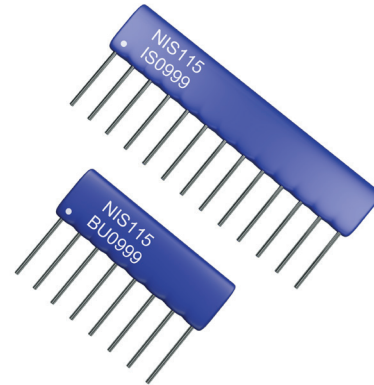


NIS - Series

Precision Metal Film Network

FEATURES

- Resistance from 100Ω to 100KΩ
- Temperature Coefficients to 5ppm°C
- Precision Ratio Matching
- Low Inductive Design
- Single In-Line Package (SIL)
- Standard & Custom Circuits
- RoHS compliant



RATED VALUES (IEC 60115-1; IEC 60115-6)

| | | |
|---|--------|---|
| Resistance Range | Ω | 100Ω to 100KΩ |
| Resistance Tolerance (absolute) | % | ±0,1%, ±0,2%, ±0,5%, ±1% |
| Resistance Tolerance (relative) | % | ±0,05%; ±0,02%; ±0,1% |
| Temperature Coefficient (absolute) | ppm/°C | ±5ppm°C, ±10ppm°C, ±25ppm°C |
| Temperature Coefficient (relative) | ppm/°C | ±2ppm°C, ±5ppm°C, ±10ppm°C |
| Power P ₇₀ | (W) | 0,1Watt each single resistor (max. 1,5 Watts) |
| Working Voltage (U _{max} AC/DC) | V | 100V |
| Insulation Resistance (R _{ins}) | Ω | >10GΩ |
| Operating Temperature Range (T) | °C | 0°C to 75°C |
| Divider Ratio (max.) | | 1:200 |

***Operating Temperature Range:** Precision networks operate within a defined temperature range, maintaining the specified tolerances and temperature coefficients. In addition, the networks can be used in a temperature range of -10 ° C to + 85 ° C. This must be checked individual in each the application..

CONSTRUCTION

| | |
|-----------------------------|---|
| Resistor Material | NiCr - Alloy |
| Substrate | Ceramics (Alumina) |
| Coating | Epoxy coating, cleaning with ethanol, isopropanol, methanol, water based cleaners |
| Leads | Tin plated lead frame |
| Number of Connecting Pins | min. 4; max. 16 |
| Number of Resistor Elements | maximum 15 |
| Imprinting | Plain text, coding according to customer specifications possible |

- **Customised solutions:** In addition to variations of the standard circuits, mixed forms are also possible. Physical limitations, such as resistance outside of given specifications or overlapping traces, can be realized with our hybrid networks.

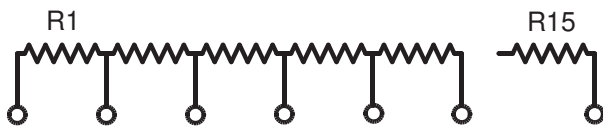
Contact us, we will find your solution.

NIS - Series

Precision Metal Film Network

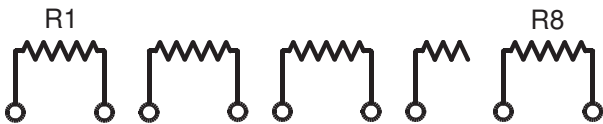
- **Custom Network:** based on the following basic circuits, we manufacture resistor networks of all kinds of technically possible combinations of circuit, resistance values as well as tolerances and temperature coefficients. Labeling according to customer specifications is just as possible as a special coding for customer-protected types.

STANDARD - SCHEMATICS - SE -



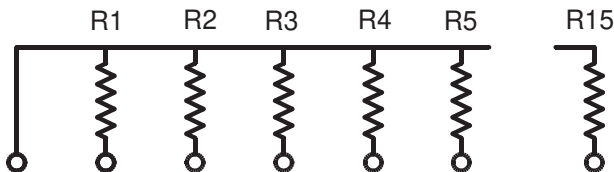
- Series- Circuit
- Maximum 16 Connection Pin, 15 Individual Resistors
- Circuit Example: Doubling of the Resistance Value (1K;2K;4K;...)

