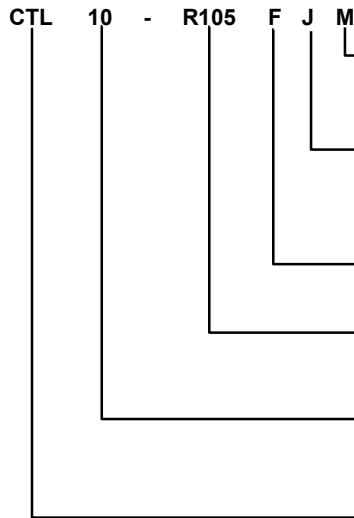




## PRECISION CURRENT SENSING CHIP RESISTORS

### HOW TO ORDER



**Packaging**  
 M = 7" Reel (10" Reel for 2512)  
 V = 13" Reel

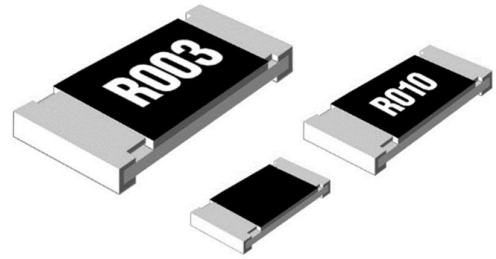
**TCR (PPM/°C)**  
 R = ±15    X = ±25    Y = ±50  
 J = ±75    K = ±100    L = ±200  
 N = ±350    O = ±400    P = ±500

**Tolerance (%)**  
 F = ± 1.0    G = ± 2.0    J = ± 5.0

**EIA Resistance Value**  
 Three significant digits and # of zeros

**Size**  
 0402 = 05    0805 = 10    0603 = 16  
 1206 = 18    2010 = 12    2512 = 01  
 2512 3W = 1S

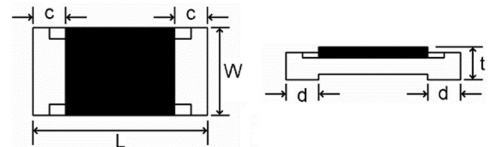
**Series**  
 Precision Current Sense Resistor



### FEATURES

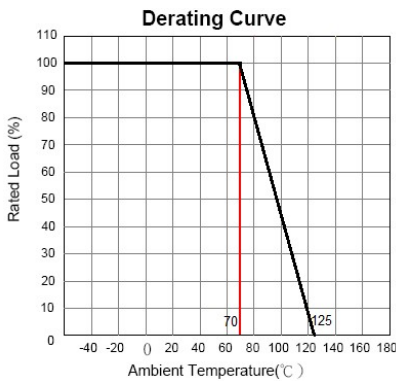
- Ultra Precision type with high reliability, stability and quality
- Resistance as low as 0.001 ohms
- Extremely Low TCR as low as ± 50 PPM
- Wrap Around Terminal for Flow Soldering
- Reference Standard = IEC 60115-8, JIS C 5201-8
- RoHs Compliance 2011/65/EU

### SCHEMATIC



### DIMENSIONS (mm)

Series	Size	L	W	c	d	t
CTL05	0402	1.00 ± 0.10	0.50 ± 0.10	0.20 ± 0.10	0.25 ± 0.10	0.35 ± 0.10
CTL16	0603	1.60 ± 0.10	0.80 ± 0.10	0.30 ± 0.15	0.35 ± 0.20	0.45 ± 0.10
CTL10	0805	2.00 ± 0.20	1.25 ± 0.20	0.40 ± 0.20	0.35 ± 0.20	0.50 ± 0.10
CTL18	1206	3.20 ± 0.20	1.60 ± 0.18	0.50 ± 0.20	0.50 ± 0.20	0.60 ± 0.20
CTL12	2010	5.00 ± 0.20	2.50 ± 0.20	0.60 ± 0.30	0.60 ± 0.30	0.60 ± 0.20
CTL01	2512	6.40 ± 0.20	3.20 ± 0.20	0.90 ± 0.20	0.90 ± 0.20	0.60 ± 0.20



