

## CRS Series Datasheet

Precision Wirewound Resistors | Axial and SMD Version  
Ceramic core | Flame retardant coating

### ORDERING CODE-Example

New SAP Part Nr.:

<b>CRS</b>	<b>300</b>	<b>J</b>	<b>T</b>	<b>-</b>	<b>73-</b>	<b>150R</b>	<b>AA</b>
Serie	* Power rating	Tol.	Pack-Code	TCR	Forming type	R Value	Special
		D = ±0,5% F = ±1% G = ±2% J = ±5%	T = Tape (ammo pack)	- Base on spec.	52- Inner Taping dimension or 73- Inner Taping dimension ZB- Z version		AA = Standard

Historical VTM Part Nr.:

<b>CR254 - 0</b>	<b>5</b>	<b>T</b>	<b>150R</b>
Type	Tol.	Pack-Code	R Value
	±5% = J	T = Tape (ammo pack)	

<b>RZC4</b>	<b>6720</b>	<b>J</b>	<b>K</b>	<b>-</b>	<b>13</b>	<b>150R</b>
Type	Size	Tol.	K = Blister tape reel	TC	Reel diam.	R Value

### APPLICATIONS

- Automotive
- Charger
- Alternative Energy
- Power Supply
- Home Appliances
- Industrial

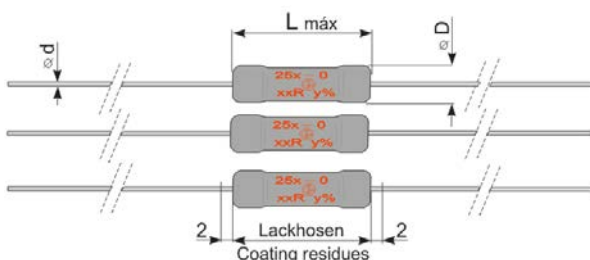
### FEATURES

- Flame retardant coating
- Non-inductive type available
- Precision Type
- "Z" preforming ; Other preforming available
- RoHs Compliant

### ELECTRICAL SPECIFICATIONS

Type		CRS110	CRS200	CRS250	CRS300	CRS350	CRS400	CRS500	CRS550	CRS720
Historical Part Number	AXIAL	CR251-0	CR252-0	CR253-0	CR254-0	CR255-0	CR256-0	CR257-0	CR258-0	CR259-0
	SMD	RZC1	RZC2	RZC3	RZC4	-----	RZC6	-----	-----	-----
Nominal Power Rating	* P <sub>40</sub>	1,1	2,0	2,5	3,0	3,5	4,0	5,0	5,5	7,2
	P <sub>70</sub>	1,0	1,8	2,3	2,7	3,2	3,6	4,5	5,0	6,5
Resistance Range	[W]	OR01 ... 220R	OR016 ... 470R	OR01 ... 750R	OR01 ... 1K8	OR015 ... 1K	OR02 ... 1K5	OR027 ... 5K1	OR033 ... 6K8	OR047 ... 8K2
	[Ω]	(Other values upon request)								
E-Series (preferred)		E24 (Other upon request)								
Tolerances	±[%]	0,5(D) [R≥ 1R] ; 1(F) ; 2(G) ; 5(J)								
Temperature Coefficient	±[10 <sup>-6</sup> K <sup>-1</sup> ]	Depends on the value, please check the table below								
Working Temperature Range	[°C]	-55 ... +350								
Thermal Resistance	[KW <sup>-1</sup> ]	280	155	122	104	93	78	62	56	43
Max. Working Voltage	[V] <sub>RMS</sub>	$\sqrt{P_{70} \times R}$								
Dielectric Withstanding Voltage IEC115-1 clause 4.7 (1[min])	[V] <sub>RMS</sub>	500								

### DIMENSIONS [mm]



Type	Historical P/N:	L max.	Ø D max. *	Ø d ±0,05
CRS110	CR251 - 0	9,0	3,0	0,65
CRS200	CR252 - 0	9,7	4,0	0,80
CRS250	CR253 - 0	14,5	4,5	0,65
CRS300	CR254 - 0	12,6	5,5	0,80
CRS350	CR255 - 0	15,0	8,5	0,80
CRS400	CR256 - 0	17,0	5,5	0,80
CRS500	CR257 - 0	18,0	8,5	0,80
CRS550	CR258 - 0	22,0	8,5	0,80
CRS720	CR259 - 0	27,0	8,5	0,80

