

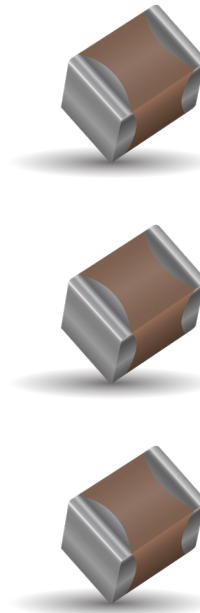
### GENERAL DESCRIPTON

AVX Corporation has supported the Automotive Industry requirements for Multilayer Ceramic Capacitors consistently for more than 10 years. Products have been developed and tested specifically for automotive applications and all manufacturing facilities are QS9000 and VDA 6.4 approved.

As part of our sustained investment in capacity and state of the art technology, we are now transitioning from the established Pd/Ag electrode system to a Base Metal Electrode system (BME).

AVX is using AECQ200 as the qualification vehicle for this transition. A detailed qualification package is available on request and contains results on a range of part numbers including:

- X7R dielectric components containing BME electrode and copper terminations with a Ni/Sn plated overcoat
- X7R dielectric components, BME electrode with epoxy finish for conductive glue mounting



### HOW TO ORDE

| 0805   | 5  | A                             | 104   | K  | 4            | T  | 2                           | A                |
|--|--|-------------------------------|---|--|--------------|--|-----------------------------|------------------|
| Size   | Voltage  | Dielectric                    | Capacitance Code (in pF)                              | Capacitance Tolerance  | Failure Rate | Terminations   | Packaging                   | Special Code     |
| 0402<br>0603<br>0805<br>1206<br>1210<br>1812 | 10V = Z<br>16V = Y<br>25V = 3<br>50V = 5<br>100V = 1<br>200V = 2<br>250V = V<br>500V = 7 | NPO = A<br>X7R = C<br>X8R = F | 2 Sig. Digits +<br>Number of Zeros<br>e.g. 10 F = 106 | F = $\pm 1\%$ ( $\geq 10\text{pF}$ )*<br>G = $\pm 2\%$ ( $\geq 10\text{pF}$ )*<br>J = $\pm 5\%$ ( $\leq 1\mu\text{F}$ )<br>K = $\pm 10\%$<br>M = $\pm 20\%$<br><br>*NPO only | 4=Automotive | T = Plated Ni and Sn<br>Z = FLEXITERM®**<br>U = Conductive Epo<br><br>**X7R X8R only | 2 = 7" Reel<br>4 = 13" Reel | A = Std. Product |

Contact factory for availability of Tolerance Options for Specific Part Numbers.

NOTE: Contact factory for non-specified capacitance values  
0402 case size available in T termination only.

### COMMERCIAL VS AUTOMOTIVE MLCC PROCESS COMPARISON

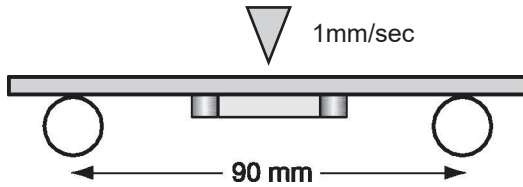
|  | Commercial   | Automotive  |
|--|--|---|
| <b>Administrative</b>  | Standard Part Numbers.<br>No restriction on who purchases these parts. | Specific Automotive Part Number. Used to control supply of product to Automotive customers.               |
| <b>Design</b>  | Minimum ceramic thickness of 0.020"                                    | Minimum Ceramic thickness of 0.029" (0.74mm) on all X7R product.  |
| <b>Dicing</b>  | Side & End Margins = 0.003" min  | Side & End Margins = 0.004" min<br>Cover Layers = 0.003" min  |
| <b>Lot Qualification (Destructive Physical Analysis - DPA)</b> | As per EIA RS469   | Increased sample plan stricter criteria.  |
| <b>Visual/Cosmetic Quality</b>                                 | Standard process and inspection  | 100% inspection   |
| <b>Application Robustness</b>                                  | Standard sampling for accelerated wave solder on X7R dielectrics       | Increased sampling for accelerated wave solder on X7R and NPO followed by lot by lot reliability testing. |

All Tests have Accept/Reject Criteria 0/1

### FLEXITERM FEATURES

#### a) Bend Test

The capacitor is soldered to the PC Board as shown:



