

CHS-Series High-Value Chip Resistors

Sizes: 0402, 0603, 0805, 1206, 1210, 2512, 4020

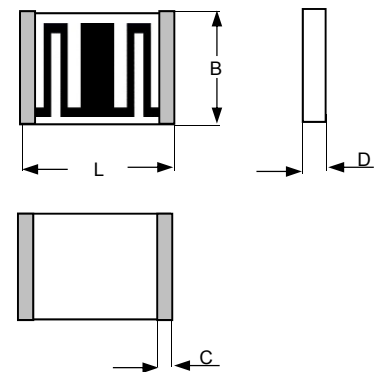
Features:

- High value chip resistors in thick film technology
- Low temperature and voltage dependency
- Suitable for high vacuum applications – no organics
- High working voltage up to 6000 V
- PtAg terminations for soldering and conductive gluing
- High temperature application up to 300°C possible (CHS-HT)
- Non-magnetic



Dimensions:

| Size | L | B | D | C |
|------|------------------------------|-----------------------------|-----------------------------|---------------------------|
| 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 | 1.50 ^{+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} |
| 1210 | 3.20 ^{+0.15/-0.05} | 2.50 ^{+0.2/-0.05} | 0.50 ^{+0.15/-0.05} | 0.8 ^{±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} |



L = Length, B = Width, D = Thickness, C = Width of wrap around (in mm)

Packaging:

Bulk in plastic bags – minimum quantity 100 pieces per value (30 pieces per value for size 2512, 4020)
 Embossed carrier tape acc. to IEC 60286-3 – minimum 500 pieces per value
 Reel diameter 180 mm or 330 mm

Ordering Data:

Type – value – tolerance – TCR – packaging

Example: CHS 4020 10G ±10% TCR 100 Tape 180 mm

Untrimmed parts are indicated by the extension “NA” in the order code:

Type – value – tolerance – NA – TCR - packaging

Example: CHS 4020 10G ±10% NA TCR 100 Tape 180 mm

If no requirements for TCR and taping are given, the standard value (highest value in table) will be supplied and packaging is bulk. Standard measuring voltage is 10V. Different voltages on request and agreement (specify explicitly).

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Sizes: 0402, 0603, 0805, 1206, 1210, 2512, 4020

Technical data – depending on size:

| Size | 0402 | 0603 | 0805 | 1206 | 1210 | 2512 | 4020 |
|---|----------|-----------|------------|------------|------------|--------------------|--------------------|
| Power rating P ₇₀ (mW) (P ₁₅₅ = 0 mW) | 50 | 100 | 125 | 250 | 350 | 1000 ¹⁾ | 2000 ¹⁾ |
| Max. working voltage (V) ²⁾ Standard (trimmed) NA (untrimmed, Tol. ≥ 5%) | 30 60 | 75 150 | 100 200 | 200 400 | 300 600 | 1500 2000 | 4000 6000 |

| Ranges / Tolerances/ TCR ³⁾ / VCR ⁴⁾ | | | | | | | |
|---|--|---|---|--|---|--|---|
| 10M – 100M | 5/10/20% TC50/100 500 ppm/V | 1/5/10/20% TC50/100 500 ppm/V | 0.5/1/5/10/20% TC50/100 500 ppm/V | 0.5/1/5/10/20% TC25/50/100 250 ppm/V | 0.5/1/5/10/20% TC25/50/100 25 ppm/V | 0.5/.../20% TC25/50/100 25 ppm/V | 0.25/.../10% TC25/50/100 10 ppm/V |
| >100M – 500M | 5/10/20% TC100/250 1000 ppm/V | 2/5/10/20% TC100/250 500 ppm/V | 2/5/10/20% TC100/250 500 ppm/V | 2/5/10/20% TC50/100/250 500 ppm/V | 2/5/10/20% TC50/100/250 250 ppm/V | 1/5/10/20% TC25/50/100 50 ppm/V | 0.5/.../20% TC25/50/100 25 ppm/V |
| >500M – 1G | 5/10/20% TC250/500 1000 ppm/V | 5/10/20% TC250/500 500 ppm/V | 5/10/20% TC250/500 500 ppm/V | 5/10/20% TC100/250 500 ppm/V | 5/10/20% TC100/250 250 ppm/V | 1/5/10/20% TC100/250 50 ppm/V | 1/5/10/20% TC25/50/100 25 ppm/V |
| >1G – 10G | 10/20/30% TC1000/2000 2000 ppm/V | 5/10/20/30% TC500/1000 1000 ppm/V | 5/10/20% TC500/1000 1000 ppm/V | 5/10/20% TC500/1000 500 ppm/V | 5/10/20% TC250/500 250 ppm/V | 2/5/10/20% TC100/250 100 ppm/V | 2/5/10/20% TC50/100 50 ppm/V |
| >10G – 100G | 10/20/30% TC2000/3000 5000 ppm/V | 10/20/30% TC1000/2000 3000 ppm/V | 10/20/30% TC1000/2000 3000 ppm/V | 10/20/30% TC1000/2000 1000 ppm/V | 5/10/20% TC500/1000 500 ppm/V | 5/10/20% TC250/500 250 ppm/V | 5/10/20/30% TC100/250 100 ppm/V |
| >100G – 1T | on request | on request | see CHM series | see CHM series | 10/20/30% TC1000/2000 2000 ppm/V | 10/20/30% TC500/1000 1000 ppm/V | 10/20/30% TC500/1000 500 ppm/V |

¹⁾ At continuous power dissipation the dimensions of solder-pads have to secure a sufficient heat removal

²⁾ Continuous operating voltage (U₋, U_{eff}): V ≤ √(P*R) or max. working voltage (the lower value)

³⁾ TCR: in ppm/K; +25°C...+125°C; TCR lower than standard TCR (highest value) or value >100G: +25°C...+85°C

⁴⁾ VCR: typical values, all negative, not for all TCR values available

Lower values of tolerance, TCR and VCR on request and agreement only

Technical data – general:

| | |
|---|------------------|
| Operating temperature range | -55°C ... +155°C |
| Climatic category acc. to EN 60068-1 | 55/155/56 |
| Solderability acc. to EN 60068-2-58 (lead-free and lead-containing) ⁵⁾ | 250°C, 3s |
| Max. soldering temperature acc. to EN 60068-2-58 | 260°C, 10s |

Extended temperature range up to 300°C: see datasheet “High temperature chip resistors” CHS-HT

| Long term stability | < 1 GΩ | < 10 GΩ | ≥ 10 GΩ |
|-----------------------|--------|---------|---------|
| Storage 125°C/1000h | < 1% | < 2% | < 5% |
| Load Life 70°C/1000h | < 0.5% | < 1% | < 2% |
| Maximum Voltage/1000h | < 0.5% | < 1% | < 2% |

⁵⁾ 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.

Data not specified according to EN 140401-802 (CECC 40401-802)