

# CHS-Series High-Value Chip Resistors

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

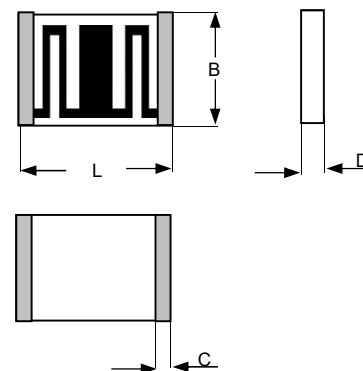
## Features:

- 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 <sup>+0.10/-0.05</sup>	0.48 <sup>+0.10/-0.05</sup>	0.28 <sup>+0.1/-0.05</sup>	0.1 <sup>+0.1/-0.05</sup>
0603	1.50 <sup>+0.15/-0.05</sup>	0.80 <sup>+0.15/-0.05</sup>	0.40 <sup>+0.15/-0.05</sup>	0.2 <sup>+0.2/-0.1</sup>
0805	2.00 <sup>+0.15/-0.05</sup>	1.25 <sup>+0.15/-0.05</sup>	0.40 <sup>+0.15/-0.05</sup>	0.3 <sup>+0.2/-0.1</sup>
1206	3.20 <sup>+0.15/-0.05</sup>	1.50 <sup>+0.2/-0.05</sup>	0.40 <sup>+0.15/-0.05</sup>	0.3 <sup>+0.2/-0.1</sup>
1210	3.20 <sup>+0.15/-0.05</sup>	2.50 <sup>+0.2/-0.05</sup>	0.50 <sup>+0.15/-0.05</sup>	0.8 <sup>±0.2</sup>
2512	6.30 <sup>+0.15/-0.05</sup>	3.50 <sup>+0.2/-0.05</sup>	0.60 <sup>+0.15/-0.05</sup>	0.9 <sup>±0.2</sup>
4020	10.20 <sup>+0.15/-0.05</sup>	5.10 <sup>+0.2/-0.05</sup>	0.60 <sup>+0.15/-0.05</sup>	0.9 <sup>±0.2</sup>



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 – temperature coefficient TK

Example: *CHS 4020 10G ±10% TK100*

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

Type – NA – value – tolerance – temperature coefficient TK

Example: *CHS 4020-NA 10G ±10% TK100*

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

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

# CHS-Series High-Value Chip Resistors

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## Technical data – depending on size:

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

Ranges / Tolerances / Temperature coefficient TK <sup>3)</sup> / VCR <sup>4)</sup>							
10M – 100M	5/10/20% TK50/100 500 ppm/V	1/5/10/20% TK50/100 500 ppm/V	0.5/1/5/10/20% TK50/100 500 ppm/V	0.5/1/5/10/20% TK25/50/100 250 ppm/V	0.5/1/5/10/20% TK25/50/100 25 ppm/V	0.5/.../20% TK25/50/100 25 ppm/V	0.25/.../10% TK25/50/100 10 ppm/V
>100M – 500M	5/10/20% TK100/250 1000 ppm/V	2/5/10/20% TK100/250 500 ppm/V	2/5/10/20% TK100/250 500 ppm/V	2/5/10/20% TK50/100/250 500 ppm/V	2/5/10/20% TK50/100/250 250 ppm/V	1/5/10/20% TK25/50/100 50 ppm/V	0.5/.../20% TK25/50/100 25 ppm/V
>500M – 1G	5/10/20% TK250/500 1000 ppm/V	5/10/20% TK250/500 500 ppm/V	5/10/20% TK250/500 500 ppm/V	5/10/20% TK100/250 500 ppm/V	5/10/20% TK100/250 250 ppm/V	1/5/10/20% TK100/250 50 ppm/V	1/5/10/20% TK25/50/100 25 ppm/V
>1G – 10G	10/20/30% TK1000/2000 2000 ppm/V	5/10/20/30% TK500/1000 1000 ppm/V	5/10/20% TK500/1000 1000 ppm/V	5/10/20% TK500/1000 500 ppm/V	5/10/20% TK250/500 250 ppm/V	2/5/10/20% TK100/250 100 ppm/V	2/5/10/20% TK50/100 50 ppm/V
>10G – 100G	10/20/30% TK2000/3000 5000 ppm/V	10/20/30% TK1000/2000 3000 ppm/V	10/20/30% TK1000/2000 3000 ppm/V	10/20/30% TK1000/2000 1000 ppm/V	5/10/20% TK500/1000 500 ppm/V	5/10/20% TK250/500 250 ppm/V	5/10/20/30% TK100/250 100 ppm/V
>100G – 1T	on request	on request	see CHM series	see CHM series	10/20/30% TK1000/2000 2000 ppm/V	10/20/30% TK500/1000 1000 ppm/V	10/20/30% TK500/1000 500 ppm/V

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

<sup>2)</sup> Continuous operating voltage (U<sub>-</sub>, U<sub>eff</sub>):  $V \leq \sqrt{P \cdot R}$  or max. working voltage (the lower value)

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

<sup>4)</sup> VCR: typical values, all negative, not for all TK 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) <sup>5)</sup>	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%

<sup>5)</sup> 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).

Specifications subject to change without notice

Made in Germany

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