### ELECTRICAL CHARACTERISTICS

Size	Rated Power	Tol	Max TCR (ppm/°C)					Max Working Voltage	Max Overload Voltage
			±50ppm	±100ppm	±200ppm	±350ppm	±500ppm		
0402	0.125W	2%			0.100 ~ 4.70			25V	50V
		5%			0.100 ~ 4.70				
0603	0.125W	1%			0.010 ~ 0.100		50V	100V	
		2%			0.010 ~ 0.100				
	0.25W	5%			0.010 ~ 0.100				
		1%	0.100 ~ 0.500		0.010 ~ 0.100	0.01 ~ 0.039			
0805	0.25W	2%			0.010 ~ 0.100	0.01 ~ 0.039	150V	300V	
		5%			0.010 ~ 0.100	0.022 ~ 0.068			
	0.5W	.5%	0.001 ~ 0.050	0.068 ~ 0.470	0.007 ~ 0.100	0.018 ~ 0.027			
1206	0.50W	1%	0.001 ~ 0.050	0.056 ~ 0.470	0.010 ~ 0.100	0.027	200V	400V	
		2%		0.056 ~ 0.470	0.010 ~ 0.100	0.018 ~ 0.027			0.01 ~ 0.015
	1W	.5%	0.003 ~ 0.10						
2010	0.75W	1%	0.001 ~ 0.10	0.056 ~ 0.470	0.001 ~ 0.065	0.027	200V	400V	
		2%	0.001 ~ 0.10	0.056 ~ 0.470	0.001 ~ 0.065	0.018 ~ 0.027			0.01 ~ 0.015
	1W	.5%	0.007 ~ 0.10	0.056 ~ 0.470	0.001 ~ 0.065	0.018 ~ 0.027			
2512	1.0W	1%	0.0005 ~ 0.10	0.056 ~ 0.470	0.001 ~ 0.065	0.027	200V	400V	
		2%	0.0005 ~ 0.10	0.056 ~ 0.470	0.001 ~ 0.065	0.018 ~ 0.027			0.01 ~ 0.015
	2W	.5%	0.0005 ~ 0.10	0.056 ~ 0.470	0.001 ~ 0.065	0.018 ~ 0.027			0.01 ~ 0.015

NOTE: The temperature range is -55°C ~ +150°C

Rated Voltage = √P\*R



# American Accurate Components, Inc.

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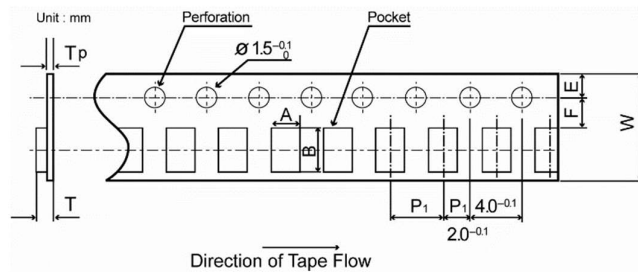
## PERFORMANCE

Test Item	Maximum $\Delta \Omega$		Condition
	F	G, J	
Short Time Overload	$\pm 0.1\%$	$\pm 0.5\%$	2.5 times of the rated voltage shall be applied for 5 seconds
Load Life	$\pm 0.25\%$	$\pm 0.5\%$	The resistor shall be subjected to rated voltage for 90 min. followed by a pause of 30 min. at a temperature of $70 \pm 3^\circ\text{C}$ . This constitutes 1 cycle. Cycles shall be repeated for 1000 hours.
Moisture Load Life	$\pm 0.25\%$	$\pm 0.5\%$	The resistor subjected to rated voltage for 90 min followed by a pause for 30 min at a temperature of $60 \pm 2^\circ\text{C}$ with relative humidity of 90% to 95%. This constitutes 1 cycles. Cycles shall be repeated for 1000 hours.
Temperature Cycle	$\pm 0.1\%$	$\pm 0.5\%$	$[-55^\circ\text{C} \ 30 \text{ min} \rightarrow +125^\circ\text{C} \ 30 \text{ min} \rightarrow \text{R.T.} \ 3 \text{ min}]$ The resistor shall be subjected to 5 continuous cycles
Resistance to Solder Heat	$\pm 0.1\%$	$\pm 0.5\%$	The resistor shall withstand dipped into solder for $10 \pm 1$ sec. At $260 \pm 5^\circ\text{C}$
Terminal Strength	$\pm 0.1\%$	$\pm 0.5\%$	Distance between fulcrums: 90mm; Bending width: 3 mm
Insulation Resistance	DC 500V for 1 min.		1000 Meg $\Omega$ or over
Solderability	A new uniform coating of solder shall cover minimum of 95% of surface being immersed The resistor shall be dipped into the solder of $215 \pm 5^\circ\text{C}$ for $3 \pm 0.5$ seconds		

