

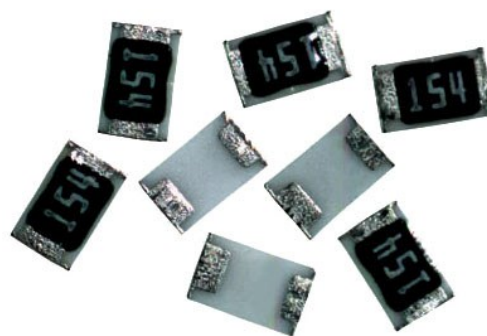
General Purpose Surface Mounted Resistors

WCR Series



Features:

- Excellent reliability
- Wide range of sizes and ohmic values
- Wrap around terminations
- Inner electrode protection
- AEC-Q200 grade available



All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

		WCR0201	WCR0402	WCR0603	WCR0805	WCR1206	WCR1210	WCR2010	WCR2512
Power rating @70°C	W	0.05	0.063	0.1	0.125	0.25		0.5	1
Resistance range	ohms	10R – 1M0	1R0 – 1M0	1R0 – 10M					
Resistance range AEC-Q200	ohms	-	10R – 1M0						
Resistance tolerance	%	1							
TCR	ppm/°C	200 ¹	100 ^{1,2}	100 ^{1,2,3}				200 ^{1,3}	
Limiting element voltage	V	25	50	75	150	200			
Standard values		E24 or E96							
Ambient temperature range	°C	-55 to 155							
Zero-ohm jumper rating	A	0.5	1		1.5	2			
Zero-ohm residual resistance	mΩ	<50							

Note 1: ≤10R: +600/-400

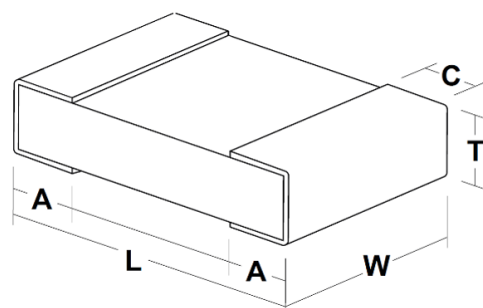
Note 2: 11R – 100R: 200

Note 3: ≥3M3: 300

Physical Data

Dimensions in mm and weight in mg				Tolerances ±0.1 unless stated		
Type	L	W	T	C	A	Wt.
WCR0201	0.6 ±0.03	0.3 ±0.03	0.23 ±0.03	0.1 ±0.05	0.15 ±0.05	0.14
WCR0402	1	0.5 ±0.05	0.35 ±0.05	0.2	0.25	0.53
WCR0603	1.6	0.8	0.45	0.3 ±0.2		2.08
WCR0805	2 ±0.15	1.25 +0.15/-0.1	0.55	0.4 ±0.2		4.74
WCR1206	3.1 ±0.15	1.55 +0.15/-0.1		0.45 ±0.2		8.47
WCR1210	3.1	2.6 ±0.2		0.5 ±0.25	0.5 ±0.2	16.1
WCR2010	5	2.5 ±0.2		0.6 ±0.25		24.8
WCR2512	6.35	3.2 ±0.2				44.4

A 3D perspective diagram of a rectangular component. The dimensions are labeled as follows: L (length), W (width), T (thickness), A (height of the side flange), and C (height of the top flange). The component has a central rectangular body with two flanges on opposite sides, each of height A. The total height of the component is T, and the total width is W. The length is L. The top flange has a height C.



Construction

The chips have a high alumina substrate (96% minimum) with a ruthenium oxide resistance element and silver palladium, nickel and matt tin plated terminations. A glazed protection and epoxy coat is applied to the resistive element.

Terminations

The terminations meet the solderability requirements of IEC 60115-1 clause 11.1 and the strength requirements of IEC 60115-1 clause 9.7.

Solvent resistance

The epoxy protection and marking are resistant to all normal industrial solvents suitable for printed circuits.

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.

All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

BI Technologies IRC Welwyn

www.ttelectronics.com/resistors

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Marking

Sizes 0201 and 0402 have no marking. All other resistors are marked as described in Marking Codes used on Chip Resistors: <https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Application-Note/TN004-Methods-for-Marking-Values-on-Resistors.pdf>. Zero-ohm jumper chips are marked "000".

