

### Trimmable series

Type: **CRA**

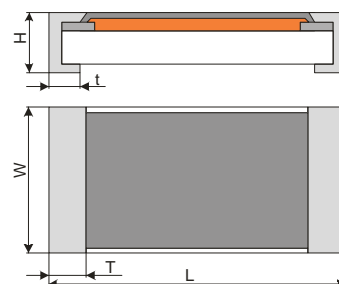
Sizes: **0402, 0603, 0805, 1206, 1210, 1218, 2010, 2512, 2040**

#### Characteristics:

- Chip resistors in thick film technology
- Resistance area trimmable after manufacturing
- Maximum trimming factor=1,3; higher factors by reducing of  $U_{max}$  or  $P_{70}$  available
- Resistance area coated with glass passivation
- RoHS-conform
- Customer specific barcodes available - also in 2D
- All sizes can be manufactured with the following contact variants
  - ⇒ Electroplated alloy resistant tinned
  - ⇒ Contact with low rest permeability -N, suitable only for reflow soldering method
  - ⇒ Epoxy bondable contact -K
  - ⇒ Special corrosive gas resistant contact -S, Sulfur resistance verified according to ASTM B 809

#### Dimensions (in mm):

Size	L Length		W Width		H Depth		t Contact back		T Contact front	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
<b>0402</b>	0,95	1,10	0,45	0,60	0,25	0,40	0,10	0,35	0,05	0,35
<b>0603</b>	1,50	1,70	0,75	0,95	0,35	0,55	0,10	0,50	0,10	0,50
<b>0805</b>	1,85	2,15	1,10	1,40	0,35	0,65	0,15	0,60	0,15	0,60
<b>1206</b>	2,90	3,35	1,45	1,75	0,35	0,65	0,25	0,75	0,15	0,75
<b>1210</b>	3,00	3,30	2,35	2,65	0,50	0,75	0,35	0,85	0,25	0,85
<b>1218</b>	3,00	3,30	4,50	4,80	0,50	0,75	0,35	0,85	0,25	0,85
<b>2010</b>	4,80	5,20	2,30	2,70	0,50	0,75	0,35	0,85	0,25	0,85
<b>2512</b>	6,10	6,50	3,00	3,30	0,50	0,75	0,35	0,85	0,25	0,85
<b>2040</b>	4,90	5,30	10,05	10,35	0,50	0,75	0,35	0,85	0,25	0,85



#### Packaging units:

Reel Ø	Card tape	Blister tape
	acc. EN 60286-3	
<b>180 mm</b>	5 T pcs. 10 T pcs. for size 0402	4 T pcs.
<b>330 mm</b>	10 T pcs. 20 T pcs.	8 T pcs. 16 T pcs.
Samples possible up to 50 pcs./value		

#### Ordering information:

CRA	- N	0603	10k	-20%	100ppm/K	N	P	10 (optional)
Type	Contact	Size	R- Value	± Tolerance	± TCR	Marking	Packaging	pcs. / Reel (T pcs.)
CRA	Standard (without add.) -N (non magnetic) -K (epoxy bondable) -S (corrosive gas resistant)	0402 to 2040	1R to 10M	Customer specific	50 100	N- only without	P- Card tape B- Blister tape S- Bulk	Depends on size and packaging unit

**Trimmable series**

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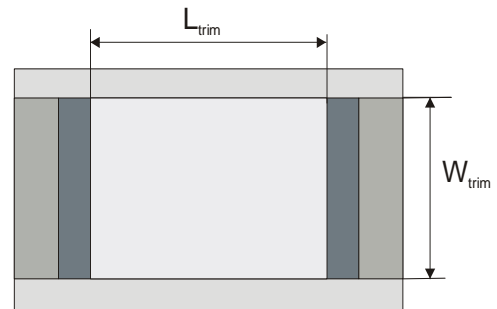
**Technical data – depending on size:**

Size	Nominal voltage $U_{max}$ (V)	Load $P_{70}$ (W)	R-Range	R-Tolerance* ( $\pm$ %)	TCR ( $\pm$ ppm/K)	Packaging		
						P	B	S
0402	50	0,063	1R - 10M	-5 / -10 / -20 / -30	50 / 100	x		x
0603	75	0,100	1R - 10M	-5 / -10 / -20 / -30	50 / 100	x		x
0805	150	0,125	1R - 10M	-5 / -10 / -20 / -30	50 / 100	x		x
1206	200	0,250	1R - 10M	-5 / -10 / -20 / -30	50 / 100	x		x
1210	200	0,330	1R - 10M	-5 / -10 / -20 / -30	50 / 100	x		x
1218	200	1,000	1R - 10M	-5 / -10 / -20 / -30	50 / 100		x	x
2010	300	0,500	1R - 10M	-5 / -10 / -20 / -30	50 / 100		x	x
2512	500	1,000	1R - 10M	-5 / -10 / -20 / -30	50 / 100		x	x
2040	250	2,000	1R - 10M	-5 / -10 / -20 / -30	50 / 100		x	x

\*Optional with tolerances of  $\pm 5\%$ ,  $\pm 10\%$ ,  $\pm 20\%$  or  $\pm 30\%$

**Dimensions of trimming area (in mm):**

Size	$L_{trim}$ (mm) Length		$W_{trim}$ (mm) Width	
	Min	Max	Min	Max
0402	0,30	0,50	0,30	0,40
0603	0,50	0,90	0,35	0,55
0805	0,90	1,30	0,70	0,90
1206	1,80	2,20	1,00	1,20
1210	1,40	1,80	1,70	1,90
1218	1,40	1,80	3,60	3,80
2010	2,90	3,60	1,80	2,00
2512	4,20	5,00	1,90	2,10
2040	3,00	3,80	9,20	9,80



**Technical data - general:**

Technical data	
Operating temperature range	-55°C... +155°C
Climatic category acc. EN 60068	55 / 155 / 56
Solderability acc. EN 60068-2-58	245°C 3s
Soldering heat resistance acc. EN 60068-2-58	$\pm(0,5\% + 0,05R)$ at 260°C 10s
<b>Long time stability (before trimming)</b>	
Storage 155°C / 1000h	$\pm(1,0\% + 0,05R)$
Endurance $P_{70}$ / 70°C / 1000h	$\pm(0,5\% + 0,05R)$
Damp heat, steady state (56d / 40°C / 96%)	$\pm(1,0\% + 0,05R)$

Data, unless specified, acc. EN 140401-802.