

## 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
- C0G (NP0) and X7R / X5R dielectrics offered
- MIL-PRF-55681 qualified production line <sup>(1)</sup>
- Reliability maintenance testing to verify consistent quality (X5R max. test temperature: +85 °C)
- Available with group A and C screening
- Group C data can be reported
- 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\***  
Available  
**HALOGEN  
FREE**

### Notes

\* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

<sup>(1)</sup> External visual inspection per EIA-595 standard

### APPLICATIONS

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

### ELECTRICAL SPECIFICATIONS

#### C0G (NP0)

##### GENERAL SPECIFICATION

###### Note

Electrical characteristics at +25 °C unless otherwise specified

**Operating Temperature:** -55 °C to +125 °C

**Capacitance Range:** 1.0 pF to 39 nF

**Voltage Range:** 10 V<sub>DC</sub> to 600 V<sub>DC</sub>

**Temperature Coefficient of Capacitance (TCC):**  
0 ppm/°C ± 30 ppm/°C from -55 °C to +125 °C

###### Dissipation Factor (DF):

0.1 % maximum at 1.0 V<sub>RMS</sub> and  
1 MHz for values ≤ 1000 pF

0.1 % maximum at 1.0 V<sub>RMS</sub> and  
1 kHz for values > 1000 pF

###### Insulating Resistance:

at +25 °C 100 000 MΩ min. or 1000 ΩF whichever is less  
at +125 °C 10 000 MΩ min. or 100 ΩF whichever is less

**Aging Rate:** 0 % maximum per decade

###### Dielectric Strength Test:

performed per method 103 of EIA 198-2-E.

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

##### GENERAL SPECIFICATION

###### Note

Electrical characteristics at +25 °C unless otherwise specified

**Operating Temperature:** -55 °C to +125 °C

**Capacitance Range:** 100 pF to 6.8 μF

**Voltage Range:** 6.3 V<sub>DC</sub> to 500 V<sub>DC</sub>

**Temperature Coefficient of Capacitance (TCC):**

X5R: ± 15 % from -55 °C to +85 °C, with 0 V<sub>DC</sub> applied  
X7R: ± 15 % from -55 °C to +125 °C, with 0 V<sub>DC</sub> applied

###### Dissipation Factor (DF):

≤ 6.3 V, 10 V ratings: 5 % maximum at 1.0 V<sub>RMS</sub> and 1 kHz  
16 V, 25 V ratings: 3.5 % maximum at 1.0 V<sub>RMS</sub> and 1 kHz  
≥ 50 V ratings: 2.5 % maximum at 1.0 V<sub>RMS</sub> and 1 kHz

###### Insulating Resistance:

at +25 °C 100 000 MΩ min. or 1000 ΩF whichever is less  
at +125 °C 10 000 MΩ min. or 100 ΩF whichever is less

**Aging Rate:** 1 % maximum per decade

###### Dielectric Strength Test:

performed per method 103 of EIA 198-2-E.

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

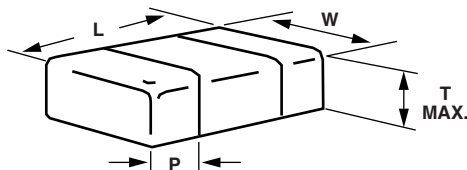
| DIELECTRIC | CASE | MAXIMUM VOLTAGE<br>(V) | CAPACITANCE |             |
|------------|------|------------------------|-------------|-------------|
|            |      |                        | MINIMUM     | MAXIMUM     |
| C0G (NP0)  | 0402 | 100                    | 1.0 pF      | 180 pF      |
|            | 0603 | 200                    | 1.0 pF      | 1.5 nF      |
|            | 0805 | 500                    | 1.0 pF      | 3.3 nF      |
|            | 1206 | 600                    | 1.0 pF      | 10 nF       |
|            | 1210 | 500                    | 1.0 pF      | 10 nF       |
|            | 1808 | 500                    | 22 pF       | 10 nF       |
|            | 1812 | 500                    | 39 pF       | 22 nF       |
|            | 1825 | 500                    | 100 pF      | 33 nF       |
|            | 2220 | 500                    | 100 pF      | 33 nF       |
| X5R        | 2225 | 500                    | 120 pF      | 39 nF       |
|            | 0402 | 16                     | 27 nF       | 47 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 $\mu$ F |
|            | 1210 | 500                    | 1.0 nF      | 1.0 $\mu$ F |
|            | 1808 | 500                    | 1.0 nF      | 270 nF      |
|            | 1812 | 500                    | 3.3 nF      | 1.0 $\mu$ F |
|            | 1825 | 500                    | 10 nF       | 2.7 $\mu$ F |
|            | 2220 | 500                    | 10 nF       | 2.2 $\mu$ F |
|            | 2225 | 500                    | 10 nF       | 4.7 $\mu$ F |
|            | 3640 | 500                    | 15 nF       | 6.8 $\mu$ F |

