



1101

2R20

6/

1000

1210/1218/2010/2512 RoHS compliant & Halogen free

Product specification – July 10, 2017 V.7





**Chip Resistor Surface Mount** AC SERIES 0201 to 2512

# SCOPE

This specification describes AC0201 to AC2512 chip resistors with leadfree terminations made by thick film process.

### **APPLICATIONS**

- All general purpose applications
- Car electronics, industrial application

#### FEATURES

- AEC-Q200 qualified
- Moisture sensitivity level: MSL I
- AC series soldering is compliant with J-STD-020D
- Halogen free epoxy
- RoHS compliant
  - Products with lead-free terminations meet RoHS requirements
  - Pb-glass contained in electrodes, resistor element and glass are exempted by RoHS
- Reduce environmentally hazardous waste
- High component and equipment reliability
- The resistors are 100% performed by automatic optical inspection prior to taping.

### ORDERING INFORMATION - GLOBAL PART NUMBER

Part number is identified by the series name, size, tolerance, packaging type, temperature coefficient, taping reel and resistance value.

# **GLOBAL PART NUMBER**

# AC XXXX X X X XX XXXX L

(2) (3) (4) (5) (7) (I)(6)

#### (I) SIZE

0201/0402/0603/0805/1206/1210/1218/2010/2512

### (2) TOLERANCE

$D = \pm 0.5\%$	$J = \pm 5\%$ (for Jumper ordering, use code of J)
$F = \pm 1\%$	

#### (3) PACKAGING TYPE

R = Paper taping reel

K = Embossed taping reel

#### (4) TEMPERATURE COEFFICIENT OF RESISTANCE

– = Base on spec

#### (5) TAPING REEL

07 = 7 inch dia. Reel	10 = 10 inch dia. Reel
13 = 13 inch dia. Reel	7W = 7 inch dia. Reel & 2 × standard power
	3W = 13 inch dia. Reel & 2 × standard power

# (6) RESISTANCE VALUE

#### I $\Omega$ to 22 M $\Omega$

There are 2~4 digits indicated the resistance value. Letter R/K/M is decimal point, no need to mention the last zero after R/K/M, e.g.1K2, not 1K20.

Detailed coding rules of resistance are shown in the table of "Resistance rule of global part number".

# (7) DEFAULT CODE

Letter L is the system default code for ordering only. (Note)

### Resistance rule of global part

Resistance rule number Resistance coding rule	Example
XRXX (I to 9.76Ω)	R =  Ω  R5 =  .5Ω 9R76 = 9.76Ω
XXRX	IOR = IOΩ
(10 to 97.6Ω)	97R6 = 97.6Ω
XXXR	$100R = 100\Omega$
(100 to 976Ω)	976R = 976 $\Omega$
XKXX	K = 1,000Ω
(I to 9.76 KΩ <b>)</b>	9K76 = 9760Ω
XMXX	$IM = I,000,000\Omega$
(I to 9.76 M <b>Ω)</b>	9M76= 9,760,000 $\Omega$
XXMX (10 MΩ <b>)</b>	$10M = 10,000,000\Omega$

#### **ORDERING EXAMPLE**

The ordering code for an AC0402 chip resistor, value 100 K $\Omega$  with ±1% tolerance, supplied in 7-inch tape reel is: AC0402FR-07100KL.

#### NOTE

- I. All our R-Chip products are RoHS compliant and Halogen free. "LFP" of the internal 2D reel label states "Lead-Free Process".
- 2. On customized label, "LFP" or specific symbol can be printed.
- 3. AC series with ±0.5% tolerance is also available. For further information, please contact sales.

YAGEO Phicomp	Product specification 3
Chip Resistor	<b>Surface Mount</b> AC SERIES 0201 to 2512
<u>MARKING</u> AC0201 / AC0402	
Fig. I	No marking
AC0603 / AC0805 / AC1206 / J	AC1210 / AC2010 / AC2512
<b>Fig. 2</b> Value=10 KΩ	E-24 series: 3 digits, ±5% First two digits for significant figure and 3rd digit for number of zeros
AC0603	
$Fig. 3 \qquad Value = 24 \ \Omega$	E-24 series: 3 digits, ±1% & ±0.5% One short bar under marking letter
<b>Fig. 4</b> Value = 12.4 K $\Omega$	E-96 series: 3 digits, $\pm 1\%$ & $\pm 0.5\%$ First two digits for E-96 marking rule and 3rd letter for number of zeros
AC0805 / AC1206 / AC1210 / /	AC2010 / AC2512
<b>Γig. 5</b> Value = 10 KΩ	Both E-24 and E-96 series: 4 digits, $\pm 1\% \& \pm 0.5\%$ First three digits for significant figure and 4th digit for number of zeros
AC1218	
<b>Fig. 6</b> Value = 10 KΩ	E-24 series: 3 digits, ±5% First two digits for significant figure and 3rd digit for number of zeros
<b>Γig. 7</b> Value = 10 KΩ	Both E-24 and E-96 series: 4 digits, $\pm 1\% \& \pm 0.5\%$ First three digits for significant figure and 4th digit for number of zeros

# ΝΟΤΕ

For further marking information, please refer to data sheet "Chip resistors marking". Marking of AC series is the same as RC series.

