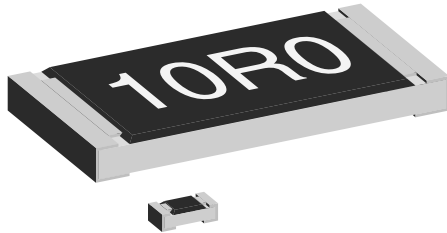


## Automotive Grade Thick Film, Rectangular Chip Resistors



### FEATURES

- Metal glaze on high quality ceramic with protective overglaze
- Sulfur resistant
- Superior resistance against H<sub>2</sub>S-atmosphere than standard Ag contacts
- Solder contacts on Ni barrier layer
- Excellent stability ( $\Delta R/R \leq \pm 0.5\%$  for 1000 h at 70 °C) different environmental conditions
- High volume product suitable for commercial and special applications
- Automotive Grade = sulfur resistant

### STANDARD ELECTRICAL SPECIFICATIONS

MODEL	SIZE		POWER RATING $P_{70^\circ\text{C}} \text{ W}$	LIMITING ELEMENT VOLTAGE MAX. $V_{\Xi}$	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE $\Omega$	E-SERIES
	INCH	METRIC	CECC 40401-802/EIA-575					
RCA0402	0402	1005	0.063	50	$\pm 50$ $\pm 100$ $\pm 100$ $\pm 200$ $\pm 200$	$\pm 0.5, \pm 1$ $\pm 0.5$ $\pm 1$ $\pm 1$ $\pm 5$	100R - 1M0 10R - 1M0 10R - 5M6 1R0 - 9R76 1R0 - 10M	24 + 96 24 + 96 24 + 96 24 + 96 24
			Zero-Ohm-Resistor: $R_{\text{max.}} = 40 \text{ m}\Omega$ $I_{\text{max.}} = 1 \text{ A}$					
RCA0603	0603	1608	0.10	75	$\pm 50$ $\pm 100$ $\pm 200$ $\pm 200$	$\pm 0.5, \pm 1$ $\pm 0.5, \pm 1$ $\pm 1$ $\pm 5$	100R - 10M 10R - 10M 1R0 - 9R76 1R0 - 10M	24 + 96 24 + 96 24 + 96 24
			Zero-Ohm-Resistor: $R_{\text{max.}} = 40 \text{ m}\Omega$ $I_{\text{max.}} = 1.5 \text{ A}$					
RCA0805	0805	2012	0.125	150	$\pm 50$ $\pm 100$ $\pm 100$ $\pm 200$	$\pm 0.5, \pm 1$ $\pm 0.5$ $\pm 1$ $\pm 5$	100R - 10M 10R - 10M 1R0 - 10M 1R0 - 10M	24 + 96 24 + 96 24 + 96 24
			Zero-Ohm-Resistor: $R_{\text{max.}} = 40 \text{ m}\Omega$ $I_{\text{max.}} = 2 \text{ A}$					
RCA1206	1206	3216	0.25	200	$\pm 50$ $\pm 100$ $\pm 100$ $\pm 200$	$\pm 0.5, \pm 1$ $\pm 0.5$ $\pm 1$ $\pm 5$	100R - 10M 10R - 10M 1R0 - 10M 1R0 - 10M	24 + 96 24 + 96 24 + 96 24
			Zero-Ohm-Resistor: $R_{\text{max.}} = 20 \text{ m}\Omega$ $I_{\text{max.}} = 2.5 \text{ A}$					
RCA1210	1210	3225	0.33	200	$\pm 50$ $\pm 100$ $\pm 100$ $\pm 200$	$\pm 0.5, \pm 1$ $\pm 0.5$ $\pm 1$ $\pm 5$	100R - 1M0 100R - 1M0 1R0 - 1M0 1R0 - 1M0	24 + 96 24 + 96 24 + 96 24
			Zero-Ohm-Resistor: $R_{\text{max.}} = 20 \text{ m}\Omega$ $I_{\text{max.}} = 2.5 \text{ A}$					
RCA1218	1218	3246	1.0	200	$\pm 50$ $\pm 100$ $\pm 100$ $\pm 200$	$\pm 0.5, \pm 1$ $\pm 0.5$ $\pm 1$ $\pm 5$	100R - 2M2 100R - 2M2 1R0 - 2M2 1R0 - 2M2	24 + 96 24 + 96 24 + 96 24
			Zero-Ohm-Resistor: $R_{\text{max.}} = 20 \text{ m}\Omega$ $I_{\text{max.}} = 4 \text{ A}$					
RCA2010	2010	5025	0.50	400	$\pm 50$ $\pm 100$ $\pm 100$ $\pm 200$	$\pm 0.5, \pm 1$ $\pm 0.5$ $\pm 1$ $\pm 5$	100R - 10M 10R - 10M 1R0 - 10M 1R0 - 10M	24 + 96 24 + 96 24 + 96 24
			Zero-Ohm-Resistor: $R_{\text{max.}} = 20 \text{ m}\Omega$ $I_{\text{max.}} = 3 \text{ A}$					
RCA2512	2512	6332	1.0	500	$\pm 50$ $\pm 100$ $\pm 100$ $\pm 200$	$\pm 0.5, \pm 1$ $\pm 0.5$ $\pm 1$ $\pm 5$	100R - 10M 10R - 10M 1R0 - 10M 1R0 - 10M	24 + 96 24 + 96 24 + 96 24
			Zero-Ohm-Resistor: $R_{\text{max.}} = 20 \text{ m}\Omega$ $I_{\text{max.}} = 4 \text{ A}$					

