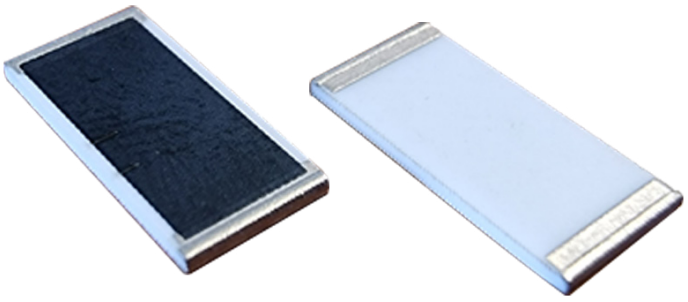
# SSM Series
## Non Magnetic SMD Chip Resistors



- Surface mount thick film technology
- Non Magnetic SMD resistors
- 1Ω to 10MΩ Resistance range
- Suitable for high vacuum applications - no organics
- PtAg terminals for conductive gluing and soldering
- Working voltage up to 1.5kV
- 300˚C High temperature available in 'SZSM' Series
- RF Version available untrimmed

e4 ELV RoHS Compliant 2000/53/EC 2011/65/EC

**Technical Data** — **Table 1**

| Size | 0402 | 0603 | 0805 | 1206 | 2010 | 2512 | 4020 |
|---|---|---|---|---|---|---|---|
| Power rating $P_{70}$ (W) ( $P_{155}$ = 0W) | 0.05W | 0.1W | 0.125W | 0.25W | 0.75W [2] | 1W [2] | 2W [2] |
| Working voltage $U_{\_1}$, $U_{eff}$ (V) Standard (trimmed) U (untrimmed, Tol. ≥5%) | 30V<br>60V | 75V<br>150V | 100V<br>200V | 200V<br>400V | 250V<br>900V | 300V<br>1.2kV | 500V<br>1.5kV |
| Resistance / Tolerance % / Temperature Coefficient (TCR) ppm˚C[3] | | | | | (Lower resistance tolerances, TCR & VCR on request & by agreement) | | |
| 1R - <10R ± % | 10, 20 | 5, 10, 20 | 5, 10, 20 | 5, 10, 20 | 5, 10, 20 | 5, 10, 20 | 5, 10, 20 |
| 1R - <10R ppm/˚C | 250 | 100, 250 | 100, 250 | 100, 250 | 100, 250 | 100, 250 | 100, 250 |
| 10R - <100R ± % | 5, 10 | 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 |
| 10R - <100R ppm/˚C | 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 |
| 100R - 1M ± % | 2, 5, 10 | 1, 2, 5, 10 | 0.5, 1, 2, 5, 10 | 0.5, 1, 2, 5, 10 | 0.5, 1, 2, 5, 10 | 0.5, 1, 2, 5, 10 | 0.5, 1, 2, 5, 10 |
| 100R - 1M ppm/˚C | 50, 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 |
| >1M - 10M ± % | 2, 5, 10, 20 | 1, 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 | 1, 2, 5, 10 |
| >1M - 10M ppm/˚C | 50, 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 | 50, 100 |

[1]) Continuous operating voltage ($U_{\_}$, $U_{eff}$): $V \leq \sqrt{(P*R)}$ or max. working voltage (the lower value)

[2]) At continuous power dissipation the dimensions of solder-pads must secure sufficient heat removal. Power Mode 1W as SZSM Series, 2010 size ($P_{70}$=1W, $P_{300}$=0W), 2W as SZSM Series, 2512 size ($P_{70}$=2W, $P_{300}$=0W); 3W as SZSM Series, 4020 size ($P_{70}$=3W, $P_{300}$=0W). Higher power rating requires adequte heat removal (e.g. increased solder pads or Cu-thicknesses). The user has to ensure solder joints will not run over their load limit. The resistor must not exceed the specified operating temperature range. Zero Ω jumper: <50MΩ.

[3]) Temperature coefficient TCR: in ppm/K +25°C to +125°C; TCR lower than standard TCR (highest value) +25°C to +85°C

