12/2025

# endrich NEWS

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Wish you a Merry Christmas & HAPPY NEW YEAR

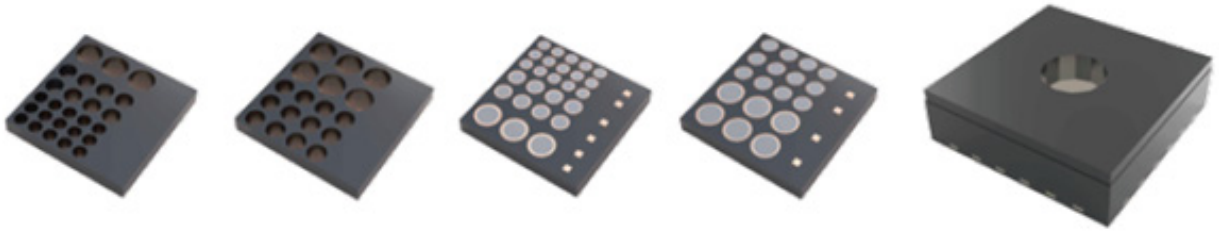
Thank you for your trust, and we look forward to a continued good cooperation!

# MEMS ULTRASONIC SENSORS FOR MINIATURISED HIGH-FREQUENCY MOTION APPLICATIONS

**Piezoelectric micromachined ultrasonic transducers (PMUTs)** are MEMS-based piezoelectric ultrasonic transducers for acoustic imaging of the environment. Unlike solid piezoelectric transducers, which use the thickness motion of a plate made of a piezoelectric ceramic, PMUTs are based on the bending motion of a thin membrane coupled with a thin piezoelectric film.

Compared to solid piezoelectric ultrasonic transducers, PMUTs can offer several advantages, such as increased bandwidth, better support of flexible geometries, natural acoustic impedance matching to different media such as water, reduced voltage requirements also compared to CMUT, mixing of different resonant frequencies and integration potential with supporting electronic circuits, especially for miniaturised high-frequency applications.

PMUTs enable medical, endoscopic in vivo imaging devices and ultrasonic radar for autonomous mobility and industrial machinery. An array arrangement of PMUT sensors and actuators enables imaging of the environment.



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# EWS

| | 40KHz (detection range 0.2~3m)<br>Robust Penetration: Ideal for Short-Range Sensing | 65KHz (detection range 0.1~1.2m)<br>Industrial Ranging & Environmental Sensing: The Sweet Spot | 450KHz (detection range 0.02~0.06m)<br>Precision Imaging & NDT: The "Eagle Eye" |
|---|---|---|---|
| Physical Character-istics: | Lower attenuation in common media (e.g., air) | Optimal balance: Penetration and precision | Ultra-short wavelength<br>Acoustic beam focusing |
| Typical Applications: | ▪ Child presence detection (CPD)<br>▪ Service robot navigation<br>▪ Smart toilet auto-sensing<br>▪ Flow meters<br>▪ Presence sensing | ▪ Unmanned forklifts (depth detection)<br>▪ Anti-collision for aerial work platforms<br>▪ Unmanned cleaning vehicles<br>▪ Access gates<br>▪ Agricultural spray boom | ▪ Industrial non-destructive testing (NDT)<br>▪ Packaging defects<br>▪ Composite delamination<br>▪ Biomedical microscopy<br>▪ Defect analysis |
| Core Advantages: | ▪ Short-range ranging / obstacle avoidance<br>▪ Gas/low-density media detection<br>▪ Cost & robustness | ▪ Strong anti-interference<br>▪ Stable mid-range detection<br>▪ Environmental resilience | ▪ Sub-millimeter resolution<br>▪ Micron-level thickness measurement / characterization<br>▪ Surface /near-surface defect detection |



