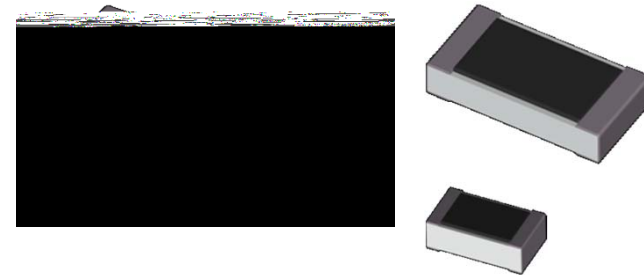


# Thick Film Type Current Sensing Resistor (RUT Series)

- 1005(0402), 1608(0603), 2012(0805), 3216(1206)
- 3225(1210), 5025(2010), 6432(2512)

## Features

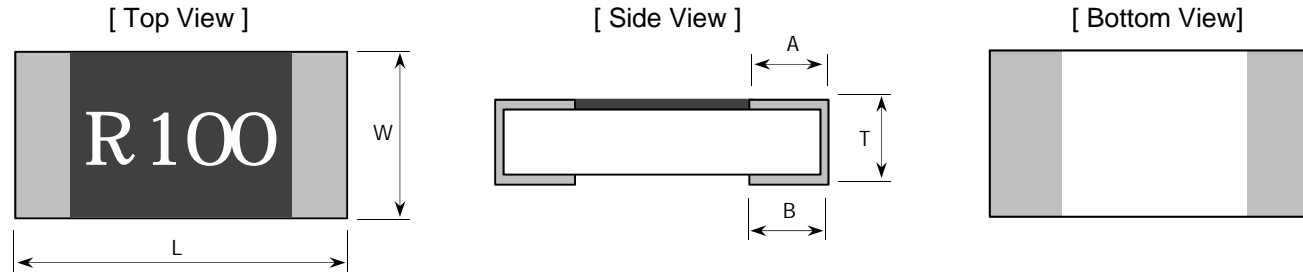
Current Sensing Resistor  
 Very low resistance with high precision reliability.  
 Low T. C. R, High power.  
 Stable in Sulfur Atmosphere. (Sulfur Resistant)  
 100% Lead Free Component.  
 EU RoHS Compliant.



## Part Number System

RUT		3216		F		R499		CS	
Type (Series)		Size : mm (inch)		Tolerance		Resistance Value		Packing Type	
RUT	Thick film low ohm chip resistor	1005	1.0×0.5mm (0402)	F	±1%	- 4-digit code System (E-24 series) - 4-digit code System (E-96 series) - R499 : 0.499 = 499m		CS	7" reel
		1608	1.6×0.8mm (0603)	J	±5%			ES	10" reel
		2012	2.0×1.2mm (0805)					AS	13" reel
		3216	3.2×1.6mm (1206)						
		3225	3.2×2.5mm (1210)						
		5025	5.0×2.5mm (2010)						
		6432	6.4×3.2mm (2512)						

## Structure and Dimensions



[ Unit : mm ]

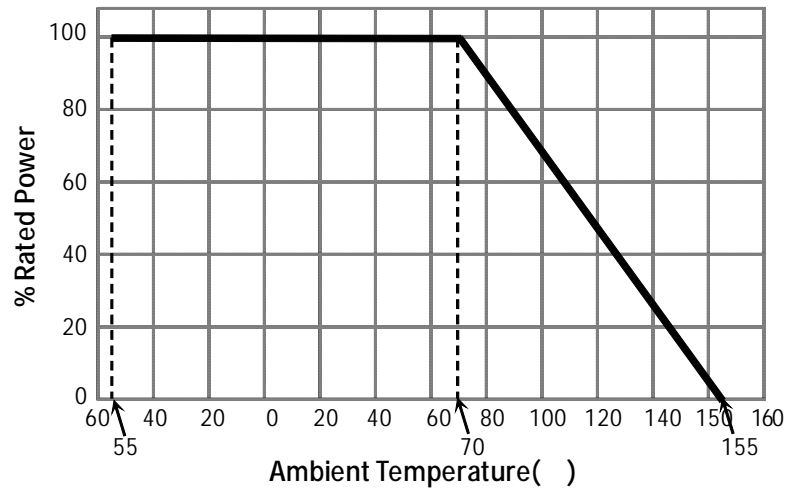
Size (mil)	L	W	T	A	B	Unit Weight
RUT1005 (0402)	1.00±0.05	0.50±0.05	0.35±0.05	0.20±0.10	0.25±0.10	0.6mg
RUT1608 (0603)	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.35±0.10	2.1mg
RUT2012 (0805)	2.00±0.20	1.25±0.15	0.55±0.10	0.40±0.20	0.35±0.20	4.9mg
RUT3216 (1206)	3.20±0.20	1.60±0.15	0.55±0.10	0.45±0.20	0.40±0.20	9.5mg
RUT3225 (1210)	3.20±0.20	2.55±0.20	0.55±0.10	0.45±0.20	0.40±0.20	16mg
RUT5025 (2010)	5.00±0.20	2.50±0.20	0.55±0.10	0.60±0.20	0.60±0.20	26mg
RUT6432 (2512)	6.30±0.20	3.20±0.20	0.55±0.10	0.60±0.20	0.60±0.20	41mg

