

CHS-Series High-Value Chip Resistors

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

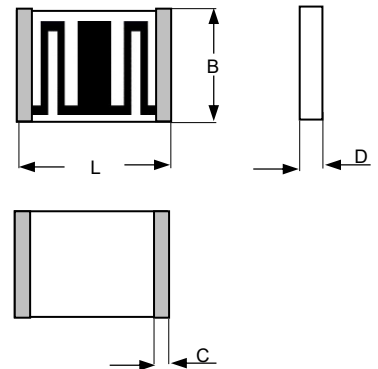
Features:

- 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
- PtAg⁰⁾ terminations for soldering and conductive gluing
- High temperature application up to 300°C possible (CHS-HT)
- Non-magnetic



Dimensions:

Size		L (mm)	B (mm)	D (mm)	C (mm)
Imperial (Standard)	Metric (ref. only)	length	width	thickness	width of wrap around
0402	1005	0.95 ^{+0.10/-0.05}	0.48 ^{+0.10/-0.05}	0.28 ^{+0.10/-0.05}	0.1 ^{+0.1/-0.05}
0603	1608	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	2012	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	3216	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	3225	3.20 ^{+0.15/-0.05}	2.50 ^{+0.2/-0.05}	0.50 ^{+0.15/-0.05}	0.8 ^{±0.2}
2512	6332	6.30 ^{+0.15/-0.05}	3.50 ^{+0.2/-0.05}	0.60 ^{+0.15/-0.05}	0.9 ^{±0.2}
4020	10050	10.20 ^{+0.20/-0.05}	5.10 ^{+0.2/-0.05}	0.60 ^{+0.20/-0.1}	0.9 ^{±0.2}



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 – temperature coefficient TCR

Example: CHS 4020 10G ±10% TCR100

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

Type – NA – value – tolerance– temperature coefficient TCR

Example: CHS 4020-NA 10G ±10% TCR100

Without requirement for the temperature coefficient TCR, the standard value (highest value in table) will be supplied.

Standard measuring voltage is 10V. Different voltages on request and agreement (specify explicitly).

⁰⁾ PtAg: Platinum-Silver thick film

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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)	30	75	100	200	300	1500	4000
NA (untrimmed, Tol. ≥ 5%)	60	150	200	400	600	2000	6000

Ranges / Tolerances / Temperature coefficient TCR ³⁾ / VCR ⁴⁾							
10M – 100M	5/10/20% TCR50/100 500 ppm/V	1/.../20% TCR50/100 500 ppm/V	0.5/.../20% TCR50/100 500 ppm/V	0.5/.../20% TCR25/50/100 250 ppm/V	0.5/.../20% TCR25/50/100 50 ppm/V	0.5/.../20% TCR25/50/100 25 ppm/V	0.25/.../10% TCR25/50/100 10 ppm/V
>100M – 500M	5/10/20% TCR100/250 1000 ppm/V	2/5/10/20% TCR100/250 500 ppm/V	2/5/10/20% TCR100/250 500 ppm/V	2/5/10/20% TCR50/100/250 500 ppm/V	2/5/10/20% TCR50/100/250 250 ppm/V	1/5/10/20% TCR25/50/100 50 ppm/V	0.5/.../20% TCR25/50/100 25 ppm/V
>500M – 1G	5/10/20% TCR250/500 1000 ppm/V	5/10/20% TCR250/500 500 ppm/V	5/10/20% TCR250/500 500 ppm/V	5/10/20% TCR100/250 500 ppm/V	5/10/20% TCR100/250 250 ppm/V	1/.../20% TCR100/250 50 ppm/V	1/.../20% TCR25/50/100 25 ppm/V
>1G – 10G	10/20/30% TCR1000/2000 2000 ppm/V	5/10/20/30% TCR500/1000 1000 ppm/V	5/10/20% TCR500/1000 1000 ppm/V	5/10/20% TCR500/1000 500 ppm/V	5/10/20% TCR250/500 250 ppm/V	2/5/10/20% TCR100/250 100 ppm/V	2/5/10/20% TCR50/100 50 ppm/V
>10G – 100G	10/20/30% TCR2000/3000 5000 ppm/V	10/20/30% TCR1000/2000 3000 ppm/V	10/20/30% TCR1000/2000 3000 ppm/V	10/20/30% TCR1000/2000 1000 ppm/V	5/10/20% TCR500/1000 500 ppm/V	5/10/20% TCR250/500 250 ppm/V	5/10/20/30% TCR100/250 100 ppm/V
>100G – 1T	on request	on request	see CHM series	see CHM series	10/20/30% TCR1000/2000 2000 ppm/V	10/20/30% TCR500/1000 1000 ppm/V	10/20/30% TCR500/1000 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}): $V \leq \sqrt{P \cdot R}$ or max. working voltage (the lower value)
 - ³⁾ Temperature coefficient 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
Moisture Sensitivity Level acc. to J-STD-020	MSL 1 (unlimited)

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.
- Other data according to EN 140401-802 (CECC 40401-802).