

02/2024

endrich NEWS

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Wolfgang Endrich

Dear readers,
We wish you all the best, good health and many happy hours in the coming year 2024. When you look back on 2023 and read the forecasts for 2024, you don't know

whether to cry or laugh. It's not just the global wars, armed unrests and other problems, it's also the new high costs for imports from China due to the bombardment of ships in the Red Sea, which are causing us considerable problems, astonishment at the numerous demonstrations against the AfD party, the farmers' tractor parades, train drivers' strikes and much more.

It would be too cheap to judge the government. Those who are already on the ground should not be kicked! Because a lot of things were already laid in their cradle by the previous government. But - in two years of government, one could have expected more wrong decisions to be corrected. But adding party ideologies on top of existing problems was certainly not a wise decision.

And just after surviving the coronavirus pandemic, when everyone was happy to have come out of this global epidemic unscathed and was actually expecting better times, things went from bad to worse. It is no wonder that voter sentiment has changed dramatically.

A poor international economic situation, falling exports,

unexpectedly high inflation, ever new laws that are almost crushing us (e.g. the Supply Chain Act), a shortage of skilled workers and high energy prices are a heavy burden that we now have to live under.

But the general dissatisfaction must not lead us being seduced into making wrong political decisions - even if only out of spite. Democracy is a delicate plant and there are too many dictatorships or quasi-dictatorships - see Hungary. Poland is currently fighting hard to wrestle theirs back down. We have been in a critical situation before, in the 1930s. Back then, there was extreme unemployment that caused voters to vote for the wrong party and we slid into dictatorship.

The Weimar Republic was too weak, and farmers have also protested in the recent weeks, not only because of the agricultural diesel, but also because decades of bureaucracy and ever new regulations have placed an extreme burden on the individual's freedom of movement and threaten to destroy entire livelihoods. The bureaucracy caused by new laws and party ideologies and the constant paternalism must stop. Let's hope that politicians will now become more understanding and that the economy and the population can recover. Climate change will still cause us enough problems that need to be overcome.

Let me end with a quote from Martin Luther: If I knew that the world would end tomorrow, I would plant an apple tree today. Stay optimistic! This year too! It can only get better!

Yours sincerely,
Wolfgang Endrich

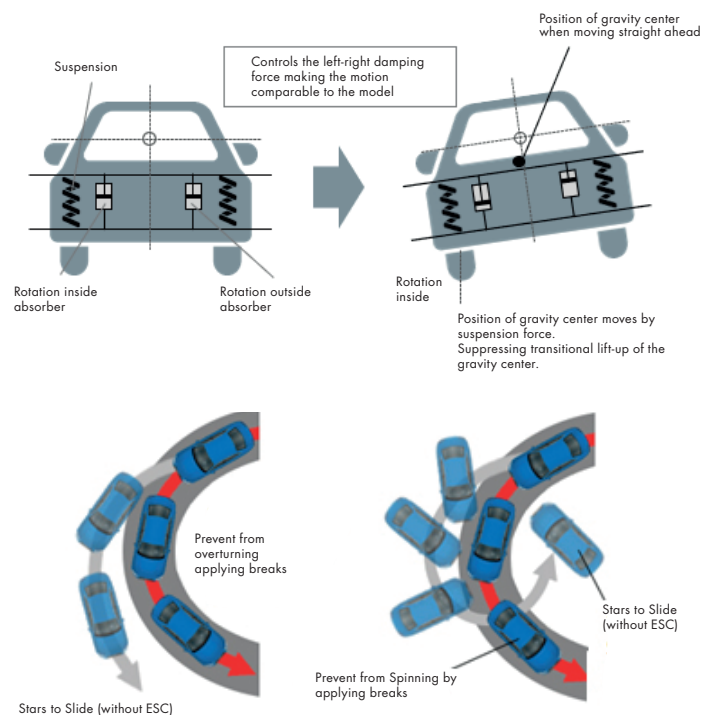
READY FOR AUTONOMOUS DRIVING: PANASONIC INDUSTRY AND AUTOMOTIVE MEMS MOTION SENSORS EWTS5

Mems (Micro-electromechanical systems) usually are microscopic devices of electronic as well as moving parts, they consist of central unit (integrated circuit chip, e.g. microprocessor) and several components that interact with the environment. Their sizes are between 1 and 100 microns (i.e. 0.001 to 0.1 mm).

