

## Surface Mount Multilayer Ceramic Chip Capacitors for High Reliability Applications



### FEATURES

- Manufactured with a combination of design, materials and tight process control to achieve very high field reliability
- COG (NP0) and X7R/X5R dielectrics offered
- MIL-PRF-55681 qualified production line
- Reliability maintenance testing to verify consistent quality (X5R max. test temperature: + 85 °C)
- Available with group A and C screening
- Available with only group A screening
- Available with only voltage conditioning
- Customized certification available on request to meet your quality requirements
- Available with tin-lead barrier terminations order code "L"
- Wet build process
- Reliable Noble Metal Electrode (NME) system
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS\***  
COMPLIANT  
**HALOGEN**  
**FREE**  
Available

### Note

\* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

### APPLICATIONS

- System critical medical applications
- Mission critical military and aerospace applications

# Datasheet Live

### ELECTRICAL SPECIFICATIONS

| COG (NP0)  |                        |
|--|------------------------|
| <b>GENERAL SPECIFICATION</b>   |                        |
| <b>Note</b><br>Electrical characteristics at + 25 °C unless otherwise specified  |                        |
| <b>Operating Temperature:</b> - 55 °C to + 125 °C  |                        |
| <b>Capacitance Range:</b> 0.5 pF to 56 nF  |                        |
| <b>Voltage Range:</b> 10 V <sub>DC</sub> to 600 V <sub>DC</sub>  |                        |
| <b>Temperature Coefficient of Capacitance (TCC)</b><br>0 ppm/°C ± 30 ppm/°C from - 55 °C to + 125 °C   |                        |
| <b>Dissipation Factor (DF)</b><br>0.1 % maximum at 1.0 V <sub>RMS</sub> and 1 MHz for values ≤ 1000 pF<br>0.1 % maximum at 1.0 V <sub>RMS</sub> and 1 kHz for values > 1000 pF |                        |
| <b>Insulating Resistance</b><br>At + 25 °C 100 000 MΩ min. or 1000 ΩF whichever is less<br>At + 125 °C 10 000 MΩ min. or 100 ΩF whichever is less                              |                        |
| <b>Aging Rate:</b> 0 % maximum per decade  |                        |
| <b>Dielectric Strength Test</b><br>Performed per method 103 of EIA 198-2-E.<br>Applied test voltages   |                        |
| ≤ 200 V <sub>DC</sub> -rated:  | 250 % of rated voltage |
| 500 V <sub>DC</sub> -rated:  | 200 % of rated voltage |
| 630 V <sub>DC</sub> -rated:  | 150 % of rated voltage |

| X7R/X5R  |                             |
|--|-----------------------------|
| <b>GENERAL SPECIFICATION</b>   |                             |
| <b>Note</b><br>Electrical characteristics at + 25 °C unless otherwise specified  |                             |
| <b>Operating Temperature:</b> - 55 °C to + 125 °C  |                             |
| <b>Capacitance Range:</b> 100 pF to 6.8 μF   |                             |
| <b>Voltage Range:</b> 6.3 V <sub>DC</sub> to 500 V <sub>DC</sub>   |                             |
| <b>Temperature Coefficient of Capacitance (TCC)</b><br>X5R: ± 15 % from - 55 °C to + 85 °C, with 0 V <sub>DC</sub> applied<br>X7R: ± 15 % from - 55 °C to + 125 °C, with 0 V <sub>DC</sub> applied   |                             |
| <b>Dissipation Factor (DF)</b><br>≤ 6.3 V, 10 V ratings: 5 % maximum at 1.0 V <sub>RMS</sub> and 1 kHz<br>16 V, 25 V ratings: 3.5 % maximum at 1.0 V <sub>RMS</sub> and 1 kHz<br>≥ 50 V ratings: 2.5 % maximum at 1.0 V <sub>RMS</sub> and 1 kHz |                             |
| <b>Insulating Resistance</b><br>At + 25 °C 100 000 MΩ min. or 1000 ΩF whichever is less<br>At + 125 °C 10 000 MΩ min. or 100 ΩF whichever is less  |                             |
| <b>Aging Rate:</b> 1 % maximum per decade  |                             |
| <b>Dielectric Strength Test</b><br>Performed per method 103 of EIA 198-2-E.<br>Applied test voltages   |                             |
| ≤ 250 V <sub>DC</sub> -rated:  | 250 % of rated voltage      |
| 500 V <sub>DC</sub> -rated:  | min. 150 % of rated voltage |
| 630 V <sub>DC</sub> , 1000 V <sub>DC</sub> -rated:   | 150 % of rated voltage      |
| 1500 V <sub>DC</sub> , 3000 V <sub>DC</sub> -rated:  | 120 % of rated voltage      |

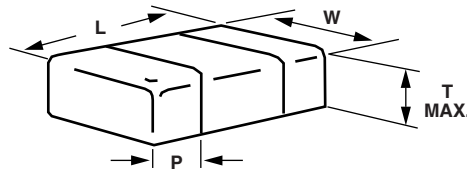


| QUICK REFERENCE DATA |      |                     |             |         |
|----------------------|------|---------------------|-------------|---------|
| DIELECTRIC           | CASE | MAXIMUM VOLTAGE (V) | CAPACITANCE |         |
|                      |      |                     | MINIMUM     | MAXIMUM |
| C0G (NP0)            | 0402 | 100                 | 0.5 pF      | 180 pF  |
|                      | 0603 | 200                 | 0.5 pF      | 1.8 nF  |
|                      | 0805 | 500                 | 0.5 pF      | 3.3 nF  |
|                      | 1206 | 600                 | 0.5 pF      | 10 nF   |
|                      | 1210 | 500                 | 0.5 pF      | 12 nF   |
|                      | 1808 | 500                 | 22 pF       | 10 nF   |
|                      | 1812 | 500                 | 39 pF       | 22 nF   |
|                      | 1825 | 500                 | 100 pF      | 39 nF   |
|                      | 2220 | 500                 | 100 pF      | 47 nF   |
| X5R                  | 0402 | 16                  | 27 nF       | 100 nF  |
|                      | 0603 | 6.3                 | 120 nF      | 150 nF  |
| X7R                  | 0402 | 100                 | 100 pF      | 22 nF   |
|                      | 0603 | 100                 | 270 pF      | 100 nF  |
|                      | 0805 | 200                 | 150 pF      | 390 nF  |
|                      | 1206 | 500                 | 680 pF      | 1.0 μF  |
|                      | 1210 | 500                 | 1.0 nF      | 1.0 μF  |
|                      | 1808 | 500                 | 1.0 nF      | 270 nF  |
|                      | 1812 | 500                 | 3.3 nF      | 1.0 μF  |
|                      | 1825 | 500                 | 10 nF       | 2.7 μF  |
|                      | 2220 | 500                 | 10 nF       | 2.2 μF  |
|                      | 2225 | 500                 | 10 nF       | 4.7 μF  |
|                      | 3640 | 500                 | 15 nF       | 6.8 μF  |