\*R < 10R D max.+1

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## PERFORMANCE DATE

Type		CRS110	CRS200	CRS250	CRS300	CRS350	CRS400	CRS500	CRS550	CRS720
Historical Part Number	AXIAL	CR251-0	CR252-0	CR253-0	CR254-0	CR255-0	CR256-0	CR257-0	CR258-0	CR259-0
	SMD	RZC1	RZC2	RZC3	RZC4	-----	RZC6	-----	-----	-----
Derating Linear	[°C]	70...350 (0W)								
Climatic Category		55/350/56								
Failure Rate <i>(Total, <math>\vartheta_0</math>, max, 60[%] cont. lev.)</i>	[ $10^{-9} h^{-1}$ ]	appr. 10 depends on value								
Endurance <i>IEC60115-1 clause 4.25 (<math>P_{70}</math>, @ 70[°C], 1000[h])</i>	±[%]	5,0								
Damp Heat, Steady State <i>IEC60115-1 clause 4.24 (40[°C], 93[% r.h.], 56[d])</i>	±[%]	5,0								
Climatic Sequence <i>IEC60115-1 clause 4.23 (260<sup>±5</sup>[°C], 10<sup>±1</sup>[s])</i>	±[%]	2,0								
Resistance to Soldering Heat <i>IEC60115-1 clause 4.18 (260<sup>±5</sup>[°C], 10<sup>±1</sup>[s])</i>	±[%]	1,0								
Terminal Strength	±[%]	0,2								
Terminal Tensile Strength	[N]	40	50							
Solderability <i>IEC60068-2-20 (245<sup>±5</sup>[°C] 3<sup>±0,5</sup>[s])</i>		Solder bath method (> 95% coverage)								
Marking <i>IEC60062</i>		Printed in clear								

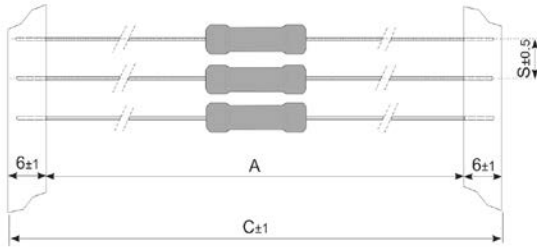
## TEMPERATURE COEFFICIENT

New P/Nr. Type	Historical P/N:	Temperature Coefficient ( -20°C to 120°C )									
		700 ± 200 ppm/K		400 ± 50 ppm/K		appr. +180 ppm/K		-20 ± 60 ppm/K		0 ± 10 ppm/K	
<b>CRS110</b>	CR251-0	-----	-----	≥ 0R01	≤ 0R024	≥ 0R027	≤ 0R091	≥ 0R1	≤ 15R	≥ 16R	≤ 220R
<b>CRS200</b>	CR252-0	≥ 0R016	≤ 0R02	≥ 0R027	≤ 0R091	-----	-----	≥ 0R1	≥ 68R	≥ 75R	≤ 470R
<b>CRS250</b>	CR253-0	≥ 0R01	≤ 0R02	≥ 0R022	≤ 0R047	≥ 0R051	≤ 0R091	≥ 0R1	≤ 47R	≥ 51R	≤ 750R
<b>CRS300</b>	CR254-0	≥ 0R01	≤ 0R027	≥ 0R03	≤ 0R075	≥ 0R082	≤ 0R091	≥ 0R1	≤ 47R	≥ 51R	≤ 1K8
<b>CRS350</b>	CR255-0	≥ 0R015	≤ 0R024	≥ 0R027	≤ 0R062	≥ 0R068	≤ 0R091	≥ 0R1	≤ 68R	≥ 75R	≤ 1K0
<b>CRS400</b>	CR256-0	≥ 0R02	≤ 0R03	≥ 0R033	≤ 0R062	≥ 0R068	≤ 0R091	≥ 0R1	≤ 130R	≥ 150R	≤ 1K5
<b>CRS500</b>	CR257-0	≥ 0R027	≤ 0R047	≥ 0R051	≤ 0R082	≥ 0R091	≤ 0R13	≥ 0R15	≤ 150R	≥ 160R	≤ 5K1
<b>CRS550</b>	CR258-0	≥ 0R033	≤ 0R062	≥ 0R068	≤ 0R13	≥ 0R15	≤ 0R16	≥ 0R18	≤ 160R	≥ 180R	≤ 6K8
<b>CRS720</b>	CR259-0	≥ 0R047	≤ 0R075	≥ 0R082	≤ 0R15	≥ 0R16	≤ 0R24	≥ 0R27	≤ 180R	≥ 200R	≤ 8K2