## 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).<br>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 = $\pm 0.25$ pF<br>D = $\pm 0.50$ pF<br>F = $\pm 1$ %<br>G = $\pm 2$ %<br>H = $\pm 3$ %<br>J = $\pm 5$ %<br>K = $\pm 10$ %<br>M = $\pm 20$ %<br><b>Note:</b><br>C0G (NP0):<br>C, D < 10 pF<br>F, G, H, J, K<br>$\geq 10$ pF<br>X7R, X5R:<br>J, K, M | X = Ni barrier<br>100 % tin plated<br>L = Ni barrier<br>with tin lead<br>plated finish<br>min. 4 % lead<br>F, E = AgPd (3)<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>B = 100 V<br>C = 200 V<br>P = 250 V<br>E = 500 V<br>N = 600 V | A = unmarked | C = 7" reel /<br>paper tape<br>T = 7" reel /<br>plastic tape<br>J = 7" reel<br>(low quantity)<br>P = 11 1/4" / 13"<br>reel / paper tape<br>R = 11 1/4" / 13"<br>reel / plastic tape<br>O = 7" reel /<br>flamed paper tape<br>I = 11 1/4" /<br>13" reel /<br>flamed paper tape<br><b>Note:</b><br>"I" and "O" are<br>used for "F", "N"<br>terminations, sizes<br>0402 / 0603 / 0805 | 68, 5G, 2L,<br>2M, 2MP |

## 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) **68:** MIL-PRF-55681 Group A C of I, subgroups 1, 2, 4 attribute data provided with shipment. **No Group C testing performed**  
**5G:** Voltage conditioning only. Generic CoC (no data)  
**2L:** MIL-PRF-55681 Group A C of I, provided with shipment.  
Group C testing is performed based on MIL-PRF-55681 periodic maintenance schedule. **No Group C data provided**  
**2M:** MIL-PRF-55681 Group A, subgroups 1, 2, 4. Group A subgroups 1, 2, 4 attribute data provided with shipment.  
MIL-PRF-55681 Group C, testing subgroups 1, 2, 3, 5 is performed on each lot. Shipment held until tests are complete.  
**No Group C data provided**  
**2MP:** MIL-PRF-55681 Group A, subgroups 1, 2, 4. Group A subgroups 1, 2, 4 attribute data provided with shipment.  
MIL-PRF-55681 Group C, testing subgroups 1, 2, 3, 5 performed on each lot. Shipment held until tests are complete.  
**Group C test summary data is included with shipment (fee applies)**
- (3) Termination code "F" is for conductive epoxy / reflow assembly.  
Termination code "E" is for conductive epoxy assembly only

**DIMENSIONS** in inches (millimeters)


| CASE CODE | STYLE  | LENGTH<br>(L)                  | WIDTH<br>(W)                   | MAXIMUM<br>THICKNESS<br>(T) | TERMINATION PAD<br>(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 ± 0.006<br>(1.60 ± 0.15) | 0.031 ± 0.006<br>(0.80 ± 0.15) | 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 ± 0.010<br>(3.20 ± 0.25) | 0.063 ± 0.010<br>(1.60 ± 0.25) | 0.067 (1.70)                | 0.010 (0.25)           | 0.028 (0.71) |
| 1210      | VJ1210 | 0.126 ± 0.010<br>(3.20 ± 0.25) | 0.098 ± 0.010<br>(2.50 ± 0.25) | 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:  
0402: length + 0.006" (+ 0.15 mm)  
0603: length + 0.008" (+ 0.20 mm)  
0805 / 1206 / 1210: length + 0.011" (+ 0.28 mm)



| SELECTION CHART            |        |           |    |    |    |     |        |    |    |    |     |     |        |    |    |    |     |     |     |
|----------------------------|--------|-----------|----|----|----|-----|--------|----|----|----|-----|-----|--------|----|----|----|-----|-----|-----|
| DIELECTRIC                 |        | C0G (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.   |           |    |    |    |     |        |    |    |    |     |     |        |    |    |    |     |     |     |
| 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  |           |    |    |    |     |        |    |    |    |     |     |        |    |    |    |     |     |     |

## Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code "L"