Typical bend test results are shown below:

| Style | Conventional | Soft Term |
|-------|--------------|-----------|
| 0603  | >2mm         | >5        |
| 0805  | >2mm         | >5        |
| 1206  | >2mm         | >5        |

#### b) Temperature Cycle testing

FLEXITERM® has the ability to withstand at least 1000 cycles between -55°C and +125°C

# Automotive MLCC-NP0 Capacitance Range



| Soldering | 0402        |             | 0603        |             |      |      | 0805        |             |      |      |      | 1206        |             |      |      |      |      |      |
|-----------|-------------|-------------|-------------|-------------|------|------|-------------|-------------|------|------|------|-------------|-------------|------|------|------|------|------|
|           | Reflow/Wave |             | Reflow/Wave |             |      |      | Reflow/Wave |             |      |      |      | Reflow/Wave |             |      |      |      |      |      |
|           | 25V         | 50V         | 25V         | 50V         | 100V | 200V | 25V         | 50V         | 100V | 200V | 250V | 25V         | 50V         | 100V | 200V | 250V | 500V |      |
| 100       | 10pF        | C           | C           | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 120       | 12          | C           | C           | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 150       | 15          | C           | C           | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 180       | 18          | C           | C           | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 220       | 22          | C           | C           | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 270       | 27          | C           | C           | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 330       | 33          | C           | C           | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 390       | 39          | C           | C           | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 470       | 47          |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 510       | 51          |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 560       | 56          |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 680       | 68          |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 820       | 82          |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 101       | 100         |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 121       | 120         |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 151       | 150         |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 181       | 180         |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 221       | 220         |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 271       | 270         |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 331       | 330         |             |             | G           | G    | G    | G           | J           | J    | J    | N    | N           | J           | J    | J    | J    | J    | J    |
| 391       | 390         |             |             | G           | G    |      |             | J           | J    | J    |      |             | J           | J    | J    | J    | J    | J    |
| 471       | 470         |             |             | G           | G    |      |             | J           | J    | J    |      |             | J           | J    | J    | J    | J    | J    |
| 561       | 560         |             |             | G           | G    |      |             | J           | J    | J    |      |             | J           | J    | J    | J    | J    | J    |
| 681       | 680         |             |             | G           | G    |      |             | J           | J    | J    |      |             | J           | J    | J    | J    | J    | J    |
| 821       | 820         |             |             |             |      |      |             | J           | J    | J    |      |             | J           | J    | J    | J    | J    | J    |
| 102       | 1000        |             |             |             |      |      |             | J           | J    | J    |      |             | J           | J    | J    | J    | J    | J    |
| 122       | 1200        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
| 152       | 1500        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
| 182       | 1800        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
| 222       | 2200        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
| 272       | 2700        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
| 332       | 3300        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
| 392       | 3900        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
| 472       | 4700        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
| 103       | 10nF        |             |             |             |      |      |             |             |      |      |      |             |             |      |      |      |      |      |
|           |             | 25V         | 50V         | 25V         | 50V  | 100V | 200V        | 25V         | 50V  | 100V | 200V | 250V        | 25V         | 50V  | 100V | 200V | 250V | 500V |
|           |             | <b>0402</b> |             | <b>0603</b> |      |      |             | <b>0805</b> |      |      |      |             | <b>1206</b> |      |      |      |      |      |

| Letter    | A       | C       | E       | G       | J       | K        | M       | N       | P       | Q       | X       | Y       | Z       |
|-----------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|
| Max.      | 0.33    | 0.56    | 0.71    | 0.90    | 0.94    | 1.02     | 1.27    | 1.40    | 1.52    | 1.78    | 2.29    | 2.54    | 2.79    |
| Thickness | (0.013) | (0.022) | (0.028) | (0.035) | (0.037) | (0.040)  | (0.050) | (0.055) | (0.060) | (0.070) | (0.090) | (0.100) | (0.110) |
|           | PAPER   |         |         |         |         | EMBOSSED |         |         |         |         |         |         |         |