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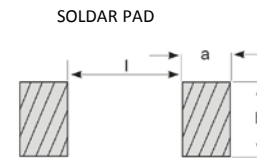
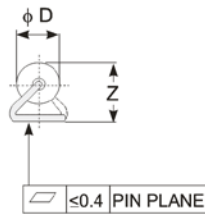
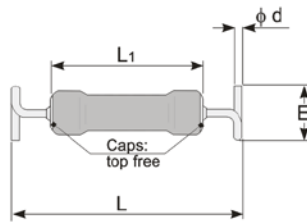
### PACKAGING

The standard packaging for CRS in axial type is taped, dimensions below.

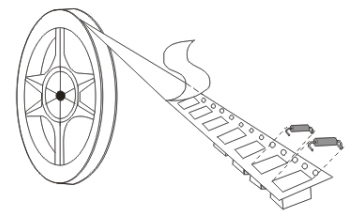
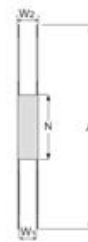
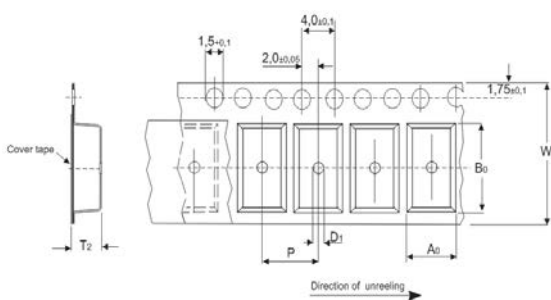


New P/N Type	Historical P/N:	Pack Code	Pieces	Forming Type (Inner Taping dim.)	A	C	S
CRS110	CR251-0	T = Taped Ammo pack	1000	52-	52	65	5
CRS200	CR252-0		1000		52	65	5
CRS250	CR253-0		1000		73	85	10
CRS300	CR254-0		1000		73	85	10
CRS350	CR255-0		500	73-	73	85	10
CRS400	CR256-0		1000		73	85	10
CRS500	CR257-0		500		73	85	10
CRS550	CR258-0		500		73	85	10
CRS720	CR259-0		500		73	85	10

### SMD LEAD CONFIGURATIONS



New P/N Type	Historical P/N	Size	L	L <sub>1</sub> max.	∅ D max	∅ d ±0,05	E	Z max	l	a	b
CRS110	RZC1	5315	13,4±0,5	9,0	3,0	0,65	5,0±0,5	7,0	10	10	10
CRS200	RZC2	5315		9,7	4,0	0,80					
CRS250	RZC3	6720	17,0±1,0	14,5	4,5	0,65		7,5	14		
CRS300	RZC4	6720		12,6	6,0	0,80					
CRS400	RZC6	8424	20,9±1,0	17,0	6,0	0,80	8,0	16			



Type	A0	B0	W	D1	P	T2
CRS110	5,0	13,7	24	2,0	8	7,2
CRS200						
CRS250	5,7	16,7	24	2,0	8	7,6
CRS300						
CRS400	6,0	21,4	32	2,0	12	8,1

Type	W1	W2	N	A
CRS110	25,4	29,5	90	330
CRS200				
CRS250				
CRS300	33,4	37,4	100	380
CRS400				

Type	Packaging	Pieces
CRS110	13(inch) Blister tape	1000
CRS200		
CRS250		
CRS300	15(inch) Blister tape	1000
CRS400		

### Ordering Code for SMD :





CRS	300	J	K	-	ZB-	150R	AA
Serie	* Power rating	Tol.	Pack-Code	TCR	Forming type	R Value	Special
		J = ±5%	K = Blister Tape Reel	- Base on spec.	ZB- Z version		AA = Standard

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### ALTERNATIVE LEAD CONFIGURATIONS

This type CRS is also available in a different pre-forming, as shown below, other's upon request.

#### THOUGH HOLE VERSION

			
<p>Axial Goal Post (AG-)</p>	<p>Axial Goal Post Kink (AK-)</p>	<p>Radial (RD-)</p>	<p>Radial 2 Kink (RK-)</p>