#### Notes:

- Ask about further value ranges
- Marking and packaging: see appropriate catalog or web pages
- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material

## Automotive Grade Thick Film, Rectangular Chip Resistors

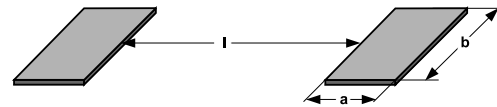
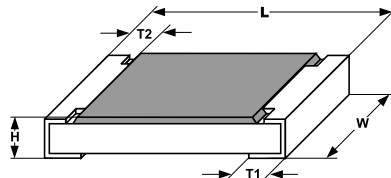
TECHNICAL SPECIFICATIONS									
PARAMETER	UNIT	RCA0402	RCA0603	RCA0805	RCA1206	RCA1210	RCA1218	RCA2010	RCA2512
Rated Dissipation at 70 °C (CECC 40401   EIA 575)	W	0.063	0.10	0.125	0.25	0.33	1.0	0.5	1.0
Limiting Element Voltage <sup>(2)</sup>	V <sub>≡</sub>	50	75	150	200	200	200	400	500
Insulation Voltage (1 min)	V <sub>peak</sub>	> 75	> 100	> 200	> 300	> 300	> 300	> 300	> 300
Thermal Resistance	K/W	≤ 870 <sup>(1)</sup>	≤ 550 <sup>(1)</sup>	≤ 440 <sup>(1)</sup>	≤ 220 <sup>(1)</sup>	≤ 140 <sup>(3)</sup>	<sup>(3)</sup>	≤ 88 <sup>(3)</sup>	≤ 65 <sup>(3)</sup>
Insulation Resistance	Ω	> 10 <sup>9</sup>							
Category Temperature Range	°C	- 55 to + 125 (+ 155)							
Failure Rate	h <sup>-1</sup>	0.3 × 10 <sup>-9</sup>							
Weight/1000 pieces	g	0.65	2	5.5	10	16	29.5	25.5	40.5

**Notes:**

<sup>(1)</sup> Measuring conditions in acc. to CECC 40401

<sup>(2)</sup> Rated voltage:  $\sqrt{P \times R}$

<sup>(3)</sup> Depending on solder pad dimensions

**DIMENSIONS**


SIZE		DIMENSIONS [in millimeters]					SOLDER PAD DIMENSIONS [in millimeters]					
							REFLOW SOLDERING			WAVE SOLDERING		
INCH	METRIC	L	W	H	T1	T2	a	b	l	a	b	l
0402	1005	1.0 ± 0.05	0.5 ± 0.05	0.35 ± 0.05	0.25 ± 0.05	0.2 ± 0.1	0.4	0.6	0.5			
0603	1608	1.55 <sup>+0.10</sup> <sub>-0.05</sub>	0.85 ± 0.1	0.45 ± 0.05	0.3 ± 0.2	0.3 ± 0.2	0.5	0.9	1.0	0.9	0.9	1.0
0805	2012	2.0 <sup>+0.20</sup> <sub>-0.10</sub>	1.25 ± 0.15	0.45 ± 0.05	0.3 <sup>+0.20</sup> <sub>-0.10</sub>	0.3 ± 0.2	0.7	1.3	1.2	0.9	1.3	1.3
1206	3216	3.2 <sup>+0.10</sup> <sub>-0.20</sub>	1.6 ± 0.15	0.55 ± 0.05	0.45 ± 0.2	0.4 ± 0.2	0.9	1.7	2.0	1.1	1.7	2.3
1210	3225	3.2 ± 0.2	2.5 ± 0.2	0.55 ± 0.05	0.45 ± 0.2	0.4 ± 0.2	0.9	2.5	2.0	1.1	2.5	2.2
1218	3246	3.2 <sup>+0.10</sup> <sub>-0.20</sub>	4.6 ± 0.15	0.55 ± 0.05	0.45 ± 0.2	0.4 ± 0.2	1.05	4.9	1.9	1.25	4.8	1.9
2010	5025	5.0 ± 0.15	2.5 ± 0.15	0.6 ± 0.1	0.6 ± 0.2	0.6 ± 0.2	1.0	2.5	3.9	1.2	2.5	3.9
2512	6332	6.3 ± 0.2	3.15 ± 0.15	0.6 ± 0.1	0.6 ± 0.2	0.6 ± 0.2	1.0	3.2	5.2	1.2	3.2	5.2