| ORDERING INFORMATION   |                                     |   |   |   |  |              |   |  |
|--|-------------------------------------|---|---|---|--|--------------|---|--|
| VJ1206   | Y                                   | 104   | J   | L   | A  | A            | T   | ## (2)   |
| CASE CODE  | DIELECTRIC                          | CAPACITANCE NOMINAL   | CAPACITANCE TOLERANCE   | TERMINATION   | DC VOLTAGE RATING (1)  | MARKING      | PACKAGING   | PROCESS CODE   |
| 0402<br>0603<br>0805<br>1206<br>1210<br>1808<br>1812<br>1825<br>2220<br>2225<br>3640 | A = C0G (NP0)<br>G = X5R<br>Y = X7R | Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier.<br><b>Examples:</b><br>1R0 = 1.0 pF<br>103 = 10 000 pF<br>104 = 100 000 pF | C = ± 0.25 pF<br>D = ± 0.50 pF<br>F = ± 1 %<br>G = ± 2 %<br>H = ± 3 %<br>J = ± 5 %<br>K = ± 10 %<br>M = ± 20 %<br><b>Note:</b><br>C0G (NP0):<br>C, D < 10 pF<br>F, G, H, J, K ≥ 10 pF<br>X7R, X5R:<br>J, K, M | X = Ni barrier<br>100 % tin plated<br>L = Ni barrier with tin lead plated finish<br>min. 4 % lead<br>F = AgPd<br>N = Non-magnetic | Y = 6.3 V<br>Q = 10 V<br>J = 16 V<br>X = 25 V<br>A = 50 V<br>K = 75 V<br>B = 100 V<br>C = 200 V<br>P = 250 V<br>E = 500 V<br>N = 600 V | A = Unmarked | C = 7" reel/paper tape<br>T = 7" reel/plastic tape<br>J = 7" reel (low quantity)<br>P = 11 1/4"/13" reel/paper tape<br>R = 11 1/4"/13" reel/plastic tape<br>O = 7" reel/flamed paper tape<br>I = 11 1/4"/13" reel/flamed paper tape<br><b>Note:</b><br>"I" and "O" are used for "F", "N" terminations, sizes 0402/0603/0805 | 2L, 2M = High Rel group A and C screening (3)(4)<br>68 = High Rel group A screening only<br>5G = Voltage conditioning only |

**Notes**

- (1) DC voltage rating should not be exceeded in application. Other application factors may affect the MLCC performance. Consult for questions: [mlcc@vishay.com](mailto:mlcc@vishay.com)
- (2) Process code with 2 digits has to be added
- (3) Process code "2L" group "C" completion not required for shipment
- (4) Process code "2M" group "C" completion required for shipment

**DIMENSIONS** in inches (millimeters)


| CASE CODE | STYLE  | LENGTH (L)                     | WIDTH (W)                      | MAXIMUM THICKNESS (T) | TERMINATION PAD (P) |              |
|-----------|--------|--------------------------------|--------------------------------|-----------------------|---------------------|--------------|
|           |        |                                |                                |                       | MINIMUM             | MAXIMUM      |
| 0402      | VJ0402 | 0.040 ± 0.004<br>(1.00 ± 0.10) | 0.020 ± 0.004<br>(0.50 ± 0.10) | 0.024 (0.61)          | 0.004 (0.10)        | 0.016 (0.41) |
| 0603      | VJ0603 | 0.063 ± 0.005<br>(1.60 ± 0.12) | 0.031 ± 0.005<br>(0.80 ± 0.12) | 0.036 (0.92)          | 0.012 (0.30)        | 0.018 (0.46) |
| 0805      | VJ0805 | 0.079 ± 0.008<br>(2.00 ± 0.20) | 0.049 ± 0.008<br>(1.25 ± 0.20) | 0.057 (1.45)          | 0.010 (0.25)        | 0.028 (0.71) |
| 1206      | VJ1206 | 0.126 ± 0.008<br>(3.20 ± 0.20) | 0.063 ± 0.008<br>(1.60 ± 0.20) | 0.067 (1.70)          | 0.010 (0.25)        | 0.028 (0.71) |
| 1210      | VJ1210 | 0.126 ± 0.008<br>(3.20 ± 0.20) | 0.098 ± 0.008<br>(2.50 ± 0.20) | 0.067 (1.70)          | 0.010 (0.25)        | 0.028 (0.71) |
| 1808      | VJ1808 | 0.180 ± 0.012<br>(4.57 ± 0.30) | 0.080 ± 0.010<br>(2.03 ± 0.25) | 0.086 (2.18)          | 0.010 (0.25)        | 0.030 (0.76) |
| 1812      | VJ1812 | 0.177 ± 0.012<br>(4.50 ± 0.30) | 0.126 ± 0.008<br>(3.20 ± 0.20) | 0.086 (2.18)          | 0.010 (0.25)        | 0.030 (0.76) |
| 1825      | VJ1825 | 0.177 ± 0.012<br>(4.50 ± 0.30) | 0.252 ± 0.010<br>(6.40 ± 0.25) | 0.086 (2.18)          | 0.010 (0.25)        | 0.030 (0.76) |
| 2220      | VJ2220 | 0.220 ± 0.010<br>(5.59 ± 0.25) | 0.200 ± 0.010<br>(5.08 ± 0.25) | 0.086 (2.18)          | 0.010 (0.25)        | 0.030 (0.76) |
| 2225      | VJ2225 | 0.220 ± 0.010<br>(5.59 ± 0.25) | 0.250 ± 0.010<br>(6.35 ± 0.25) | 0.086 (2.18)          | 0.010 (0.25)        | 0.030 (0.76) |
| 3640      | VJ3640 | 0.360 ± 0.015<br>(9.14 ± 0.38) | 0.400 ± 0.015<br>(10.2 ± 0.38) | 0.086 (2.18)          | 0.010 (0.25)        | 0.030 (0.76) |