The Panasonic MEMS 6DoF inertial Sensor serie EWTS5 provides accurate and reliable acceleration and Angular rate data, therefore contribute to Advanced System such as ADAS (Advanced Driver Assistance Systems), autonomous driving, and more, in order to detect 6DoF data which are composed by 3 axis (forward and backward, left and right, up and down) of acceleration(Acc) and gyro data. Distance measurement and motion detection (3D infrared camera, LiDAR, Radar, PIR and ultrasonic system) play an important role in safety, and the system is often required to comply with functional safety (ISO26262).at the system level, ASIL-D is often required. Functional safety requirements have begun for devices such as inertial sensors installed in 3D position detection systems. The sensor serie EWTS5 is compatible with ASIL-B(D) and functional safety compliance can be achieved with one chip.

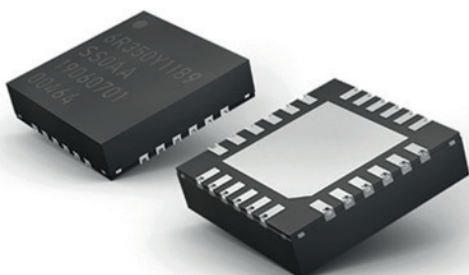
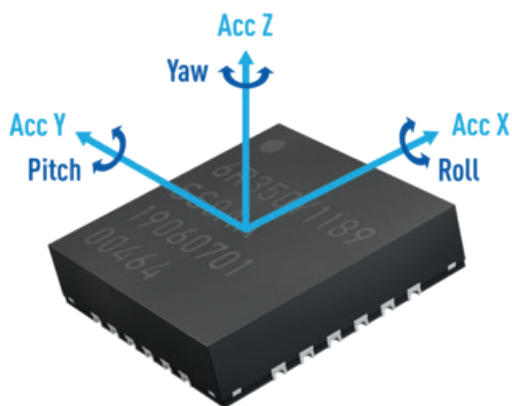
FEATURES

- "6 in1 Sensor "Ver 1.5 "EWTS5GND21" for ADAS and security application
- 6in1 sensor Ver 2.0 for all mobility applications in Q3 2023
- 3-axis accelerometer up to 300 dps
- 3-axis gyroscopes (rotation sensors) up to 16g
- AEC-Q100 Grade 1
- 4.5x4.5x1.1mm
- Bandwidth (low pass filter) of EWTS5G up to 400Hz
- Power consumption <10mA
- Temperature range -40°C to 135°C
- Interface SPI (32bit)
- Supply voltage 3.3V/5.0V



NEWS

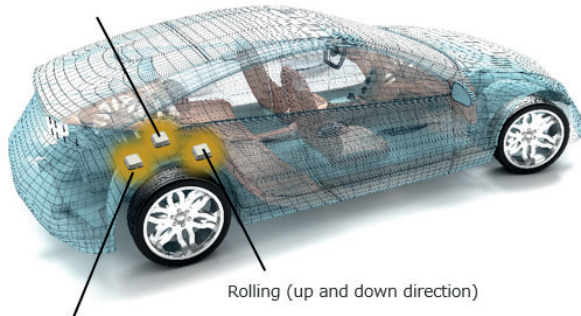
APPLICATIONS



- Airbag deployment
- Hard drive free fall detection
- Hand-held devices (portable devices, measuring devices...)
- Position detection in digital photo cameras
- mechanical image stabilizers for video
- For measuring yaw, pitch and roll movements in autonomous driving.
- Magnetometer – Used to determine direction during navigation.
- Pressure and Inertia Sensor – For brake control.
- Pressure Sensor – Tire Pressure Monitoring System.
- Airflow Sensor – Air Intake Monitoring.
- Fuel sensor – fuel level indicator.
- Active suspension system and vibration control
- Passive safety and Vehicle Dynamics Control
- Impact Sensor – Impact detection and airbag deployment
- Navigation system of agricultural and/or construction machinery
- Auto Lawnmowers, two-wheeled vehicles and Auto-operation Railway System