# Automotive MLCC - X7R

## Capacitance Range

| Soldering | 0402        |     |     | 0603        |     |     |     |      |      | 0805        |     |     |     |      |      | 1206        |     |     |     |      |      | 1210        |      |     |     | 1812        |      | 2220        |      |     |     |      |   |
|-----------|-------------|-----|-----|-------------|-----|-----|-----|------|------|-------------|-----|-----|-----|------|------|-------------|-----|-----|-----|------|------|-------------|------|-----|-----|-------------|------|-------------|------|-----|-----|------|---|
|           | Reflow/Wave |     |     | Reflow/Wave |     |     |     |      |      | Reflow/Wave |     |     |     |      |      | Reflow/Wave |     |     |     |      |      | Reflow Only |      |     |     | Reflow Only |      | Reflow Only |      |     |     |      |   |
|           | 16V         | 25V | 50V | 10V         | 16V | 25V | 50V | 100V | 200V | 250V        | 16V | 25V | 50V | 100V | 200V | 250V        | 16V | 25V | 50V | 100V | 200V | 250V        | 500V | 16V | 25V | 50V         | 100V | 50V         | 100V | 25V | 50V | 100V |   |
| 221       | Cap 220     | C   | C   | C           |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     |      |   |
| 271       | (pF) 270    | C   | C   | C           |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     |      |   |
| 331       | 330         | C   | C   | C           |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     |      |   |
| 391       | 390         | C   | C   | C           |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     |      |   |
| 471       | 470         | C   | C   | C           |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     |      |   |
| 561       | 560         | C   | C   | C           |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     |      |   |
| 681       | 680         | C   | C   | C           |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     |      |   |
| 821       | 820         | C   | C   | C           |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     |      |   |
| 102       | 1000        | C   | C   | C           | G   | G   | G   | G    | G    | G           | J   | J   | J   | J    | J    | J           | J   | J   | J   | J    | J    | J           | J    | J   | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 182       | 1800        | C   | C   | C           | G   | G   | G   | G    | G    | G           | J   | J   | J   | J    | J    | J           | J   | J   | J   | J    | J    | J           | J    | J   | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 222       | 2200        | C   | C   | C           | G   | G   | G   | G    | G    | G           | J   | J   | J   | J    | J    | J           | J   | J   | J   | J    | J    | J           | J    | J   | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 332       | 3300        | C   | C   | C           | G   | G   | G   | G    | G    | G           | J   | J   | J   | J    | J    | J           | J   | J   | J   | J    | J    | J           | J    | J   | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 472       | 4700        | C   | C   | C           | G   | G   | G   | G    | G    | G           | J   | J   | J   | J    | J    | J           | J   | J   | J   | J    | J    | J           | J    | J   | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 103       | Cap 0.01    | C   |     |             | G   | G   | G   | G    | G    | G           | J   | J   | J   | J    | J    | J           | J   | J   | J   | J    | J    | J           | J    | J   | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 123       | (F) 0.012   | C   |     |             | G   | G   | G   | G    | G    |             | J   | J   | J   | N    | N    | N           | J   | J   | J   | J    | J    | J           | J    |     | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 153       | 0.015       | C   |     |             | G   | G   | G   | G    | G    |             | J   | J   | J   | N    | N    | N           | J   | J   | J   | J    | J    | J           | J    |     | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 183       | 0.018       | C   |     |             | G   | G   | G   | G    | G    |             | J   | J   | J   | N    | N    | N           | J   | J   | J   | J    | J    | J           | J    |     | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 223       | 0.022       | C   |     |             | G   | G   | G   | G    | G    |             | J   | J   | J   | N    | N    | N           | J   | J   | J   | J    | J    | J           | J    |     | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 273       | 0.027       | C   |     |             | G   | G   | G   | G    |      |             | J   | J   | J   | N    | N    | N           | J   | J   | J   | J    | J    | J           | J    |     | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 333       | 0.033       | C   |     |             | G   | G   | G   | G    |      |             | J   | J   | J   | N    | N    | N           | J   | J   | J   | J    | J    | J           | J    |     | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 473       | 0.047       |     |     |             | G   | G   | G   | G    |      |             | J   | J   | J   | N    | N    | N           | J   | J   | J   | M    | M    | M           |      | K   | K   | K           | K    | K           | K    | K   | K   | K    |   |
