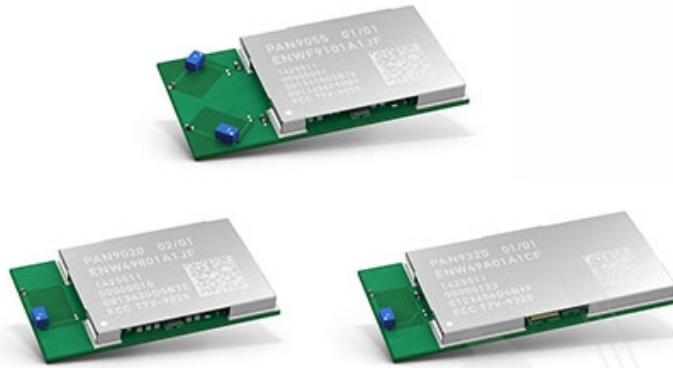


endrich news

www.endrich.com

Our Product of the Month

WLAN/Wi-Fi Wireless Modules PAN93X Family

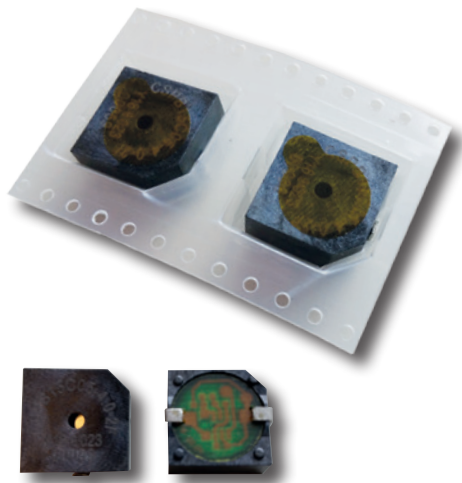


- Wi-Fi modules with integrated networking stack
- Versions Wi-Fi only or combination of Wi-Fi and Bluetooth® Smart Ready available
- Fast implementation, fastest time-to-market
- Maximum WLAN-performance

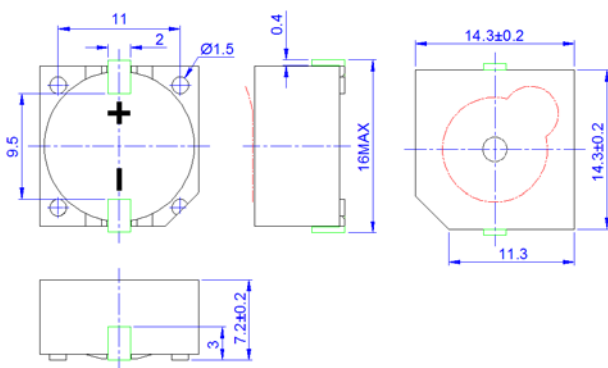
Panasonic

Innovative Wireless Modules

REFLOWABLE PIEZO BUZZER WITH PEI-PROTECTION LABEL/CSPB15C05-4.0-2F



DIMENSIONS (mm)



Following numerous customer requests for a piezoceramic SMD soundpart with a temperature resistant protection label, which can pass through the reflow soldering process as well, manufacturer Chinasound recently introduced their new product CSPB15C05-4.0-2F .

The technical speciality is that the „classic“ problem of „prisoned“ air inside the component, which tends to expand under the influence of high temperature, was technically solved in a unique and intelligent way, without the component becoming leaking. This way, the unwanted latent cracks of the ceramic element during reflow soldering process can be avoided and prevented effectively.

The new SMD sounder has the housing dimensions 14.3 mm × 14.3 mm × 7.2 mm and is designed for being driven with DC voltage in the range of 3~16 volts.

When applying the nominal voltage of 5VDC a loudness of at least 85 dB is generated (at 10 cm distance), whilst the current consumption is just 5 mA maximum.

The protection label is made of PEI and needs to be removed separately after reflow process, in order to let the sound pass through correctly.

This component is packaged in tapes according to EIA-481-2-A and comes on reels of 350 pcs each.

