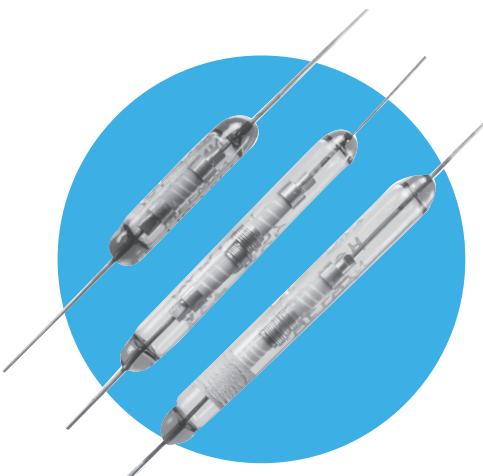


Ultra-High Value Precision Resistors

3810 Series

- Resistance range up to 100 T ohms (10^{14} ohms)
- Designed for low current (picoampere level) measurements
- Low voltage coefficient
- Hermetically sealed
- Leakage current minimised by hermetic sealing and guard ring



All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

| | | 3810 | 3811 | 3812 |
|---------------------------|--------|------------|---------------|---------------------------------|
| Resistance range | ohms | 100M to 1T | 100M to 1T | 1T to 100T |
| Limiting element voltage | volts | 500 | 1000 | 1000 |
| TCR (20°C to 70°C) | ppm/°C | | -500 to -3500 | |
| Resistance tolerance | % | 10, 20 | 1, 2, 5, 10 | 1T to 10T; 2, 5, 10 >10T; 5, 10 |
| Values | | | E24 preferred | |
| Ambient temperature range | °C | | -40 to 100 | |

Physical Data

| Dimensions (mm) & Weight (g) | | | | | | | |
|------------------------------|-------|-------|-------|-------|----------------------|------------------|---------|
| Type | L max | D max | f min | d nom | PCB mounting Centres | Min. Bend Radius | Wt. nom |
| 3810 | 25.0 | 6 | 30 | 0.6 | 29.2 | 0.6 | 1.5 |
| 3811 | 42.9 | 6 | 30 | 0.6 | 47.1 | 0.6 | 2.2 |
| 3812 | 48.0 | 6 | 30 | 0.6 | 52.2 | 0.6 | 2.5 |

Construction

The Cermetox® resistive film is fired onto high quality ceramic substrate; brass end caps are forced fitted to the substrate which is then adjusted to value with a helical cut in the film; the leads are mechanically locked into the end caps and the assembly sealed into the glass envelope. All close tolerance units utilise two resistors connected in series within the glass envelope. The guard band is described, with application notes, at

http://www.ttelectronics.com/themes/ttelelectronics/datasheets/resistors/literature/3810_AN.pdf

Terminations

Material Solder-coated Dumet wire.

Strength The terminations meet the requirements of IEC 68.2.21

Solderability The terminations meet the requirements of IEC 115-1, Clause 4.17.3.2

Marking

The serial number, resistance value and tolerance code are legend marked. The resistance value marking conforms to IEC 62.

Solvent Resistance

The glass envelope is coated with silicone and should not be subjected to solvents or their vapours. (See Application Notes.)

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

BI Technologies IRC Welwyn

www.ttelectronics.com/resistors

3810 Series

Performance Data

| | | Maximum | Typical |
|---|--------------|----------------|----------------|
| Load at rated voltage: 1000 hours at 20°C | ΔR% | 2 | 1 |
| Shelf life: 12 months at room temperature | ΔR% | 1 | 0.5 |
| Resistance to solder heat | ΔR% | 0.2 | <0.1 |
| Capacitance | 3810 3811 | pF pF | 0.4 0.2 |

| Voltage coefficient of resistance | | | | Measured at voltages of 100 and 500 volts |
|--|--------------|------------|--------------|--|
| | 100MΩ | 1TΩ | 100TΩ | |
| 3810 | -20 | -160 | | |
| 3811 | -10 | -80 | | |
| 3812 | -10 | -80 | -150 | |

Application Notes

Each resistor is packed with a card stating nominal resistance value at 100 V applied, selection tolerance, date and serial number.

Although the glass envelope is an excellent insulant and would be adequate in a dry atmosphere, the condensation which occurs in a normal atmosphere will provide a shunt resistance which will modify the very high resistance value. To minimise this effect all units are coated with silicone, and it is essential that this coating is not damaged; any handling should be by the terminations. For the same reason solvents must not be used.

The resistors should not be used in a damp atmosphere. If moisture develops on the body the resistor should be dried for 30 minutes at 70°C and allowed to cool for a further 30 minutes in a dry atmosphere.

To avoid damage to the seal between terminations and glass, the leads must be fully supported inside the point of bending during any preforming.

Ordering Procedure

Example: 3812 at 10 teraohms and 2% tolerance -

Type _____

Value (use IEC62 code) _____

Tolerance (use IEC62 code) _____

| | | | |
|---|----|---|-----|
| F | 1% | J | 5% |
| G | 2% | K | 10% |

Packing _____

| | | |
|---|-----------------|----------|
| I | Individual/Bulk | Standard |
|---|-----------------|----------|

Guard Band

For details of how to use the guard band, fitted to resistors of 100 G ohms and over, see
http://www.ttelectronics.com/themes/ttelectronics/datasheets/resistors/literature/3810_AN.pdf

Non-standard versions

Units without glass envelopes but with lacquer protection are available, but will have a limited electrical performance.

Measured values at a voltage other than 100V may be recorded.

For non-standard items contact TT Electronics.

Packaging

Each resistor is individually packed in a polythene envelope together with a card carrying measurement details and serial number (See Application Notes).

General Note

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Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помошь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помошь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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