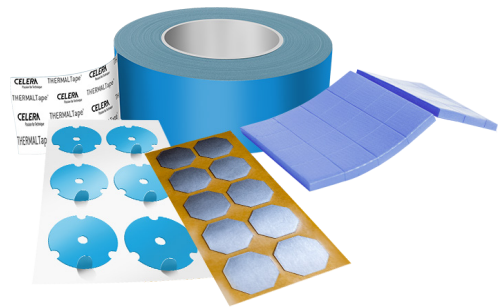
- Power train System
- Safety System
- Comfort System
- Driver Assistant System
- Security System
- Hybrid Electrical
- Electronic Control Units



THERMAL INTERFACE MATERIALS FOR IOT APPLICATIONS

Celera has the most suitable solutions for the thermal profile of your application.

Celera offers a comprehensive range of solutions for thermal interface materials, sealants and coatings, which are designed to ensure optimal thermal management in a diverse array of applications.



YOUR APPLICATION	THE CHALLENGES	OUR SOLUTIONS
Smart cameras 	Very high thermal load generated by super high/high power LED packages	COOLPad® Low and super low compression pads 
Connected sensors 	High/mid thermal load generated by high/mid power LED packages	FlexCOAT® Single-component and silicone-free conformal coating SILCap® Low-stress potting compound 
Gateways 	PCB attachment to aluminum profile and mid/low thermal load generated by LED packages	FlexGRAF® High thermal conductivity Graphite sheets 
Data center 	Very high/high thermal load generated by COB packages and low clamping force between PCB and heat sink	COOLPhase® Phase change material pads 

NEWS

GPS HIGH-PRECISION ANTENNA PATGPS-I10D-100-1ZM-A

The PATGPS-I10D-100-1ZM-A is a powerful GPS patch antenna specifically designed for applications requiring high positioning accuracy. Its dual-feed structure ensures reliable performance across multiple GNSS bands.

This antenna offers an ideal combination of multi-frequency reception, high stability, and compact design, making it an excellent choice for demanding applications in the automotive industry, geodetic surveying, and IoT solutions.



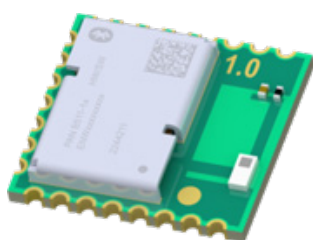
Typical electrical properties:

Characteristics	Specification	Unit	Conditions
General receiving frequency range	1559-1610	MHz	GPS L1
Center frequency	1584.5	MHz	
General receiving frequency range	1164~1189	MHz	GPS L5
Center frequency	1176.5	MHz	
Return loss (Include hybrid coupler)	<10	dB	
Zenith gain	1176.5 MHz	2.76 typ.	Antenna test on Dia. 150mm ground plane.
	1561 MHz	2.29 typ.	
	1575.42 MHz	4.34 typ.	
	1602 MHz	1.86 typ.	
Axial ratio	≤ 3	dB	
Polarization	RHCP		Include hybrid coupler
Frequency temperature coefficient	0±20	ppm/°C	-40OC TO +105°C

APPLICATIONS

- Autonomous Driving: Thanks to its high precision, it is ideal for GNSS-based navigation systems in self-driving cars and Advanced Driver Assistance Systems (ADAS).
- Drones and Robotics: Perfect for applications requiring accurate positioning and control.
- Geodata Processing: Optimal for high-precision surveying and mapping.
- Industry 4.0: Suitable for smart factories and automation systems where location tracking plays a role.

NEW PANASONIC WIFI AND BLUETOOTH MODULES



PAN B511-1x - Bluetooth 5.4 Low Energy (LE)

The PAN B511-1x is a Bluetooth 5.4 Low Energy (LE) module built around the Nordic nRF54L15 single-chip controller.

Thanks to its ultra-low power usage, the PAN B511-1x is an excellent choice for battery-powered applications. The module's compact design, featuring hybrid castellated holes and an LGA footprint, allows for optical inspection, supports two-layer designs, and enables quick prototyping with hand soldering. Additionally, more GPIOs are available on the bottom if required.

This module comes with either an onboard chip antenna or an RF bottom pad. It integrates all key features of the nRF54 Series, enhancing performance and memory capacity while keeping power consumption to a minimum.

Specification:

RF technology	Bluetooth® 5.4 Low Energy (LE)
Chipset	nRF54L15
Frequency	2.4 GHz
Operating temperature	-40 to +85 °C
Antenna option	Integrated chip (PAN B511-1C) or bottom pad (PAN B511-1B)
Size	10.35 x 9.6 mm (PAN B511-1B) 10.35 x 9.6 mm (PAN B511-1C)
Planned certification	CE RED, FCC, ISED, MIC

APPLICATIONS

- Smart Home
- Building Automation
- Industrial IoT
- Wearable Devices



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