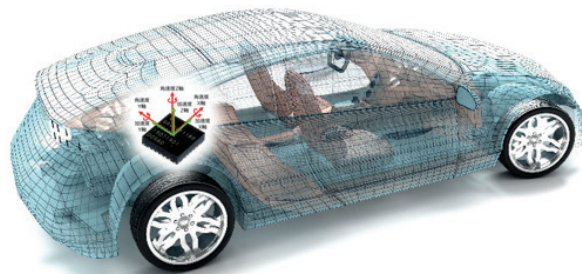
Conventional

Pitting (back and forth direction)



Yawing (left and right direction)

6 in 1 sensor (1 chip)



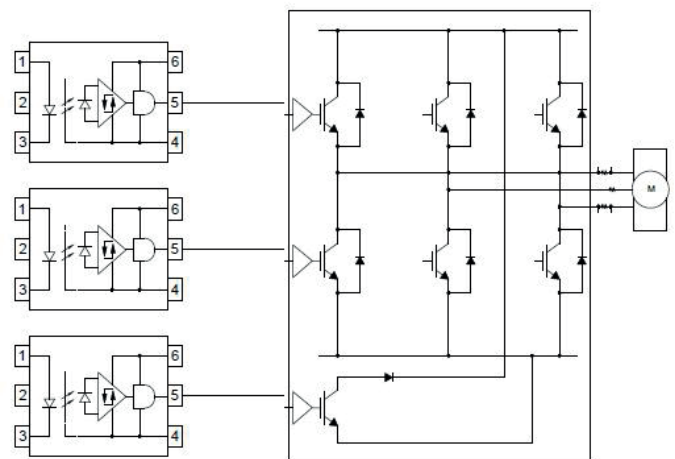
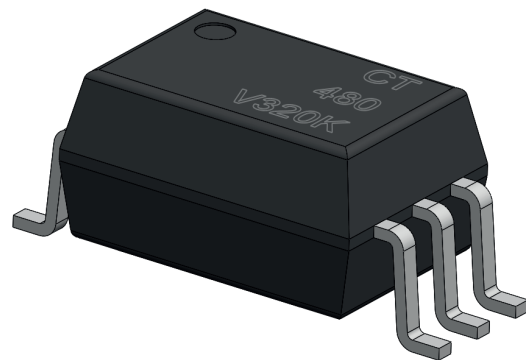
NEW HIGH CMR INTELLIGENT POWER MODULE (IPM) INTERFACE OPTOCOUPLER

CT Micro offers its first high CMR Intelligent Power Module (IPM) interface optocoupler, the CTS480, which includes an AlGaAs LED and a photodetector with an integrated Schmitt trigger to provide logic-compatible waveforms, eliminating the need for additional waveform shaping. The highly integrated, compact power coupler is designed to drive motors in applications ranging from household appliances, fans, pumps to general purpose drives. The minimised propagation delay difference between devices makes these optocouplers for

high CMR Intelligent Power Modules an excellent solution for improving inverter efficiency by reducing switching dead time. The CTS480 has an increased common-mode transient withstand of at least 10kV/ μ s at $V_{CM} = 1000V$, which is guaranteed over a wide operating temperature range. The interface coupler is offered to allow for optimal PCB design, size and system cost. This simplifies the design, improves reliability and reduces the number of components, while significantly shortening the time to market.

