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endrich NEWS

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Caught in the spider's web of laws



Wolfgang Endrich

The governments of recent years have spun over us a spider's web with laws and regulations that are currently putting us in a state of immobility. Our economic data is negative and entrepreneurial freedoms have been severely curtailed by laws and regulations. The economy is groaning under the flood of statistical data reporting obligations and restrictions imposed on us for political or ideological reasons by the governing parties.

The absolute shocker was last year's Heating Act for private homeowners and the Supply Chain Due Diligence Act for importers. Added to this was the high inflation, which had a significant

negative impact on the mood of the population, but also on the industry. Additional burdens are the so called „baby-boomers“, who are now slowly retiring, and a welfare state that costs us around 50% of the total government revenue. There is also a severe shortage of skilled workers and, finally, the global economic downturn, which has had a negative impact on Germany as an export-dependent industrial nation.

Added to this is a rather clueless, very often quarrelsome government, which is actually doing everything it can to damage its good reputation. As honorable as the efforts of the Green Party may be to introduce more environmental protection and those of the Social Democrats to create more social support for the low-income groups of the population, it was simply too much negativity for the general mood of German citizens.

Everything would actually have been much simpler, according to the motto: „Look up Ludwig Erhardt: Prosperity for all“ - we should have thought first about the economic restructuring of our country, through tax relief (Germany is known to be the highest taxed country in Europe, perhaps in the whole world) to encourage industry to invest more and to boost consumption by reducing consumption taxes.

But the selfishness of the individual parties was too much for our country.

The debate about higher taxes on the wealthier population and the failure to tackle immigration problems have also done the country a great deal of harm. We afford ourselves the luxury of providing hundreds of thousands of immigrants with social benefits, but do not give them the opportunity to increase the gross national product themselves by finding work quickly. This means that the labor shortage would be partially solved, income tax revenues and social contributions would increase and the cost of housing refugees would be drastically reduced.

We actually know the factors that can be used to revive the economy in an economic downturn. But when ideologically excessive demands are made, the economy unfortunately lacks the strength to recover on its own. This is when the effects of the political failures of recent decades become particularly apparent: the Federal Railways, dilapidated bridges and federal roads, the high costs of the Ukraine war and the decades-long disarmament of the

Bundeswehr show us mercilessly how poorly our last governments have managed the economy. Not forgetting the "childlike belief" in the peacefulness of our eastern neighbor.

The dirigisme we experienced was also often negative - see the protests of the farmers.

It would have been better to call experts into the government and ministries rather than uncompromisingly pursuing ideological ideas.

A prosperous economy only works if industry is fully employed, unemployment figures are low and tax revenues are sufficiently high to finance the welfare state that is desired. All while taking into account the necessary measures, such as stopping global warming and reducing CO2 production. Demanding everything at the same time was too much for our country. Tackling everything at the same time is an almost impossible task. The only question is when our chancellor and his government will recognize this and set the right priorities.

Yours sincerely, Wolfgang Endrich

NEWS

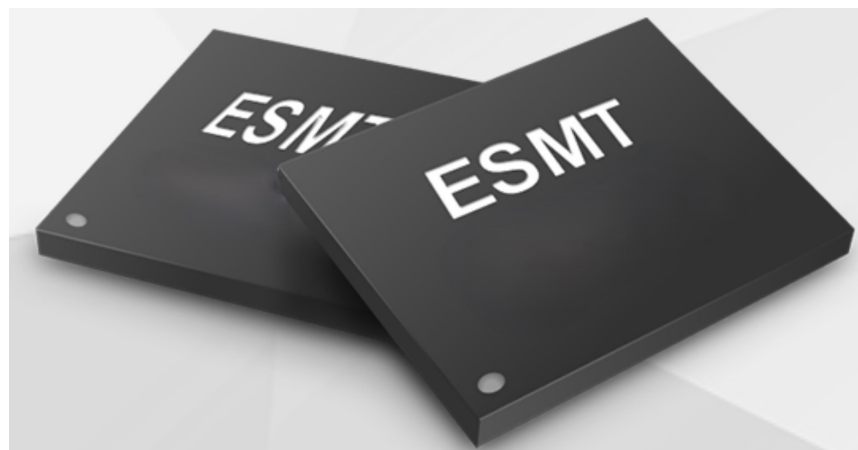
2X60W ESMT AD83586C AUDIO AMPLIFIER

The AD83586C is a digital audio amplifier with robust performance that supports various configurations of speakers. It can power various types of speakers with different power requirements, including 8 Ω , 4 Ω , and 2 Ω speakers, with a 24-volt supply and appropriate cooling.