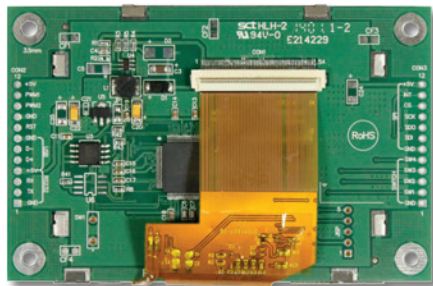
FEATURES/TECHNICAL DATA

- » Reliable solid state piezoelectric technology
- » Corrosion resistant diaphragm
- » Flame retardant plastic UL 94-V0
- » Lead-free reflow solderable
- » RoHS compliant
- » Rated voltage: 5V_{DC}
- » Operating voltage: 3V_{DC} ... 16V_{DC}
- » Operating frequency: 4000 Hz±500 Hz
- » Typical sound output: 85 dB min. (@ 5V_{DC}, 10 cm, 25°C)
- » Typ. operating current: 5 mA max. @ 5V_{DC}
- » Operating temperature: -40 °C ... +85 °C
- » Storage temperature: -40 °C ... +90 °C
- » Packaging: Taped on reel

CHARACTERISTICS



TFT-DISPLAYS / M-SERIES



The **TFT displays of the M-series** of RAYSTAR Optronics meet all requirements for a fully equipped „all-in-one“ system. For the transmission of data and control of the displays data and the RS-232, USB and SPI are available, which are controlled via the terminals CON2 and CON3.

On the rear of the display a LED backlight driver, a microcontroller (PIC24), and a SRAM and flash memory are mounted on a board. All modules of the M-series are optional available with a resistive or projective capacitive touch panel.

The programming of these display modules are linked via manufacturer's software. For this purpose, the display is connected to a development board via USB or RS232 to the PC. A suitable development board is included in delivery.

Using the free (screen-editor) software a graphical user interface can be realized within a few minutes.

Per mouse click, the program elements are converted to the C programming language and then they can be implemented directly into the C program of the end application.

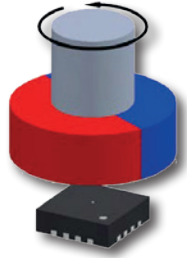
BENEFITS:

- » Integrated display controller PIC24
- » No additional software or development environment required
- » Few pins for driving necessary (UART / SPI)
- » Full compatibility of the display to one another by single cord
- » Automatic code generation

| SIZE | MODEL NUMBER | DISPLAY RESOLUTION | BRIGHTNESS [cd/m²] | TYP. BACKLIGHT LIFE [h] | INTERFACE UART / SPI | OPERATING TEMPERATURE [°C] | RESISTIVE | CAPACITIVE TOUCH PANEL (PCAP) |
|------|-----------------|--------------------|--------------------|-------------------------|----------------------|----------------------------|-----------|-------------------------------|
| 3.5" | RFC350M-EIW-DRN | 320 x 240 | 420 | 50 K | • | -20...+70 | | |
| 3.5" | RFC350M-EIW-DRS | 320 x 240 | 300 | 50 K | • | -20...+70 | • | |
| 4.3" | RFE430M-EIW-DRN | 480 x 272 | 500 | 50 K | • | -20...+70 | | |
| 4.3" | RFE430M-EIW-DRS | 480 x 272 | 350 | 50 K | • | -20...+70 | • | |
| 4.3" | RFE430M-EIW-DRC | 480 x 272 | 400 | 50 K | • | -20...+70 | | • |
| 5.7" | RFC570M-EIW-DRN | 320 x 240 | 500 | 50 K | • | -20...+70 | | |
| 5.7" | RFC570M-EIW-DRS | 320 x 240 | 350 | 50 K | • | -20...+70 | • | |
| 5.7" | RFC570M-EIW-DRC | 320 x 240 | 400 | 50 K | • | -20...+70 | | • |

Reserve technical changes!

CONTACTLESS TURNING KNOB SENSOR WITH PWM OUTPUT



The **MagAlpha MA750** is a robust contactless angle encoder suitable for use in rotary control buttons and knobs. The IC detects the absolute angular position of the permanent magnet, typically a diametrically magnetized cylinder attached to the shaft.

The output is digital SPI and PWM. For potentiometer replacement applications, the PWM output can be filtered to provide an analogue voltage.

MagAlpha devices use a unique "SpinAxis" technique which directly digitizes the angle direction without any need for sine/cosine A-to-D conversion or ArcTan calculations. This direct conversion of phase to digital angle occurs every 2 μ s and provides an ultra-fast sensor response time and low latency of only 3 μ s.