FEATURES

- Compact SMD-6 package
- 8mm creepage and 7mm clearance
- Positive output type (totem pole output)
- Guaranteed truth table
- Operating Temperature range: 4.5V to 30V
- High isolation voltage of 5000V
- High speed: 4MBd typ
- Threshold input current: 5mA (min)
- High common-mode rejection at $V_{CM} = 1000 V$
- Low propagation delay, T_{PLH} / T_{PHL} : 250ns (max)
- Industrial temperature range: -40°C to 100°C
- Safety approvals: UL 1577, EN 60747-5-5, IEC62368



Intelligent Power Module

PART NUMBER	V _{CC} (V)	I _{OSH} /I _{OSL} (mA)	I _{FT} (mA)	T _{PHL} /T _{PLH} (ns)
CTS480	4.5-30V	+/- 80	Max. 5	250

NEWS

MIE1W0505BGLVH 5V, 1W, REGULATED, 2.5KVRMS ISOLATED DC-DC MODULE

The MIE1W0505BGLVH is an isolated, regulated DC/DC module. It can support applications with a 3V to 5.5V input voltage (VIN). The MIE1W0505BGLVH has excellent load and line regulation, and supports up to 1W of output power (POUT). The MIE1W0505BGLVH integrates a power MOSFET, transformer, and feedback circuit all in one chip, achieving excellent performance and saving size.

The MIE1W0505BGLVH supports a regulated output. When the output voltage (VOUT) falls below the target voltage, the device starts to switch, delivering power from VIN to VOUT until VOUT reaches the target output value again.

The MIE1W0505BGLVH integrates a VOUT feedback block, which regulates VOUT without a traditional optocoupler and TL431. The device provides a small size and highly reliable operation compared to traditional isolation power modules.

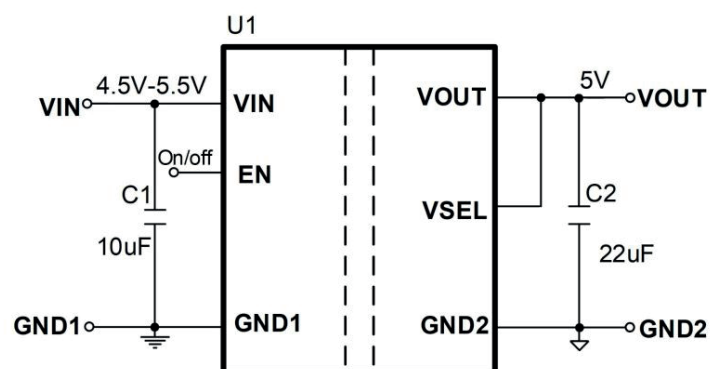
The MIE1W0505BGLVH features continuous short-circuit protection (SCP) and over-temperature protection (OTP). The MIE1W0505BGLVH is available in a small LGA-12 (4mmx5mm) package.

APPLICATION EXAMPLES

- 3V to 5.5V Operating Input Voltage (VIN) Range
- 2.5kVRMS Isolation Voltage
- Max 1W Output Power (POUT)
- Supports Infinite Capacitive Load
- 0.4% Load Regulation
- 0.5% Line Regulation

APPLICATIONS

- Industrial Automation Systems
- Isolated Bias Power for Digital Isolators
- Isolated Power for Isolated RS485/RS422/CAN interface
- Isolated Sensor Power Supply
- Telecom and Network Device (5G RRU, Industrial CPE, Network Gateway, etc.)



S4-3DB01 STRAY-FIELD ROBUST 3D POSITION SENSOR WITH VERSATILE APPLICATION CAPABILITY

S4-3DB01 from manufacturer S4sensors is a high-performance 3D magnetometer featuring a robust stray-field design, a wake-up function, and an I²C interface, all encapsulated within the compact TSSOP-8L package. Designed to cater to a broad spectrum of applications such as position and angular measurements, Human-Machine Interface (HMI) interfaces, and safeguarding against unauthorized manipulation in metering systems. Thanks to the patented Back Side Vertical Hall technology, S4-3DB01 is the first Hall-based sensor in the market capable of delivering the same high performance across all three dimensions in direct magnetic field measurements.