| 563       | 0.056       |     |     |             | G   | G   | G   | G    |      |             | J   | J   | J   | N    |      |             | J   | J   | J   | M    | M    | M           |      | K   | K   | K           | M    | K           | K    | K   | K   |      |   |
| 683       | 0.068       |     |     |             | G   | G   | G   | G    |      |             | J   | J   | J   | N    |      |             | J   | J   | J   | M    | M    | M           |      | K   | K   | K           | M    | K           | K    | K   | K   |      |   |
| 823       | 0.082       |     |     |             | G   | G   | G   | G    |      |             | J   | J   | J   | N    |      |             | J   | J   | J   | M    | M    | M           |      | K   | K   | K           | M    | K           | K    | K   | K   |      |   |
| 104       | 0.1         |     |     |             | G   | G   | G   | G    |      |             | J   | J   | M   | N    |      |             | J   | J   | J   | M    | P    | P           |      | K   | K   | K           | M    | K           | K    | K   | K   |      |   |
| 124       | 0.12        |     |     |             | G   |     |     |      |      |             | J   | J   | N   | N    |      |             | J   | J   | M   | M    | Q    | Q           |      | K   | K   | K           | P    | K           | K    | K   | K   |      |   |
| 154       | 0.15        |     |     |             | G   |     |     |      |      |             | M   | N   | N   | N    |      |             | J   | J   | M   | M    | Q    | Q           |      | K   | K   | K           | P    | K           | K    | K   | K   |      |   |
| 224       | 0.22        |     |     |             | G   |     |     |      |      |             | M   | N   | N   | N    |      |             | J   | M   | M   | Q    | Q    | Q           |      | M   | M   | M           | P    | M           | M    | M   | M   |      |   |
| 334       | 0.33        |     |     |             |     |     |     |      |      |             | N   | N   | N   | N    |      |             | J   | M   | P   | Q    |      |             |      | P   | P   | P           | Q    | X           | X    | X   | X   |      |   |
| 474       | 0.47        |     |     |             |     |     |     |      |      |             | N   | N   | N   | N    |      |             | M   | M   | P   | Q    |      |             |      | P   | P   | P           | Q    | X           | X    | X   | X   |      |   |
| 684       | 0.68        |     |     |             |     |     |     |      |      |             | N   | N   | N   |      |      |             | M   | Q   | Q   | Q    |      |             |      | P   | P   | Q           | X    | X           | X    | X   | X   |      |   |
| 105       | 1           |     |     |             |     |     |     |      |      |             | N   | N   | N   |      |      |             | M   | Q   | Q   | Q    |      |             |      | P   | Q   | Q           | X    | X           | X    | X   | Z   | Z    |   |
| 155       | 1.5         |     |     |             |     |     |     |      |      |             |     |     |     |      |      |             | Q   | Q   | Q   | Q    |      |             |      | P   | Q   | Z           | Z    | X           | X    | X   | Z   | Z    |   |
| 225       | 2.2         |     |     |             |     |     |     |      |      |             |     |     |     |      |      |             | Q   | Q   | Q   | Q    |      |             |      | X   | Z   | Z           | Z    | Z           | Z    |     | Z   | Z    |   |
| 335       | 3.3         |     |     |             |     |     |     |      |      |             |     |     |     |      |      |             | Q   | Q   | Q   |      |      |             |      | X   | Z   | Z           | Z    | Z           |      | Z   | Z   | Z    |   |
| 475       | 4.7         |     |     |             |     |     |     |      |      |             |     |     |     |      |      |             | Q   | Q   | Q   |      |      |             |      | X   | Z   | Z           | Z    | Z           |      | Z   | Z   | Z    |   |
| 106       | 10          |     |     |             |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      | Z   | Z   | Z           |      | Z           |      | Z   | Z   | Z    |   |
| 226       | 22          |     |     |             |     |     |     |      |      |             |     |     |     |      |      |             |     |     |     |      |      |             |      |     |     |             |      |             |      |     |     | Z    | Z |
|           | 16V         | 25V | 50V | 10V         | 16V | 25V | 50V | 100V | 200V | 250V        | 16V | 25V | 50V | 100V | 200V | 250V        | 16V | 25V | 50V | 100V | 200V | 250V        | 500V | 16V | 25V | 50V         | 100V | 50V         | 100V | 25V | 50V | 100V |   |
|           | 0402        |     |     | 0603        |     |     |     |      |      | 0805        |     |     |     |      |      | 1206        |     |     |     |      |      | 1210        |      |     |     | 1812        |      | 2220        |      |     |     |      |   |

