BREL International

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

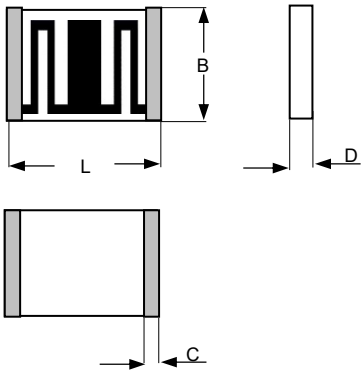
RoHS / ELV conform 2011/65/EC 2000/53/EC

e4

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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ANAB ACCREDITED MANAGEMENT SYSTEMS CERTIFICATION BODY

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CHS-Series
High-Value Chip Resistors
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)	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}): $V \le \sqrt{(P*R)}$ 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).

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