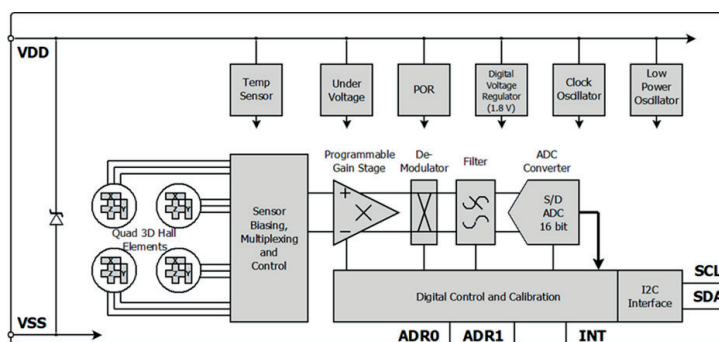
The sensor incorporates four 3D Hall clusters, each positioned with a 1mm displacement from one another. This configuration not only ensures exceptional versatility for a wide range of applications but also guarantees robustness against stray fields due to the differential measurement principle applied in all three dimensions.

S4-3DB01 is equipped with a built-in wake-up function triggered by magnetic and temperature events, coupled with absolute and relative threshold levels. Combined with an exceptionally low current consumption in inactive mode, these features make it ideal for battery-powered applications and HMI applications in vehicles.

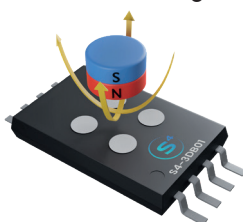
All of the working modes, configurable magnetic and timing parameters are accessible for customer via fast standard I²C interface with a frequency up to 1MHz and over hardware configurable 9 slave addresses. S4-3DB01 is AEC-Q100 qualified and operates in the ambient temperature range from -40 °C to 125 °C.

APPLICATIONS

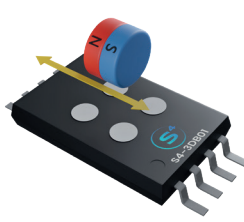
- Industrial Joystick
- Position Detection (3D)
- HMI Applications, Knobs, Levers, Shifter Position
- Door Handle, Door Lock, Window Position
- White Goods



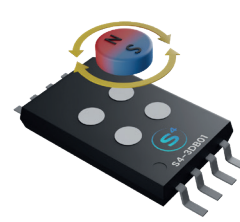
Measurement configurations for 3D magnet motions:



Joystick



Linear

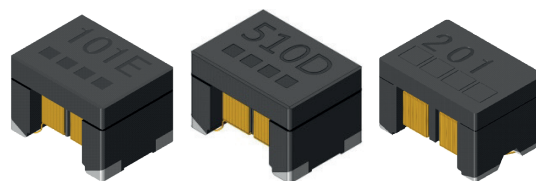


Rotary

NEWS

ABC-ATEC COMPLETED THE LINEUP OF SMD COMMON MODE CHOKES

These new series come in three available sizes as ASF4532/MSF4532, MSF3425 and MSF3225 and are AEC-Q200 compliant. All products are manufactured with automatic production and excellent winding technology, which keeps stability and maintains coil flatness during production. To further ensure best mounting and soldering all items come with tin plated terminals and ABC-ATEC's patented wire partitioning technique, that provides excellent noise suppression characteristics. All items are using a ferrite drum core construction with magnetic shielding. By upgrading the wire insulation class, the temperature resistance is improved which reduces the risk of short circuit. ASF4532/MSF4532 and MSF3225 Series use the wire solder wrapping design. Winding wire breaking is avoided by applying bevel and raised terminal design. MSF3225 Series has bifilar or separated winding on magnetic path through the core, which offers excellent impedance and frequency characteristics improving the noise suppression on common mode circuit further.