| Letter        | A               | C               | E               | G               | J               | K               | M               | N               | P               | Q               | X               | Y               | Z               |
|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Max Thickness | 0.33<br>(0.013) | 0.56<br>(0.022) | 0.71<br>(0.028) | 0.90<br>(0.035) | 0.94<br>(0.037) | 1.02<br>(0.040) | 1.27<br>(0.050) | 1.40<br>(0.055) | 1.52<br>(0.060) | 1.78<br>(0.070) | 2.29<br>(0.090) | 2.54<br>(0.100) | 2.79<br>(0.110) |
|               | PAPER           |                 |                 |                 |                 | EMBOSSED        |                 |                 |                 |                 |                 |                 |                 |

# Automotive MLCC - X8R

## Capacitance Range



| SIZE      |           | 0603        |     | 0805        |     | 1206        |     |
|-----------|-----------|-------------|-----|-------------|-----|-------------|-----|
| Soldering |           | Reflow/Wave |     | Reflow/Wave |     | Reflow/Wave |     |
|           | WVDC      | 25V         | 50V | 25V         | 50V | 25V         | 50V |
| 271       | Cap 270   | G           | G   |             |     |             |     |
| 331       | (pF) 330  | G           | G   | J           | J   |             |     |
| 471       | 470       | G           | G   | J           | J   |             |     |
| 681       | 680       | G           | G   | J           | J   |             |     |
| 102       | 1000      | G           | G   | J           | J   | J           | J   |
| 152       | 1500      | G           | G   | J           | J   | J           | J   |
| 182       | 1800      | G           | G   | J           | J   | J           | J   |
| 222       | 2200      | G           | G   | J           | J   | J           | J   |
| 272       | 2700      | G           | G   | J           | J   | J           | J   |
| 332       | 3300      | G           | G   | J           | J   | J           | J   |
| 392       | 3900      | G           | G   | J           | J   | J           | J   |
| 472       | 4700      | G           | G   | J           | J   | J           | J   |
| 562       | 5600      | G           | G   | J           | J   | J           | J   |
| 682       | 6800      | G           | G   | J           | J   | J           | J   |
| 822       | 8200      | G           | G   | J           | J   | J           | J   |
| 103       | Cap 0.01  | G           | G   | J           | J   | J           | J   |
| 123       | (F) 0.012 | G           | G   | J           | J   | J           | J   |
| 153       | 0.015     | G           | G   | J           | J   | J           | J   |
| 183       | 0.018     | G           | G   | J           | J   | J           | J   |
| 223       | 0.022     | G           | G   | J           | J   | J           | J   |
| 273       | 0.027     | G           | G   | J           | J   | J           | J   |
| 333       | 0.033     | G           | G   | J           | J   | J           | J   |
| 393       | 0.039     | G           | G   | J           | J   | J           | J   |
| 473       | 0.047     | G           | G   | J           | J   | J           | J   |
| 563       | 0.056     | G           |     | N           | N   | M           | M   |
| 683       | 0.068     | G           |     | N           | N   | M           | M   |
| 823       | 0.082     |             |     | N           | N   | M           | M   |
| 104       | 0.1       |             |     | N           | N   | M           | M   |
| 124       | 0.12      |             |     | N           | N   | M           | M   |
| 154       | 0.15      |             |     | N           | N   | M           | M   |
| 184       | 0.18      |             |     | N           |     | M           | M   |
| 224       | 0.22      |             |     | N           |     | M           | M   |
| 274       | 0.27      |             |     |             |     | M           | M   |
| 334       | 0.33      |             |     |             |     | M           | M   |
| 394       | 0.39      |             |     |             |     | M           |     |
| 474       | 0.47      |             |     |             |     | M           |     |
| 684       | 0.68      |             |     |             |     |             |     |
| 824       | 0.82      |             |     |             |     |             |     |
| 105       | 1         |             |     |             |     |             |     |
|           | WVDC      | 25V         | 50V | 25V         | 50V | 25V         | 50V |
| SIZE      |           | 0603        |     | 0805        |     | 1206        |     |

| Letter    | A       | C       | E       | G       | J       | K        | M       | N       | P       | Q       | X       | Y       | Z       |
|-----------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|
| Max.      | 0.33    | 0.56    | 0.71    | 0.90    | 0.94    | 1.02     | 1.27    | 1.40    | 1.52    | 1.78    | 2.29    | 2.54    | 2.79    |
| Thickness | (0.013) | (0.022) | (0.028) | (0.035) | (0.037) | (0.040)  | (0.050) | (0.055) | (0.060) | (0.070) | (0.090) | (0.100) | (0.110) |
|           | PAPER   |         |         |         |         | EMBOSSED |         |         |         |         |         |         |         |