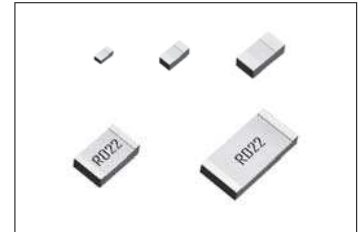


# Thick Film Low Ohmic Chip Resistors for Current Detection

## UCR Series

### ●Features

- 1) Very-low ohmic resistance from 11mΩ is in lineup by thick-film resistive element.
- 2) Resistive element is located at bottom side, which reduces the resistance shift during mounting process.
- 3) ROHM's unique structure achieved improvement of heat.
- 4) ROHM resistors have obtained ISO9001 / ISO / TS16949 certification.
- 5) Corresponds to AEC-Q200. (UCR01/10)



### ●Products List

Part No.	Size		Rated Power (70°C) (W)	Resistance Tolerance (%)	Temperature Coefficient (ppm / °C)	Resistance Range	Series	Operating Temperature Range (°C)
	(mm)	(inch)						
☆UCR006	0603	0201	0.1	J(±5%) F(±1%)	0 to 300	0.1Ω to 1Ω	E24	-55 to +155
UCR01	1005	0402	0.125	J(±5%) F(±1%)	0 to 300	0.068Ω to 0.091Ω		
					0 to 250	0.1Ω to 0.2Ω		
					0 to 200	0.22Ω to 0.91Ω		
UCR03	1608	0603	0.25	J(±5%) F(±1%)	0 to 250	0.020Ω to 0.047Ω		
					0 to 200	0.051Ω to 0.091Ω		
					0 to 150	0.1Ω to 0.2Ω		
UCR10	2012	0805	0.33	J(±5%) F(±1%)	250 ± 200	0.011Ω to 0.018Ω		
					0 to 250	0.020Ω to 0.047Ω		
					0 to 150	0.051Ω to 0.1Ω		
					0 to 250	0.020Ω to 0.047Ω		
					0 to 150	0.051Ω to 0.1Ω		
UCR18	3216	1206	0.5	J(±5%) F(±1%)	0 to 350	0.011Ω to 0.018Ω		
					0 to 200	0.020Ω to 0.039Ω		
					0 to 150	0.043Ω to 0.1Ω		

☆: Under development

\*Design and specifications are subject to change without notice.

Carefully check the specification sheet supplied with the product before using or ordering it.

### ●Part Number Description

<b>UCR</b>	<b>10</b>	<b>EVH</b>	<b>J</b>	<b>L</b>	<b>R10</b>																								
<b>Part No.</b> UCR (Thick Film Low Ohmic Chip Resistors)	<b>Size (mm [inch])</b> 006 (0603 [0201]) 01 (1005 [0402]) 03 (1608 [0603]) 10 (2012 [0805]) 18 (3216 [1206])	<b>Packaging Specifications Code</b>	<b>Resistance Tolerance</b> F (±1%) J (±5%)	<b>Special part code</b> S : 0.011 to 0.091Ω L : 0.1Ω to	<b>Nominal Resistance</b> Resistance code, 3 or 4 digits. Resistance tolerance + Resistance code Special code FS,FL,JS : 4 digits JL : 3 digits																								
		<table border="1"> <thead> <tr> <th>Part No.</th> <th>Code</th> <th>Packaging specifications</th> <th>Quantity / Reel</th> </tr> </thead> <tbody> <tr> <td>UCR006</td> <td>YVP</td> <td>Paper tape (4mm Pitch)</td> <td>15,000</td> </tr> <tr> <td>UCR01</td> <td>MVP</td> <td>Paper tape (2mm Pitch)</td> <td>10,000</td> </tr> <tr> <td rowspan="2">UCR03</td> <td>EWP (20 to 47mΩ)</td> <td rowspan="2">Paper tape (4mm Pitch)</td> <td rowspan="2">5,000</td> </tr> <tr> <td>EVP (51 to 910mΩ)</td> </tr> <tr> <td>UCR10</td> <td>EVH</td> <td>Paper tape (4mm Pitch)</td> <td>5,000</td> </tr> <tr> <td>UCR18</td> <td>EVH</td> <td>Paper tape (4mm Pitch)</td> <td>5,000</td> </tr> </tbody> </table>	Part No.	Code	Packaging specifications	Quantity / Reel	UCR006	YVP	Paper tape (4mm Pitch)	15,000	UCR01	MVP	Paper tape (2mm Pitch)	10,000	UCR03	EWP (20 to 47mΩ)	Paper tape (4mm Pitch)	5,000	EVP (51 to 910mΩ)	UCR10	EVH	Paper tape (4mm Pitch)	5,000	UCR18	EVH	Paper tape (4mm Pitch)	5,000		
Part No.	Code	Packaging specifications	Quantity / Reel																										
UCR006	YVP	Paper tape (4mm Pitch)	15,000																										
UCR01	MVP	Paper tape (2mm Pitch)	10,000																										
UCR03	EWP (20 to 47mΩ)	Paper tape (4mm Pitch)	5,000																										
	EVP (51 to 910mΩ)																												
UCR10	EVH	Paper tape (4mm Pitch)	5,000																										
UCR18	EVH	Paper tape (4mm Pitch)	5,000																										