**PART NUMBER AND PRODUCT DESCRIPTION RCA - SERIES**
**PART NUMBERING: RCA080510K0FKTA**

R	C	A	0	8	0	5	1	0	K	0	F	K	T	A		
MODEL	SIZE		VALUE			TOLERANCE		TCR		PACKAGING <sup>(1)</sup>			SPECIAL			
RCA	0402	1210	R = Decimal	K = Thousand		D = ± 0.5 %		H = ± 50 ppm/K		TA = RT1			TG = R67			
	0603	1218	M = Million	1K32 = 1.32 kΩ		F = ± 1.0 %		K = ± 100 ppm/K		TB = RT5			TH = R82			
	0805	2010	10R0 = 10 Ω			J = ± 5.0 %		N = ± 200 ppm/K		TC = RT6			TK = RT9			
	1206	2512	0000 = Jumper							TD = RT7			BA = B27			
										TF = R02			Up to 2 digits			

**PRODUCT DESCRIPTION: RCA0805 10K 1 % 100 RT1**

<b>RCA0805</b>	<b>10K</b>	<b>1 %</b>	<b>100</b>	<b>RT1</b>
MODEL	RESISTANCE VALUE	TOLERANCE	TCR	PACKAGING <sup>(1)</sup>
RCA0402 RCA1210 RCA0603 RCA1218 RCA0805 RCA2010 RCA1206 RCA2512	49R9 = 49.9 Ω 3011 = 3.01 kΩ	± 0.5 % ± 1 % ± 5 %	± 50 ppm/K ± 100 ppm/K ± 200 ppm/K	RT1 R67 RT5 R82 RT6 RT9 RT7 B27 R02

**Notes:**

<sup>(1)</sup> Please refer to table PACKAGING, see next page

• Products can be ordered either using the PRODUCT DESCRIPTION or PART NUMBER

PACKAGING								
MODEL	REEL					BULK		
	TAPE WIDTH	DIAMETER	PIECES/REEL	PITCH	PACKING CODE		BULK FEEDING MAGAZINE PIECES/MAGAZINE	
					PAPER	BLISTER	PIECES	CODE
RCA0402	8 mm	180 mm/7"	10 000	2 mm	RT7		50 000	B27
		330 mm/13"	50 000	2 mm	RF4			
RCA0603	8 mm	180 mm/7"	5000	4 mm	RT1		25 000	B27
		255 mm/10"	10 000	4 mm	RT5			
		330 mm/13"	20 000	4 mm	RT6			
RCA0805	8 mm	180 mm/7"	5000	4 mm	RT1		10 000	B27
		255 mm/10"	10 000	4 mm	RT5			
		330 mm/13"	20 000	4 mm	RT6			
RCA1206	8 mm	180 mm/7"	5000	4 mm	RT1			
		255 mm/10"	10 000	4 mm	RT5			
		330 mm/13"	20 000	4 mm	RT6			
RCA1210	8 mm	180 mm/7"	5000	4 mm	RT1			
		330 mm/13"	20 000	4 mm	RT6			
RCA1218	12 mm	180 mm/7"	4000	4 mm		RT9		
RCA2010	12 mm	180 mm/7"	4000	4 mm		R02		
RCA2512	12 mm	180 mm/7"	2000	8 mm		R67		
			4000	4 mm		R82		

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PERFORMANCE				
TEST	CONDITIONS OF TEST	TEST RESULTS %		
		0402 0603	0805 1206 1210	1218 2010 2512
Endurance Test at 70 °C IEC 60115-1 4.25.1	1000 h at 70 °C, 1.5 h ON, 0.5 h OFF	≤ ± 1.0	≤ ± 0.5	≤ ± 1.0
Endurance at UCT IEC 60115-1 4.25.3	1000 h at 125 °C without load	≤ ± 1.0	≤ ± 0.5	≤ ± 1.0
Overload Test IEC 60115-1 4.13	Short time overload 2.5 x rated voltage or ≤ 2 x limiting element voltage.	≤ ± 0.25	≤ ± 0.25	≤ ± 0.5
Thermal Shock IEC 60115-1 4.19; IEC 60068-2-14;	Rapid change between upper and lower category temperature	≤ ± 0.25	≤ ± 0.25	≤ ± 0.5
Damp Heat Steady State IEC 60115-1 4.24; IEC 60068-2-3	56 days at 40 °C and 93 % relative humidity	≤ ± 1.0	≤ ± 0.5	≤ ± 1.0
Resistance to Soldering Heat IEC 60115-1 4.18; IEC 60068-2-20	10 s at 260 °C solder bath temperature	≤ ± 0.25	≤ ± 0.25	≤ ± 0.5

**Note:**

- For more details please refer to datasheet D../CRCW



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