**Note**

- Termination code "F" has increased dimension tolerance:  
 0603: Length + 0.008" (+ 0.20 mm)  
 0805/1206/1210: Length + 0.011" (+ 0.28 mm)



| SELECTION CHART            |        |           |    |    |    |     |        |    |    |    |     |     |        |    |    |    |     |     |     |
|----------------------------|--------|-----------|----|----|----|-----|--------|----|----|----|-----|-----|--------|----|----|----|-----|-----|-----|
| DIELECTRIC                 |        | COG (NP0) |    |    |    |     |        |    |    |    |     |     |        |    |    |    |     |     |     |
| STYLE                      |        | VJ0402    |    |    |    |     | VJ0603 |    |    |    |     |     | VJ0805 |    |    |    |     |     |     |
| CASE CODE                  |        | 0402      |    |    |    |     | 0603   |    |    |    |     |     | 0805   |    |    |    |     |     |     |
| VOLTAGE (V <sub>DC</sub> ) |        | 10        | 16 | 25 | 50 | 100 | 10     | 16 | 25 | 50 | 100 | 200 | 10     | 16 | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE               |        | Q         | J  | X  | A  | B   | Q      | J  | X  | A  | B   | C   | Q      | J  | X  | A  | B   | C   | E   |
| CAP. CODE                  | CAP.   |           |    |    |    |     |        |    |    |    |     |     |        |    |    |    |     |     |     |
| 0R5                        | 0.5 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 1R0                        | 1.0 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 1R2                        | 1.2 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 1R5                        | 1.5 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 1R8                        | 1.8 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 2R2                        | 2.2 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 2R7                        | 2.7 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 3R3                        | 3.3 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 3R9                        | 3.9 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 4R7                        | 4.7 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 5R6                        | 5.6 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 6R8                        | 6.8 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 8R2                        | 8.2 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 100                        | 10 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 120                        | 12 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 150                        | 15 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 180                        | 18 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 220                        | 22 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 270                        | 27 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 330                        | 33 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 390                        | 39 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 470                        | 47 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 560                        | 56 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 680                        | 68 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 820                        | 82 pF  | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 101                        | 100 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 121                        | 120 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 151                        | 150 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 181                        | 180 pF | *         | *  | *  | *  | *   | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 221                        | 220 pF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 271                        | 270 pF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 331                        | 330 pF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 391                        | 390 pF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 471                        | 470 pF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 561                        | 560 pF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 681                        | 680 pF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 821                        | 820 pF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 102                        | 1.0 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 122                        | 1.2 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 152                        | 1.5 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 182                        | 1.8 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 222                        | 2.2 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 272                        | 2.7 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 282                        | 2.8 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 332                        | 3.3 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 392                        | 3.9 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 472                        | 4.7 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 562                        | 5.6 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 682                        | 6.8 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 822                        | 8.2 nF |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 103                        | 10 nF  |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |
| 123                        | 12 nF  |           |    |    |    |     | *      | *  | *  | *  | *   | *   | *      | *  | *  | *  | *   | *   | *   |



| SELECTION CHART            |        |           |    |    |     |     |     |                       |    |    |     |     |     |
|----------------------------|--------|-----------|----|----|-----|-----|-----|-----------------------|----|----|-----|-----|-----|
| DIELECTRIC                 |        | COG (NP0) |    |    |     |     |     |                       |    |    |     |     |     |
| STYLE                      |        | VJ1206    |    |    |     |     |     | VJ1210 <sup>(1)</sup> |    |    |     |     |     |
| CASE CODE                  |        | 1206      |    |    |     |     |     | 1210 <sup>(1)</sup>   |    |    |     |     |     |
| VOLTAGE (V <sub>DC</sub> ) |        | 16        | 25 | 50 | 100 | 200 | 500 | 600                   | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE               |        | J         | X  | A  | B   | C   | E   | N                     | X  | A  | B   | C   | E   |
| CAP. CODE                  | CAP.   |           |    |    |     |     |     |                       |    |    |     |     |     |
| 0R5                        | 0.5 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 1R0                        | 1.0 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 1R2                        | 1.2 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 1R5                        | 1.5 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 1R8                        | 1.8 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 2R2                        | 2.2 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 2R7                        | 2.7 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 3R3                        | 3.3 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 3R9                        | 3.9 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 4R7                        | 4.7 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 5R6                        | 5.6 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 6R8                        | 6.8 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 8R2                        | 8.2 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 100                        | 10 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 120                        | 12 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 150                        | 15 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 180                        | 18 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 220                        | 22 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 270                        | 27 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 330                        | 33 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 390                        | 39 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 470                        | 47 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 560                        | 56 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 680                        | 68 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 820                        | 82 pF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 101                        | 100 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 121                        | 120 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 151                        | 150 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 181                        | 180 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 221                        | 220 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 271                        | 270 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 331                        | 330 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 391                        | 390 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 471                        | 470 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 561                        | 560 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 681                        | 680 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 821                        | 820 pF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 102                        | 1.0 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 122                        | 1.2 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 152                        | 1.5 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 182                        | 1.8 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 222                        | 2.2 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 272                        | 2.7 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 282                        | 2.8 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 332                        | 3.3 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 392                        | 3.9 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 472                        | 4.7 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 562                        | 5.6 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 682                        | 6.8 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 822                        | 8.2 nF | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 103                        | 10 nF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 123                        | 12 nF  | •         | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |

Note

<sup>(1)</sup> See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034)



| SELECTION CHART            |        |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
|----------------------------|--------|-----------------------|----|-----|-----|-----|-----------------------|----|-----|-----|-----|-----------------------|----|-----|-----|-----|
| DIELECTRIC                 |        | C0G (NP0)             |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| STYLE                      |        | VJ1808 <sup>(1)</sup> |    |     |     |     | VJ1812 <sup>(1)</sup> |    |     |     |     | VJ1825 <sup>(1)</sup> |    |     |     |     |
| CASE CODE                  |        | 1808 <sup>(1)</sup>   |    |     |     |     | 1812 <sup>(1)</sup>   |    |     |     |     | 1825 <sup>(1)</sup>   |    |     |     |     |
| VOLTAGE (V <sub>DC</sub> ) |        | 25                    | 50 | 100 | 200 | 500 | 25                    | 50 | 100 | 200 | 500 | 25                    | 50 | 100 | 200 | 500 |
| VOLTAGE CODE               |        | X                     | A  | B   | C   | E   | X                     | A  | B   | C   | E   | X                     | A  | B   | C   | E   |
| CAP. CODE                  | CAP.   |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 100                        | 10 pF  |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 120                        | 12 pF  |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 150                        | 15 pF  |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 180                        | 18 pF  |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 220                        | 22 pF  | •                     | •  | •   | •   | •   |                       |    |     |     |     |                       |    |     |     |     |
| 270                        | 27 pF  | •                     | •  | •   | •   | •   |                       |    |     |     |     |                       |    |     |     |     |
| 330                        | 33 pF  | •                     | •  | •   | •   | •   |                       |    |     |     |     |                       |    |     |     |     |
| 390                        | 39 pF  | •                     | •  | •   | •   | •   |                       |    |     |     |     |                       |    |     |     |     |
| 470                        | 47 pF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |                       |    |     |     |     |
| 560                        | 56 pF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |                       |    |     |     |     |
| 680                        | 68 pF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |                       |    |     |     |     |
| 820                        | 82 pF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |                       |    |     |     |     |
| 101                        | 100 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 121                        | 120 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 151                        | 150 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 181                        | 180 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 221                        | 220 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 271                        | 270 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 331                        | 330 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 391                        | 390 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 471                        | 470 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 561                        | 560 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 681                        | 680 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 821                        | 820 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 102                        | 1.0 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 122                        | 1.2 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 152                        | 1.5 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 182                        | 1.8 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 222                        | 2.2 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 272                        | 2.7 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 332                        | 3.3 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 392                        | 3.9 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 472                        | 4.7 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 562                        | 5.6 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 682                        | 6.8 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 822                        | 8.2 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 103                        | 10 nF  | •                     | •  |     |     |     | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 123                        | 12 nF  |                       |    |     |     |     | •                     | •  | •   | •   |     | •                     | •  | •   | •   |     |
| 153                        | 15 nF  |                       |    |     |     |     | •                     | •  | •   |     |     | •                     | •  | •   | •   |     |
| 183                        | 18 nF  |                       |    |     |     |     | •                     | •  |     |     |     | •                     | •  | •   | •   |     |
| 223                        | 22 nF  |                       |    |     |     |     | •                     | •  |     |     |     | •                     | •  | •   | •   |     |
| 273                        | 27 nF  |                       |    |     |     |     |                       |    |     |     |     | •                     | •  | •   | •   |     |
| 333                        | 33 nF  |                       |    |     |     |     |                       |    |     |     |     | •                     | •  | •   |     |     |
| 393                        | 39 nF  |                       |    |     |     |     |                       |    |     |     |     | •                     | •  |     |     |     |
| 473                        | 47 nF  |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 563                        | 56 nF  |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 683                        | 68 nF  |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |

Note

(1) See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034)



| SELECTION CHART            |        |                       |    |     |     |     |                       |    |     |     |     |
|----------------------------|--------|-----------------------|----|-----|-----|-----|-----------------------|----|-----|-----|-----|
| DIELECTRIC                 |        | COG (NP0)             |    |     |     |     |                       |    |     |     |     |
| STYLE                      |        | VJ2220 <sup>(1)</sup> |    |     |     |     | VJ2225 <sup>(1)</sup> |    |     |     |     |
| CASE CODE                  |        | 2220 <sup>(1)</sup>   |    |     |     |     | 2225 <sup>(1)</sup>   |    |     |     |     |
| VOLTAGE (V <sub>DC</sub> ) |        | 25                    | 50 | 100 | 200 | 500 | 25                    | 50 | 100 | 200 | 500 |
| VOLTAGE CODE               |        | X                     | A  | B   | C   | E   | X                     | A  | B   | C   | E   |
| CAP. CODE                  | CAP.   |                       |    |     |     |     |                       |    |     |     |     |
| 100                        | 10 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 120                        | 12 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 150                        | 15 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 180                        | 18 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 220                        | 22 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 270                        | 27 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 330                        | 33 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 390                        | 39 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 470                        | 47 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 560                        | 56 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 680                        | 68 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 820                        | 82 pF  |                       |    |     |     |     |                       |    |     |     |     |
| 101                        | 100 pF | •                     | •  | •   | •   | •   |                       |    |     |     |     |
| 121                        | 120 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 151                        | 150 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 181                        | 180 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 221                        | 220 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 271                        | 270 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 331                        | 330 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 391                        | 390 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 471                        | 470 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 561                        | 560 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 681                        | 680 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 821                        | 820 pF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 102                        | 1.0 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 122                        | 1.2 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 152                        | 1.5 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 182                        | 1.8 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 222                        | 2.2 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 272                        | 2.7 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 332                        | 3.3 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 392                        | 3.9 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 472                        | 4.7 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 562                        | 5.6 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 682                        | 6.8 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 822                        | 8.2 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 103                        | 10 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 123                        | 12 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 153                        | 15 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 183                        | 18 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 223                        | 22 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 273                        | 27 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 333                        | 33 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 393                        | 39 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 473                        | 47 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 563                        | 56 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 683                        | 68 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |