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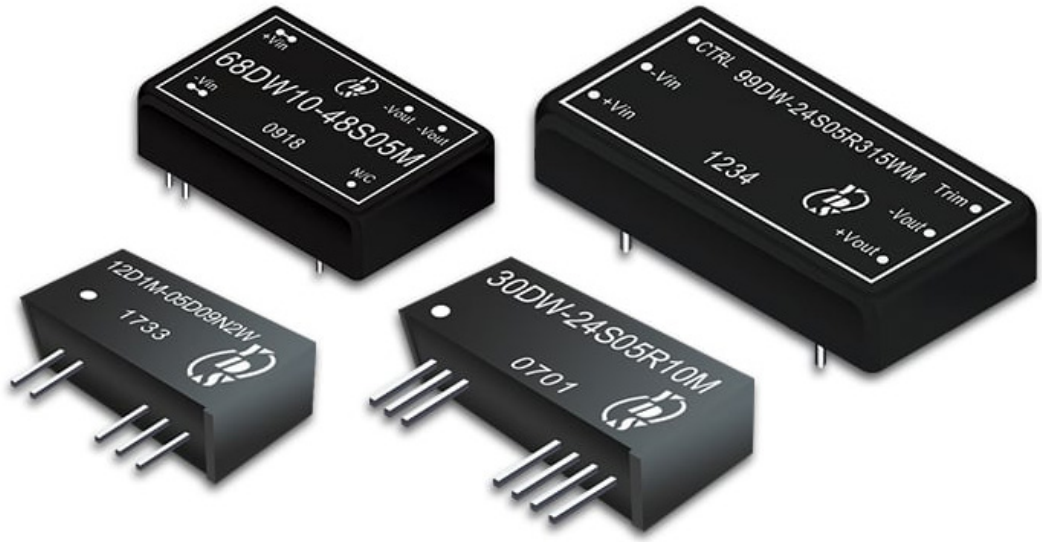
# DC-DC CONVERTERS FOR MEDICAL APPLICATIONS

Yuan Dean (YDS) offers 1 to 10 W DC/DC converters that meet medical certification requirements and provide high insulation resistance voltage. Because YDS understands the requirements for medical applications, its products meet the requirements for reinforced insulation isolation from 3000 VAC to 5000 VAC.

Their medical DC/DC converters meet the ANSI/AAMI ES60601-1 and IEC/EN 60601-1, 3rd edition medical safety standards required for medical auxiliary equipment, computed tomography, ultrasound systems, and other accessory equipment.




| Approvals | High Isolation | 2xMOPP*1 | -40 to +105°C*2 | 5 Years | 5000m |
|---|---|---|---|---|---|
| IEC/EN/UL 60601-1 3.1 Ed.<br>IEC/EN/UL 62368-1 | 5000VAC<br>6000VDC | 8mm Creepage distance 5mm Clearance distance | Operating temperature | Warranty | Operating Altitude |

Note:

1. 2xMOPP applies to models 68DC-RXXM and 68DW10-M;
   models 12D1C-NM (1W) and 12D1C-N2M (2W) are designed with 1xMOPP and 2xMOOP.
2. Derating applies for temperatures above 70°C (model dependent).
   Please refer to the datasheet for the derating curve and detailed performance.

YUAN DEAN Scientific Co.,LTD.



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# IEWS

| Series | Output Power (W) | Input Range | Input Voltage (VDC) | Output Voltage (VDC) | Efficiency (%) | Leakage Current max. (µA) | Package |
|---|---|---|---|---|---|---|---|
| 12D1C-NM | 1 | ±10% | 3.3-24 | 3.3-24, ±3.3 - ±24 | 83 | 2 | SIP-7 |
| 12D1C-N2M | 2 | ±10% | 5-24 | 5-24, ±5 - ±24 | 84 | 2 | SIP-7 |
| 68DC-RX3M | 3 | 4:1 | 9-36, 18-75 | 3.3-24, ±5 - ±15 | 85 | 4 | DIL 24 |
| 68DC-RX4M | 4 | 4:1 | 9-36, 18-75 | 3.3-24, ±5 - ±15 | 85 | 4 | DIL 24 |
| 68DC-RX5M | 5 | 4:1 | 9-36, 18-75 | 3.3-24, ±5 - ±15 | 85 | 4 | DIL 24 |
| 68DC-RX6M | 6 | 4:1 | 9-36, 18-75 | 3.3-24, ±5 - ±15 | 85 | 4 | DIL 24 |
| 68DW10-M | 10 | 4:1 | 9-36, 18-75 | 3.3-24, ±5 - ±15 | 85 | 10 | DIL 24 |

## FEATURES

- Meet IEC/EN 60601-1, 3rd edition medical safety standards
- 2xMOPP applies to models 68DC-RXXM and 68DW10-M; models 12D1C-NM (1W) and 12D1C-N2M (2W) are designed with 1xMOPP and 2xMOOP
- Operating temperatures:-40°C up to +85/+105°C

## APPLICATIONS

- Medical Equipment for medical assistance devices, computed tomography, ultrasound sytems, and other ancillary equipment





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# GD32F503 SERIES ARM® CORTEX®-M33 32-BIT MCU

## EXCEPTIONAL PERFOMANCE, DIVERSE INTERFACES, AND ENHANCED SECURITY


The GD32F503 Serie is a high-performance 32-bit microcontroller from the GD32 MCU family, built on the Arm® Cortex®-M33 core. The Cortex®-M33 is a low-latency, low-cost 32-bit processor designed for high performance and low power consumption. Based on the Armv8 architecture, it supports a flexible instruction set for data processing, I/O control, bit manipulation, and DSP operations, making it suitable for advanced embedded applications.

