

PASSIVE COMPONENTS SHORTFORM



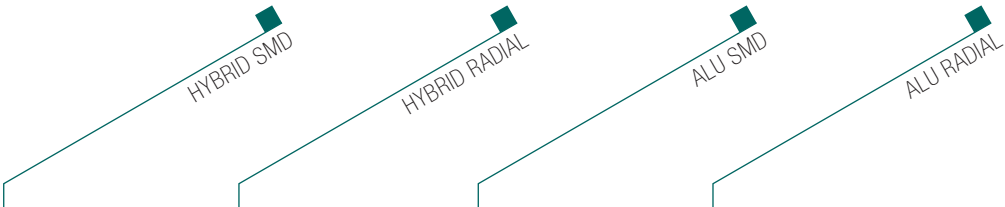
SMD ELECTROLYTIC & HYBRID CAPACITORS



Sun Electronic Industries (SEI) develops and produces aluminium electrolytic and polymer hybrid capacitors in high-grade since many decades. The manufacturer focuses on efficient capacitors in SMD technology and distributes those under the trademark SUNCON. Almost all of the products are certified in accordance to AEC-Q200 and are manufactured with standards of TS 16949.



- ### FEATURES
- High rated ripple current in small size
 - Low ESR down to 10 mOhm
 - Stable ESR at low temperature
 - High reliability (in case of failure, typ. "open mode")
 - Wide temperature range (105° - 150°C)
 - All SMD parts from Ø 8 mm to 16 mm in anti vibration version available



| GENERAL PARAMETERS | | | | |
|--------------------------|-----------------------------|------------------------------|-------------------------|-------------------------|
| Voltage Range | 6.3 to 125 V | 6.3 to 100 V | 4 to 400 V | 4 to 450 V |
| Capacitance Range | 6.8 to 1000 uF | 10 to 560 uF | 0.47 to 12000 uF | 0.47 to 15000 uF |
| Temperature Range | -55°C / +150°C | -55°C / +125°C | -55°C / +150°C | -55°C / +125°C |
| Endurance | 1000 to 10000 h | 2000 to 10000 h | 1000 to 10000 h | 1000 to 12000 h |
| ESR | 14 to 150 mΩ (100 kHz) | 14 to 100 mΩ (100 kHz) | 0.06 to 5.0 Ω (*) | 12 to 170 mΩ (**) |
| Ripple Current | 590 to 4340 mA (100 kHz) | 1060 to 4340 mA (100 kHz) | 2.8 to 2260 mArms (***) | 7.0 to 3680 mArms (***) |
| Size | Ø 6.3 mm to 10 mm | Ø 6.3 mm to 10 mm | Ø 4 mm to 18 mm | Ø 4 mm to 18 mm |
| Height | 4.5 mm to 12.5 mm | 7.2 mm to 11.5 mm | 3.9 mm to 21.5 mm | 5 mm to 35.5 mm |

(*) 0.06 Ω: 100 kHz / 20 °C
5.0 Ω: 100 kHz / -40 °C

(***) 2.8 mArms : 120 Hz / 105 °C
2260 mArms : 100 kHz / 105 °C

3680 mArms : 10~200 kHz / 105 °C

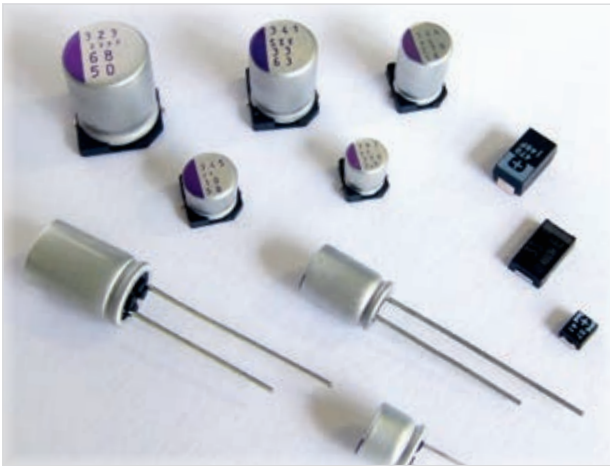
(**) 100 kHz / 20 °C

(****) 7.0 mArms : 120 Hz / 105 °C

POLYMER CAPACITORS



Panasonic is a leading global manufacturer of various capacitor technologies. Parallel to their standard electrolytic capacitors, Panasonic sells solid polymer capacitors under the trademark OS-CON and POSCAP (former Sanyo) and since the recent past a further technology (SP-CAP) was added to the capacitor range. These capacitors are coming to use in various applications in telecommunication, IT, building automation and industry divisions.