**Note**

<sup>(1)</sup> See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034)



| SELECTION CHART            |        |                        |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |
|----------------------------|--------|------------------------|-----|-----|----|----|-----|--------|----|----|----|----|-----|--------|----|----|----|-----|-----|
| DIELECTRIC                 |        | X7R/X5R <sup>(1)</sup> |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |
| STYLE                      |        | VJ0402                 |     |     |    |    |     | VJ0603 |    |    |    |    |     | VJ0805 |    |    |    |     |     |
| CASE CODE                  |        | 0402                   |     |     |    |    |     | 0603   |    |    |    |    |     | 0805   |    |    |    |     |     |
| VOLTAGE (V <sub>DC</sub> ) |        | 6.3                    | 10  | 16  | 25 | 50 | 100 | 6.3    | 10 | 16 | 25 | 50 | 100 | 10     | 16 | 25 | 50 | 100 | 200 |
| VOLTAGE CODE               |        | Y                      | Q   | J   | X  | A  | B   | Y      | Q  | J  | X  | A  | B   | Q      | J  | X  | A  | B   | C   |
| CAP. CODE                  | CAP.   |                        |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |
| 101                        | 100 pF | •                      | •   | •   | •  | •  | •   |        |    |    |    |    |     |        |    |    |    |     |     |
| 121                        | 120 pF | •                      | •   | •   | •  | •  | •   |        |    |    |    |    |     |        |    |    |    |     |     |
| 151                        | 150 pF | •                      | •   | •   | •  | •  | •   |        |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 181                        | 180 pF | •                      | •   | •   | •  | •  | •   |        |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 221                        | 220 pF | •                      | •   | •   | •  | •  | •   |        |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 271                        | 270 pF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 331                        | 330 pF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 391                        | 390 pF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 471                        | 470 pF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 561                        | 560 pF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 681                        | 680 pF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 821                        | 820 pF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 102                        | 1.0 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 122                        | 1.2 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 152                        | 1.5 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 182                        | 1.8 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 222                        | 2.2 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 272                        | 2.7 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 332                        | 3.3 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 392                        | 3.9 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 472                        | 4.7 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 562                        | 5.6 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 682                        | 6.8 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 822                        | 8.2 nF | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 103                        | 10 nF  | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 123                        | 12 nF  | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 153                        | 15 nF  | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 183                        | 18 nF  | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 223                        | 22 nF  | •                      | •   | •   | •  | •  | •   | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 273                        | 27 nF  | X5R                    | X5R | X5R |    |    |     | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 333                        | 33 nF  | X5R                    | X5R | X5R |    |    |     | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 393                        | 39 nF  | X5R                    |     |     |    |    |     | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 473                        | 47 nF  | X5R                    |     |     |    |    |     | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 563                        | 56 nF  | X5R                    |     |     |    |    |     | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 683                        | 68 nF  | X5R                    |     |     |    |    |     | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 823                        | 82 nF  | X5R                    |     |     |    |    |     | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 104                        | 100 nF | X5R                    |     |     |    |    |     | •      | •  | •  | •  | •  | •   | •      | •  | •  | •  | •   | •   |
| 124                        | 120 nF |                        |     |     |    |    |     | X5R    |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 154                        | 150 nF |                        |     |     |    |    |     | X5R    |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 184                        | 180 nF |                        |     |     |    |    |     |        |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 224                        | 220 nF |                        |     |     |    |    |     |        |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 274                        | 270 nF |                        |     |     |    |    |     |        |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 334                        | 330 nF |                        |     |     |    |    |     |        |    |    |    |    |     | •      | •  | •  | •  | •   | •   |
| 394                        | 390 nF |                        |     |     |    |    |     |        |    |    |    |    |     | •      |    |    |    |     |     |
| 474                        | 470 nF |                        |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |
| 564                        | 560 nF |                        |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |
| 684                        | 680 nF |                        |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |
| 824                        | 820 nF |                        |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |
| 105                        | 1.0 μF |                        |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |
| 125                        | 1.2 μF |                        |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |

**Note**

<sup>(1)</sup> See selection chart for values only available as X5R. All other values X7R.





| SELECTION CHART            |        |        |    |    |     |     |     |                       |    |    |     |     |     |
|----------------------------|--------|--------|----|----|-----|-----|-----|-----------------------|----|----|-----|-----|-----|
| DIELECTRIC                 |        | X7R    |    |    |     |     |     |                       |    |    |     |     |     |
| STYLE                      |        | VJ1206 |    |    |     |     |     | VJ1210 <sup>(1)</sup> |    |    |     |     |     |
| CASE CODE                  |        | 1206   |    |    |     |     |     | 1210                  |    |    |     |     |     |
| VOLTAGE (V <sub>DC</sub> ) |        | 16     | 25 | 50 | 100 | 200 | 500 | 16                    | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE               |        | J      | X  | A  | B   | C   | E   | J                     | X  | A  | B   | C   | E   |
| CAP. CODE                  | CAP.   |        |    |    |     |     |     |                       |    |    |     |     |     |
| 101                        | 100 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 121                        | 120 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 151                        | 150 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 181                        | 180 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 221                        | 220 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 271                        | 270 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 331                        | 330 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 391                        | 390 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 471                        | 470 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 561                        | 560 pF |        |    |    |     |     |     |                       |    |    |     |     |     |
| 681                        | 680 pF | •      | •  | •  | •   | •   | •   |                       |    |    |     |     |     |
| 821                        | 820 pF | •      | •  | •  | •   | •   | •   |                       |    |    |     |     |     |
| 102                        | 1.0 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 122                        | 1.2 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 152                        | 1.5 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 182                        | 1.8 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 222                        | 2.2 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 272                        | 2.7 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 332                        | 3.3 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 392                        | 3.9 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 472                        | 4.7 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 562                        | 5.6 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 682                        | 6.8 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 822                        | 8.2 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 103                        | 10 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 123                        | 12 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 153                        | 15 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 183                        | 18 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 223                        | 22 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 273                        | 27 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 333                        | 33 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 393                        | 39 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 473                        | 47 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 563                        | 56 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 683                        | 68 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 823                        | 82 nF  | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 104                        | 100 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 124                        | 120 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 154                        | 150 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 184                        | 180 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 224                        | 220 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 274                        | 270 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 334                        | 330 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 394                        | 390 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 474                        | 470 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 564                        | 560 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 684                        | 680 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 824                        | 820 nF | •      | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 105                        | 1.0 μF | •      | •  |    |     |     |     | •                     | •  | •  |     |     |     |
| 125                        | 1.2 μF |        |    |    |     |     |     |                       |    |    |     |     |     |