## FEATURES

- **Core:** Arm® Cortex®-M33, 32-bit, up to 252 MHz, with Flash security protection
- **Memory:** Up to 1024 KB Flash and 128 KB SRAM
- **Analog:** 3× 12-bit ADCs, 2× 12-bit DACs
- **Timers:** Multiple 16-bit and 32-bit timers (general, PWM, advanced, basic)
- **Communication Interfaces:** Up to 3× SPI, 2× I2S, 2× I2C, 3× USART, 2× UART, 2× CAN, USBFS
- **Additional Peripherals:** EXMC, comparator, cryptographic (CAU, HAU), CRC, TRNG, trigger controller
- **Power & Operating Range:** 2.6 V–3.6 V, –40 °C to +105 °C
- **Package:** LQFP100, LQFP64, QFN64, BGA64, LQFP48, QFN48, QFN32
- **Power Modes:** Three power-saving modes for optimized low-power operation

## APPLICATIONS

- Digital Power Supplies
- Industrial Automation
- BMS
- Humanoid Robots

GigaDevice



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# EWS

## GS YUASA LAUNCHES NEXT-GENERATION SWL+ BATTERY SERIES


Industry-leading valve regulated lead acid (VRLA) battery solutions delivers more power, extended life, and superior reliability for critical uninterruptible power supply (UPS) and energy storage applications.

Building on the success and proven dependability of the renowned SWL range, the SWL+ series sets a new benchmark in VRLA battery technology for high-rate discharge and standby power applications.

Aimed at the most demanding UPS and energy storage environments, the SWL+ series addresses growing market needs for longer-lasting, higher-performance energy solutions. From large-scale data centres and manufacturing facilities to towering city skyscrapers and landmark infrastructure, the new SWL+ provides the enhanced reliability these mission-critical operations demand.

At the heart of the SWL+ series is hybrid pure lead technology—an advanced combination of primary pure lead and specialised recycled alloy. By incorporating a sustainable element alongside pure lead, this pioneering approach achieves increased corrosion resistance and extended battery life. The carefully balanced alloy composition further enables higher energy density—vital for high-rate discharge scenarios where every second counts.

This unique blend sets the SWL+ range apart from competitors, delivering improved longevity and dependable power. In tandem with this, the SWL+ series incorporates GS Yuasa's exclusive HT Element X Alloy™, which dramatically reduces positive grid corrosion and water loss in high-temperature conditions.

### FEATURES

- Longevity (EUROBAT class: Very Long Life) 12+ years
- Power output from 800W to 4300W (10 min)
- Housing material: ABS (UL94:HB) and UL94:V0
- Max. discharge current of 500 - 1200A / sec.
- Self-discharge per month: approx. 3% (@+20°C)
- Nominal voltage: 12V (some models in 6V)
- Short-circuit current in accordance with EN IEC 60896-21 (A)
- Very high reliability
- Standard dimensions
- Leak-proof VRLA battery

### APPLICATIONS

- Emergency power systems - UPS
- Emergency lighting
- Data centres and larger infrastructures
- Siren systems
- Radio transmission systems
- For distribution in the Swiss market



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# ENDRICH AND SENSITEC: TOGETHER ON THE ROAD TO SUCCESS

Together on the road to success An initial contact at a trade fair turned into a success story. Under the motto 'Strong partners. Strong future.', Endrich and Sensitec look back on a period full of energy, commitment and shared milestones – and look to the future with just as much drive.

The first year already showed how well the two partners fit together: training courses on current sensors, a technical article in Endrich News, tours through Austria and Hungary, and a real eye-catcher at Electronica – an e-scooter equipped with state-of-the-art Sensitec sensor technology. Step by step, trust grew – and with it, cooperation.

## A strong foundation for the future

2025 marks the transition to a new phase of partnership. With training on position sensors, the Endrich sales conference with around 25 participants at Sensitec's wafer production facility in Mainz, and a tour of Switzerland, the course has been set for the future. April saw a special moment: the first series order – a milestone that will further fuel joint growth.

In May 2025, Endrich and Sensitec jointly presented themselves at PCIM in Nuremberg – another showcase for innovative sensor solutions and active partnership. Just one month later, there was another reason to celebrate: the start of series production of the FREEpitch AA747AHA sensor for motor commutation.

The success story continues: further series projects in the field of current and position sensors are awaiting series approval. The partnership is also growing internationally – joint customer campaigns in Switzerland, France and Italy are already planned.


Glenn von Manteuffel (Sensitec) mit Michael Plaumann (FAE Sensoren-Endrich) auf der PCIM 2025



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