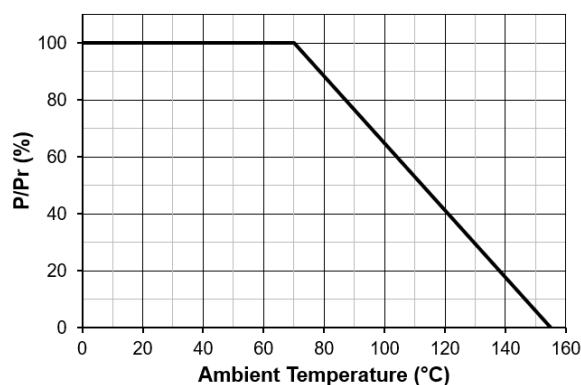
Performance Data

		Maximum
Load at rated power: P_r for 1000 hours at 70°C	$\pm\Delta R\%$	2512: 3 ² , Other sizes: $\leq 100K$: 1, $>100K$: 2
Shelf-life test: 12 months room temperature	$\pm\Delta R\%$	0.2
Short term overload: $6.25 \times P_r$ or $2 \times LEV$ ¹	$\pm\Delta R\%$	0201 & 0402: 2, 0603 to 2010: 2.5, 2512: 5
Climatic	$\pm\Delta R\%$	3
Climatic category		55/125/56
Long term damp heat	$\pm\Delta R\%$	1
Temperature rapid change	$\pm\Delta R\%$	1
Resistance to solder heat	$\pm\Delta R\%$	2.5
Vibration and bump	$\pm\Delta R\%$	1
Insulation resistance	ohms	$>1G\Omega$
Voltage proof	V	0201: undefined, 0402: 100, 0603: 300, 0805 to 2512: 500

Note 1: Except 0603: 100V and 0805: 200V

Note 2: Plus 0.1Ω

Temperature Derating



Packaging

All chips in 1210 size and smaller are packed in 8mm paper tape, whilst 2010 and 2512 sizes are on 12mm plastic tape, reeled as IEC publication 286-3. The standard reel is 180mm (7 inch) but 250mm (10 inch) reels carrying double the standard quantity can be supplied by agreement. For dimensional details see: <https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Application-Note/PS001-Packing-of-General-Purpose-Chip-Resistors.pdf>.

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Ordering Procedure

Global Part Number Example: **WCR1206-10KFI** (1206, 10 kilohms $\pm 1\%$, standard grade, Pb-free)

W	C	R	1	2	0	6	-	1	0	K		F	I
1	2	3	4	5									

1 Series	2 Size	3 Value ¹	4 Tolerance ¹	5 Grade ² & Packing	
WCR	0201	E24/E96 = 3/4 characters R = ohms K = kilohms M = megohms	F = $\pm 1\%$	I	All sizes Standard grade
	0402			A	0402 to 2512 AEC-Q200 grade
	0603				0201 20,000/reel
	0805				0402 10,000/reel
	1206				0603 to 1210 5000/reel
	1210				2010 & 2512 4000/reel
	2010				
	2512				

Note 1: For zero-ohm jumper chips use the dummy value and tolerance code R005J.

Note 2: 0201 size is not available in AEC-Q200 grade.

Legacy Part Numbers

This product has a legacy part number format for standard grade only. This is still available for ordering, but for new designs use of the Global Part Number is recommended.

Legacy Part Number Example: **WCR-WCR1206LF-1002-F-P-LT** (1206, 10 kilohms $\pm 1\%$, standard grade, Pb-free)

W	C	R	-	W	C	R	1	2	0	6	L	F	-	1	0	0	2	-	F	-	P	-	L	T
1	2	3	4	5	6	7																		

1 Family	2 Model	3 Size	4 Termination	5 Value ¹	6 Tolerance ¹	7 Packing		
WCR	WCR	0201	LF = Pb-free	3 digits + multiplier R = ohms for values <100 ohms	F = $\pm 1\%$	P-LT = Paper tape	0201	20,000/reel
		0402					0402	10,000/reel
		0603					0603 to 1210	5000/reel
		0805					2010 & 2512	4000/reel
		1206				E-LT = Plastic tape		
		1210						
		2010						
		2512						

Note 1: For zero-ohm jumper chips use the dummy value and tolerance code R000J.