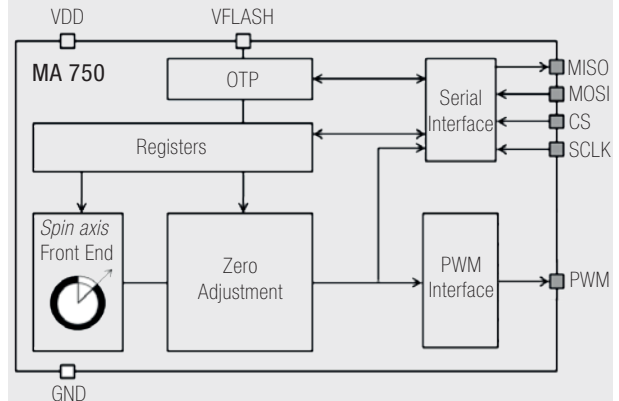
The Hall sensor array within the MA750 is confined within a region less than 100 μ m wide, with a precision within 50 μ m of the centre of the QFN package. The sensor detects the angle of the magnetic field in the plane parallel to the package surface. This means that only the "in-plane" component of the magnetic field (X,Y) at the centre of the package is detected which gives flexibility in the design of the angular encoder. All the sensor needs is that the magnetic vector lies essentially within the sensor plane and that its amplitude is within the range 30 mT to 150 mT. (Smaller fields can be used but linearity may be lower than specified)

The SPI bus outputs the direct digital angle value from 0 to 360 degrees. Zero position can be hard programmed into the device via OTP memory.

The PWM output has a 12 bit resolution and is output at 15.3 kHz (65 μ s period).

MA750 provides an efficient way to implement contactless rotary sensors in consumer, and industrial applications.

BLOCK DIAGRAM – MagAlpha MA750

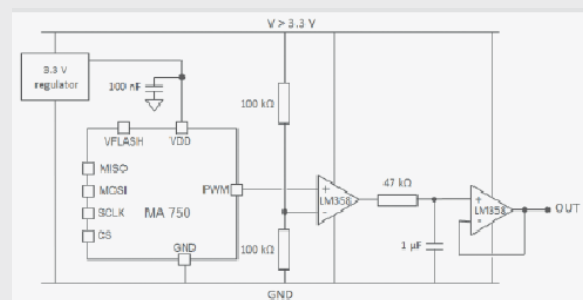


KEY FEATURES

- » 8 bit SPI digital angle output
- » 12 bit PWM output
- » 500 kHz refresh rate for ultra-fast response
- » Supply voltage: 3.3V
- » Supply current: 7 mA
- » Operating temperature: -40°C ... +125 °C
- » Small 3x3 mm QFN package

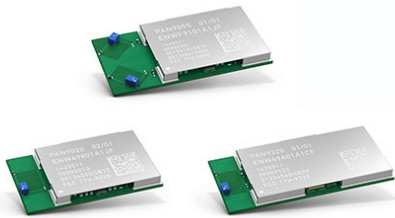
Emulation of a standard potentiometer voltage output can be achieved with a low pass filter such as shown in the example below.

APPLICATION EXAMPLE– MagAlpha MA750





WLAN/WI-FI-WIRELESS MODULES – FAST INTEGRATION, MAX. PERFORMANCE



Panasonic expand their product line with WLAN / Wi-Fi modules. These operate in the 2.4 GHz ISM band and enable rapid wireless implementation in a variety of applications. With an excellent 802.11 wireless radio and baseband processor in a system-on-chip (SoC) design achieves maximum WLAN performance.

With a host of standard features, these modules are the ideal solution for all your wireless needs.

Panasonic Wi-Fi wireless modules provide rapid deployment of wireless technologies in your designs. The mature development environments with the appropriate support by our specialists also enable the hitherto rather inexperienced developer a quick start into the world of wireless.

With a flexible, system-on-chip (SoC) solution, these modules enable low-power operation and the increase speed-to-market. Panasonic Wi-Fi radio modules are characterized by the perfect blend of reliability and performance.

The modules are available in the versions Wi-Fi only or a combination of Wi-Fi and Bluetooth® Smart Ready.

Discover today how Panasonic can revolutionize the wireless performance of your electronic designs!

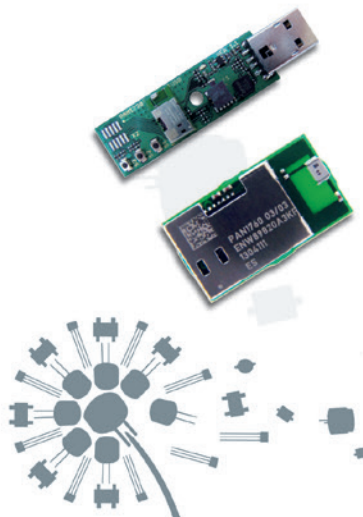
Endrich Vertriebs GmbH is the official distributor of wireless devices from Panasonic. Panasonic is a well-known specialist in the field of wireless modules and offers a range of Bluetooth® and wireless devices with different profile and stack options for almost any application such as mobile measuring equipment, PC, notebook, car infotainment, wireless meter reading, AMR, data collection, security technology, medical technology, access control, home and building automation.

