

## CHR Series Chip Resistors, Non-Magnetic

Sizes: 0402, 0504, 0603, 0805, 1206, 2010, 2512, 4020

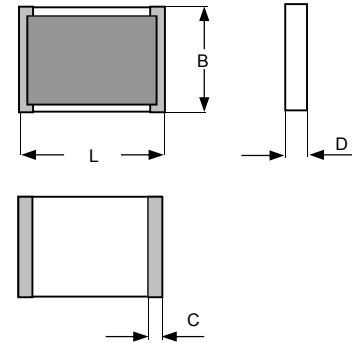
### Features:

- Chip Resistors in thick film technology
- Non-magnetic
- PtAg terminations for conductive gluing and soldering
- RF-versions untrimmed
- Suitable for high vacuum applications – no organics
- High temperature application possible (up to 300°C as CHR-HT)



### Dimensions:

Size	L	B	D	C
0402	1.04 ±0.05	0.5 ±0.05	0.3 ±0.05	0.1 +0.1/-0.05
0504	1.25 +0.15/-0.05	1.0 +0.15/-0.05	0.3 +0.15/-0.05	0.2 +0.2/-0.1
0603	1.5 +0.15/-0.05	0.8 +0.15/-0.05	0.4 +0.15/-0.05	0.2 +0.2/-0.1
0805	2.0 +0.15/-0.05	1.25 +0.15/-0.05	0.4 +0.15/-0.05	0.3 +0.2/-0.1
1206	3.2 +0.15/-0.05	1.5 +0.2/-0.05	0.4 +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



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

### Packaging:

Bulk in plastic bags – minimum quantity 100 pieces per value  
 Embossed carrier tape acc. to IEC 60286-3 – minimum 500 pieces per value (CHS0402: 1000 pcs.)  
 Reel diameter 180 mm or 330 mm

### Ordering Data:

Type – value – tolerance – TCR – packaging

Example: CHR 0805 221k ± 0,5% - TCR 100 - Tape 180 mm

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

Type – value – tolerance – NA – TCR - packaging

Example: CHR 0805 221k ± 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.



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### Technical data – depending on size:

Size	0402	0504	0603	0805	1206	2010	2512	4020
Power rating $P_{70}$ (mW) ( $P_{155} = 0$ mW)	50	100	100	125	250	500	1000 <sup>3)</sup>	1500 <sup>3)</sup>
Working voltage (V) <sup>2)</sup> trimmed untrimmed (Tol. $\geq 5\%$ )	30 60	50 100	75 150	100 200	200 400	250 900	300 1200	500 1500

Ranges / Tolerances / TCR <sup>1)</sup>								
1R – <10R	10/20% TC250	5/10/20% TC100/250	5/10/20% TC100/250	5/10/20% TC100/250	5/10/20% TC100/250	5/10/20% TC100/250	5/10/20% TC100/250	5/10/20% TC100/250
10R – <100R	5/10% TC100	2/5/10% TC50/100	2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100
100R – 1M	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	0,5/.../10% TC50/100	0,5/.../10% TC50/100	0,5/.../10% TC50/100	0,5/.../10% TC50/100	0,5/.../10% TC50/100
>1M – 10M	5/10/20% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100	1/2/5/10% TC50/100

<sup>1)</sup> TCR: in ppm/K; +25°C...+125°C; TCR below standard TCR (highest value): +25°C...+85°C

<sup>2)</sup>  $U_{eff}$ ; Continuous operating voltage:  $V \leq \sqrt{P \cdot R}$

<sup>3)</sup> Power Mode: 2W as CHR2512-HT ( $P_{70}=2W$ ,  $P_{300}=0W$ ) and 3W as CHR4020-HT ( $P_{70}=3W$ ,  $P_{300}=0W$ ) respectively.  
Higher power rating requires an adequate heat removal (e.g. increased solder pads or Copper thicknesses). The user has to guarantee, that solder joints will not run over their load limit. The resistor must not exceed the specified operating temperature range.

Zero-Ohm-Jumper: < 50 mOhm

Other values of tolerance, TCR and VCR on request

### Technical data – general:

Operating temperature range	-55°C ... +155°C
Climatic category acc. to EN 60068-1	55/155/56
Solderability acc. EN 60068-2-58 (lead-free and lead-containing) <sup>4)</sup>	250°C 3s
Max. soldering temperature acc. EN 60068-2-58	260°C 10s

Extended temperature range up to 300°C possible- see datasheet: "High temperature chip resistors" CHR-HT

Long term stability	10R – 10 M	< 10R
Storage 125°C/1000h	< 0,5%	< 1%
Storage 155°C/1000h	< 1%	< 2%
Load $P_{70}/70^\circ\text{C}/1000$ h	< 0,5%	< 1%
Short term overload	< 0,25%	< 0,5%
Damp heat (56d/40°C/96%)	< 0,5%	< 1%

<sup>4)</sup> Up to 6 months after shipment; longer at storage in Nitrogen  
Data not specified according to EN 140401-802 (CECC 40401-802)