The amplifier also features advanced audio processing functions such as volume control, speaker EQ, audio mixing, surround sound and Dynamic Range Control (DRC), which are programmed via an I2C control interface. The AD83586C is equipped with a robust protection circuit that prevents damage caused by incorrect operating conditions.

It is also more resistant to noise and fluctuations in process, voltage and temperature compared to analog amplifiers. An integrated anti-pop circuit also reduces noise when switching the power supply.

The AD83586C's highly configurable output stage allows it to be used in 2.1, stereo, or mono applications. Two units can also be used to create 5.1-channel systems for home cinema setups. Overall, the AD83586C is a versatile solution for various audio amplification requirements.



TARGET APPLICATION AREAS

- TV audio
- Boom-box, CD and DVD receiver, docking system
- Powered speaker
- Wireless audio

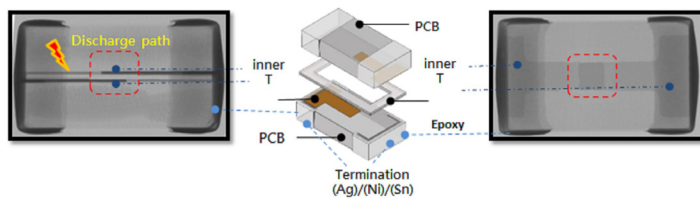
KEY FEATURES OF THE AD83586C

- VDD Range of 4,5~26 V
- 36-band EQ and volume control
- 60W x 2CH into 4 Ω output power
- Short circuit and over-temperature protection
- Supports 16/18/20/24-bit I2S
- Built-in anti-pop circuit

ESMT



ULTRA LOW CAPACITANCE ESD SUPPRESSOR COMPONENTS



caused by electrostatic persecution.

The main structure of the ultra-low capacitance electrostatic suppressor is composed of two printed circuit boards (PCB), an insulating frame (Epoxy), and two T-shaped inner electrodes.

Among various port specifications, the high-speed transmission speed is as high as 10G or more, so the requirements for the parasitic capacitance of the protection element are relatively strict, which must be below 0.1pF.

The insulating frame is located between two printed circuit boards, forming a main structure with a cavity inside.

The STD (OR05) developed by SFI is ultra-low capacitance (0.05pF) ESD protection device.

In this manufacturing method, the thickness of the insulating frame can be adapted to determine the relative distance of different printed circuit boards, and then the trigger voltage of the electrostatic suppressor can be adjusted.

The components can be applied to ultra-high-speed transmission interfaces to protect the circuit from problems

| Part No. | Working Voltage | Typical ESD Trigger Voltage | Typical ESD Clamping Voltage at 30ns | Leakage Current (at Initial State) | Leakage Current (after ESD Test) | Cap. Value at 1MHz |
|-----------------------|-----------------|-----------------------------|--------------------------------------|------------------------------------|----------------------------------|--------------------|
| Symbol | VDC(max.) | Vtrigger(typ.) | VC(typ.) | ILDC | ILDCA | C |
| Unit | V | V | V | μA | μA | pF |
| SFIO402TD060-OR05P-11 | 6 | 300 | 30 | < 0.05 | < 10 | 0.05pF |
| SFIO402TD120-OR05P-11 | 12 | 300 | 30 | < 0.05 | < 10 | 0.05pF |
| SFIO402TD240-OR05P-11 | 24 | 300 | 30 | < 0.05 | < 10 | 0.05pF |

TARGET APPLICATION AREAS

- USB 3.1
- HDMI 2.0
- Thunderbolt
- Wi-Fi 6
- Ethernet 10G
- Antenna

KEY FEATURES OF THE SFIO402TDXXX

- Capacitance 0,05 pF
- Clamping Voltage 30V
- Trigger Voltage 300V
- Working Voltage 6V to 24V
- Withstanding ESD capability: Level 4



NEWS

SMD PIEZO TRANSDUCER

Piezo transducers are a technology based on the principle of piezoelectricity for creating sound. They have numerous applications in many areas of modern technology and are expected to continue to play an important role in the future. For example, they are used in medicine, in the automotive industry and in the sector of smart products as well.