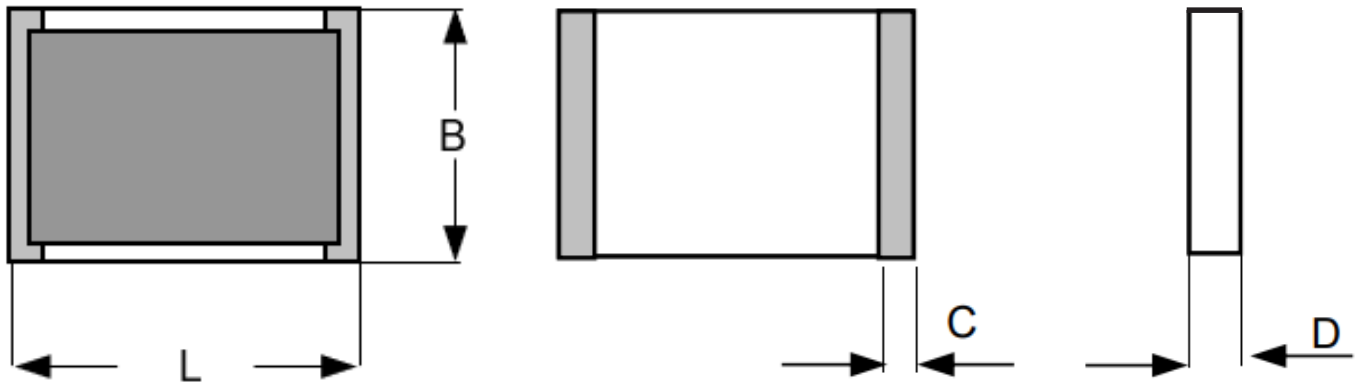
| **Technical Data - General** | | |
|---|---|---|
| Operating temperature range | -55°C to +155°C | |
| Climatic category acc. to EN 60068-1 | 55, 155, 56 | |
| Solderability acc. to EN 60068-2-58 (lead-free and lead-containing) [4] | 250°C, 3s | |
| Max. soldering temperature acc. to EN 60068-2-58 | 260°C, 10s | |
| Extended temperature range up to 300˚C possible - Series SZSM | | |
| Long term stability | **10R - 10M** | **< 10R** |
| Storage 125°C/1000h | < 0.5% | < 1% |
| Storage 155°C/1000h | < 1% | < 2% |
| Load Life 70°C/1000h | < 0.5% | < 1% |
| Short term overload | < 0.25% | < 0.5% |
| Damp heat (56d/40˚C/96%) | < 0.5% | < 1% |

[4]) Up to 6 months after shipment (air, 30˚C/60%rH) or up to 12 months at storage in nitrogen or in evacuated dry packs.
Other data according to EN 140401-802 (CECC 40401-802).

**Dimensions (mm)** — Table 2

| Size | L (Length) | B (Width) | D (Thickness) | C (Wrap around width) |
|---|---|---|---|---|
| 0402 | 0.95 +0.10/-0.05 | 0.48 +0.10/-0.05 | 0.28 +0.1/-0.05 | 0.1 +0.1/-0.05 |
| 0603 | 1.5 +0.15/-0.05 | 0.80 +0.15/-0.05 | 0.40 +0.15/-0.05 | 0.2 +0.2/-0.1 |
| 0805 | 2.00 +0.15/-0.05 | 1.25 +0.15/-0.05 | 0.40 +0.15/-0.05 | 0.3 +0.2/-0.1 |
| 1206 | 3.20 +0.15/-0.05 | 1.50 +0.2/-0.05 | 0.40 +0.15/-0.05 | 0.3 +0.2/-0.1 |
| 2010 | 5.10 +0.15/-0.05 | 2.50 +0.2/-0.05 | 0.60 +0.20/-0.1 | 1.2 ±0.2 |
| 2512 | 6.30 +0.15/-0.05 | 3.50 +0.2/-0.05 | 0.60 +0.15/-0.05 | 0.9 ±0.2 |
| 4020 | 10.20 +0.15/-0.05 | 5.10 +0.2/-0.05 | 0.60 +0.15/-0.05 | 0.9 ±0.2 |

**Dimensions** — Fig. 1




| Packaging | |
|---|---|
| Bulk in plastic bags | Contact Durakool for minimum order quantities |
| Embossed carrier tape acc. to IEC 60286-3 | Contact Durakool for minimum order quantities |
| Reel diameter | 180 or 330mm |

## Example Ordering Code

| S | S | M | 0 | 6 | 0 | 3 | T | 1 | M | 0 | 0 | J | 5 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Series**
SSM

**Case Size**
0402, 0603, 0805, 1206, 2010, 2512, 4020

**Trimming**
T = Trimmed
U = Untrimmed

**Resistance Ω**
1R - 10M

**Tolerance ± % (See table 1)**

| | | |
|---|---|---|
| **B** ± 0.1 | **F** ± 1 | **K** ± 10 |
| **C** ± 0.25 | **G** ± 2 | **M** ± 20 |
| **D** ± 0.5 | **J** ± 5 | **N** ± 30 |

**Temperature Coefficient TCR**
50 to 250ppm (See table 1)

NB: Standard TCR will be the highest value in the table unless otherwise requested. Measuring voltage will be 10V. Other voltages are available - specific requirements must be requested.