**Note**

<sup>(1)</sup> See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034)



| SELECTION CHART            |        |                       |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |
|----------------------------|--------|-----------------------|----|-----|-----|-----|-----------------------|----|----|-----|-----|-----|-----------------------|----|----|-----|-----|-----|
| DIELECTRIC                 |        | X7R                   |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |
| STYLE                      |        | VJ1808 <sup>(1)</sup> |    |     |     |     | VJ1812 <sup>(1)</sup> |    |    |     |     |     | VJ1825 <sup>(1)</sup> |    |    |     |     |     |
| CASE CODE                  |        | 1808 <sup>(1)</sup>   |    |     |     |     | 1812 <sup>(1)</sup>   |    |    |     |     |     | 1825 <sup>(1)</sup>   |    |    |     |     |     |
| VOLTAGE (V <sub>DC</sub> ) |        | 25                    | 50 | 100 | 200 | 500 | 25                    | 50 | 75 | 100 | 200 | 250 | 500                   | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE               |        | X                     | A  | B   | C   | E   | X                     | A  | K  | B   | C   | P   | E                     | X  | A  | B   | C   | E   |
| CAP. CODE                  | CAP.   |                       |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 102                        | 1.0 nF | •                     | •  | •   | •   | •   |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 222                        | 1.2 nF | •                     | •  | •   | •   | •   |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 152                        | 1.5 nF | •                     | •  | •   | •   | •   |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 182                        | 1.8 nF | •                     | •  | •   | •   | •   |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 222                        | 2.2 nF | •                     | •  | •   | •   | •   |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 272                        | 2.7 nF | •                     | •  | •   | •   | •   |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 332                        | 3.3 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     |    |    |     |     |     |
| 392                        | 3.9 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     |    |    |     |     |     |
| 472                        | 4.7 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     |    |    |     |     |     |
| 562                        | 5.6 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     |    |    |     |     |     |
| 682                        | 6.8 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     |    |    |     |     |     |
| 822                        | 8.2 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     |    |    |     |     |     |
| 103                        | 10 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 123                        | 12 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 153                        | 15 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 183                        | 18 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 223                        | 22 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 273                        | 27 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 333                        | 33 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 393                        | 39 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 473                        | 47 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 563                        | 56 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 683                        | 68 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 823                        | 82 nF  | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 104                        | 100 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 124                        | 120 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 154                        | 150 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 184                        | 180 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 224                        | 220 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 274                        | 270 nF | •                     | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 334                        | 330 nF |                       |    |     |     |     | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 394                        | 390 nF |                       |    |     |     |     | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 474                        | 470 nF |                       |    |     |     |     | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 564                        | 560 nF |                       |    |     |     |     | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 684                        | 680 nF |                       |    |     |     |     | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 824                        | 820 nF |                       |    |     |     |     | •                     | •  | •  | •   | •   | •   | •                     | •  | •  | •   | •   | •   |
| 105                        | 1.0 μF |                       |    |     |     |     | •                     | •  | •  | •   |     |     |                       | •  | •  | •   |     |     |
| 125                        | 1.2 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       | •  | •  | •   |     |     |
| 155                        | 1.5 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       | •  | •  | •   |     |     |
| 185                        | 1.8 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       | •  | •  |     |     |     |
| 225                        | 2.2 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       | •  |    |     |     |     |
| 275                        | 2.7 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       | •  |    |     |     |     |
| 335                        | 3.3 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 395                        | 3.9 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 475                        | 4.7 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 565                        | 5.6 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 685                        | 6.8 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |
| 825                        | 8.2 μF |                       |    |     |     |     |                       |    |    |     |     |     |                       |    |    |     |     |     |

**Note**

<sup>(1)</sup> See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034)



