

Multilayer Ceramic Capacitors

[High Voltage Capacitors – NPO, X7R 1KVdc to 5KVdc]



HVC Series

Holy Stone high voltage products are designed and manufactured to meet the general requirements of international standards. The product offering is well suited for commercial and industrial applications and includes NPO (C0G) and X7R characteristics in sizes 0805 to 2225 and with working voltages from 1KV up to 5KV.

◆ Features

- Special internal electrode design offers the highest voltage rating
- Surface mount suitable for wave and reflow soldering
- High reliability
- RoHS compliant

◆ Applications

- Suitable for LAN/WLAN interface, Back-Lighting Inverter, DC-DC Converters, Ballast, Modems and Power Supplies.
- SiC & GaN systems, Snubber, Resonant Circuit (LLC, Wireless Charging, etc.)

◆ Summary of Specifications

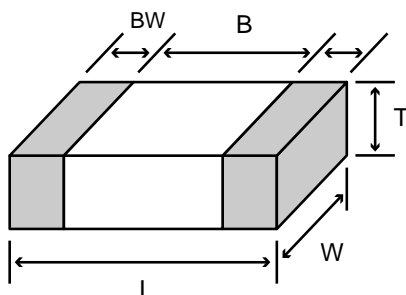
| | |
|-------------------------|---|
| Operation Temperature | -55 °C to +125 °C |
| Rated Voltage | 1KVdc to 5KVdc |
| Temperature Coefficient | NPO : $\leq \pm 30\text{ppm}/^\circ\text{C}$, -55 °C to +125 °C (EIA Class I) |
| | X7R : $\leq \pm 15\%$, -55 °C to +125 °C (EIA Class II) |
| Dissipation Factor | NPO : More than 30pF : $Q \geq 1000$ 30pF & below : $Q \geq 400 + 20C$ (C : Capacitance , pF) X7R : D.F. $\leq 2.5\%$ |
| Insulation Resistance | 10GΩ or 500/CΩ, whichever is smaller |
| Aging | NPO: 0% , X7R : Typically 1.0% per decade of time |
| Dielectric Strength | $100\text{V} \leq V < 500\text{V}$: 200% Rated Voltage |
| | $500\text{V} \leq V < 1000\text{V}$: 150% Rated Voltage |
| | $1000\text{V} \leq V$: 120% Rated Voltage |

◆ How To Order

| C | 2220 | N | 333 | J | 102 | T | I | X | Y |
|--|---|-----------------------|--|--|---|---|--|---|-------------|
| Product Code | Chip Size | Dielectric | Capacitance Unit : pF | Tolerance | Rated Voltage | Packaging | Thickness (mm) (Optional) | Special Requirement (Optional) | Suffix Code |
| C: MLCC (Multilayer Ceramic Capacitor) | Ex.: 0805 1206 1210 1808 1812 1825 2220 2225 | Ex.: N: NPO X: X7R | Ex.: 2R0:2.0pF 100:10×10 ⁰ 471:47×10 ¹ 102:10×10 ² | Ex.: C: +/-0.25pF D: +/-0.50pF J: +/- 5% K: +/-10% M: +/-20% | Ex.: 102: 1000Vdc 202: 2000Vdc 302: 3000Vdc 402: 4000Vdc 502: 5000Vdc | Ex.: T: T&R 7" R: T&R 13" B: Bulk | Ex: E:1.60±0.20 F:2.0±0.20 I :3.2±0.20 | Ex.: O: Arc Prevention Coating X: Polymer Termination (Super Term) Z: Coating & Polymer Termination | Y |

◆ Dimensions

Unit : mm [inches]