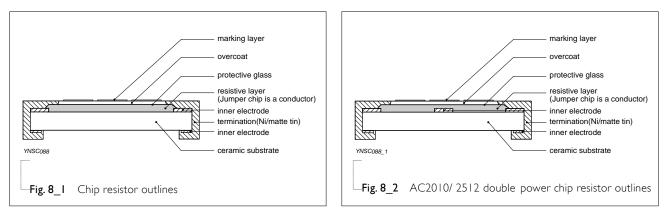


Chip Resistor Surface Mount AC SERIES 0201 to 2512

#### **CONSTRUCTION**

The resistors are constructed on top of an automotive grade ceramic body. Internal metal electrodes are added at each end and connected by a resistive glaze. The resistive glaze is covered by a protective glass. The composition of the glaze is adjusted to give the approximately required resistance value and laser trimming of this resistive glaze achieves the value within tolerance. The whole element is covered by a protective overcoat. Size 0603 and bigger is marked with the resistance value on top. Finally, the two external terminations (Ni / matte tin) are added, as shown in Fig.8.

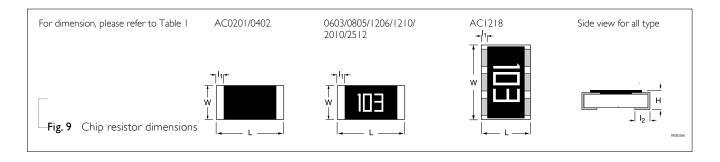
#### OUTLINES



# **DIMENSIONS**

Table I For outlines, please refer to Fig. 9

ТҮРЕ	L (mm)	W (mm)	H (mm)	I⊨(mm)	l <sub>2</sub> (mm)
AC0201	0.60±0.03	0.30±0.03	0.23±0.03	0.12±0.05	0.15±0.05
AC0402	1.00 ±0.05	0.50 ±0.05	0.32 ±0.05	0.20 ±0.10	0.25 ±0.10
AC0603	1.60 ±0.10	0.80 ±0.10	0.45 ±0.10	0.25 ±0.15	0.25 ±0.15
AC0805	2.00 ±0.10	1.25 ±0.10	0.50 ±0.10	0.35 ±0.20	0.35 ±0.20
AC1206	3.10 ±0.10	1.60 ±0.10	0.55 ±0.10	0.45 ±0.20	0.40 ±0.20
AC1210	3.10 ±0.10	2.60 ±0.15	0.55 ±0.10	0.45 ±0.15	0.50 ±0.20
AC1218	3.10 ±0.10	4.60 ±0.10	0.55 ±0.10	0.45 ±0.20	0.40 ±0.20
AC2010	5.00 ±0.10	2.50 ±0.15	0.55 ±0.10	0.55 ±0.15	0.50 ±0.20
AC2512	6.35 ±0.10	3.10 ±0.15	0.55 ±0.10	0.60 ±0.20	0.50 ±0.20





Chip Resistor Surface MountACSERIES0201 to 2512

# ELECTRICAL CHARACTERISTICS

		TERISTICS	CHARAC				CHARACTERISTICS																								
Jumper Criteria	Temperature Coefficient	Resistance Range	Dielectric Withstanding Voltage	Max. Overload Voltage	Max. Working Voltage	Operating Temperature Range	POWER	ТҮРЕ																							
Rated Current	$ \Omega \le R \le  0\Omega $	5% (E24)																													
0.5A	-100/+350ppm°C	$ \Omega \leq R \leq  0M\Omega $																													
Maximum	$10\Omega < R \le 10M$	1% (E24/E96)				<b>−</b> 55 °C to																									
Current	±200ppm°C	$ \Omega \le R \le  0M\Omega $	50V	50V	25V	I55 ℃ to	1/20 W	AC0201																							
1.0A		0.5% (E24/E96)				155 C																									
		$10\Omega \le R \le 1M\Omega$																													
		Jumper $<$ 50m $\Omega$																													
Rated Current	$ \Omega \leq R \leq  0\Omega $	5% (E24)																													
A	±200ppm°C	$I\Omega \le R \le 22M\Omega$																													
Maximum	$10\Omega < R \le 10M\Omega$	0.5%, 1% (E24/E96)	100V	100V	50V	/16 W −55 °C to 155 °C	1/16 W																								
Current	±100ppm°C	$ \Omega \leq R \leq  0M\Omega $																													
2A	$10M\Omega < R \le 22M\Omega$	Jumper<50m $\Omega$						A CO 402																							
	±200ppm°C						AC0402																								
	$ \Omega \le R \le  0\Omega $	5% (E24)		100V																											
	±200 ppm°C	$ \Omega \le R \le  0M\Omega $	100V		100V						1001/			1001/						1001/				1001/	1001/	1001/		50V	<b>-</b> 55 °C to	I/8W	
	$10\Omega < R \le 10M\Omega$	0.5%, 1% (E24/E96)	1000			201	500	500	500	500	200	500	500	200	500	500	201	500	155 °C	1/0 • •											
	±100 ppm°C	$ \Omega \le R \le 10M\Omega$																													
Rated Current	$ \Omega \leq R \leq  0\Omega $	5% (E24)																													
IA	±200ppm°C	$ \Omega \le R \le 22M\Omega$																													
Maximum	$10\Omega < R \le 10M\Omega$	0.5%, 1% (E24/E96)			75.7	–55 °C to																									
Current	±100ppm°C	$ \Omega \le R \le  0M\Omega $	150V	150V	75V	155 ℃	1/10 W																								
2A	$10M\Omega < R \le 22M\Omega$	Jumper<50m $\Omega$																													
	±200ppm°C							AC0603																							
	$ \Omega \leq R \leq  0\Omega $	5% (E24)																													
	±200 ppm°C	$I\Omega \leq R \leq I0M\Omega$			75.7	<b>-</b> 55 °C to																									
	$10\Omega < R \le 10M\Omega$	0.5%, 1% (E24/E96)	150V	150V	75V	155 °C	1/5 W																								
	±100 ppm°C	$I\Omega \leq R \leq I0M\Omega$																													