Not RoHS-compliant



| SELECTION CHART            |        |           |    |    |     |     |     |     |                       |    |     |     |     |
|----------------------------|--------|-----------|----|----|-----|-----|-----|-----|-----------------------|----|-----|-----|-----|
| DIELECTRIC                 |        | C0G (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.   |           |    |    |     |     |     |     |                       |    |     |     |     |
| 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  |           |    |    |     |     |     |     |                       |    |     |     |     |

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| 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  |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |

## Notes

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| SELECTION CHART            |        |                       |    |     |     |     |                       |    |     |     |     |
|----------------------------|--------|-----------------------|----|-----|-----|-----|-----------------------|----|-----|-----|-----|
| DIELECTRIC                 |        | C0G (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  |                       |    |     |     |     |                       |    |     |     |     |

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|----------------------------|--------|--------------------------|-----|-----|----|----|-----|--------|----|----|----|----|-----|--------|----|----|----|-----|-----|
| 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  |                          |     |     |    |    |     | •      | •  | •  | •  |    |     | •      | •  | •  | •  | •   |     |
| 683                        | 68 nF  |                          |     |     |    |    |     | •      | •  | •  | •  |    |     | •      | •  | •  | •  | •   |     |
| 823                        | 82 nF  |                          |     |     |    |    |     | •      | •  | •  | •  |    |     | •      | •  | •  | •  | •   |     |
| 104                        | 100 nF |                          |     |     |    |    |     | •      | •  | •  | •  |    |     | •      | •  | •  | •  | •   |     |
| 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 |                          |     |     |    |    |     |        |    |    |    |    |     |        |    |    |    |     |     |

**Notes**

(1) See "Selection Chart" for values only available as X5R. All other values X7R.

  RoHS-compliant except when supplied with lead (Pb)-containing termination, code "L"

  Not RoHS-compliant



| 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 |        |    |    |     |     |     |                       |    |    |     |     |     |

## Notes

(1) See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034) RoHS-compliant except when supplied with lead (Pb)-containing termination, code "L"

 Not RoHS-compliant



| 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 | 100 | 200 | 250 | 500 | 25                    | 50 | 100 | 200 | 500 |
| VOLTAGE CODE               |        | X                     | A  | B   | C   | E   | X                     | A  | 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 |                       |    |     |     |     |                       |    |     |     |     |     |                       |    |     |     |     |

## Notes

(1) See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034) RoHS-compliant except when supplied with lead (Pb)-containing termination, code "L"

