Resistor Technology

CRW-Series
Power Chip Resistors

Sizes: 1210, 1216, 2010, 2040, 2512, 4020

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

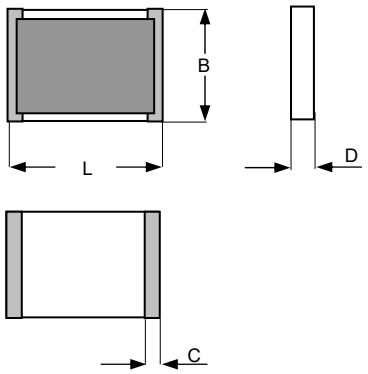
e3

Features:

- Chip Resistors in thick film technology
- Contact areas Nickel-barrier / matte tin
- RF – versions with air-abrasive trimming
- Untrimmed version for improved pulse power rating
- Power mode with increased power rating available
- Suitable for high vacuum applications – no organics

Dimensions:

Size		L (mm)	B (mm)	D (mm)	C (mm)
Imperial (Standard)	Metric (ref. only)	length	width	thickness	width of wrap around
1210	3225	3.2 $^{+0.2/-0.05}$	2.5 $^{+0.2/-0.05}$	0.5 $^{+0.2/-0.1}$	0.8 $^{\pm 0.2}$
1216	3241	3.2 $^{+0.2/-0.05}$	4.0 $^{+0.2/-0.05}$	0.5 $^{+0.2/-0.1}$	0.8 $^{\pm 0.2}$
2010	5025	5.1 $^{+0.2/-0.05}$	2.5 $^{+0.2/-0.05}$	0.6 $^{+0.2/-0.1}$	0.6 $^{\pm 0.2}$
2040	50100	5.1 $^{+0.2/-0.05}$	10.2 $^{+0.2/-0.05}$	0.6 $^{+0.2/-0.1}$	1.2 $^{\pm 0.2}$
2512	6332	6.3 $^{+0.2/-0.05}$	3.50 $^{+0.2/-0.05}$	0.6 $^{+0.2/-0.1}$	0.9 $^{\pm 0.2}$
4020	10050	10.2 $^{+0.2}$	5.1 $^{+0.2}$	0.6 $^{+0.2/-0.1}$	0.9 $^{\pm 0.2}$



Packaging:

Bulk in plastic bags – minimum quantity 100 pieces per value
Blistertape 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: *CRW 1216 10R ±1% TCR50*

Untrimmed parts are indicated by the extension "*NA*" in the order code:
Type – NA – value – tolerance– temperature coefficient TCR
Example: *CRW 1216-NA 100R ±5% TCR50*

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

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Power Chip Resistors
Sizes: 1210, 1216, 2010, 2040, 2512, 4020

Technical data – depending on size:

Size	1210	1216	2010	2040	2512	4020
Power rating P_{70} (W) (P_{155} = 0 W)	0.35	0.5	0.75 (1,0) [2]	2,0 (3,0) [2]	1,0 (2,0) [2]	2,0 (3,0) [2]
Working voltage U_, U_{eff} (V) [1] Standard (trimmed) NA (untrimmed, Tol. ≥ 5%)	 200 600	 200 600	 250 900	 250 900	 300 1200	 500 1500

Ranges / Tolerances / Temperature coefficient TCR [3]						
0R1 – < 1R	TCR250 5/10/20%	TCR250 5/10/20%	TCR250 5/10/20%	TCR250 5/10/20%	TCR250 5/10/20%	TCR250 5/10/20%
1R – < 10R	TCR100/250 1/…/20%	TCR100/250 1/…/20%	TCR100/250 1/…/20%	TCR100/250 1/…/20%	TCR100/250 1/…/20%	TCR100/250 1/…/20%
10R – < 100R	TCR100 1/…/20%	TCR100 1/…/20%	TCR100 1/…/20%	TCR100 1/…/20%	TCR100 1/…/20%	TCR100 1/…/20%
100R – 100k	TCR50/100 1/.../20%	TCR50/100 1/.../20%	TCR50/100 1/.../20%	TCR50/100 1/.../20%	TCR50/100 0.5/.../20%	TCR50/100 0.5/.../20%
100k – 100M	TCR50/100 1/.../20%	TCR50/100 1/.../20%	TCR25/50/100 1/.../20%	TCR25/50/100 1/.../20%	CRM-Series	CRM-Series

[1] Continuous operating voltage (U_, U_{eff}): V ≤ √(P*R) or max. working voltage (the lower value)
[2] At continuous power dissipation the dimensions of solder-pads have to secure sufficient heat-conduction.
Power Mode (**1W** at CRW2010; **2W** at CRW2512; **3W** at CRW4020/2040): The temperature of the resistor element is higher than in standard mode! Higher power rating requires an adequate heat removal (e.g. increased solder pads or Cu-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.
[3] Temperature coefficient TCR: in ppm/K; +25°C...+125°C; if lower than standard TCR-value (highest value): +25°C...+85°C
Zero-Ohm-Jumper: < 50 mOhm
Other values of tolerance and temperature coefficient TCR 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)	250°C 3 s
Max. soldering temperature acc. to EN 60068-2-58	260°C 10 s
Moisture Sensitivity Level acc. to J-STD-020	MSL 1 (unlimited)

Long term stability	10R – 100M	<10R
Storage 125°C/1000h	<0.5%	<1%
Storage 155°C/1000h	<1%	<2%
Load P_{70}/70°C/1000h	<1%	<2%
Short term overload	<0.25%	<0.5%
Damp heat (56d/40°C/96%)	<0.5%	<1%

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

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