

**Features**

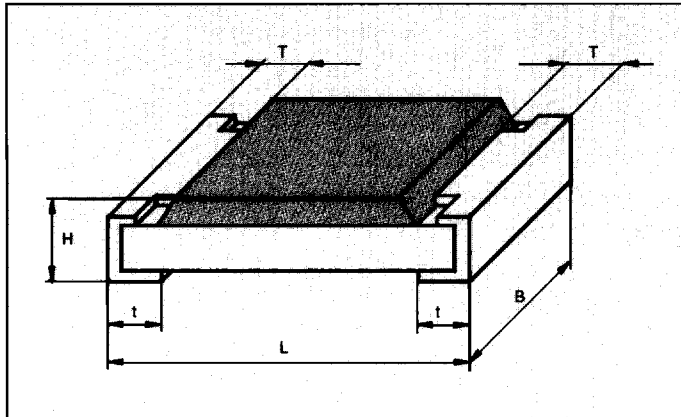
- metal glaze on high quality ceramic
- tinned silver-nickel contact system
- excellent load life and climatic stability by glass passivation
- suitable for commercial applications

**Style**

Style	P <sup>1)</sup> at 70°C	Limit. Voltage V <sub>≅</sub>	TC ppm/°C	Tolerance %	Resistance Range Ω	E-Series
CR0402	0,063	50	250	2	10 – 1M	48
	0,063		250	5	4,7 – 9,1	24
	0,063		+500/-200	5	10 – 2,2M	24
Zero-Ohm-Resistor: OCR0402		R <sub>max</sub> = 50 mΩ	I <sub>max</sub> = 1A			
CR0603	0,063	50	50	0,5	100 – 1M	96
	0,063		50	1	100 – 1M	96
	0,063		100	1	47 – 3,3M	96
CR0603	0,1	50	300	1	10 – 1M	24
	0,1		300	2	10 – 1M	24
	0,1		300	5	10 – 3,3M	24
	0,1		+500/-200	5	2,2 – 9,1	24
Zero-Ohm-Resistor: OCR0603		R <sub>max</sub> = 50 mΩ	I <sub>max</sub> = 1A			
CR0805	0,1	150	50	0,5	100 – 1M	96
	0,1		50	1	100 – 1M	96
	0,1		100	1	1,1M – 3,3M	96
CR0805	0,125	150	100	1	47 – 1M	96
	0,125		200	1	10 – 47	24
	0,125		200	2	10 – 1M	24
	0,125		200	5	10 – 3,3M	24
	0,125		+500/-200	5	1 – 9,1	24
Zero-Ohm-Resistor: OCR0805		R <sub>max</sub> = 50 mΩ	I <sub>max</sub> = 2A			

<sup>1)</sup> Power rating depends on the maximum temperature at the solder point, the component placement density and the substrate material

- special termination (e.g. AgPd) for conductive adhesive attachment on request
- marking: see page 128
- packaging: see page 36



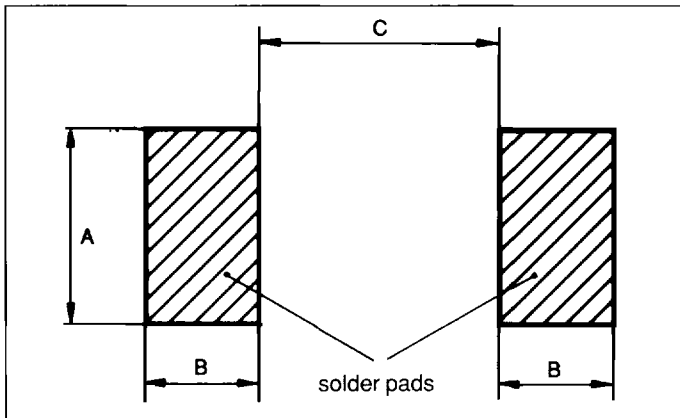
Style	Dimensions (mm)				
	L	B	H	T	t
CR0402	1,0 ±0,05	0,5 ±0,05	0,35 ±0,05	0,2 ±0,1	0,25 ±0,05
CR0603	1,6 ±0,1	0,8 $\begin{smallmatrix} +0,15 \\ -0,05 \end{smallmatrix}$	0,45 $\begin{smallmatrix} +0,1 \\ -0,05 \end{smallmatrix}$	0,25 ±0,1	0,3 $\begin{smallmatrix} +0,2 \\ -0,1 \end{smallmatrix}$
CR0805	2,0 ±0,1	1,25 $\begin{smallmatrix} +0,15 \\ -0,1 \end{smallmatrix}$	0,45 ±0,1	0,4 ±0,2	0,3 $\begin{smallmatrix} +0,2 \\ -0,1 \end{smallmatrix}$
CR1206	3,2 ±0,15	1,6 ±0,15	0,6 ±0,1	0,45 ±0,2	0,3 $\begin{smallmatrix} +0,2 \\ -0,1 \end{smallmatrix}$
CR1210	3,1 ±0,1	2,55 ±0,1	0,55 ±0,1	0,45 ±0,2	0,45 ±0,2
CR2010	5,0 ±0,2	2,5 ±0,2	0,55 ±0,1	0,6 ±0,2	0,6 ±0,2
CR2512	6,3 ±0,2	3,15 ±0,2	0,55 ±0,1	0,6 ±0,2	0,6 ±0,2