Panasonic presents the family PAN93X, WiFi modules with integrated networking stack



New WiFi module Panasonic: PAN93X0 family

- Integrated WiFi stack
- Accesspoint, TCP / IP
- AdHoc on board
- 2 MB Flash on board, 1MB for customer application
- Temperature range: -30°C to +70°C
- Development environment and software on request, development kit
- Samples ex Endrich stock



PAN 1760 Bluetooth 4.1 smart modules Bluetooth 4.1 smart ready modules

- Already implemented GATT layer
- Sources available for GAP layer - available for free
- BT certified
- Industrial temperature range: -40°C to +85°C

Your benefits

- Fully certified acc. to CE+FCC
- Short development time
- Fastest time to market

ANTI-SURGE THIN FILM CHIP RESISTORS



Susumu Co. Ltd is world wide recognized as an expert in thin film chip resistors with unmatched reliability and stability. By their more than 50 years long experience, Susumu successfully advances and enhances their products on a regular base. This results in periodically announced new products such as the new MRG series. In addition to the well-known advantages of Susumu thin film technology, the MRG type offers a significant improvement of anti surge capability compared to other thin film chip resistors.

With the available case size 0805, 1206 and 2010, it is possible to replace precision MELF resistors.

FEATURES

- » Significant improvement of anti-surge capability comparing to existing thin film resistors
- » Precision resistance tolerance: $\pm 0,1\%$, very small TCR of ± 10 ppm/ $^{\circ}\text{C}$
- » Thin film structure enabling low noise
- » Anti-sulfur

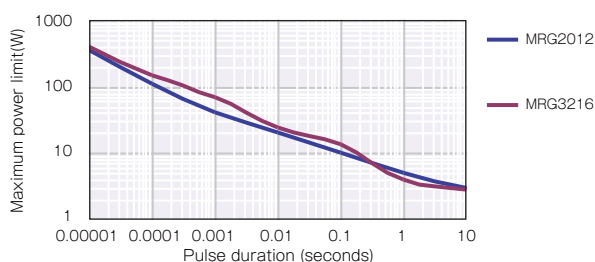
APPLICATIONS

- » Power source related devices
- » Automotive electronics
- » Robotics
- » Industrial control systems

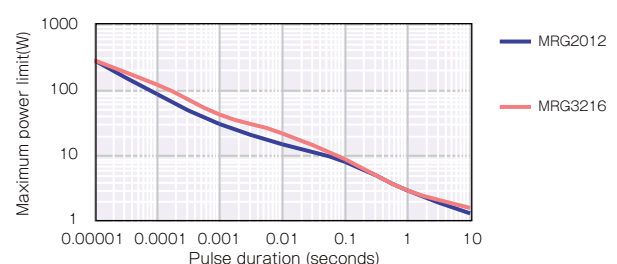
SPEZIFIKATIONEN

| | TYPE | POWER | R-TOLERANCE | TCR | R-VALUES | MAX. VOLTAGE | OPERAT. TEMPERATURE |
|---------|-------|------------------------------------|--|---|----------|--|---------------------|
| MRG2012 | 1/10W | $\pm 0.1\%$ (B) $\pm 0.5\%$ (D) | ± 10 ppm/ $^{\circ}\text{C}$ (N) ± 25 ppm/ $^{\circ}\text{C}$ (P) | $100\ \Omega \leq R \leq 1\ \text{M}\Omega$ | 150V | -55 $^{\circ}\text{C}$... +155 $^{\circ}\text{C}$ | |
| MRG3216 | 1/8W | $\pm 0.1\%$ (B) $\pm 0.5\%$ (D) | ± 10 ppm/ $^{\circ}\text{C}$ (N) ± 25 ppm/ $^{\circ}\text{C}$ (P) | $100\ \Omega \leq R \leq 2\ \text{M}\Omega$ | 200V | | |
| MRG5025 | 1/2W | $\pm 0.1\%$ (B) $\pm 0.5\%$ (D) | ± 10 ppm/ $^{\circ}\text{C}$ (N) ± 25 ppm/ $^{\circ}\text{C}$ (P) | $100\ \Omega \leq R \leq 2\ \text{M}\Omega$ | 300V | | |

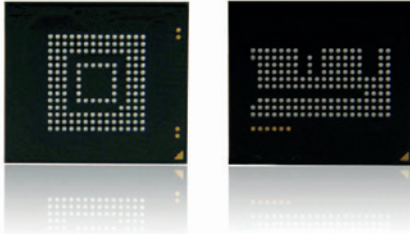
MAXIMUM PULSE POWER LIMIT (SINGLE P.)