An advantage of this kind of Piezo Transducer is the low energy consumption. Piezoelectric Transducers require significantly less energy compared to electromagnetic solutions. This makes them ideal for applications where energy efficiency is essential. Another advantage is the SMD capability. Because of that, a lot of space and weight can be saved as it is soldered directly on the circuit board.

With the different manufacturers Qinlon, Universal (with their brand HXE) and Chinasound, endrich can provide the best suitable and most cost-effective solution with SMD Piezo Transducers. As well, customized adjustments are possible.

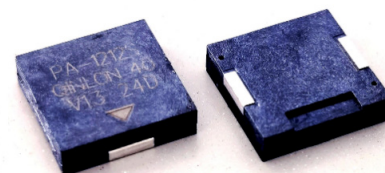
With the different certified manufacturers endrich has the possibility to provide every variation of quantity, adapted to the needs of the customer. The range of Transducers endrich can provide is very wide.

The technical details of 3 examples are shown in the table below:

| Model | Dimensions (mm) | Operating Voltage (Vp-p) | Operating Frequency (Hz) | Sound Output (dB) | Operating Current (mA) | Operating Temp. (°C) |
|-------------------|-----------------|--------------------------|--------------------------|-------------------|------------------------|----------------------|
| CSPT12A03-4.0F | 12x12x3 | 1-20 | 4.000 | 75 | 2 | -40/+105 |
| UGPT12BM4003P | 12x12x2,8 | 1-25 | 4.000 | 78 | 1 | -40/+85 |
| PA-1212S-4.0UI005 | 12x12x3 | 1-25 | 4.000 | 75 | 5 | -40/+85 |

FEATURES

- Numerous applications in many areas of modern technology
- Every quantity can be delivered from 1kpcs to several 100kpcs
- Very high quality standards with the best outcome possible
- Designed for SMT process



QINLON

ChinaSound



3D CAMERAS

For industrial automation, autonomous driving and intelligent transportation and urban safety applications

With the help of AI, data from sensors such as temperature sensors, thermal imaging cameras, ultrasonic sensors, gas sensors, magnetic field sensors, pressure sensors, flow sensors, level sensors, radar, LiDAR, vision cameras and motion sensors are processed and analyzed to predict and prevent machine problems. Real-time detection of the flow of people in public transportation systems such as buses and subways has become inevitable in terms of intelligent transportation and urban safety. Driving assistance by monitoring the driver's state while driving through ToF sensor and real-time alerts to prevent accidents caused by distracted driving is one of the major innovations in the automotive field. With the help of high-precision 3D ToF sensors, package dimensions and sizes can be measured in real time, people can be counted on public transportation and in shopping malls, and forklift trucks can be aligned.

ToF (Time of Flight) uses the speed of light to measure distances or to take three-dimensional images with a ToF camera. There are two methods for this: the direct and the indirect ToF method. Direct ToF measures the time between the transmission of an optical pulse and the arrival of the reflected light pulse. iToF measures the distance by collecting reflected light and detecting the phase shift between emitted and reflected light. Particularly effective for fast and high-resolution 3D imaging of objects at short and long distances. A TOF camera generally consists of: Illumination unit (infrared LEDs, laser diodes, surface emitters VCSELs) , optics(collects the light reflected from the environment again and images the scene on the sensor), sensor(measures the transit time for each pixel separately), control electronics (for the illumination and the sensor), evaluation/interface(calculation of the distance from the measured values). Calibration

Distance measurement and motion detection scale

| Technology Features | Radar | Infrared | PIR | Ultrasonic | TOF/VCSEL | Laser/Lindar | Camera |
|--------------------------|--------|----------|------|------------|-----------|--------------|--------|
| Reach | High | Low | Low | Low | Low | Medium | Low |
| Precision Range | High | Low | Low | High | High | High | Medium |
| Precision angle | Medium | Low | Low | Low | Low | High | High |
| Radial movement | High | High | Low | High | High | High | High |
| Tangential movement | Low | High | High | Low | High | High | Low |
| Pattern matching field | Medium | Medium | High | High | High | Medium | Medium |
| Object separation | High | Low | Low | High | High | High | High |
| Environmental resilience | High | Low | Low | Low | Medium | Medium | Low |
| Material intrusion | High | Low | Low | Low | Low | Low | Low |
| Design Flexibility | High | Low | Low | Medium | Medium | Medium | Low |
| Costs | Medium | Low | Low | Low | Medium | High | Low |

NEWS

values are also stored in the system. The interfaces used include USB and Ethernet.