| SIZE | L | W | T (max) | B (min) | BW (min) |
|------|--------------------------|--------------------------|----------------|----------------|----------------|
| 0805 | 2.00±0.20 [.079±.012] | 1.25±0.20 [.049±.012] | 1.45 [.057] | 0.70 [.028] | 0.20 [.008] |
| 1206 | 3.20±0.30 [.126±.012] | 1.60±0.20 [.063±.012] | 1.80 [.071] | 1.50 [.059] | 0.30 [.012] |
| 1210 | 3.20±0.30 [.126±.012] | 2.50±0.20 [.098±.012] | 2.60 [.102] | 1.60 [.059] | 0.30 [.012] |
| 1808 | 4.60±0.30 [.181±.012] | 2.00±0.20 [.079±.008] | 2.20 [.087] | 2.50 [.098] | 0.30 [.012] |
| 1812 | 4.60±0.30 [.181±.012] | 3.20±0.30 [.126±.012] | 3.00 [.118] | 2.50 [.098] | 0.30 [.012] |
| 1825 | 4.60±0.30 [.181±.012] | 6.35±0.40 [.250±.016] | 3.00 [.118] | 2.50 [.098] | 0.30 [.012] |
| 2220 | 5.70±0.40 [.220±.016] | 5.00±0.40 [.197±.016] | 3.40 [.118] | 3.50 [.137] | 0.30 [.012] |
| 2225 | 5.70±0.40 [.220±.016] | 6.35±0.40 [.250±.016] | 3.40 [.118] | 3.50 [.137] | 0.30 [.012] |

◆ Capacitance Range – NP0 / 1KVdc to 2KVdc

| Temperature Characteristic | Size | Rated Voltage | Capacitance Range | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|------|---------------------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 2R0 | 3R3 | 3R9 | 5R0 | 8R2 | 100 | 120 | 150 | 180 | 220 | 270 | 330 | 390 | 470 | 560 | 680 | 820 | 101 | 121 | 151 | 181 | 221 | 271 | 331 | 391 | 471 | 561 | 681 | 821 | 102 | 122 | 152 | 182 | 222 | 272 | 332 | 392 | 472 | 562 | 682 | 822 | 103 | 123 | 153 | 183 | 223 | 273 | 333 | 393 | 473 |
| NP0 | 0805 | 1KV | BBBBBBBBBBCCCCCCCCCCCCCCDD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2KV | CCCBBBBBBBBBBBBBBBCCDDDEEBBCDDD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1206 | 1KV | DDDDDDDDDDDDDDDDDDDDDDDDDEE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2KV | DDDDDDDDDDDDDDDDDDDDDDDDDEE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1210 | 1KV | DDDDDDDDDDDDDDDDDDDDDDDDDEEEFGDDEEFFGGG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2KV | DDDDDDDDDDDDDDDDDDDDDDDDDEE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1808 | 1KV | DDDDDDDDDDDDDDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2KV | DDDDDDDDDDDDDDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1812 | 1KV | DDDDDDDDDDDDDDDDDDDDDDDDDEEFFFGGGGGG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2KV | DDDDDDDDDDDDDDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2220 | 1KV | DDDDDDDDDDDDDDDDDDDDDDDEEFFGGGI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2KV | DDDDDDDDDDDDDEEFFG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2225 | 1KV | DDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2KV | DDDDDDDDDDDEEEGGGHI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

◆ Capacitance Range – NP0 / 3KVdc to 5KVdc

| Temperature Characteristic | Size | Rated Voltage | Capacitance Range | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|------|-------------------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 2R0 | 3R3 | 3R9 | 5R0 | 8R2 | 100 | 120 | 150 | 180 | 220 | 270 | 330 | 390 | 470 | 560 | 680 | 820 | 101 | 121 | 151 | 181 | 221 | 271 | 331 | 391 | 471 | 561 | 681 | 821 | 102 | 122 |
| NP0 | 1206 | 3KV | DDDDDDDDDDDEEEE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5KV | DDDDDDDDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1808 | 3KV | DDDDDDDDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5KV | DDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1812 | 3KV | DDDDDDDDDDDDDDDDDDDEEFFFGH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4KV | DDDDDDDDDDDDDEEFFG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2208 | 3KV | DDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2211 | 3KV | DDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2220 | 3KV | DDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5KV | DDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2225 | 5KV | DDDDDDDDDDDDDEEFF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

- The yellow indication denotes values that are under development. Please contact Holy Stone office for further details
- Other dimensions, capacitance values and voltages ratings are available on request. Please contact Holy Stone.

◆ Thickness Specification

| Symbol Code | B | C | D | E | F | G | H | I |
|---------------|-----------|---------------|-----------|---------|---------|---------|---------|---------|
| Thickness(mm) | 0.85±0.15 | 1.0+0.1/-0.05 | 1.25±0.20 | 1.6±0.2 | 2.0±0.2 | 2.4±0.2 | 2.8±0.2 | 3.2±0.2 |