MAXIMUM PULSE POWER LIMIT (MULTIPLE P.)



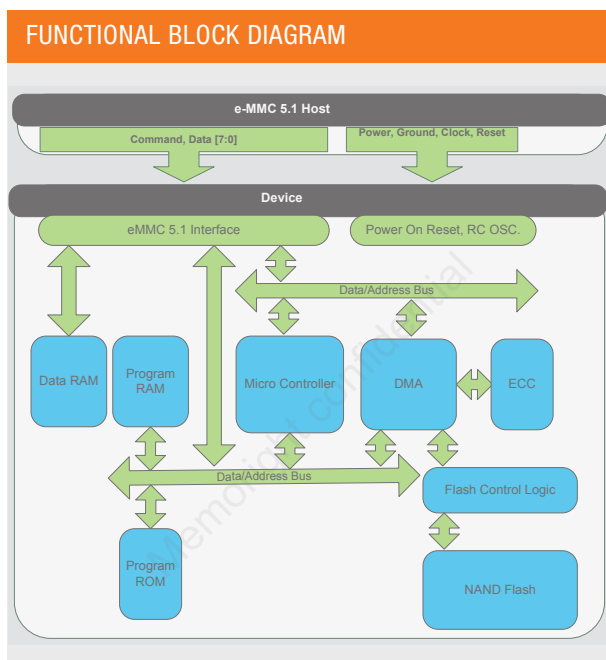
e-MMC 5.1 EMBEDDED FLASH MEMORY – M1890 SERIES



Memoright **M1890 series** is an eMMC 5.1 compliance embedded flash memory module that integrates a slim controller and NAND flash into a BGA package for various consumer electronics applications such as smart phones, Tablet PC, GPS, etc. Memoright M1890 series provides low power mode to greatly extend battery lifetime and to achieve high performance for

up to 32 GB storage capacity that makes it an ideal solution for multimedia handsets. M1890 integrates advanced flash management technology to achieve balance between cost and performance. It supports three clock frequency of 0-200 MHz and also supports for data bus width modes of 1 bit, 4 bit and 8 bit. Besides, it integrates several patented method such as dynamic & static wear-leveling and advance block management to achieve highest data reliability and maximized flash life expectancy.

Memoright M1890's various advantages such as high performance, capacity and reliability make it the best eMMC storage solution for several consumer electronics devices such as mobile PC and personal handheld devices.



FEATURES

- » Embedded with e-MMC flash controller and NAND flash
- » Field firmware update supported
- » Support sleep notification in power off notification
- » Device health report supported
- » Secure removal type supported
- » Command queuing supported
- » Mechanical design complies with JEDEC® standard
- » Support data bus widths of 1 bit, 4 bit, 8 bit
- » High performance up to 400 MB/s bus transfer rate
- » Power supply voltage (VCC): 3.3V
- » Power supply voltage range (VCCQ): 1.8V ... 3.3V
- » Operating temperature range: -25 °C ... +85 °C
- » Storage temperature range: -40 °C ... +85 °C
- » BGA 153 ball package

| MODEL NUMBER | CAPACITY | BALL CNT | PACKAGE SIZE L×W×T (mm) | TYPE | LEAD TIME / STOCK | LEAD TIME / BY PO |
|--------------------|--------------|----------|-------------------------|-----------|-------------------|-------------------|
| MREMB3A004GZMBAB00 | 4 GB | 153 | 11.5×13×1.0 | 20 nm MLC | 2 ... 3 weeks | 6 ... 8 weeks |
| MREMB3A008GZMBAB00 | 8 GB | 153 | 11.5×13×1.0 | 16 nm MLC | 2 ... 3 weeks | 6 ... 8 weeks |
| MREMB3A016GZMBAB00 | 16 GB | 153 | 11.5×13×1.0 | 16 nm MLC | 2 ... 3 weeks | 6 ... 8 weeks |
| MREMB3A032GZMBAB00 | 32 GB | 153 | 11.5×13×1.0 | 16 nm MLC | 2 ... 3 weeks | 6 ... 8 weeks |