 Not RoHS-compliant



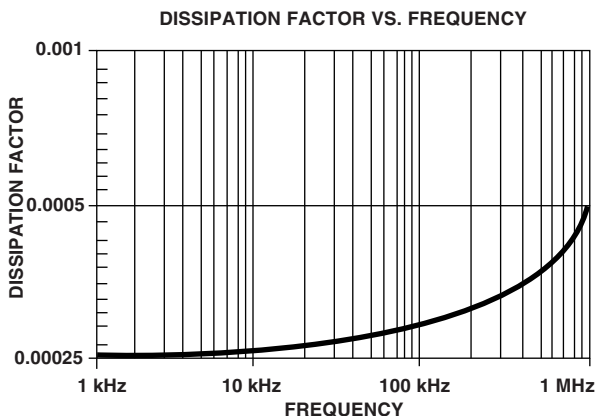
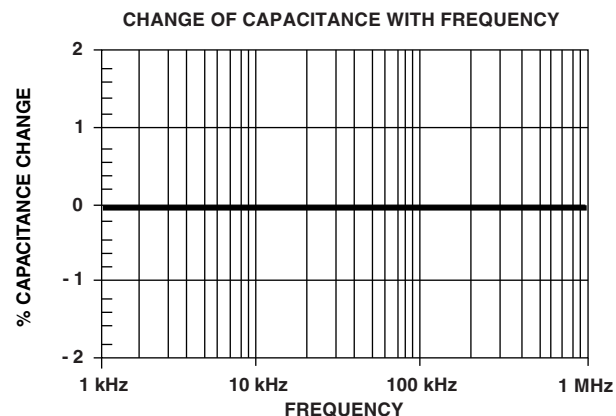
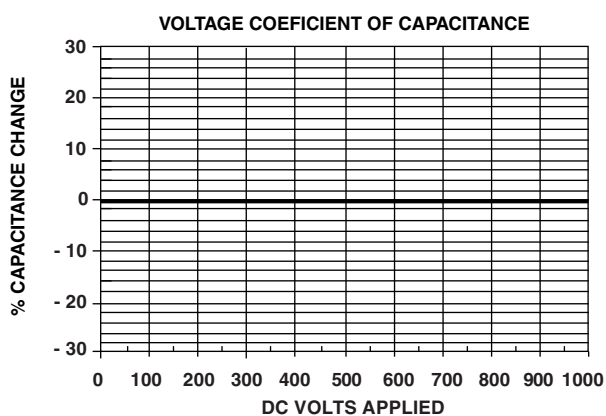
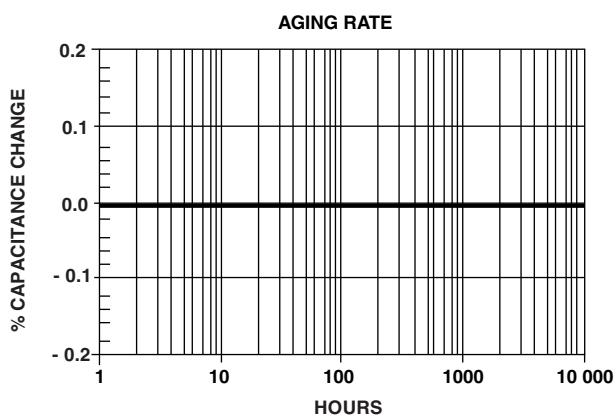
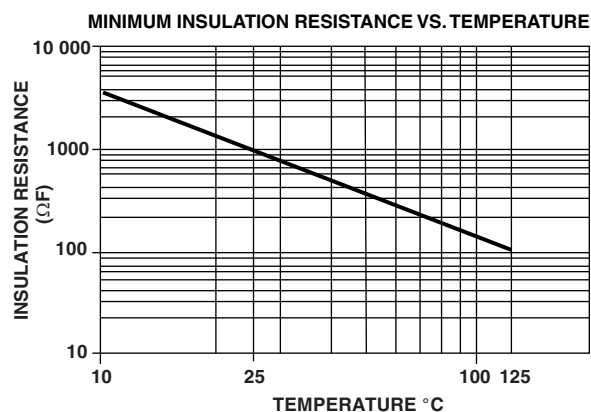
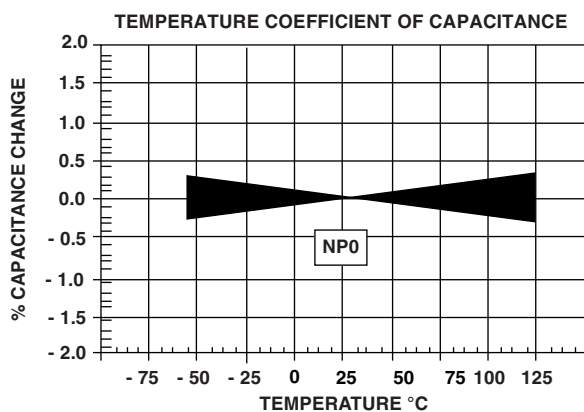
| SELECTION CHART            |        |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |
|----------------------------|--------|-----------------------|----|-----|-----|-----|-----------------------|----|-----|-----|-----|-----------------------|----|-----|-----|-----|
| 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 |                       |    |     |     |     |                       |    |     |     |     |                       |    |     |     |     |

## Notes

(1) See soldering recommendations within this data book, or visit: [www.vishay.com/doc?45034](http://www.vishay.com/doc?45034) RoHS-compliant except when supplied with lead (Pb)-containing termination, code "L"