1608 and smaller sizes don't have marking on the top of the chips

## Application Characteristics

Type mm(mil)	Power Rating [W]	Tolerance [%]	Resistance Range [Ω]	T.C.R * [ppm/ ]	Working Temp. [ ]
RUT1005 (0402)	1/10(0.10)	F : ±1 J : ±5	0.100~0.976	±150	-55 ~ +155
RUT1608 (0603)	1/8(0.125)				
RUT2012 (0805)	1/4(0.25)				
RUT3216 (1206)	1/3(0.33)				
RUT3225 (1210)	1/2(0.50)				
RUT5025 (2010)	2/3(0.66)				
RUT6432 (2512)	1(1.0)				

### Power Derating Curve



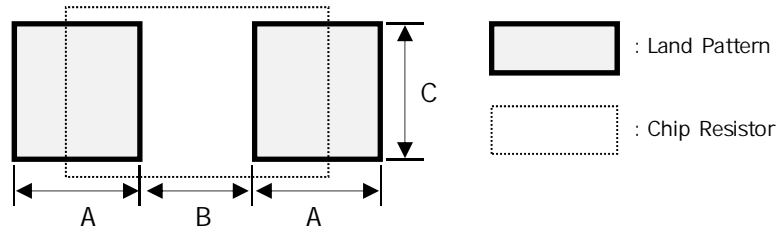
### Rated Voltage & Current

- $V = \sqrt{P \cdot R}$

- $I = \sqrt{P / R}$

V : Rated Voltage (V)  
 I : Rated Current (I)  
 P : Rated Power (W)  
 R : Resistance Value ( )

## Standard Soldering Pad Dimensions



[ Unit : mm ]

Size (mil)	Reflow Soldering			
	A	B	2A + B	C
RUT1005 (0402)	0.60	0.50	1.70	0.50
RUT1608 (0603)	0.80	0.80	2.40	0.80
RUT2012 (0805)	0.90	1.40	3.20	1.20
RUT3216 (1206)	1.30	1.80	4.40	1.50
RUT3225 (1210)	1.30	1.80	4.40	2.40
RUT5025 (2010)	1.40	3.30	6.10	2.40
RUT6432 (2512)	1.40	4.60	7.40	3.00

## Performance Characteristics

ITEM	Requirements Specification	Test Conditions (JIS C 5201-1)
	Resistors	
<b>Resistance</b>	Within the specified tolerance	JIS C 5201-1 4.5
<b>Temperature Characteristic</b>	$R \pm 100\text{ppm}$	JIS C 5201-1 4.8 +20 -55 / +20 +125
<b>Short time Overload</b>	$R < \pm 1\% + 0.0005$	JIS C 5201-1 4.13 Rated Voltage $\times 2.5$ , 5sec
<b>Solderability</b>	Immersed over 95%	JIS C 5201-1 4.17 Rosin Ethanol (25%WT) 245 $\pm$ 5/-0 , 2 $\pm$ 0.5 sec
<b>Resistance to Solder Heat</b>	$R < \pm 1\% + 0.0005$	JIS C 5201-1 4.18 260 $\pm$ 5 , 10 $\pm$ 1 sec
<b>Temperature Cycle</b>	$R < \pm 1\% + 0.0005$	JIS C 5201-1 4.19 -55 +155 , 100 cycle
<b>Moisture Resistance</b>	$R < \pm 3\% + 0.0005$	JIS C 5201-1 4.24 40 $\pm$ 2 , 90-95%RH, 1000 <sup>+48</sup> hours
<b>Load Life</b>	$R < \pm 3\% + 0.0005$	JIS C 5201-1 4.25 Rated Voltage, 70 $\pm$ 2 , 1000 <sup>+48</sup> hours 90mins ON, 30mins OFF
<b>High Temp. Exposure</b>	$R < \pm 3\% + 0.0005$	JIS C 5201-1 4.25.3 155 $\pm$ 2 , 1000 <sup>+48</sup> hours
Flower of Sulfur (FOS)	$R < \pm 1\% + 0.1$	105 , FoS, 720 <sup>+2</sup> hours

The reliability test condition can be replaced by the corresponding accelerated test condition.

 Product specifications included in the specifications are effective as of March 01, 2015.

Please be advised that they are standard product specifications for reference only.

We may change, modify or discontinue the product specifications without notice at any time.

So, you need to approve the product specifications before placing an order.

Should you have any question regarding the product specifications,

please contact our sales personnel or application engineers.