QUAD HIGH SPEED SINGLE SUPPLY OPERATION AMPLIFIER – NJM3474



**NJM3474G
(SOP14)**



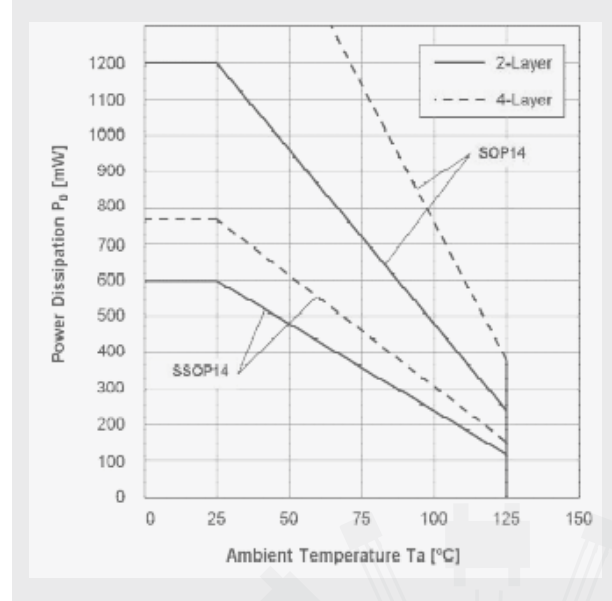
**NJM3474V
(SSOP14)**

FEATURES

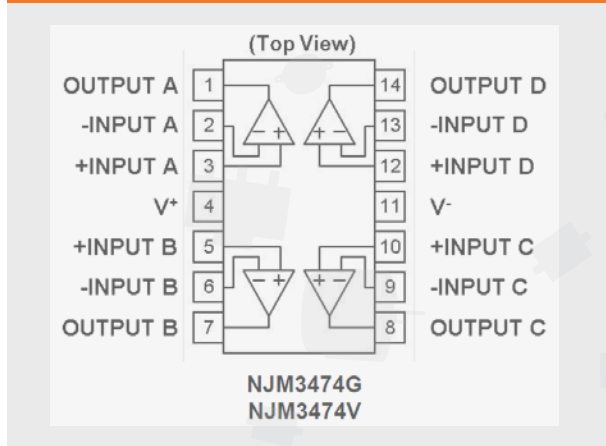
- » High Slew Rate 10V/μs
- » High Bandwidth 3 MHz
- » High Unity Gain Frequency 3.6 MHz
- » Input Offset Voltage 5.5 mV max.
- » Single Supply 3V~36V
- » Operating Temperature Range -40°C~+125°C
- » Low input voltage around GND level
- » Unity-Gain Stable
- » Operating Current (All amplifiers) 8 mA
- » No Phase Reversal
- » High EMI Immunity
- » Output Short-Circuit Protection
- » Package NJM3474 SOP14, SSOP14

The **NJM3474** is a quad high speed single supply operational amplifier with operation voltage range from 3V to 36V and operation temperature range from -40°C to +125°C. 10V/μs slew rate and 3MHz gain bandwidth is suitable for inverter and active filter. Compared with the TL3474, the characteristics of low-power are improved.

DISSIPATION POWER VS. AMBIENT TEMPERATURE



PIN CONFIGURATION



APPLICATIONS

- » Current sensor
- » Buffer application amplifier
- » Active filter
- » Battery application

Contact for information: Mr. Kinn · Tel. +49(0)7452-6007- 21 · e-mail: d.kinn@endrich.com

HEADQUARTERS

ENDRICH Bauelemente Vertriebs GmbH · P.O.Box 1251 · D-72192 Nagold
 T +49 (0) 7452 6007-0 · F +49 (0) 7452 6007-70
 endrich@endrich.com · www.endrich.com



SALES OFFICES IN EUROPE

France:
 Paris: T +33/2 41 80 19 87 · france@endrich.com

Austria & Slovenia
 Vienna: T +43/1 66 52 52 521 · austria@endrich.com

Hungary:
 Budapest: T +361 / 2 97 41 91 · hungary@endrich.com

Bulgaria:
 Sofia: T +359/2 874 30 49 · bulgaria@endrich.com

Romania:
 Timisoara: T +40/356 11 41 88 · romania@endrich.com

Switzerland – Novitronic:
 Zurich: T +41/44 306 91 91 · info@novitronic.ch

Spain:
 Barcelona: T +34/93 217 31 44 · spain@endrich.com