FEATURES

- MSL 1
- Halogen free
- Rohs compliant
- AECQ200 qualified

APPLICATIONS

- CAN Bus
- Flex ray
- Ethernet
- PoE

DIMENSIONS (mm)	APPLICATION	SERIES	INDUCTANCE (µH)	DCR (mOhm)	IDC (A)	COMMON MODE IMPEDANCE (kOhm) (@100MHZ)
4.50X3.20X3.00	CAN Bus	ASF4532-C	11.0~100.0	0.50~1.50	0.36~0.20 (IRMS)	0.30~3.00 min. 0.60~7.50 typ.
	Ethernet	ASF4532-E	200.0	4.5	0.11(IRMS)	4.50 min. 10.0 typ.
	Flex ray	ASF4532-R	11.0~100.0	0.50~1.50	0.36~0.20 (IRMS)	0.30~3.00 min. 0.60~7.50 typ.
	CAN-FD	MSF4532-D	51.0~100.0	0.55~1.50	1.00~0.55(IRMS)	1.70~3.80 min. 2.80~6.20 typ.
3.40X2.50X2.40	Ethernet Class 1	MSF3425-E	51.0~100.0	1.10~3.00	0.10~0.40 (IRMS)	1.40~2.00 min. 2.80~5.50 typ.
	CAN-FD Class 1	MSF3425-D	51.0~130.0	1.20~3.50	0.25~0.30 (IRMS)	1.25~3.00 min. 2.50~6.10 typ.
	100 Base-T1	MSF3425-B	200.0	5.50	0.25 (IRMS)	4.00 min. 8.50 typ.
3.20X2.50X2.40	Ethernet	MSF3225-E	100.0	3.50	0.10 (IRMS)	2.00 min. 5.50 typ.
	CAN Bus	MSF3225-B	22.0~100.0	0.40~3.30	0.15-0.40 (IRMS)	0.40~2.60 min. 0.80~5.20 typ.
	PoE	MSF3225-S	2.20~15.0	2.20~15.0	0.50~1.20 (ISAT)	NA

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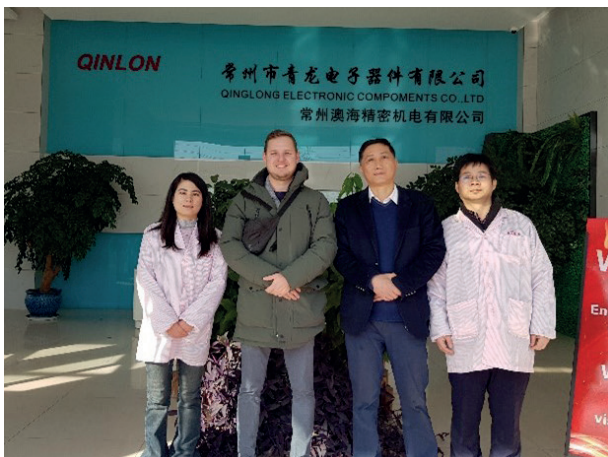
QINLONG AS OFFICIAL PARTNER OF ENDRICH - ACOUSTICS MANUFACTURER

Changzhou Qinglong Electronic Components Co., Ltd was founded in 1994. The company is professionally engaged in developing and researching the electroacoustic parts which are mainly loudspeaker, buzzer and ultrasonic sensors.

Qinlon has many advantages which includes the research institute, owns independent research and development ability and originality in the application of acoustics technology.

Qinlon is certified according to IATF16949, ISO 14001 and ISO 9001.

We from Endrich are really proud to be an official Partner with the Qinlong company.



From left to right: Lily Qian, Werner Töws, Henry Lu (Managing Director), Rambo Dong



AUTOMOTIVE



Auto-parking Radar



Driver Assistance



Instrument board



SMART PRODUCTS



Natural gas meter



Intelligent robot



Intelligent home electric

FEATURES

- Automotive: Loudspeaker, Ultrasonic Sensor, Exciter, Parking Radar, Entertainment, Loudspeaker, Microphone
- Smart Products: Sounders (Piezo and Magnetic), Ultrasonic Sensor, Loudspeaker, Microphone



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QINLON

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