- FEATURES**
- Super low ESR down to 3 mOhm
 - High ripple current up to 7 Arms
 - 20 A Rush current
 - Available in chip and can housing
 - High reliability and long lifetime (80,000 hrs @ 85°C)
 - Automotive grade products available for improved series (certified by AEC-Q200 / TS16949)

| GENERAL PARAMETERS | | | |
|---------------------------|-------------------------------|-----------------|-----------------|
| Voltage Range | 2 to 35 V | 2 to 100 V | 2 to 35 V |
| Capacitance Range | 3.9 to 1500 uF | 3.3 to 2700 uF | 2.2 to 560 uF |
| Temperature Range | -55°C / +125°C | -55°C / +125°C | -55°C / +125°C |
| Endurance | 1000 h @ 125°C | 2000 h @ 125°C | 1000 @ 125°C |
| ESR | Down to 5 mΩ | Down to 5 mΩ | Down to 3 mΩ |
| Ripple Current | up to 4.4 A | up to 7 A | up to 10.2 A |
| Size | 2.0 x 1.25 mm to 7.3 x 4.3 mm | Ø 4 mm to 10 mm | 7.3 mm x 4.3 mm |
| Height | 0.9 mm to 4.0 mm | 5.5 mm to 13 mm | 1.1 mm to 2 mm |

MIDDLE SIZE SERIES & CUSTOMISED DESIGN



FTCap is a German manufacturer specialised in aluminium electrolytic and film capacitors in small and medium series. Since 1948 "Fischer & Tausche" stands for quality which is ensured through the ISO 9001:2008 certification as well as the auditing according to VDA 6.3. (TS 16949 certification is in progress). They benefit from their experience of the last 65 years which guarantees an innovative power, a wide range of products and an unique expertise in developing client-oriented product solutions.



- ### FEATURES
- Focus on individual developments and customised design
 - Niche market, middle size series
 - Exclusively manufacturing in Germany and Switzerland
 - Owner of various patents
 - One of the leading European manufacturer of capacitors
 - Focus on high reliability, high innovation and flexibility

ELECTROLYTIC CAPACITORS

FILM CAPACITORS

| GENERAL PARAMETERS | | |
|--------------------------|---------------------------|----------------------------|
| Voltage Range | 10 to 500 V or customised | up to 120 kV or customised |
| Capacitance Range | 4.7 µF to 2 F | 1 pF to 1 F |
| Temperature Range | -40 / +135 °C | -40 / +105 °C |
| Endurance | up to 25000 h | up to 100000 h |
| ESR | 1m Ω | customised |
| Ripple Current | customised | customised |
| Size | 10 to 90 mm | customised |
| Height | 25 to 230 mm | customised |

THIN FILM PRECISION & METAL FOIL CURRENT SENSE CHIP RESISTORS



Susumu Co. Ltd is world wide recognised as an expert in thin film chip resistors and metal foil current sense chip resistors with unmatched reliability and stability. By their more than 50 years long experience, Susumu successfully adopted technologies like thin-film deposition and micro photo etching (photolithography). These core processes enable Susumu to design various resistance pattern on the chip to offer special purpose chip resistors and customised voltage divider networks.



HIGHLIGHTS

- **RG Series:** **high** reliability thin film chip resistors, often used in industrial and automotive applications.
- **URG/LRG Series:** **ultra** reliability thin film chip resistors for highest precision ($\pm 0.01\%/\pm 1\text{ppm}$) and stability (drift $< \pm 0.25\%$ after 10.000 hours of stress test), often used in analog measurement applications.
- **PRG/HRG Series:** precision resistors with increased power rating with short-side (HRG) and long-side (PRG) terminals, often used as gate resistor and in snubber circuits.
- **RM Series:** resistor networks with matching tol. as low as $\pm 0.01\%$ and matching TCR as low as $\pm 1\text{ppm}$, wide resistance range of 100 Ohm - 500 kOhm. Often used as voltage divider in custom configurations.

