



**THE DATASHEET OF  
CHV0805-FX-2004EST**





## Features

- Thick film
- High working voltage
- Wide resistance range
- RoHS compliant\*

## Applications

- Higher voltage applications
- Consumer electronics

# CHV-ST Series – Thick Film High Voltage Chip Resistors

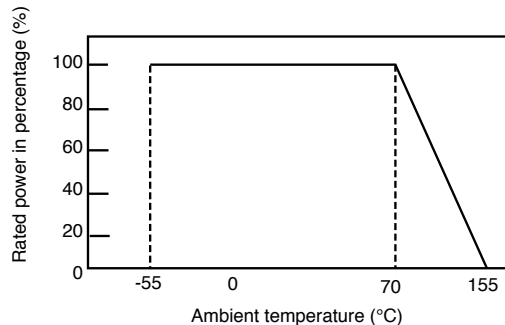
### Electrical Characteristics

Specification	Model				
	CHV 0603 -ST	CHV 0805 -ST	CHV 1206 -ST	CHV 2010 -ST	CHV 2512 -ST
Power Rating @ 70 °C	0.1 W	0.125 W	0.25 W	0.5 W	1.0 W
Operating Temperature Range	-55 °C to +155 °C				
Maximum Working Voltage	200 V	400 V	800 V	2000 V	3000 V
Maximum Overload Voltage	400 V	800 V	1600 V	3000 V	4000 V
Resistance Range	1 % E-96 + E-24	100 kΩ ~ 10 MΩ			
	5 % E-24	100 kΩ ~ 22 MΩ	100 kΩ ~ 100 MΩ		
Temperature Coefficient	1 %	±100 PPM/°C			
	5 %	±200 PPM/°C			

### Environmental Characteristics

Test	Conditions	Specification
Short Time Overload	5 times rated power or max overload voltage for 5 seconds	$\Delta R \leq \pm (2\% + 0.1 \Omega)$
Solderability	+245 ±5 °C for 3 ± 0.5 seconds	Over 95 % coverage
Resistance to Solder Heat	+260 ±5 °C for 10 ±1 seconds	$\Delta R \leq \pm (1\% + 0.1 \Omega)$
Load Life Humidity	+40 ±2 °C, 90~95 % 1.5 hours ON, 0.5 hours OFF for 1000 hours at rated power	$\Delta R \leq \pm (3\% + 0.1 \Omega)$
Load Life	+70 °C 1.5 hours ON, 0.5 hours OFF for 1000 hours at rated power	$\Delta R \leq \pm (3\% + 0.1 \Omega)$
Temperature Cycle	-55 °C (30 minutes), +25 °C (2~3 minutes), +155 °C (30 minutes), +25 °C (2~3 minutes) for five cycles	$\Delta R \leq \pm (1\% + 0.1 \Omega)$

### Derating Curve



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### How to Order

#### CHV 2512 - F X - 1000 E ST

Model \_\_\_\_\_  
(CHV = Thick Film High Voltage Chip Resistor)

Size \_\_\_\_\_  
• 0603 • 2010  
• 0805 • 2512  
• 1206

Resistance Tolerance \_\_\_\_\_  
F = ±1 % (Use with "X" TCR Code)  
J = ±5 % (Use with "W" TCR Code)

TCR \_\_\_\_\_  
X = ±100 PPM/°C  
W = ±200 PPM/°C

Resistance Value \_\_\_\_\_  
1 % Tolerance: First three digits are significant, fourth digit represents the number of zeroes to follow

5 % Tolerance: First two digits are significant, third digit represents the number of zeroes to follow

Packaging \_\_\_\_\_  
E = Paper tape:  
• 5,000 pcs. on 7" plastic reel (CHV0603-ST, CHV0805-ST, CHV1206-ST)  
• 4,000 pcs. on 7" plastic reel (CHV2010-ST, CHV2512-ST)

Termination \_\_\_\_\_  
ST = Tin-plated (RoHS compliant)

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex. Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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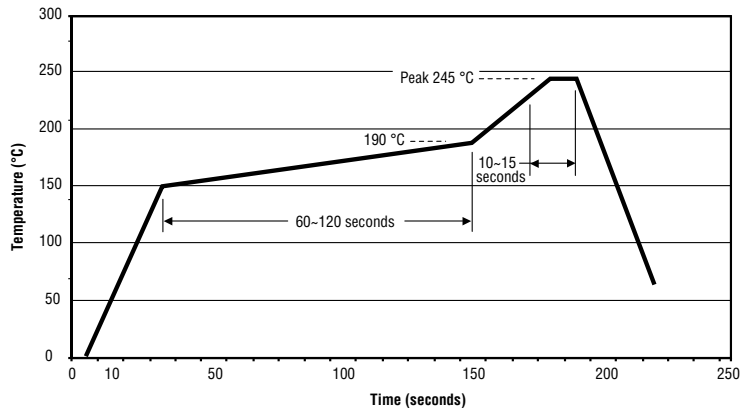