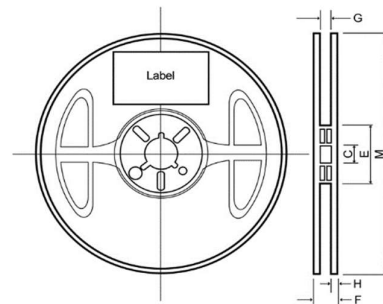
## PACKAGE QUANTITY

Package Type	CTL05	CTL16	CTL10	CTL18	CTL12	CTL01	CTL1S
M	10,000	5,000	5,000	5,000	5,000	5,000	2,000

## TAPE SCHEMATIC



## REEL SCHEMATIC



## TAPE DIMENSIONS (mm)

	A	B	W	E	F	P <sub>1</sub>	T	T <sub>p</sub>
CTL05	$0.65 \pm 0.1$	$1.15 \pm 0.1$	$8.0 \pm 0.2$	$1.75 \pm 0.10$	$3.5 \pm 0.05$	$2.0 \pm 0.05$	$0.55 \pm 0.1$	$0.20 \pm 0.05$
CTL16	$1.1 \pm 0.2$	$1.9 \pm 0.2$	$8.0 \pm 0.2$	$1.75 \pm 0.1$	$3.5 \pm 0.05$	$4.0 \pm 0.1$	$0.70 \pm 0.1$	$0.20 \pm 0.05$
CTL10	$1.65 \pm 0.2$	$2.4 \pm 0.2$	$8.0 \pm 0.2$	$1.75 \pm 0.1$	$3.5 \pm 0.05$	$4.0 \pm 0.1$	$0.85 \pm 0.1$	$0.20 \pm 0.05$
CTL18	$2.0 \pm 0.15$	$3.6 \pm 0.15$	$8.0 \pm 0.2$	$1.75 \pm 0.1$	$3.5 \pm 0.05$	$4.0 \pm 0.1$	$0.85 \pm 0.1$	$0.20 \pm 0.05$
CTL12	$2.9 \pm 0.1$	$5.3 \pm 0.1$	$12.0 \pm 0.2$	$1.75 \pm 0.1$	$5.5 \pm 0.05$	$4.0 \pm 0.1$	$1.0 \pm 0.1$	$0.25 \pm 0.1$
CTL01	$3.4 \pm 0.1$	$6.6 \pm 0.1$	$12.0 \pm 0.2$	$1.75 \pm 0.1$	$5.5 \pm 0.05$	$4.0 \pm 0.1$	$1.0 \pm 0.1$	$0.25 \pm 0.1$
CTL1S	$3.4 \pm 0.1$	$6.6 \pm 0.1$	$12.0 \pm 0.2$	$1.75 \pm 0.1$	$5.5 \pm 0.05$	$4.0 \pm 0.1$	$1.0 \pm 0.1$	$0.25 \pm 0.1$

## REEL DIMENSIONS (mm)

Reel	M	H	C	G	E	F
7"	$180 \pm 3.0$	1.20	$13.0 \pm 0.2$	$9.0 \pm 0.3$	$60 \pm 1.0$	$11.4 \pm 1.0$

\* The suffix "L" indicates that this item is lead free. As of September 2004, all new production items of this are lead free and in compliance with Lead Free/RoHS.

The content of this specification may change without notification 06/08/2007

## LABEL DESCRIPTION

One side surface of a reel is marked with a label with the following items of information.

1. Part Number
2. Tolerance
3. Quantity
4. Lot # for production month/year/suffix L\*
5. Manufacture's name or symbol