| FEATURE | TECHNOLOGY | PURPOSE | PACKAGES | TOLERANCE % | TCR PPM/K | SERIES |
|-------------------------------|------------|----------------------------------|-------------|-------------|-----------|-------------------|
| Ultra High Reliability | Thin Film | Analog Measurement | 0603 - 2512 | 0.01 - 0.1 | 1 - 2 | URG, LRG |
| High Reliability | Thin Film | Automotive, Industrial | 0402 - 1206 | 0.05 - 0.5 | 5 - 100 | RG |
| High Power | Thin Film | Gate / Snubber | 0804 - 2512 | 0.1 - 0.5 | 25 - 50 | PRG, HRG |
| Anti Surge | Thin Film | Melf Replace | 0805 - 2010 | 0.1 - 0.5 | 10 - 25 | MRG |
| Gold Contacts | Thin Film | High Temperature | 0402 - 0805 | 0.01 - 0.5 | 1 - 25 | RGA, RMA |
| Economical | Thin Film | General Purpose | 0201 - 1210 | 0.1 - 1 | 25 - 100 | RR |
| Trimable | Thin Film | For Trimming in Customer site | 0201 - 0805 | 20 | 25 - 100 | RT |
| Networks | Thin Film | Voltage Divider | 0805 - 2512 | 0.01 - 0.5 | 1 - 25 | RM |
| Jumper | Thin Film | High Current Jumper | 0603 - 1206 | | | YJP |
| Non-magnetic | Thin Film | To Use in Magnetic Field | 0603 - 1206 | 0.05 - 0.5 | 5 - 50 | NRG |
| Sound | Thin Film | Audio Applications | 0402 | 0.1 - 0.5 | 25 | RS |
| High Frequency | Thin Film | Attenuator, Splitter, Terminator | 0402 - 1712 | | | PAT, PXV, PS, PCS |
| Low Ohm | Metal Foil | Current Sense Resistor | 0402 - 5930 | 0.5 - 5 | 50 - 150 | KRL |
| Low Ohm | Thin Film | Current Sense Resistor | 0603 - 3008 | 0.5 - 5 | 50 - 800 | RL, PRL |
| Low Ohm | Metal Foil | Precision Shunt | 2512 | 0.5 | 5 | SHR |

INDUCTIVE COMPONENTS



ABC Taiwan Electronics Co. is characterised by a very large product portfolio with an excellent price/performance ratio. High flexibility which is based on semi automatic processing makes it possible to convert customised requests into serial products even for medium quantities. ABC has more than 35 years of experience and maintains five factories in Taiwan, China and Malaysia.



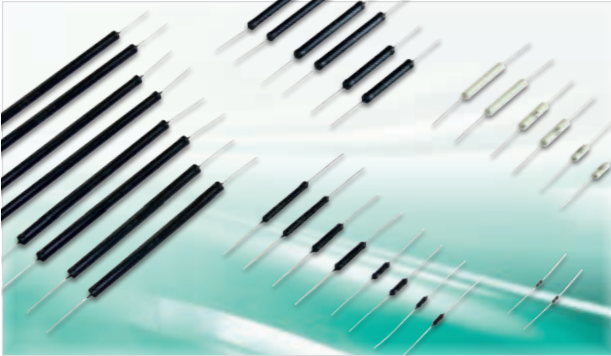
- ### NEWS
- **DP Series:** high efficient chip inductors using powder of amorphous core metal alloy and flat wire spring coil with a winding.
 - **TPI Series:** high current SMD inductors, applying powderised ferrite, mixed with epoxy, applied on the winding area for EMI shielding.
 - **ASF Series:** common mode line filter with gold terminals for automotive can bus, flexray and ethernet applications

| PICTURE | FEATURE | SHAPE | SERIES | SPECIALTY / PURPOSE |
|---------------------------|-----------------------------------|--------------------------------------|-------------------------------------|--------------------------------|
| GENERAL PARAMETERS | | | | |
| | Non Shielded SMD Power Inductor | Round, Rectangular, Square, Oval | SR, ESR, BR, CB, SQ, SB | General Purpose |
| | Semi Shielded SMD Power Inductor | Round, Square | TPI, RN, SN | Semi Shielded |
| | Shielded SMD Power Inductor | Octagonal, Rectangular, Square, Oval | SH, DH, QS, SS, CS, BS, CU, TPC, SU | Plastic, Metal or Ferrite Base |
| | Iron Powder High Current Inductor | Square | HP, CIP | High Current |
| | Shielded SMD Double Choke | Square | BF, SF | Sepic |
| | SMD Common Mode Choke | Diverse | CF, SF, HDC, PWC | EMI/EMC |
| | Through Hole Inductors | Drum Core Toroid & others | AA, RB, RC, PA, TR, TB, UF | General Purpose |
| | Chip Inductor | 0201-1210 | CM, CC, LPI, MH, MS | Networking Applications |
| | RF Inductor | Chip 0402 - 1210 | SW, SWI, HCI | High Frequency |
| | Chip Ferrite Bead | Chip 0402 - 0805 | MB, MZ, MU, SM | EMI/EMC |