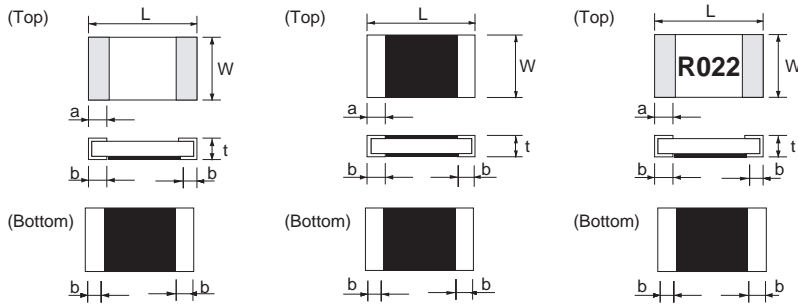
●Chip Resistor Dimensions and Markings

■ UCR006/01

■ UCR03 (50mΩ ≤ R ≤ 910mΩ)

■ UCR03 (20mΩ ≤ R < 50mΩ)

■ UCR10 / 18



<Marking method>

There are three or four digits used for the calculation number according to IEC code and "R" is used for the decimal point.

Ex.) 4digits.....0.1Ω=R100

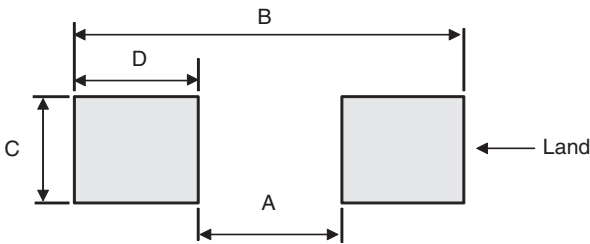
3digits.....0.1Ω=R10

(Unit : mm)

Part No.	(mm)	(inch)	L	W	t	a	b	Marking existence
☆ UCR006	0603	0201	0.64±0.05	0.34±0.05	0.28±0.05	0.16±0.1	0.22±0.1	No
UCR01	1005	0402	1.0±0.1	0.55±0.1	0.37±0.05	0.28±0.1	0.34±0.1	No
UCR03	1608	0603	1.6±0.1	0.87±0.1	0.5±0.1	0.45±0.2	0.45±0.2	No
UCR10	2012	0805	2.0±0.1	1.25±0.1	0.55±0.1	0.24±0.2	0.5±0.2	Yes
UCR18	3216	1206	3.2±0.15	1.6±0.15	0.55±0.1	0.3±0.2	0.9±0.25	Yes

☆: Under development

●Land pattern Example



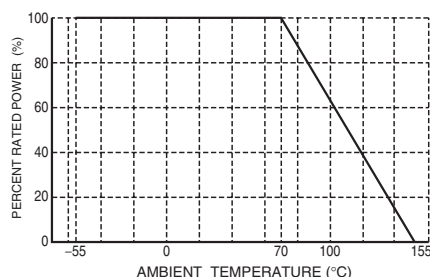
(Unit : mm)

Dimensions Part No.	A	B	C	D
UCR01	0.5	1.8	0.5	0.65
UCR03	0.5	2.5	0.9	1.0
UCR10	0.8	3.4	1.3	1.3
UCR18	1.4	4.0	1.8	1.3

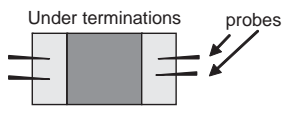
●Derating Curve

When the ambient temperature exceeds 70°C, power dissipation must be adjusted according to the derating curves below.

■ UCR006 / 01 / 03 / 10 / 18



●Characteristics (UCR01 / 03 / 10 / 18 )

Test Items	Guaranteed Value	Test Conditions
	Resistor Type	
Resistance	See P.1	20°C Measuring method : Measure under terminations by 4 probes. 
Variation of resistance with temperature	See P.1	Measurement : +20 / -55 / +20 / +125°C
Overload	± (2.0%+0.005Ω)	Rated voltage (current) ×2.5, 2s
Solderability	A new uniform coating of minimum of 95% of the surface being immersed and no soldering damage.	Rosin-Ethanol : 25% (Weight) Soldering condition : 235±5°C Duration of immersion : 2.0±0.5s
Resistance to soldering heat	± (1.0%+0.005Ω) No remarkable abnormality on the appearance.	Soldering condition : 260±5°C Duration of immersion : 10±1s
Rapid change of temperature	± (1.0%+0.005Ω)	Test temp. : -55°C to +125°C 5cycle
Damp heat, steady state	± (3.0%+0.005Ω)	40°C, 93%RH (Relative Humidity) Test time : 1,000h to 1,048h
Endurance at 70°C	± (3.0%+0.005Ω)	70°C Rated voltage (current) 1.5h : ON – 0.5h : OFF Test time : 1,000h to 1,048h
Endurance	± (3.0%+0.005Ω)	155°C Test time : 1,000h to 1,048h
Resistance to solvent	± (0.5%+0.005Ω)	23±5°C, Immersion cleaning, 5±0.5min Solvent : 2-propanol
Bend strength of the end face plating	Without mechanical damage such as breaks.	-