Synexens has its own ToF technology including SPAD pixels (Single-Photon Avalanche Diode Pixels: highly sensitive photon detector can detect single photon with high time accuracy), anti-sunlight processing circuits, digital histogram, etc. The products mainly include D-ToF chips and i-ToF modules, which are widely recognized and used in laser ranging, obstacle avoidance and Simultaneous Localization and Mapping (SLAM) of sweeping robots.

CS20-P is equipped with a ToF sensor and a resolution of 640 x 480. It utilizes ToF technology to obtain 3D information of objects and space. It has excellent performance such as wide field of view and Ethernet transmission, providing users with convenient and efficient 3D perception.

The CS40 is equipped with a PToF image sensor with a resolution of 640 * 480, which uses PToF technology to obtain three-dimensional information of objects and space. It has excellent performances such as wide field of view, long

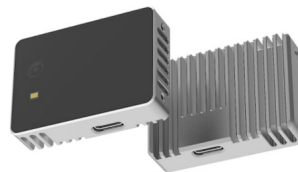
distance, resistance to ambient light (120 KLUX), Ethernet transmission, etc., and provides users with practical and efficient 3D perception functions. The CS20-P and CS40 products utilize a powerful hardware processing platform, and users can integrate multiple application algorithms to reduce dependence on the back-end application platform. Support TCP/IP network communication protocol to achieve long-distance data transmission. CS30 is an RGBD depth camera equipped with a ToF image sensor (640 x 480 resolution) and a color image sensor (1920 x 1080 resolution). The product is powered by a Type-C interface and simultaneously outputs depth and 2D color image information, supporting the fusion of 3D point clouds and 2D color images.

The CS20 is a solid-state lidar equipped with a TOF image sensor (640 x 480 pixel resolution).

CS30 and CS20 are characterized by excellent performance such as long range, long distance detection and low power consumption, providing users with convenient and efficient 3D perception functions.



CS20-P: Solid-State LiDAR



CS20: Solid-State LiDAR

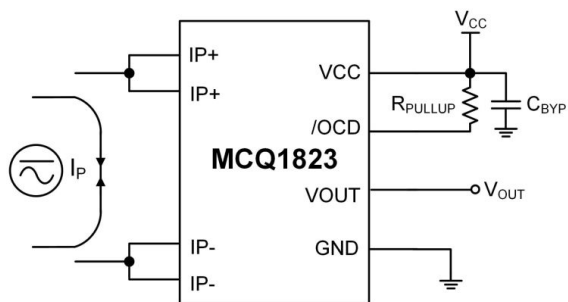


CS30: RGB-D Camera



CS40/CS40-Pro: Industrial LiDAR

AUTOMOTIVE-GRADE, LINEAR HALL-EFFECT CURRENT SENSOR IC MCS1823



The MCQ1823 is an automotive-grade, linear Hall-effect current sensor IC for AC or DC current sensing. The differential Hall array cancels out homogeneous or gradient stray magnetic fields.

The primary conductor's low resistance ($0.6\text{m}\Omega$) allows large currents to flow within close proximity to the integrated circuit that contains high-accuracy Hall sensors. This current generates a magnetic field, which is sensed at two different points by the integrated Hall transducers. The magnetic field difference between these two points is then converted into a voltage that is proportional to the applied current. A spinning current technique is used for a low, stable offset.

The MCQ1823 integrates fast over-current detection (OCD), which makes it simple to monitor system over-current (OC) events.

The MCQ1823's small footprint reduces board area and makes this device well-suited for space-constrained applications. The MCQ1823 is available in an ultra-small TQFN-12 (3mmx3mm) package and is AEC-Q100 qualified

APPLICATIONS

- Motor control
- Automotive systems
- Load detection & management
- Switched-mode power supplies
- Over current fault protection

FEATURES

- 3.3V or 5V single supply options
- Immune to all external magnetic fields by differential sensing
- No magnetic hysteresis
- Extremely low leakage current
- $0.6\text{m}\Omega$ internal conductor resistance
- $\pm 2.5\%$ total accuracy, factory trimmed
- 5A to 50A range
- Custom Over-Current Detection, $1\mu\text{s}$ response time
- Fast OCD with $1\mu\text{s}$ response time
- Output proportional to AC or DC currents
- Ratiometric or absolute output voltage options



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