Chip Resistor Surface MountACSERIES0201 to 2512

$ \textbf{AC0805} = \begin{bmatrix} 1/8 \ \end{tabular} & -55 \ \end{tabular}^{-55 \ \end{tabular} < 0} & 150 \ \end{tabular} & 300 \ \end{tabular} & 3$			CHARACTERISTICS						
$ AC0805 = \begin{bmatrix} 1/8 \lor & \frac{-55 \ ^{\circ}C \ 10}{155 \ ^{\circ}C} & 150 \lor 300 \lor 300 \lor 300 \lor \\ 10 \le R \le 22 \lor M2 & \pm 200 \text{pm}^{\circ}C & 2A \\ 0.5\% \ 1\% \ (E24F96) & 100 \le R \le 10M2 & \text{Maximum} \\ 10 \ S\% \ (E24F96) & 100 \le R \le 10M2 & \pm 200 \text{pm}^{\circ}C \\ 10 \le R \le 10M2 & \pm 200 \text{pm}^{\circ}C & 2M \\ 10 \le R \le 10M2 & \pm 200 \text{pm}^{\circ}C & 2M \\ 10 \le R \le 10M2 & \pm 200 \text{pm}^{\circ}C & 2M \\ 10 \le R \le 10M2 & \pm 200 \text{pm}^{\circ}C & 2M \\ 10 \le R \le 10M2 & \pm 200 \text{pm}^{\circ}C & 2M \\ 10 \le R \le 10M2 & \pm 200 \text{pm}^{\circ}C & 2M \\ 10 \le R \le 10M2 & \pm 100 \text{pm}^{\circ}C & 2M \\ 10 \le R \le 1$	TYPE	POWER	Temperature	Working	Overload	Withstanding			
$ AC0805 = \begin{bmatrix} 1/8 \ W & \frac{-55 \ ^{\circ}C \ 10}{155 \ ^{\circ}C} & 150 \ & 300 \ & 300 \ & 300 \ & 300 \ & 0.5\% \ 1\% \ (224F96) & 100 \ C \ R \le 10MQ & Maximum \ Jumper < 50mQ & 10MQ < R \le 22MQ & 5A \ & \pm 200pm^{\circ}C & 1200 \ pm^{\circ}C & 1$							5% (E24)	$ \Omega \le R \le  0\Omega $	Rated Current
$AC0805 = \begin{bmatrix} 1/8 & W & -35 & C & D & 150V & 300V & 300V & 300V & 10 & SR (E10MQ) & \pm 100 ppm^{0}C & Current \\   Jumper < 50mQ & 10MQ < R \le 22MQ & 5A \\ \pm 200ppm^{0}C & SR & \pm 200ppm^{0}C & SR & \pm 200ppm^{0}C & 0.5K & K & (E24H296) & 10Q < R \le 10MQ & 10Q < R < 10MQ & 10Q & 10MQ & 10Q & 10MQ & 10MQ & 10Q & 10MQ & 10MQ & 10MQ & 10M$							$ \Omega \leq R \leq 22 M\Omega$	±200ppm°C	2A
$AC0805 = \begin{bmatrix} 102 \text{ S R } 104\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \text{Current} \\ \text{Jumper} < 50m\Omega & 104\Omega < \text{R } 2224\Omega & 5A \\ \pm 200 \text{ ppm}^{\circ}\text{C} & \\ \pm 200 \text{ ppm}^{\circ}\text{C} & \\ \pm 200 \text{ ppm}^{\circ}\text{C} & \\ 114 \text{ W} & \frac{-55 ^{\circ}\text{C to}}{155 ^{\circ}\text{C}} & 150\text{ V} & 300\text{ V} & 300\text{ V} & 102 \text{ S R } 10M\Omega & \pm 200 \text{ ppm}^{\circ}\text{C} \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 114 \text{ W} & \frac{-55 ^{\circ}\text{C to}}{155 ^{\circ}\text{C}} & 200\text{ V} & 400\text{ V} & 500\text{ V} & \frac{0.58, 1\% (E244796)}{102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 102 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C} & \\ 100 \text{ S R } 10M\Omega & 100 \text{ ppm}^{\circ}\text{C}$			<b>-</b> 55 °C to		2001	2001/	0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	Maximum
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		1/8 VV	155 °C	1500	3000	3007	$ \Omega \le R \le  0M\Omega $	±100ppm°C	Current
$AC1206 = \begin{bmatrix} 1.4 \text{ W} & \frac{-55 ^{\circ}\text{C to}}{155 ^{\circ}\text{C}} & 150 300 300 300 \\ 155 ^{\circ}\text{C} & 150 300 300 \\ 155 ^{\circ}\text{C} & 150 300 \\ 155 ^{\circ}\text{C} & 150 \\ 12 \leq R \leq 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} \\ 12 \leq R \leq 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} \\ 12 \leq R \leq 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} \\ 12 \leq R \leq 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} \\ 12 \leq R \leq 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} \\ 12 \leq R \leq 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} \\ 12 \leq R \leq 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} \\ 114 \text{ W} & \frac{-55 ^{\circ}\text{C to}}{155 ^{\circ}\text{C}} & 200 400 500 500 500 \\ 12 \leq R \leq 10M\Omega & \pm 100 \text{ ppm}^{\circ}\text{C} \\ 12    \frac{-55 ^{\circ}\text{C to}}{155 ^{\circ}\text{C}} & 200 400 \\ 12    \frac{-55 ^{\circ}\text{C to}}{155 ^{\circ}\text{C}} & 200 400 \\ 12    \frac{-55 ^{\circ}\text{C to}}{155 ^{\circ}\text{C}} & 200 400 \\ 12    \frac{5\%(\text{E24})}{120    104       100        $							Jumper < 50m $\Omega$	$10M\Omega < R \le 22M\Omega$	5A
$   14 \vee   \frac{-55 \ ^{\circ} C \ ^{\circ} }{155 \ ^{\circ} C}   150 \vee   300 \vee   300 \vee   10 \le R \le 10M0   120 \ Ppm^{\circ} C   100 < R \le 10M0   100 < R \le 10M0 $	AC0805							±200ppm°C	
AC1206 $ AC1206 $ $ AC1206 $ $ AC1206 $ $ I = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 =$							5% (E24)	$ \Omega \le R \le  0\Omega $	
$ \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		1/4 W		150V	300V	300V	$ \Omega \le R \le  0M\Omega $	±200 ppm°C	