STANDARD - SCHEMATICS - IS -



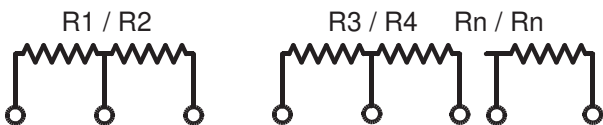
- Individual- Resistors
- Maximum 16 Connection Pin, 8 Individual Resistors
- Circuit Example:: Equal Resistors (1k; 1K; 1K...)

STANDARD - SCHEMATICS - BU -



- Bussed- Resistors (Array)
- Maximum 16 Connection Pin, 15 Individual Resistors
- Circuit Example:: Pull up or Pull down Resistors

STANDARD - SCHEMATICS - DI -

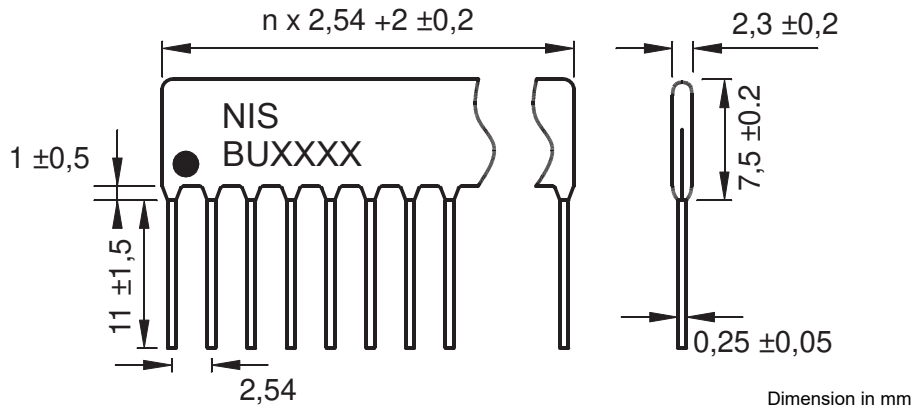


- n - Divider Circuit
- Maximum 16 Connection Pin, 5 Divider
- Circuit Example:: Individual Voltage Divider (100R / 1K; 1K / 10K...)

NIS - Series

Precision Metal Film Network

DIMENSIONS



PERFORMANCE

| IEC 60115-1 | Test | Conditions of Test | Test Limits |
|-------------|------------------------|--|-------------------------------------|
| 4.23 | Moisture Resistance | +40°C, 90-95% R.H., rated voltage, 1000h | $\pm(0,1\% \Delta R + 0,01\Omega)$ |
| 4.19 | Thermal Shock | -55°C 30 min, +125°C 30 min, 5 cycles | $\pm(0,05\% \Delta R + 0,01\Omega)$ |
| 4.6 | Insulation Resistance | U_{ins} 500 V, 1 min | 10G Ω |
| 4.13 | Short Time Overload | 2.5 x rated voltage U_{max} , 5s | $\pm(0,05\% \Delta R + 0,01\Omega)$ |
| 4.25 | Endurance | +70°C, U_{max} 1,5h „ON“ and 0,5h „OFF“, 1000h | $\pm(0,1\% \Delta R + 0,01\Omega)$ |
| 4.17 | Solderability | 245°C, max. 3s | 95% contact coverd |
| 4.18 | Solder Heat Resistance | 350°C, max. 5s | $\pm(0,03\% \Delta R + 0,01\Omega)$ |

- **NIS precision networks** we manufacture according to customer specifications. It is the responsibility of the customer to ensure that the product is suitable for the particular application. With its expertise, electronic sensor & resistor GmbH supports the production of a component that works according to the specifications. Networks based on the NIS series are not intended for use in life-support or life-saving medical devices or applications. All nominal values must be checked by the customer in the respective application.

ORDERING INFORMATION

NIS BU (NIS BU 1K + 1K + 500R00..... 0,5%; 0,05%; TK5; TK5)

| Type | Special | Resistance | Tolerance (absolute) | Tolerance (relative) | Temp. Coefficient (absolute) | Temp. Coefficient (relative) |
|------------|---------|---|------------------------------|----------------------|------------------------------|------------------------------|
| NIS | XXXX | R1: R2: ... R15: (values for each resistor) | 0,1% 0,2% 0,5% 1,0% | 0,02% 0,05% | TK5 TK10 TK25 | TK2 TK5 TK10 |

Custom networks are individual coded under "Special". In addition a special data sheet has to be released by the customer.

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