**Style**

Style	P <sup>1)</sup> at 70°C	Limit. Voltage V <sub>≈</sub>	TC ppm/°C	Tolerance %	Resistance Range Ω	E-Series
CR1206	0,125	200	50	0,5	100 – 1M	96
	0,125		50	1	100 – 1M	96
	0,125		100	1	1,1M – 4,7M	96
CR1206	0,25	200	100	1	22 – 1M	96
	0,25		200	1	10 – 21,5	24
	0,25		200	2	10 – 1M	24
	0,25		200	5	10 – 10M	24
	0,25		+500/–200	5	1 – 9,1	24
<b>Zero-Ohm-Resistor: OCR1206    R<sub>max</sub> = 50 mΩ    I<sub>max</sub> = 2A</b>						
CR1210	0,33	200	100	1	22 – 1M	96
	0,33		200	5	10 – 10M	24
	0,33		+500/–200	5	1 – 9,1	24
<b>Zero-Ohm-Resistor: OCR1210    R<sub>max</sub> = 50 mΩ    I<sub>max</sub> = 2A</b>						
CR2010	0,5	200	200	1	47 – 1M	96
	0,5		200	5	10 – 1M	24
	0,5		+500/–200	5	1 – 9,1	24
<b>Zero-Ohm-Resistor: OCR2010    R<sub>max</sub> = 50 mΩ    I<sub>max</sub> = 2A</b>						
CR2512	1	200	200	1	47 – 1M	96
	1		200	5	10 – 1M	24
	1		+500/–200	5	1 – 9,1	24
<b>Zero-Ohm Resistor: OCR2512    R<sub>max</sub> = 50 mΩ    I<sub>max</sub> = 2A</b>						

<sup>1)</sup> Power rating depends on the maximum temperature at the solder point, the component placement density and the substrate material

- special termination (e.g. AgPd) for conductive adhesive attachment on request
- marking: see page 128
- packaging: see page 36



Style	solder pad dimensions (mm)					
	Reflow soldering			Wave soldering		
	A	B	C	A	B	C
CR0402	0,7 -0,9	0,5 -0,6	0,6	0,8 -1,0	0,6 -0,7	0,6
CR0603	1,0 -1,2	0,6 -0,7	0,8	1,1 -1,3	0,7 -0,9	0,8
CR0805	1,5	0,7	1,0	1,6	1,0	1,0
CR1206	1,9	1,0	1,8	2,0	1,2	1,8
CR1210	2,85	1,0	1,8	2,95	1,2	1,8
CR2010	2,8	1,2	2,7	2,9	1,4	2,7
CR2512	3,35	1,2	4,0	3,45	1,4	4,0

## Technical Characteristics

Parameter	Unit	CR0402	CR0603	CR0805	CR1206	CR1210	CR2010	CR2512
Power Rating at 70°C	W	0,05	0,063   0,1	0,1   0,125	0,125   0,25	0,33	0,5	1
Limiting Element Voltage	V <sub>≈</sub>	50	50	150	200	200	200	200
Thermal Resistance PCB (maximum)	K/W	375	375	205	160			
Thermal Resistance Aluminium/oxide (maximum)	K/W	170	170	100	80	120	110	55
Weight/1000 pieces	g	9	20	60	80	16	25	40
Insulation Resistance	GΩ	>10 <sup>3</sup>						
Failure Rate	10 <sup>-9</sup> /h	<3						
Category Temperature Range	°C	-55/+125						