$ AC1206 = \begin{bmatrix} 1/4 & W & -55 & ^{\circ}C & to \\ 1/4 & W & 155 & ^{\circ}C & 200V & 400V & 500V & 0.5\% & 1\% & (E24)E96 & 10Q < R \le 10MQ & Maximum \\ IQ \le R \le 22MQ & \pm 200ppm^{\circ}C & 2A \\ 0.5\% & 1% & (E24)E96 & 10Q < R \le 10MQ & Maximum \\ IQ \le R \le 10MQ & \pm 100ppm^{\circ}C & Current \\ Jumper<50mQ & 10MQ < R \le 22MQ & 10A \\ \pm 200ppm^{\circ}C & 0.5\% & 10Q < R \le 10Q \\ 1/2 & W & -55 & ^{\circ}C & to \\ 155 & ^{\circ}C & 200V & 400V & 500V & 500V & 1Q \le R \le 10MQ & \pm 200 ppm^{\circ}C \\ 0.5\% & 1% & (E24)E96 & 10Q < R \le 10MQ \\ IQ \le R \le 10MQ & \pm 100 ppm^{\circ}C & 0.5\% & 10Q < R \le 10MQ \\ IQ \le R \le 10MQ & \pm 100 ppm^{\circ}C & 2A \\ 1/2 & W & -55 & ^{\circ}C & to \\ 155 & ^{\circ}C & 200V & 500V & 500V & 500V & 0.5\% & 1\% & (E24)E96 & 10Q < R \le 10MQ \\ IQ \le R \le 10MQ & \pm 100 ppm^{\circ}C & 2A \\ 0.5\% & 1\% & (E24)E96 & 10Q < R \le 10MQ & Maximum \\ IQ \le R \le 10MQ & \pm 100 ppm^{\circ}C & 2A \\ 0.5\% & 1\% & (E24)E96 & 10Q < R \le 10MQ & Maximum \\ IQ \le R \le 10MQ & \pm 100 ppm^{\circ}C & 2A \\ 0.5\% & 1\% & (E24)E96 & 10Q < R \le 10MQ & 10A \\ 10MQ < R \le 22MQ & 10A \\ 10MQ < R \le 22MQ & 10A \\ 10MQ & R \le 10MQ & 100 ppm^{\circ}C & 2A \\ 10MQ & R \le 10MQ & R \le 10MQ & 100 ppm^{\circ}C & 10MQ & 100 ppm^{\circ}C & 10MQ & 10MQ & 10MQ & 10MQ & $			155 °C				0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	
$AC1206 = \begin{bmatrix} 1/4 & W & -55 & ^{\circ}C & to \\ 1/4 & W & 155 & ^{\circ}C & 200V & 400V & 500V & 0.5\%, 1\% (E24/E96) & 10Q < R \le 10MQ & Maximum \\ 1Q \le R \le 10MQ & \pm 100ppm^{\circ}C & Current \\ Jumper<50mQ & 10MQ < R \le 22MQ & 10A \\ \pm 200ppm^{\circ}C & 10MQ & R \le 10MQ & 10A \\ \pm 200ppm^{\circ}C & 10MQ & R \le 10MQ & 10A \\ \pm 200ppm^{\circ}C & 10MQ & R \le 10MQ & 10A \\ \pm 200ppm^{\circ}C & 10Q \le R \le 10MQ & 10Q \le R \le 10MQ & 10Q \le R \le 10MQ \\ 1Q \le R \le 10MQ & \pm 100 ppm^{\circ}C & 10Q \le R \le 10MQ & 10Q \le 10MQ & 10MQ & 10Q \le 10MQ & 10MQ $							$ \Omega \le R \le  0M\Omega $	±100 ppm°C	
$AC1206 = \begin{bmatrix} 1/4 & W & -55 & ^{\circ}C & t_{0} \\ 1/5 & ^{\circ}C & 200V & 400V & 500V & 05\% & 1\% & (E24/E96) & 10\Omega < R \le 10M\Omega & Maximum \\ I\Omega \le R \le 10M\Omega & \pm 100ppm^{\circ}C & Current \\ Jumper<50m\Omega & 10M\Omega < R \le 22M\Omega & 10A \\ \pm 200ppm^{\circ}C & 200V & 400V & 500V & 1\Omega \le R \le 10M\Omega & \pm 200 ppm^{\circ}C \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 400V & 500V & 1\Omega \le R \le 10M\Omega & \pm 200 ppm^{\circ}C \\ & & & & & & & & & & & & & \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 400V & 500V & 1\Omega \le R \le 10M\Omega & \pm 100 ppm^{\circ}C \\ & & & & & & & & & & & & & \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 500V & 500V & 500V & 1\Omega \le R \le 10M\Omega & \pm 100 ppm^{\circ}C \\ & & & & & & & & & & & & \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 500V & 500V & 500V & 05\% & 1\% & (E24/E96) & 10\Omega < R \le 10M\Omega & Maximum \\ & & & & & & & & & & & \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 500V & 500V & 500V & 05\% & 1\% & (E24/E96) & 10\Omega < R \le 10M\Omega & Maximum \\ & & & & & & & & & & & \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 500V & 500V & 500V & 05\% & 1\% & (E24/E96) & 10\Omega < R \le 10M\Omega & Maximum \\ & & & & & & & & & & & & \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 500V & 500V & 500V & 05\% & 1\% & (E24/E96) & 10\Omega < R \le 10M\Omega & Maximum \\ & & & & & & & & & & & & & \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 500V & 500V & 500V & 05\% & 1\% & (E24/E96) & 10\Omega < R \le 10M\Omega & Maximum \\ & & & & & & & & & & & & & & & \\ 1/2 & W & -55 & ^{\circ}C & t_{0} & 200V & 500V & 500V & 05\% & 010M\Omega < R \le 22M\Omega & 010M\Omega \\ & & & & & & & & & & & & & & & & & & $							5% (E24)	$ \Omega \leq R \leq  0\Omega $	Rated Current
$AC1206 = \begin{bmatrix} 1/4 \ W & 155 \ ^{\circ}C & 200V & 400V & 500V & 500V & 500V & 100 \ 100 \ Current \\ I\Omega \le R \le 10M\Omega & \pm 100ppm^{\circ}C & Current \\ Jumper<50m\Omega & 10M\Omega < R \le 22M\Omega & 10A \\ \pm 200ppm^{\circ}C & 200V & 400V & 500V & 1\Omega \le R \le 10M\Omega & \pm 200 \ ppm^{\circ}C & 0.5\% \ 162 \ 4.104 \ 100 \ 2.102 \ 2.102 \ 100 \ 2.102 \ 2.102 \ 100 \ 2.102$							$I\Omega \le R \le 22M\Omega$	±200ppm°C	2A
