

# HVC Series

High Resistance, Thick Film Chip Resistors



- Resistances from 10M to 1T Ohms
- Power Rating 0.05 to 1.5 Watts
- Resistance Tolerances to  $\pm 0.25\%$
- TCR's to  $\pm 25$  ppm/ $^{\circ}\text{C}$
- Non-Magnetic
- High Value Thick Film Resistance Element
- Sizes, 0402, 0603, 0805, 1206, 1210, 2512, 4020
- Special High Temperature Version to 300 $^{\circ}\text{C}$  (H)  
(See ordering Information below)

## SPECIFICATIONS

| Type                            | 0402   | 0603                                      | 0805                                      | 1206                                       | 1210                                      | 2512                                     | 4020                                      |      |
|---------------------------------|--|---|---|--|---|--|---|------|
| Power Rating ( W ) <sup>4</sup> | 0.05   | 0.10                                      | 0.125                                     | 0.25                                       | 0.35                                      | 1.0 <sup>1</sup>                         | 2.0 <sup>1</sup>                          |      |
| Working Voltage ( VAC )         | Trimmed  | 30  | 75  | 100  | 200                                       | 300                                      | 1500                                      | 4000 |
|                                 | Untrimmed ( $\geq 5\%$ )   | 60  | 150                                       | 200  | 400                                       | 600                                      | 2000                                      | 6000 |
| Resistance Range ( $\Omega$ )   | Tolerances Available ( % )<br>Temperature Coefficients Available ( $\pm$ ppm/ $^{\circ}\text{C}$ ) <sup>2</sup><br>Voltage Coefficients Available ( ppm / V ) <sup>3</sup> |   |   |  |   |  |   |      |
| 10M - 100M                      | 5 / 10 / 20%<br>50, 100<br>500 ppm/V   | 1/5/10/20%<br>50, 100<br>500 ppm/V        | .5/1/5/10/ 20%<br>50, 100<br>500 ppm/V    | .5/1/5/10/ 20%<br>25, 50, 100<br>250 ppm/V | .5/1/5/10/20%<br>25, 50, 100<br>25 ppm/V  | .5/1/5/10/20%<br>25, 50, 100<br>25 ppm/V | .25/.5/1/5/10%<br>25, 50, 100<br>10 ppm/V |      |
| >100M - 500M                    | 5 / 10 / 20%<br>100, 250<br>1000 ppm/V   | 2/5/10/20%<br>100, 250<br>500 ppm/V       | 2/5/10/20%<br>100, 250<br>500 ppm/V       | 2/5/10/20%<br>50, 100, 250<br>500 ppm/V    | 2/5/10/20%<br>50, 100, 250<br>250 ppm/V   | 1/5/10/20%<br>25, 50, 100<br>50 ppm/V    | .5/1/5/10/20%<br>25, 50, 100<br>25 ppm/V  |      |
| >500M - 1G                      | 5 / 10 / 20%<br>250, 500<br>1000 ppm/V   | 5 / 10 / 20%<br>250, 500<br>500 ppm/V     | 5 / 10 / 20%<br>250, 500<br>500 ppm/V     | 5 / 10 / 20%<br>100, 250<br>500 ppm/V      | 5 / 10 / 20%<br>100, 250<br>250 ppm/V     | 1/5/10/20%<br>100, 250<br>50 ppm/V       | 1/5/10/20%<br>25, 50, 100<br>25 ppm/V     |      |
| >1G - 10G                       | 10 / 20 / 30%<br>1000, 2000<br>2000 ppm/V  | 5/10/20/30%<br>500, 1000<br>1000 ppm/V    | 5 / 10 / 20%<br>500, 1000<br>1000 ppm/V   | 5 / 10 / 20%<br>500, 1000<br>500 ppm/V     | 5 / 10 / 20%<br>250, 500<br>250 ppm/V     | 2/5/10/20%<br>100, 250<br>100 ppm/V      | 2/5/10/20%<br>50, 100<br>50 ppm/V         |      |
| >10G - 100G                     | 10 / 20 / 30%<br>2000, 3000<br>5000 ppm/V  | 10 / 20 / 30%<br>1000, 2000<br>3000 ppm/V | 10 / 20 / 30%<br>1000, 2000<br>3000 ppm/V | 10 / 20 / 30%<br>1000, 2000<br>1000 ppm/V  | 5 / 10 / 20%<br>500, 1000<br>500 ppm/V    | 5 / 10 / 20%<br>250, 500<br>250 ppm/V    | 5/10/20/30%<br>100, 250<br>100 ppm/V      |      |
| >100G - 1T                      | On Request   | On Request                                | See HVS                                   | See HVS                                    | 10 / 20 / 30%<br>1000, 2000<br>2000 ppm/V | 10 / 20 / 30%<br>500, 1000<br>1000 ppm/V | 10 / 20 / 30%<br>500 / 1000<br>500 ppm/V  |      |