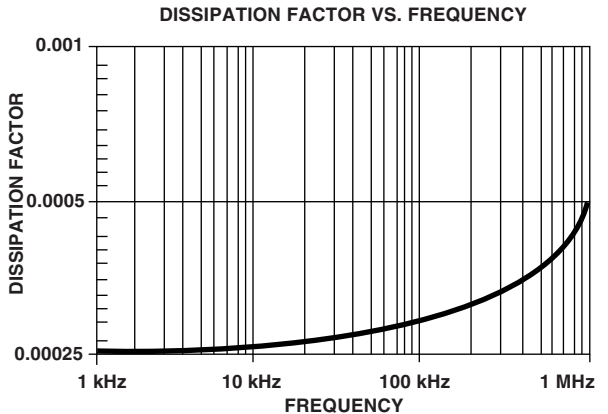
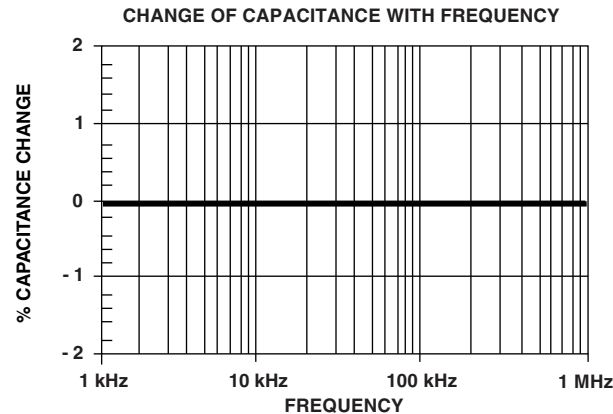
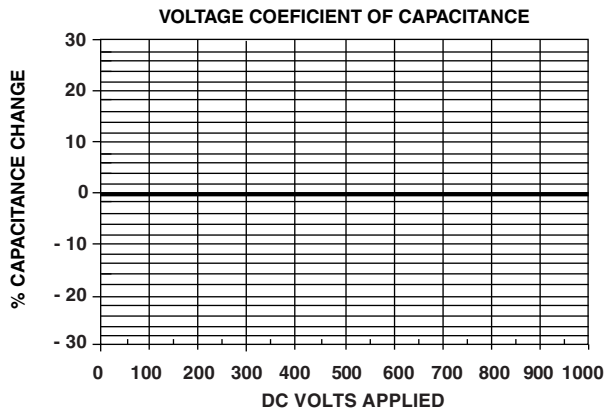
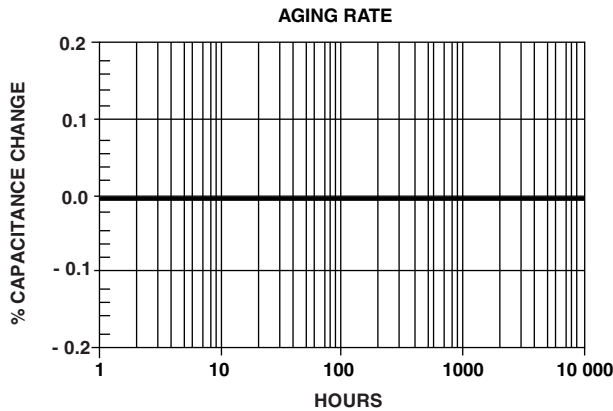
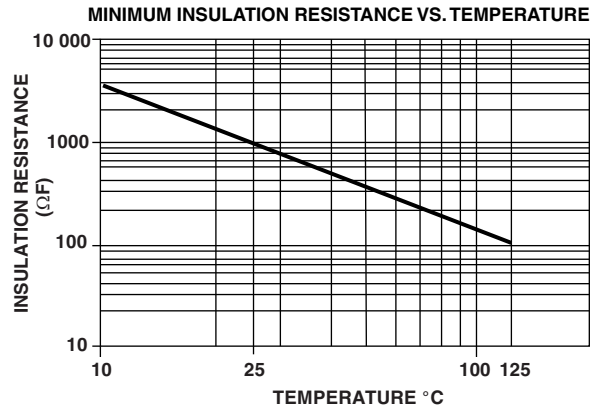
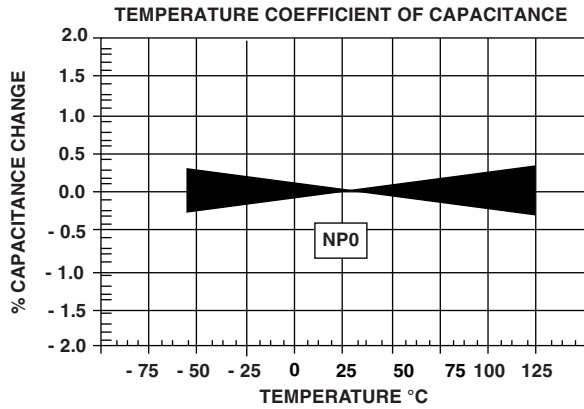
| SELECTION CHART            |        |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
|----------------------------|--------|-----------------------|----|-----|-----|-----|-----------------------|----|-----|-----|-----|-----------------------|----|-----|-----|-----|
| DIELECTRIC                 |        | X7R                   |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| STYLE                      |        | VJ2220 <sup>(1)</sup> |    |     |     |     | VJ2225 <sup>(1)</sup> |    |     |     |     | VJ3640 <sup>(1)</sup> |    |     |     |     |
| CASE CODE                  |        | 2220 <sup>(1)</sup>   |    |     |     |     | 2225 <sup>(1)</sup>   |    |     |     |     | 3640 <sup>(1)</sup>   |    |     |     |     |
| VOLTAGE (V <sub>DC</sub> ) |        | 25                    | 50 | 100 | 200 | 500 | 25                    | 50 | 100 | 200 | 500 | 25                    | 50 | 100 | 200 | 500 |
| VOLTAGE CODE               |        | X                     | A  | B   | C   | E   | X                     | A  | B   | C   | E   | X                     | A  | B   | C   | E   |
| CAP. CODE                  | CAP.   |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 102                        | 1.0 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 222                        | 1.2 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 152                        | 1.5 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 182                        | 1.8 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 222                        | 2.2 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 272                        | 2.7 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 332                        | 3.3 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 392                        | 3.9 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 472                        | 4.7 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 562                        | 5.6 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 682                        | 6.8 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 822                        | 8.2 nF |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
| 103                        | 10 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |                       |    |     |     |     |
| 123                        | 12 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |                       |    |     |     |     |
| 153                        | 15 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 183                        | 18 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 223                        | 22 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 273                        | 27 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 333                        | 33 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 393                        | 39 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 473                        | 47 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 563                        | 56 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 683                        | 68 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 823                        | 82 nF  | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 104                        | 100 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 124                        | 120 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 154                        | 150 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 184                        | 180 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 224                        | 220 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 274                        | 270 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 334                        | 330 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 394                        | 390 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 474                        | 470 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 564                        | 560 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 684                        | 680 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 824                        | 820 nF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 105                        | 1.0 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 125                        | 1.2 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 155                        | 1.5 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 185                        | 1.8 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 225                        | 2.2 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 275                        | 2.7 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 335                        | 3.3 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 395                        | 3.9 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 475                        | 4.7 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 565                        | 5.6 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 685                        | 6.8 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |
| 825                        | 8.2 μF | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   | •                     | •  | •   | •   | •   |

**Note**

<sup>(1)</sup> See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034)