$AC1206 = \begin{bmatrix} 155 \ ^{\circ}C & 10 \ S \ C \ Current \\ Jumper < 50mQ & 10MQ < R \le 22MQ & 10A \\ \pm 200ppm^{\circ}C & \pm 200ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 200 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 100 ppm^{\circ}C \\ 10Q < R \le 10MQ & \pm 1$		1/4 \//	<b>-</b> 55 °C to	200V	400V	V 500V	0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	Maximum
$ AC1206 $ $ AC1206 $ $ I2 W = -55 \ ^{\circ}C \ to \\ I55 \ ^{\circ}C = 200V = 400V = 500V = 500V = 10 \ ^{\circ}C = 100 \ ^{\circ}C = 1000 \ ^{\circ}C = 10000 \ ^{\circ}C = 1000 $		1/7 VV	155 °C				$ \Omega \le R \le  0M\Omega $	±100ppm°C	Current
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	AC1204						Jumper<50m $\Omega$	$10M\Omega < R \le 22M\Omega$	10A
$ AC1210 $ $ I / 2 W - \frac{-55 \ ^{\circ}C \ to}{155 \ ^{\circ}C} 200V 400V 500V 500V 1 \Omega \leq R \leq 10M\Omega \pm 200 \ ppm^{\circ}C 0.5\%, 1\% (E24/E96) 10\Omega < R \leq 10M\Omega \pm 100 \ ppm^{\circ}C 1 \Omega \leq R \leq 10M\Omega \pm 100 \ ppm^{\circ}C 1 \Omega \leq R \leq 10M\Omega \pm 100 \ ppm^{\circ}C 2A 10\Omega \leq R \leq 10M\Omega 1 \Omega \leq 10M\Omega 1 \Omega \leq R \leq 10M\Omega 1 \Omega \leq 10$	AC1206							±200ppm°C	
$AC1210 = \frac{1}{12} W = \frac{200V}{155 °C} = \frac{400V}{500V} = \frac{500V}{500V} = \frac{102 (E24/E96)}{102 < R \le 10M\Omega} = \frac{100 \text{ ppm°C}}{100 \text{ ppm°C}} = \frac{100 \text{ s}^{-10} \text$					400\/	500V	5% (E24)	$ \Omega \le R \le  0\Omega $	
$AC1210 = \frac{155 \ ^{\circ}C}{1000} = 10000 \ (5\%, 1\%, (E24/E96) \ 10000 \ (E24/E96) \ 10000 \ (E24/E96) \ 100000 \ (E24/E96) \ $		1/2 W	<b>-</b> 55 °C to	200V			$ \Omega \le R \le  0M\Omega $	±200 ppm°C	
$AC1210 = \begin{bmatrix} 1/2 & W & -55 \ ^{\circ}C \ to \\ 1/2 & W & -55 \ ^{\circ}C \ to \\ 155 \ ^{\circ}C & 200V & 500V & 500V & 500V & 500V & 0.5\% \ 1\% \ (E24/E96) & 10\Omega < R \le 10M\Omega & Maximum \\ 1\Omega \le R \le 10M\Omega & \pm 100ppm^{\circ}C & Current \\ Jumper < 50m\Omega & 10M\Omega < R \le 22M\Omega & 10A \\ \pm 200ppm^{\circ}C & UA & 0.5\% \ (E24) & 1\Omega \le R \le 10\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega < R \le 10M\Omega & 0.5\% \ (E24) & 10M\Omega & 0.5\%$		1/2 **	155 °C		5007	0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$		
$AC1210 = \frac{1}{10000000000000000000000000000000000$							$ \Omega \le R \le  0M\Omega $	±100 ppm°C	
AC1210 = 1.2  Comparing C = 1.00  Comp							5% (E24)	$ \Omega \le R \le  0\Omega $	Rated Current
$AC1210 \qquad \begin{array}{c} 1/2 \ W \\ 155 \ ^{\circ}C \\ I \\ W \\ -55 \ ^{\circ}C \ to \\ 155 \ ^{\circ}C \end{array} \qquad \begin{array}{c} 200 \\ 500 \\ 155 \ ^{\circ}C \end{array} \qquad \begin{array}{c} 100 \\$							$I\Omega \le R \le 22M\Omega$	±200ppm°C	2A
$AC1210 = \begin{bmatrix} 155 \ ^{\circ}C & 1000 \ \pm 100 \ \text{ppm}^{\circ}C & Current \\ \text{Jumper<50m} & 10M\Omega < R \le 22M\Omega & 10A \ \pm 200 \ \text{ppm}^{\circ}C & 10A \ \pm 100 \ \text{ppm}^{\circ}C & 10A \ \text{ppm}^{\circ}C \ \text{ppm}^{\circ}C & 10A \ \text{ppm}^{\circ}C \ $		1/2 \//	<b>-</b> 55 °C to	2001/	5001/	500\/	0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	Maximum
AC1210 $ \frac{\pm 200 \text{ppm}^{\circ}\text{C}}{1 \text{ W}} = \frac{-55 ^{\circ}\text{C to}}{155 ^{\circ}\text{C}} = 200  500  500  500  1\Omega \leq \text{R} \leq 10 \Omega  \pm 200  \text{ppm}^{\circ}\text{C} = 0.5\%, 1\%  (\text{E24/E96}) = 10\Omega < \text{R} \leq 10 \Omega\Omega  \text{R} \leq 10 \Omega\Omega  \text{R} \leq 10 \Omega\Omega  \text{R} = 10 \Omega\Omega  \Omega\Omega  \text{R} = 10 \Omega\Omega  \Omega  \text{R} = 10 \Omega\Omega  \Omega  \Omega $		172 **	155 ℃	2001	5001	5007	$ \Omega \le R \le  0M\Omega $	±100ppm°C	Current
±200ppm°C 5% (E24) IΩ ≤ R ≤ I0Ω IW -55 °C to 155 °C 200V 500V 500V 1Ω ≤ R ≤ I0MΩ ±200 ppm°C 0.5%, 1% (E24/E96) I0Ω < R ≤ I0MΩ	AC1210						Jumper<50m $\Omega$	$10M\Omega < R \le 22M\Omega$	10A
$I W = \begin{bmatrix} -55 \ ^{\circ}C \ to \\ 155 \ ^{\circ}C \end{bmatrix} = \begin{bmatrix} 200V \\ 500V \end{bmatrix} = \begin{bmatrix} 10V \\ 500V \end{bmatrix} = \begin{bmatrix} 10M\Omega \\ 500V \\ 0.5\% \ 1\% \ (E24/E96) \end{bmatrix} = \begin{bmatrix} 10M\Omega \\ 10\Omega < R \le 10M\Omega \end{bmatrix}$	ACIZIU							±200ppm°C	
1  W 200V 500V 500V 500V 102 CH 42							5% (E24)	$ \Omega \le R \le  0\Omega $	
155 °C 0.5%, 1% (E24/E96) $10\Omega < R \le 10M\Omega$		IW	<b>-</b> 55 °C to	200∨	500V	500V	$ \Omega \le R \le  0M\Omega $	±200 ppm°C	
			155 ℃	2001	5001	2007	0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	
							$ \Omega \le R \le  0M\Omega $	±100 ppm°C	