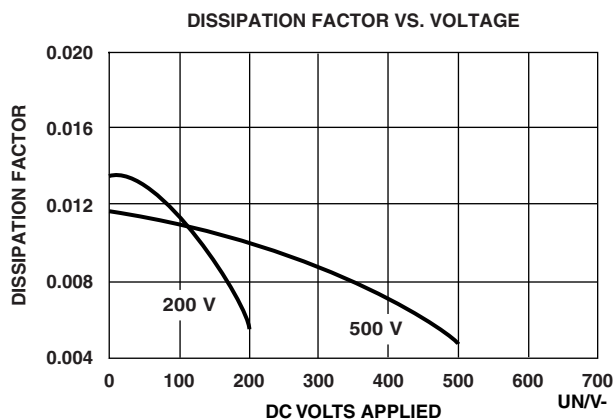
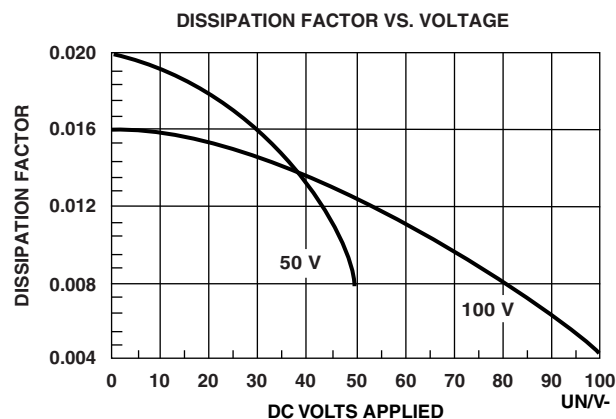
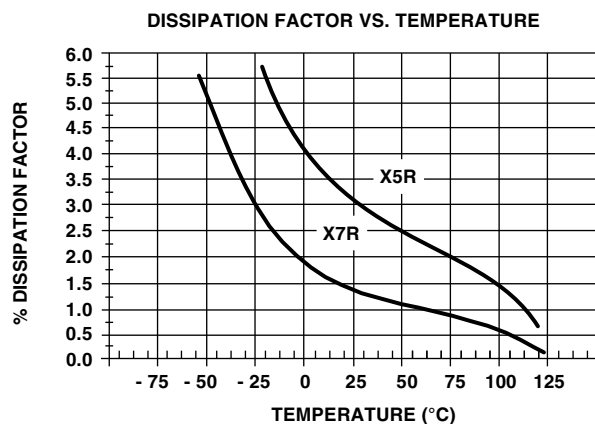
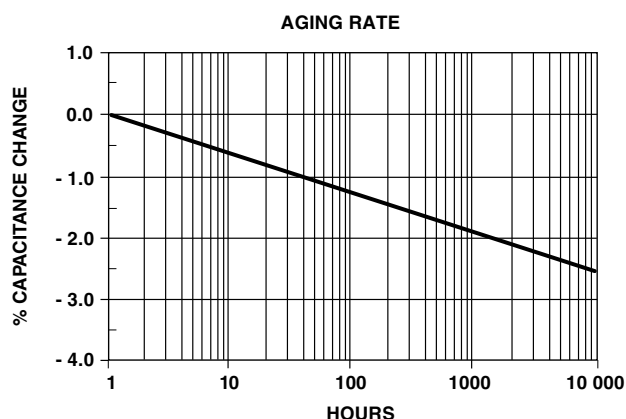
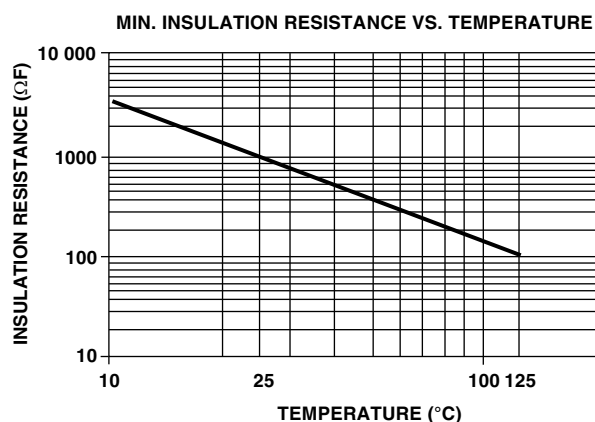
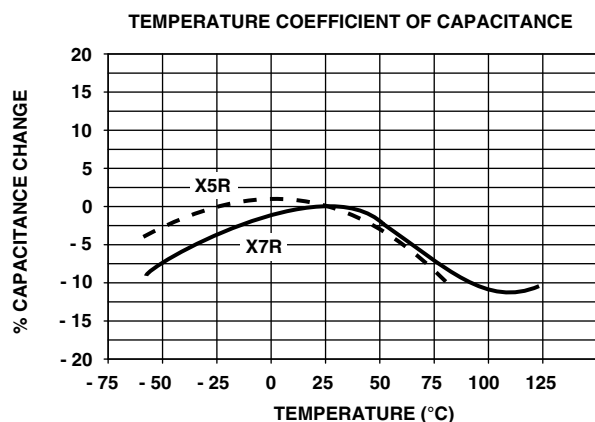
 Not RoHS-compliant

## HI-REL C0G (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                                 | 500                             | 250                             | 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**

(1) Store the components at 5 °C to +40 °C ambient temperature and ≤ 70 % relative humidity conditions.

(2) The product is recommended to be used within a time-frame of 2 years after shipment.

Check solderability in case extended shelf life beyond the expiry date is needed.

**Precautions:**

- 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.
- Store products on the shelf and avoid exposure to moisture or dust.
- Do not expose products to excessive shock, vibration, direct sunlight and so on.



## Disclaimer

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