SPECIAL PURPOSE RESISTORS AND DELAY LINES

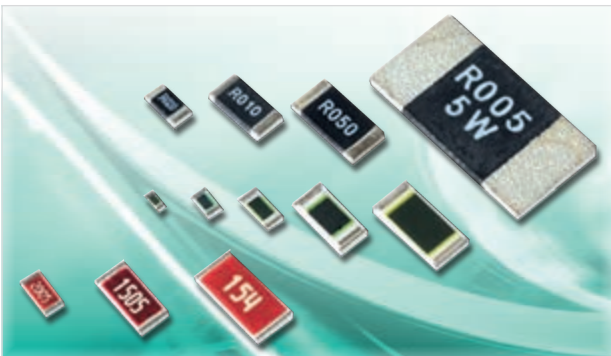


Next to components for future trends and for mainstream market, Endrich Bauelemente is also focused to offer specialty products for niche markets.



RCD COMPONENTS INC. has been a key manufacturer of standard and custom resistors for over 40 years. RCD's USA plant is the home of the SWIFT™ program and also specialises in military, aerospace and custom/specialty products. Caribbean and Asian facilities are geared for medium to high volume production, helping to ensure the industries' most competitive pricing.

Highlights: beside the wide portfolio, the SWIFT™ program and the ability to manufacture custom resistors we highlight the surge resistors in PRM Series (SMD) and PR Series (THT).

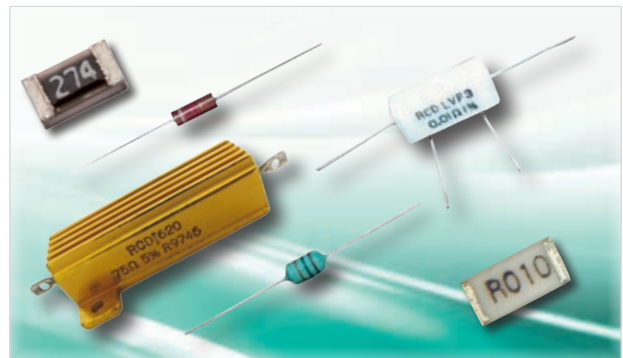


ELMEC manufactures ultra high-speed, compact delay lines that radically reduce distortion and jitter at high frequencies. Whether you're looking for fixed single pin, fixed surface mount or variable, Elmec's products deliver the speed and precision you need for your applications.

Highlights: Variable, fixed, differential and programmable delay lines as well as LTCC based high frequency common mode line filter.

E&C, member of the Japan Finechem Company, Inc, is specialised in high value and high voltage resistors and equipment. E&C can manufacture resistors from MΩ (Mega-Ohm) to PΩ (Peta-Ohm) with special focus on small temperature coefficient (min. ± 5 ppm/°C), small resistance tolerance (min. $\pm 0.1\%$), the lowest resistor noise level (≤ 0.3 ppm/°C) and the highest stability of $\pm 0.1\%$ (at normal temperature and humidity for 10,000 hrs. without load)

Highlights: RH type axial high voltage resistor and HC type chip resistor up to 150 GΩ in chip size 0402.



Prosperity Dielectrics Co Ltd. is a Taiwanese manufacturer of thick film chip resistors for special applications, such as anti-surge (EN61000-4-5), high Ohm (>100 MΩ), low Ohm (down to 1 mΩ) and high voltage (up to 3 kV).

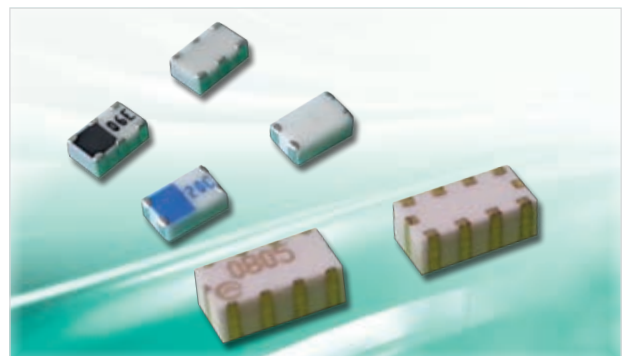
Highlights:

FVS Series: Safety Certificate Chip Resistor: 0603 ... 2512

FPS/FNF Series: Anti-Surge Resistor :1 Ohm ... 1 M Ohm

FPF Series: High Power: 2512 (2 W), 2010 (1 W), 1206 (0.5 W)

FVF Series: High Voltage: 2512 (3000 V), 2010 (2000 V), 1206 (800 V)



OFFICES IN EUROPE

Germany

Nagold (Headquarters)