	CHARACTERISTICS							
ТҮРЕ	POWER	Operating Temperature Range	Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Resistance Range	Temperature Coefficient	Jumper Criteria
						5% (E24)	$ \Omega \le R \le  0\Omega $	Rated Current
		<b>−</b> 55 °C to				$ \Omega \leq R \leq  M\Omega $	±200ppm°C	6A
	IW	-55 °C to	200V	500V	500V	0.5%, 1% (E24/E96)	$10\Omega < R \le 1M\Omega$	Maximum
		100 C				$ \Omega \leq R \leq  M\Omega $	±100ppm°C	Current
AC1218						Jumper<50m $\Omega$		10A
						5% (E24)	$ \Omega \le R \le  0\Omega $	
	1.5W	<b>-</b> 55 °C to	200V	500V	500V	$ \Omega \leq R \leq  M\Omega $	±200 ppm°C	
	1.3 V V	155 ℃	200 v	2004	2004	0,5%, 1% (E24/E96)	$ 0\Omega < R \le  M\Omega $	
						$ \Omega \leq R \leq  M\Omega $	±100 ppm°C	
						5% (E24)	$ \Omega \le R \le  0\Omega $	Rated Current
		−55 °C to	200∨	500V	00V 500V	$ \Omega \le R \le 22M\Omega$	±200ppm°C	2A
	2/4 \ \ \ /					0,5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	Maximum
	· · · · · (C	155 °C	200 v			$ \Omega \le R \le  0M\Omega $	±100ppm°C	Current
4 6 2 0 1 0						Jumper<50m $\Omega$	$10M\Omega < R \le 22M\Omega$	10A
AC2010							±200ppm°C	
					500∨ 500∨	5% (E24)	$ \Omega \le R \le  0\Omega $	
	1.25W	<b>-</b> 55 °C to	200V	5001/		$ \Omega \le R \le  0M\Omega $	±200 ppm°C	
	1.23 * *	155 ℃	2001	5001		0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	
						$ \Omega \le R \le  0M\Omega $	±100 ppm°C	
						5% (E24)	$ \Omega \le R \le  0\Omega $	Rated Current
						$ \Omega \le R \le 22M\Omega$	±200ppm°C	2A
	IW	<b>-</b> 55 °C to	200V	500V	500V	0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	Maximum
		155 ℃	2001	5001	5001	$ \Omega \le R \le  0M\Omega $	±100ppm°C	Current
AC2512						Jumper<50m $\Omega$	$10M\Omega < R \le 22M\Omega$	10A
ACZJIZ							±200ppm°C	
						5% (E24)	$ \Omega \le R \le  0\Omega $	
	2 W	<b>-</b> 55 °C to	200V	400V	500V	$ \Omega \le R \le 10M\Omega$	±200 ppm°C	
	2	155 ℃	2001	1001	5007	0.5%, 1% (E24/E96)	$10\Omega < R \le 10M\Omega$	
						$ \Omega \le R \le  0M\Omega $	±100 ppm°C	