1) Solder pads must have sufficient heat conduction

2) TCR in ppm/K; +25 $^{\circ}\text{C}$  to +125 $^{\circ}\text{C}$ ; TCR below standard TCR (highest value) and values >100G; +25 $^{\circ}\text{C}$  to +85 $^{\circ}\text{C}$

3) VCR: typical values, all negative, not for all TCR values available

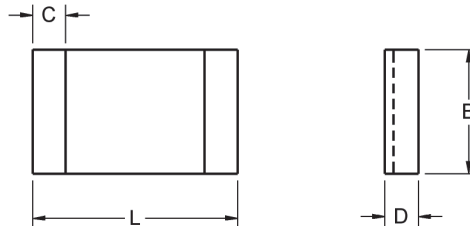
4) Continuous operating voltage:  $V \leq \sqrt{P \cdot R}$  or max. working voltage (the lower value)

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High Resistance, Thick Film Chip Resistors



| Specification              | Value  |              |        |
|----------------------------|--|--------------|--------|
| Temperature Range          | -55°C to +155°C (Standard)<br>-55°C to +300°C (High Temperature Version, TCR valid +25°C to +125°C ) |              |        |
| Climatic Category          | 55 / 155 / 56  |              |        |
| Solderability              | 250°C, 3s  |              |        |
| Max. Soldering Temperature | 260°C, 10s   |              |        |
| Long Term Stability        | Max ΔR   |              |        |
|                            | <1 GΩ  | 1 GΩ - 10 GΩ | >10 GΩ |
| Storage 125°C, 1000h       | <1%  | <2%          | <5%    |
| Load Life 70°C, 1000h      | <0.5%  | <1%          | <2%    |
| Maximum Voltage, 1000h     | <0.5%  | <1%          | <2%    |



| Type                    | Dimensions (mm)    |                    |                    |                   |
|-------------------------|--------------------|--------------------|--------------------|-------------------|
|                         | L                  | B                  | D                  | C                 |
| HVC 0402 /<br>HVC 0402H | 0.95 ±0.10 / -0.05 | 0.48 ±0.10 / -0.05 | 0.28 ±0.1 / -0.05  | 0.10 +0.1 / -0.05 |
| HVC 0603 /<br>HVC 0603H | 1.50 +0.15 / -0.05 | 0.80 +0.15 / -0.05 | 0.40 +0.15 / -0.05 | 0.20 +0.2 / -0.1  |
| HVC 0805 /<br>HVC 0805H | 2.00 +0.15 / -0.05 | 1.25 +0.15 / -0.05 | 0.40 +0.15 / -0.05 | 0.30 +0.2 / -0.1  |
| HVC 1206 /<br>HVC 1206H | 3.20 +0.15 / -0.05 | 1.50 +0.2 / -0.05  | 0.40 +0.15 / -0.05 | 0.30 +0.2 / -0.1  |
| HVC 1210 /<br>HVC 1210H | 3.20 +0.15 / -0.05 | 2.50 +0.2 / -0.05  | 0.50 +0.15 / -0.05 | 0.80 ±0.2         |
| HVC 2512 /<br>HVC 2512H | 6.30 +0.15 / -0.05 | 3.50 +0.2 / -0.05  | 0.60 +0.15 / -0.05 | 0.90 ±0.2         |
| HVC 4020 /<br>HVC 4020H | 10.2 +0.15 / -0.05 | 5.10 +0.2 / -0.05  | 0.60 +0.15 / -0.05 | 0.90±0.2          |

## Packaging:

Bulk or Blister tape to IEC 60286-3

Tape width 8mm / Reel Diameter 180 or 330mm  
 Minimum quantity Bulk / 100 pieces per value  
 (30pcs per value for sizes 2512 & 4020)  
 Minimum quantity Tape & Reel / 500 pieces per value  
 (Note: Except size 0402 / 1000 pieces per value)

## Ordering Information

Standard Part Description: Part Type - Resistance - Tolerance - TCR

Example: HVC 0603 100M Ohms 5% 50ppm  
 ( Note: if no TCR is specified, the highest value will be supplied)

High Temperature Part Description (H): Part Type H - Resistance - Tolerance - TCR

Example: HVC 0603H 100M Ohms 5% 50ppm  
 ( Note: if no TCR is specified, the highest value will be supplied )

Power Derating Curve