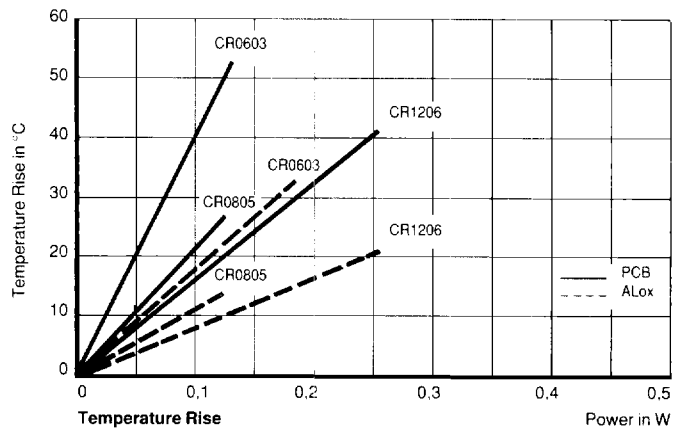
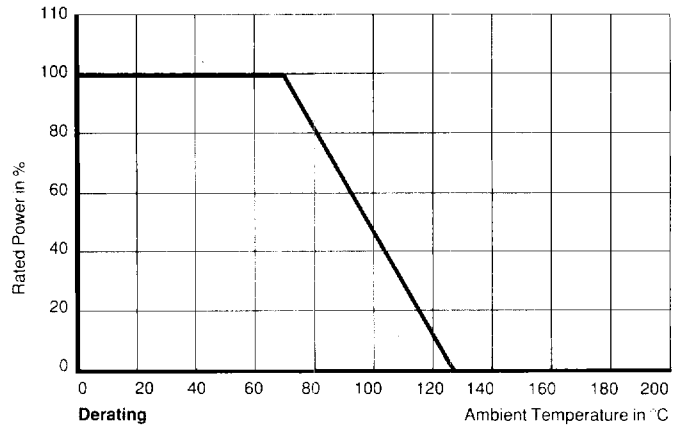
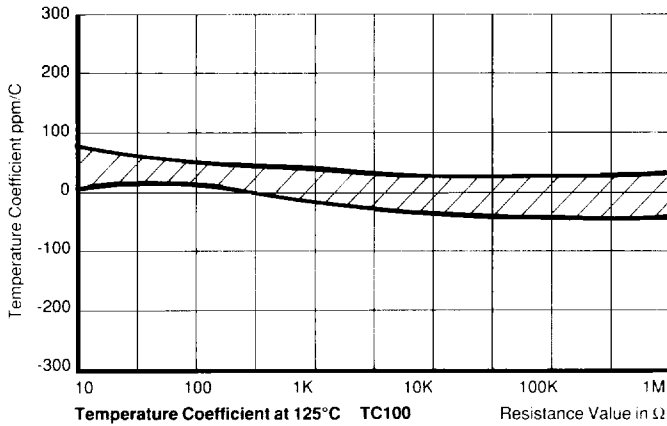
## Marking and Packaging

Style	E-Series	Marking			Reel			
		none	3-figure code	4-figure code	cardboard tape coated with plastic		blister tape	
					tapewidth	pieces/reel	tapewidth	pieces/reel
CR0402	all	x	-	-	8 mm	10000	8 mm	10000
CR0603	all	x	-	-	8 mm	5000	8 mm	4000
CR0805	96	-	-	x	8 mm	5000	8 mm	4000
	24	-	x	-				
CR1206	96	-	-	x	8 mm	5000	8 mm	4000
	24	-	x	-				
CR1210	96	-	-	x	8 mm	4000	8 mm	4000
	24	-	x	-				
CR2010	96	-	-	x	8 mm	4000	12 mm	4000
	24	-	x	-				
CR2512	96	-	-	x	8 mm	4000	12 mm	4000
	24	-	x	-				

• further information about packaging: see page 36

## Ordering Information

CR0805	K	560R	F	P5
Style	TC in ppm/°C	Resistance Value	Tolerance in %	Packaging
	C = 50 L = 200	Ω	D = ±0,5% G = ±2%	P5 = cardboard reel
	K = 100 M = 300		F = ±1% J = ±5%	



## Performance

Test	Conditions of test	Test results			
		*) TC≥200ppm/°C	TC≥100ppm/°C	TC≥50ppm/°C	
Endurance at 70°C rated power (P <sub>70</sub> )	IEC 115-1 4.25.1 1000 h at 70°C	1	≤ ±1,0%	≤ ±1,0 %	≤ ±0,5 %
		2	≤ ±3,0%	≤ ±3,0 %	—
		3	≤ ±3,0%	—	—
Overload-Test	IEC 115-1 4.13 Short time overload for 2s at 6,25 x rated power	1	≤ ±1,0%	≤ ±1,0 %	≤ ±0,25%
		2	≤ ±1,0%	≤ ±1,0 %	—
		3	≤ ±2,0%	—	—
Thermal Shock	IEC 115-1 4.19 IEC 68-2-14 rapid change between upper and lower category temperature	1	≤ ±1,0%	≤ ±0,25%	≤ ±0,25%
		2	≤ ±1,0%	≤ ±1,0 %	—
		3	≤ ±1,0%	—	—
Damp heat steady state	IEC 115-1 4.24 IEC 68-2-3 56 days at 40°C and 93% relative humidity	1	≤ ±1,5%	≤ ±1,5 %	≤ ±1,0 %
		2	≤ ±1,5%	≤ ±1,5 %	—
		3	≤ ±3,0%	—	—
Resistance to soldering heat	IEC 115-1 4.18 IEC 68-2-20 10 seconds at 260°C solder bath temperature	1	≤ ±1,0%	≤ ±0,25%	±0,25%
		2	≤ ±1,0%	≤ ±1,0 %	—
		3	≤ ±1,0%	—	—

\* 1 Δ CR0603 / CR0805 / CR1206

2 Δ CR1210 / CR2010 / CR2512

3 Δ CR0402

## Applicable Specifications

• CECC 40000 / 40401