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# FOOTPRINT AND SOLDERING PROFILES

Recommended footprint and soldering profiles of AC-series is the same as RC-series. Please refer to data sheet "Chip resistors mounting".

### PACKING STYLE AND PACKAGING QUANTITY

Table 3 Packing style and packaging quantity

PACKING STYLE	REEL DIMENSION	AC0201	AC0402	AC0603	AC0805	AC1206	AC1210	AC1218	AC2010	AC2512
Paper taping reel (R)	7" (178 mm)	10,000	10,000	5,000	5,000	5,000	5,000			
	10" (254 mm)	20,000	20,000	10,000	10,000	10,000	10,000			
	13" (330 mm)	50,000	50,000	20,000	20,000	20,000	20,000			
Embossed taping reel (K)	7" (178 mm)							4,000	4,000	4,000

#### NOTE

I. For paper/embossed tape and reel specifications/dimensions, please refer to data sheet "Chip resistors packing".

#### FUNCTIONAL DESCRIPTION

### **OPERATING TEMPERATURE RANGE**

Range: -55 °C to +155 °C

### **POWER RATING**

Each type rated power at 70 °C: AC0201=1/20W (0.05W) AC0402=1/16W (0.0625W); 1/8W (0.125W) AC0603=1/10W (0.1W); 1/5W (0.2W) AC0805=1/8W (0.125W); 1/4 W(0.25 W) AC1206=1/4W (0.25W); 1/2 W (0.5 W) AC1210=1/2W (0.5W); 1/2 W (0.5 W) AC1218=1W; 1.5W AC2010=3/4W (0.75W); 1.25W AC2512=1 W; 2W

### **RATED VOLTAGE**

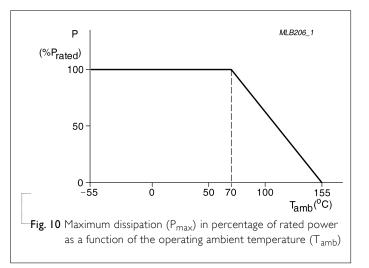
The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

 $V = \sqrt{(P \times R)}$ 

Or Maximum working voltage whichever is less

#### Where

V = Continuous rated DC or AC (rms) working voltage (V) P = Rated power (W) R = Resistance value (Ω)