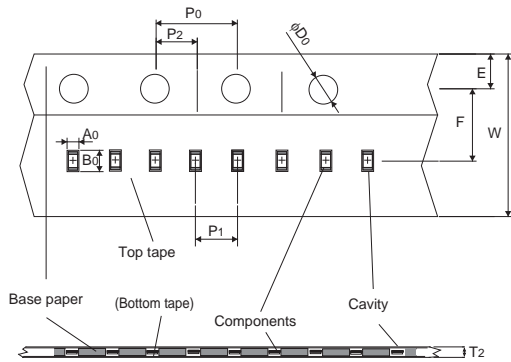
Compliance Standard(s) : IEC60115-8  
JISC 5201-8

●Chip weight (typical value)

Parameter	Unit	UCR01	UCR03	UCR10	UCR18
Weight	mg/pc	0.848	2.53 (20 to 47mΩ) 3.06 (51 to 910mΩ)	5.27	10.16

●Tape Dimensions

■ Paper Tape

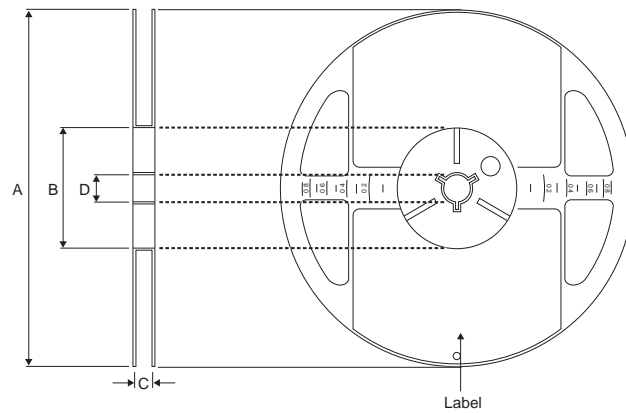


(Unit : mm)

Part No.	W	F	E	A0	B0
UCR01	8.0±0.3	3.5±0.05	1.75±0.1	0.7±0.1	1.2±0.1
UCR03	8.0±0.3	3.5±0.05	1.75±0.1	1.1±0.1	1.9±0.1
UCR10	8.0±0.3	3.5±0.05	1.75±0.1	1.65 <sup>+0.2</sup> <sub>-0.1</sub>	2.4 <sup>+0.2</sup> <sub>-0.1</sub>
UCR18	8.0±0.3	3.5±0.05	1.75±0.1	1.95 <sup>+0.1</sup> <sub>-0.05</sub>	3.5 <sup>+0.15</sup> <sub>-0.05</sub>

Part No.	D0	P0	P1	P2	T2
UCR01	φ1.5 <sup>+0.1</sup> <sub>0</sub>	4.0±0.1	2.0±0.05	2.0±0.05	Max 1.1
UCR03	φ1.5 <sup>+0.1</sup> <sub>0</sub>	4.0±0.1	4.0±0.05	2.0±0.05	Max 1.1
UCR10	φ1.5 <sup>+0.1</sup> <sub>0</sub>	4.0±0.1	4.0±0.1	2.0±0.05	Max 1.1
UCR18	φ1.5 <sup>+0.1</sup> <sub>0</sub>	4.0±0.1	4.0±0.1	2.0±0.05	Max 1.1

●Reel Dimensions



ACCORDING TO EIAJ ET-7200B

(Unit : mm)

Part No.	A	B	C	D
☆UCR006				
UCR01	φ180 <sup>0</sup> <sub>-1.5</sub>	φ60 <sup>+1.0</sup> <sub>0</sub>	9 <sup>+1.0</sup> <sub>0</sub>	φ13±0.2
UCR03				
UCR10				
UCR18				

☆ : Under development

## Notes

- 1) The information contained herein is subject to change without notice.
- 2) Before you use our Products, please contact our sales representative and verify the latest specifications :
- 3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.  
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Products beyond the rating specified by ROHM.
- 4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.
- 5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.
- 6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.
- 7) The Products specified in this document are not designed to be radiation tolerant.
- 8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.
- 9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.
- 10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.
- 11) ROHM has used reasonable care to ensure the accuracy of the information contained in this document. However, ROHM does not warrant that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.
- 12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting from non-compliance with any applicable laws or regulations.
- 13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.
- 14) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.



Thank you for your accessing to ROHM product informations.  
More detail product informations and catalogs are available, please contact us.

## ROHM Customer Support System

<http://www.rohm.com/contact/>