**WARNING**  
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[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

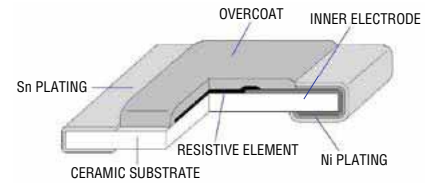
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## Soldering Profile

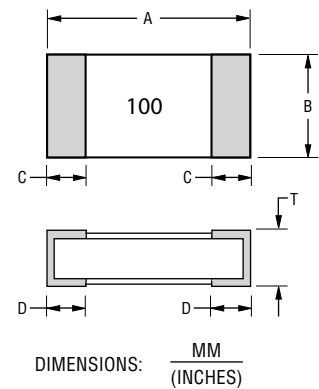


## Construction



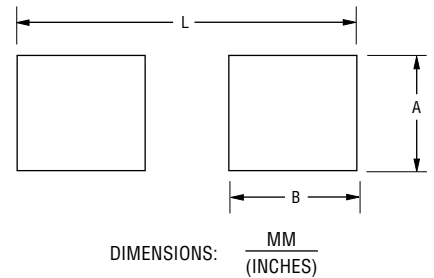
## Product Dimensions

Dim.	Model				
	CHV0603-ST	CHV0805-ST	CHV1206-ST	CHV2010-ST	CHV2512-ST
A	$\frac{1.60 \pm 0.10}{(0.063 \pm 0.004)}$	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$	$\frac{3.10 \pm 0.10}{(0.122 \pm 0.004)}$	$\frac{5.00 \pm 0.20}{(0.197 \pm 0.008)}$	$\frac{6.40 \pm 0.20}{(0.252 \pm 0.008)}$
B	$\frac{0.80 \pm 0.10}{(0.031 \pm 0.004)}$	$\frac{1.25 \pm 0.10}{(0.049 \pm 0.004)}$	$\frac{1.60 \pm 0.10}{(0.063 \pm 0.004)}$	$\frac{2.50 \pm 0.20}{(0.098 \pm 0.008)}$	$\frac{3.20 \pm 0.20}{(0.126 \pm 0.008)}$
C	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$	$\frac{0.50 \pm 0.20}{(0.020 \pm 0.008)}$	$\frac{0.65 \pm 0.25}{(0.026 \pm 0.010)}$	$\frac{0.65 \pm 0.25}{(0.026 \pm 0.010)}$
D	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$	$\frac{0.50 \pm 0.20}{(0.020 \pm 0.008)}$	$\frac{0.60 \pm 0.25}{(0.024 \pm 0.010)}$	$\frac{0.90 \pm 0.25}{(0.035 \pm 0.010)}$
T	$\frac{0.45 \pm 0.10}{(0.018 \pm 0.004)}$	$\frac{0.50 \pm 0.10}{(0.020 \pm 0.004)}$	$\frac{0.55 \pm 0.10}{(0.022 \pm 0.004)}$	$\frac{0.60 \pm 0.10}{(0.024 \pm 0.004)}$	$\frac{0.60 \pm 0.15}{(0.024 \pm 0.006)}$



## Recommended Land Pattern

Dim.	Model				
	CHV0603-ST	CHV0805-ST	CHV1206-ST	CHV2010-ST	CHV2512-ST
A	$\frac{0.90}{(0.035)}$	$\frac{1.30}{(0.051)}$	$\frac{1.80}{(0.071)}$	$\frac{3.00}{(0.118)}$	$\frac{3.70}{(0.146)}$
B	$\frac{1.00}{(0.039)}$	$\frac{1.15}{(0.045)}$	$\frac{1.30}{(0.051)}$	$\frac{1.50}{(0.059)}$	$\frac{1.60}{(0.063)}$
L	$\frac{3.00}{(0.118)}$	$\frac{3.50}{(0.138)}$	$\frac{4.70}{(0.185)}$	$\frac{6.80}{(0.268)}$	$\frac{7.60}{(0.299)}$



Specifications are subject to change without notice.