Austria

France

Spain

Italy

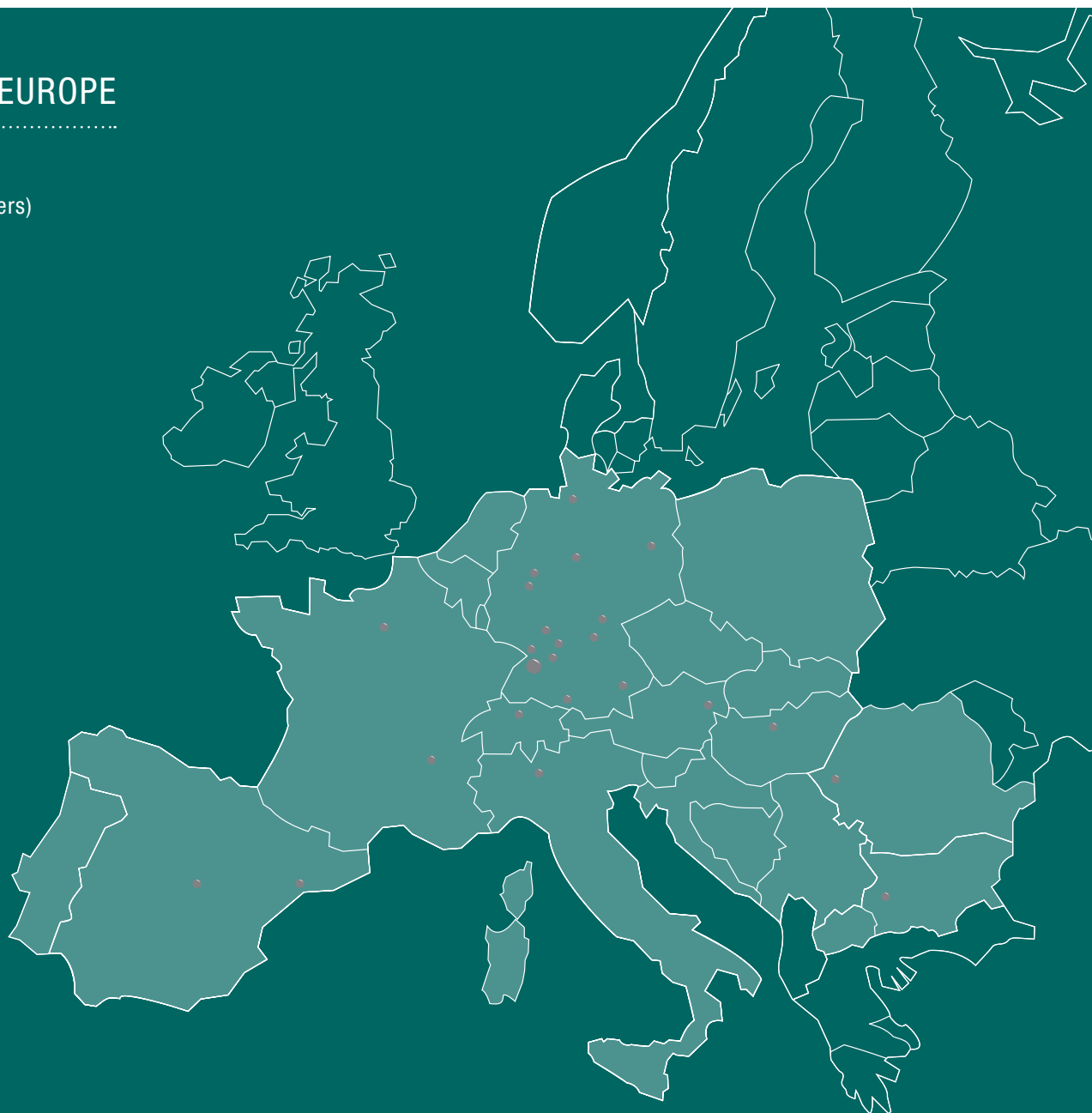
Hungary

Bulgaria

Romania

Switzerland

 **novitronic**
powered by endrich



ENDRICH Bauelemente Vertriebs GmbH · P.O.Box 1251 · D-72192 Nagold

Tel.: +49 (0) 7452 6007-0 · Fax: +49 (0) 7452 6007-70 · endrich@endrich.com · www.endrich.com

NOVITRONIC AG · Thurgauerstrasse 74 · CH-8050 Zürich

Tel.: +41 (0)44 306 91 91 · Fax +41 (0)44 306 91 81 · info@novitronic.ch · www.novitronic.ch