Chip Resistor Surface MountACSERIES0201 to 2512

# TESTS AND REQUIREMENTS

Table 4 Test condition, procedure and requirements

TEST	TEST METHOD	PROCEDURE	REQUIREMENTS	
High Temperature Exposure	AEC-Q200 Test 3 MIL-STD-202 Method 108	1,000 hours at T <sub>A</sub> = 155 °C, unpowered	±(1.0%+0.05 <b>Ω</b> ) for D/F tol ±(2.0%+0.05 <b>Ω</b> ) for J tol <50 m <b>Ω</b> for Jumper	
Moisture Resistance	AEC-Q200 Test 6 MIL-STD-202 Method 106	Each temperature / humidity cycle is defined at 8 hours (method 106F), 3 cycles / 24 hours for 10d. with 25 °C / 65 °C 95% R.H, without steps 7a & 7b, unpowered	±(0.5%+0.05 <b>Ω</b> ) for D/F tol ±(2.0%+0.05 <b>Ω</b> ) for J tol <100 m <b>Ω</b> for Jumper	
Biased Humidity	AEC-Q200 Test 7 MIL-STD-202 Method 103	I ,000 hours; 85 °C / 85% RH I 0% of operating power Measurement at 24±4 hours after test conclusion.	$\pm (1.0\% + 0.05\Omega)$ for D/F tol $\pm (3.0\% + 0.05\Omega)$ for J tol $< 100 \text{ m}\Omega$ for Jumper	
Operational Life	AEC-Q200 Test 8 MIL-STD-202 Method 108	1,000 hours at 125 °C, derated voltage applied for 1.5 hours on, 0.5 hour off, still-air required	$\pm (1.0\% + 0.05\Omega)$ for D/F tol $\pm (3.0\% + 0.05\Omega)$ for J tol <100 m $\Omega$ for Jumper	
Resistance to Soldering Heat	AEC-Q200 Test 15 MIL-STD-202 Method 210	Condition B, no pre-heat of samples Lead-free solder, 260±5 °C, 10±1 seconds immersion time Procedure 2 for SMD: devices fluxed and cleaned with isopropanol	$\pm$ (0.5%+0.05 $\Omega$ ) for D/F tol $\pm$ (1.0%+0.05 $\Omega$ ) for J tol <50 m $\Omega$ for Jumper No visible damage	
Thermal Shock	AEC-Q200 Test 16 MIL-STD-202 Method 107	-55/+125 °C Number of cycles is 300. Devices mounted Maximum transfer time is 20 seconds. Dwell time is 15 minutes. Air – Air	$\pm$ (0.5%+0.05 <b>Ω</b> ) for D/F tol $\pm$ (1.0%+0.05 <b>Ω</b> ) for J tol <50 m <b>Ω</b> for Jumper	
ESD AEC-Q200 Test 17 AEC-Q200-002		Human Body Model, I <sub>pos.</sub> + I <sub>neg.</sub> discharges 0201: 500V 0402/0603: IKV 0805 and above: 2KV	±(3.0%+0.05 $Ω$ ) <50 m $Ω$ for Jumper	

Chip Resistor Surface MountACSERIES0201 to 2512

TEST	TEST METHOD	PROCEDURE	REQUIREMENTS
Solderability - Wetting	AEC-Q200 Test 18 J-STD-002	<ul> <li>Electrical Test not required Magnification 50X</li> <li>SMD conditions:</li> <li>(a) Method B, aging 4 hours at 155 °C dry heat, dipping at 235±3 °C for 5±0.5 seconds.</li> <li>(b) Method B, steam aging 8 hours, dipping at 215±3 °C for 5±0.5 seconds.</li> <li>(c) Method D, steam aging 8 hours, dipping at 260±3 °C for 7±0.5 seconds.</li> </ul>	Well tinned (≥95% covered) No visible damage
Board Flex	AEC-Q200 Test 21 AEC-Q200-005	Chips mounted on a 90mm glass epoxy resin PCB (FR4) Bending for 0201/0402: 5 mm 0603/0805: 3 mm 1206 and above: 2 mm Holding time: minimum 60 seconds	±(1.0%+0.05 <b>Ω</b> ) <50 m <b>Ω</b> for Jumper
Temperature Coefficient of Resistance (T.C.R.)	MIL-STD-202 Method 304	At +25/-55 °C and +25/+125 °C Formula: T.C.R= $\frac{R_2-R_1}{R_1(t_2-t_1)}$ × 10 <sup>6</sup> (ppm/°C) Where $t_1$ =+25 °C or specified room temperature $t_2$ =-55 °C or +125 °C test temperature R_1=resistance at reference temperature in ohms R_2=resistance at test temperature in ohms	Refer to table 2
Short Time Overload	IEC60115-14.13	2.5 times of rated voltage or maximum overload voltage whichever is less for 5 sec at room temperature	$\pm$ (1.0%+0.05Ω) for D/F tol $\pm$ (2.0%+0.05Ω) for J tol <50 mΩ for Jumper
FOS	ASTM-B-809-95	Sulfur (saturated vapor) 500 hours, 60±2° <b>C</b> , unpowered	±( 1.0%+0.05 <b>Ω</b> )

<b>YAGEO</b>	Phicomp			
	<b>Chip Resistor Surface Mount</b>	AC	SERIES	0201 to 2512

# <u>REVISION HISTORY</u>

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 7	July 10, 2017	-	- Add "3W" part number coding for 13" Reel & double power
Version 6	May 31, 2017	-	- Add 10" packing
Version 5	Dec. 07, 2015	-	- Add in AC double power
Version 4	May 25, 2015	-	- Remove 7D packing
			- Extend resistance range
			- Add in AC0201
			- Update FOS test and requirements
Version 3	Feb 13, 2014	-	- Feature description updated
			- add ±0.5%
			- delete 10" taping reel
Version 2	Feb. 10, 2012	-	- Jumper criteria added
			- ACI218 marking and outline figure updated
Version I	Feb. 01, 2011	-	- Case size 1210, 1218, 2010, 2512 extended
			- Test method and procedure updated
			- Packing style of 7D added
Version 0	Nov. 10, 2010	-	- First issue of this specification

Chip Resistor Surface Mount | AC | SERIES | 0201 to 2512

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