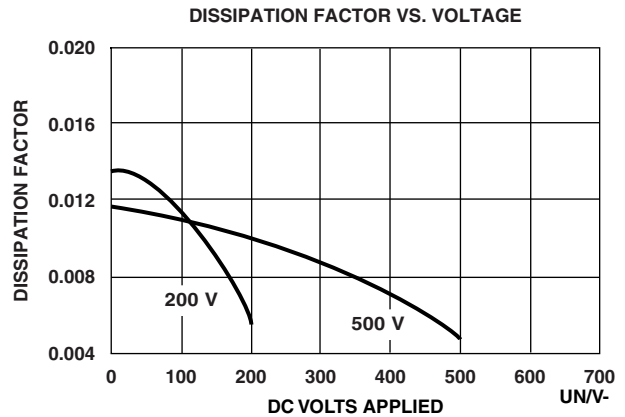
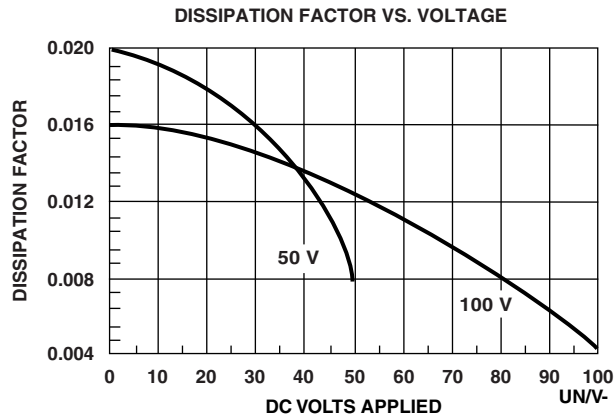
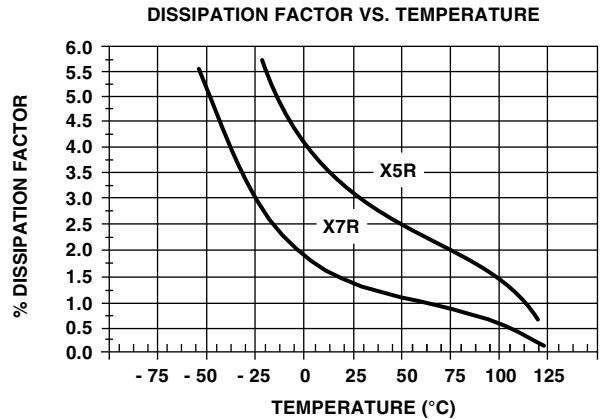
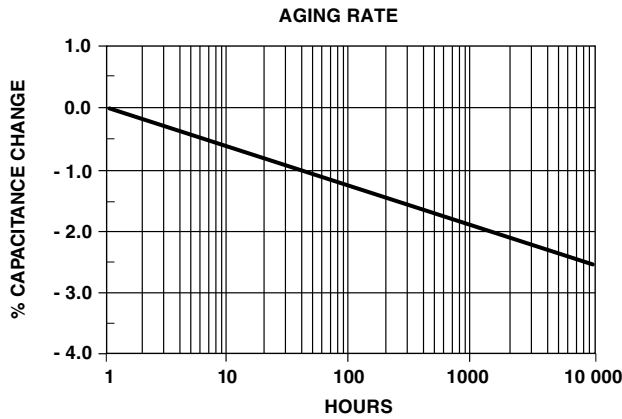
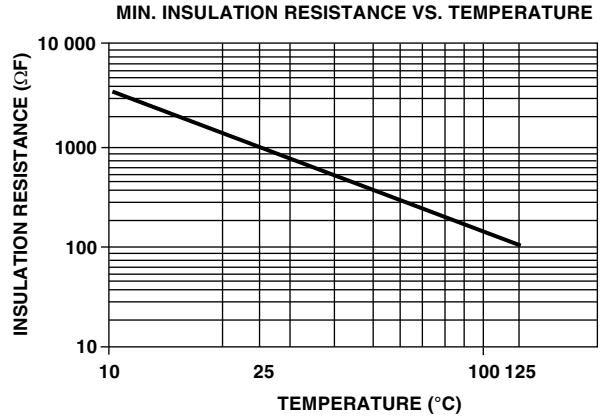
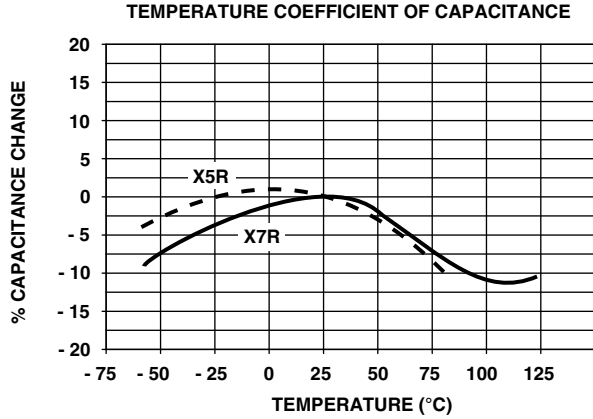


HI-REL COG (NP0) DIELECTRIC - TYPICAL PARAMETERS





HI-REL X7R/X5R DIELECTRIC - TYPICAL PARAMETERS





| STANDARD PACKAGING QUANTITIES (1)(2)(3) |           |                                   |                                 |                                 |                                   |                                 |
|---|-----------|-----------------------------------|---------------------------------|---------------------------------|-----------------------------------|---------------------------------|
| CASE CODE                               | TAPE SIZE | 7" REEL QUANTITIES                |                                 |                                 | 11 1/4" AND 13" REEL QUANTITIES   |                                 |
|   |           | PAPER TAPE PACKAGING CODE "C"/"O" | PLASTIC TAPE PACKAGING CODE "T" | LOW QUANTITY PACKAGING CODE "J" | PAPER TAPE PACKAGING CODE "P"/"I" | PLASTIC TAPE PACKAGING CODE "R" |
| 0402                                    | 8 mm      | 5000                              | n/a                             | 1000                            | 10 000                            | n/a                             |
| 0603 (4)                                | 8 mm      | 4000                              | 4000                            | 1000                            | 10 000                            | 10 000                          |
| 0805 (4)                                | 8 mm      | 3000                              | 3000                            | 1000                            | 10 000                            | 10 000                          |
| 1206 (4)                                | 8 mm      | 3000                              | 3000/2500                       | 1000                            | 10 000                            | 10 000/9000                     |
| 1210 (4)                                | 8 mm      | n/a                               | 3000/2500/2000                  | 1000                            | n/a                               | 10 000/9000                     |
| 1808                                    | 12 mm     | n/a                               | 2000                            | 500                             | n/a                               | 10 000                          |
| 1812                                    | 12 mm     | n/a                               | 1000                            | 500                             | n/a                               | 4000                            |
| 1825                                    | 12 mm     | n/a                               | 1000                            | 500                             | n/a                               | 4000                            |
| 2220                                    | 12 mm     | n/a                               | 1000                            | 500                             | n/a                               | 4000                            |
| 2225                                    | 12 mm     | n/a                               | 1000                            | 500                             | n/a                               | 4000                            |
| 3640                                    | 16 mm     | n/a                               | 500                             | n/a                             | n/a                               | n/a                             |

Notes

- (1) Vishay Vitramon uses embossed plastic carrier tape
- (2) Reference: EIA standard RS 481 - "Taping of Surface Mount Components for Automatic Placement"
- (3) n/a = Not available
- (4) Packaging "C"/"P"/"O"/"I" and "T"/"R" or lower quantities can depend from product thickness

| STORAGE AND HANDLING CONDITIONS   |
|---|
| <p>(1) Store the components at 5 °C to + 40 °C ambient temperature and ≤ 70 % related humidity conditions.</p> <p>(2) The product is recommended to be used within a time-frame of 2 years after shipment.<br/>Check solderability in case extended shelf life beyond the expiry date is needed.</p> <p>Precautions:</p> <ul style="list-style-type: none"> <li>a. Do not store products in an environment containing corrosive elements, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. This may cause corrosion or oxidization of the terminations, which can easily lead to poor soldering.</li> <li>b. Store products on the shelf and avoid exposure to moisture or dust.</li> <li>c. Do not expose products to excessive shock, vibration, direct sunlight and so on.</li> </ul> |



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