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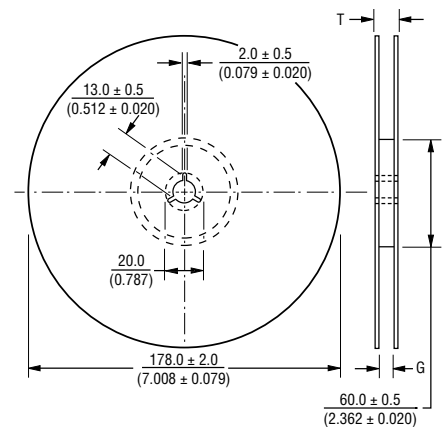
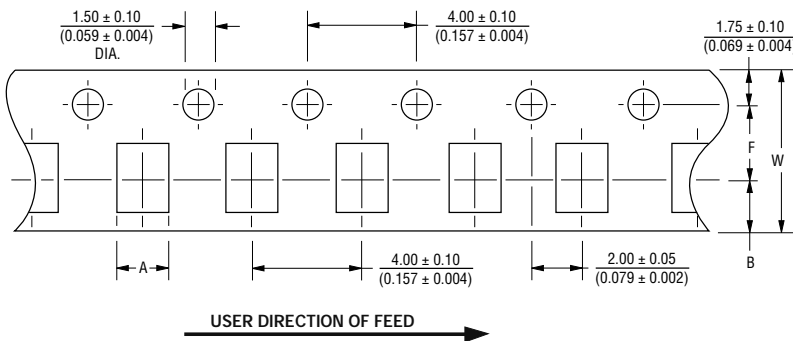
## Resistor Markings

CHV0603-ST CHV0805-ST CHV1206-ST CHV2010-ST CHV2512-ST	CHV0805-ST CHV1206-ST CHV2010-ST CHV2512-ST	CHV0603-ST	CHV0603-ST
3-Digit E-24 $\pm 5\%$ Marking $30 \times 10^1$ Value = 300 ohms	4-Digit E-96/E-24 Marking $154 \times 10^2$ Value = 15.4K ohms	3-Digit E-24 $\pm 1\%$ Marking $222 \times 10^2$ Value = 2.2K ohms	3-Digit E-96 $\pm 1\%$ Marking $10 \times 10^0$ Value = 10 ohms

## Marking Explanation

- The chip color is red to identify high voltage product.
- 1 % Tolerance: 4 digits, first three digits are significant, fourth digit represents the number of zeros to follow.
- 5 % Tolerance: 3 digits, first two digits are significant, third digit represents the number of zeros to follow.

## Packaging Dimensions - Tape



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

Dim.	Model				
	CHV0603-ST	CHV0805-ST	CHV1206-ST	CHV2010-ST	CHV2512-ST
A	$\frac{1.10 \pm 0.20}{(0.043 \pm 0.008)}$	$\frac{1.60 \pm 0.20}{(0.063 \pm 0.008)}$	$\frac{2.00 \pm 0.20}{(0.079 \pm 0.008)}$	$\frac{2.80 \pm 0.20}{(0.110 \pm 0.008)}$	$\frac{3.50 \pm 0.20}{(0.138 \pm 0.008)}$
B	$\frac{1.90 \pm 0.30}{(0.075 \pm 0.012)}$	$\frac{2.40 \pm 0.30}{(0.094 \pm 0.012)}$	$\frac{3.57 \pm 0.30}{(0.141 \pm 0.012)}$	$\frac{5.50 \pm 0.30}{(0.217 \pm 0.012)}$	$\frac{6.70 \pm 0.30}{(0.264 \pm 0.012)}$
W	$\frac{8.00 \pm 0.05}{(0.315 \pm 0.002)}$	$\frac{8.00 \pm 0.05}{(0.315 \pm 0.002)}$	$\frac{8.00 \pm 0.05}{(0.315 \pm 0.002)}$	$\frac{12.00 \pm 0.05}{(0.472 \pm 0.002)}$	$\frac{12.00 \pm 0.05}{(0.472 \pm 0.002)}$
F	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$
G	$\frac{10.0 \pm 1.5}{(0.394 \pm 0.059)}$	$\frac{10.0 \pm 1.5}{(0.394 \pm 0.059)}$	$\frac{10.0 \pm 1.5}{(0.394 \pm 0.059)}$	$\frac{13.8 \pm 1.5}{(0.543 \pm 0.059)}$	$\frac{13.8 \pm 1.5}{(0.543 \pm 0.059)}$
T	$\frac{14.9}{(0.587)}$	$\frac{14.9}{(0.587)}$	$\frac{14.9}{(0.587)}$	$\frac{16.7}{(0.657)}$	$\frac{16.7}{(0.657)}$



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