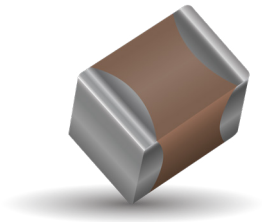
# Y5V Dielectric

## General Specifications



### GENERAL DESCRIPTION

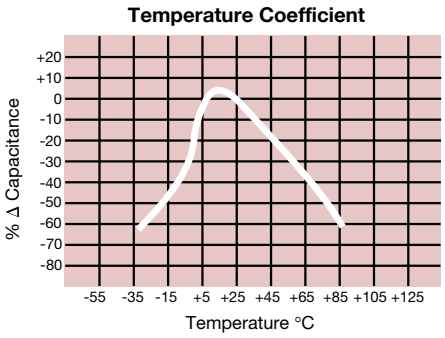
Y5V formulations are for general-purpose use in a limited temperature range. They have a wide temperature characteristic of +22% –82% capacitance change over the operating temperature range of –30°C to +85°C.

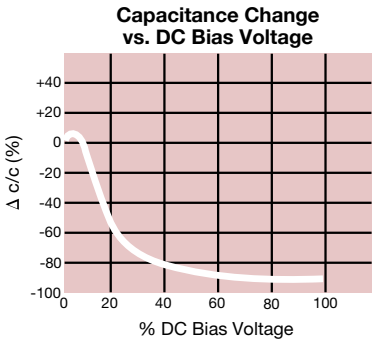
These characteristics make Y5V ideal for decoupling applications within limited temperature range.

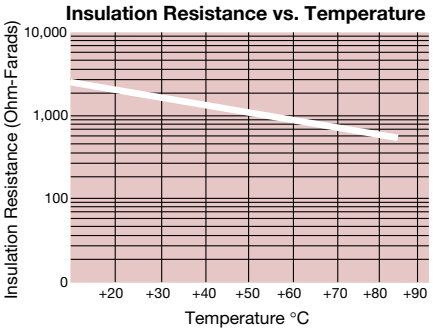
RoHS COMPLIANT

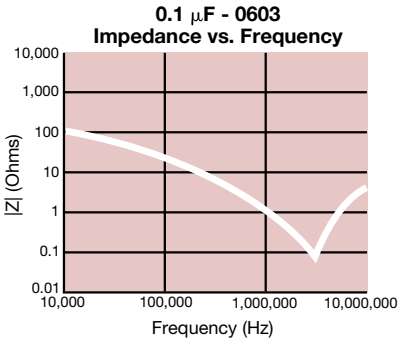
### PART NUMBER (SEE PAGE 4 FOR COMPLETE PART NUMBER EXPLANATION)

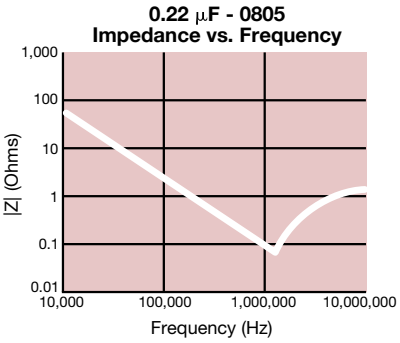
| 0805 | 3 | G | 104 | Z | A | T | 2 | A |
|---|---|---|---|---|---|---|---|---|
| **Size** (L" x W") | **Voltage** 6.3V = 6<br>10V = Z<br>16V = Y<br>25V = 3<br>50V = 5 | **Dielectric** Y5V = G | **Capacitance Code (In pF)** 2 Sig. Digits + Number of Zeros | **Capacitance Tolerance** Z = +80 –20% | **Failure Rate** A = Not Applicable | **Terminations** T = Plated Ni and Sn | **Packaging** 2 = 7" Reel<br>4 = 13" Reel | **Special Code** A = Std. Product |

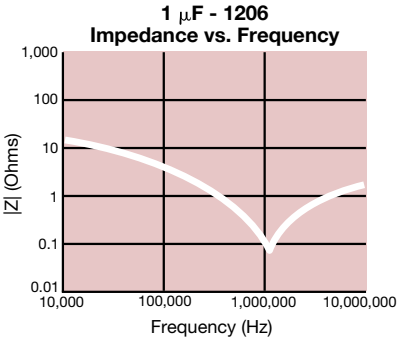


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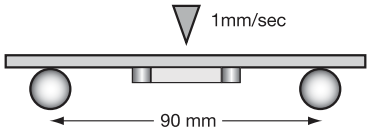
## Specifications and Test Methods

| Parameter/Test | | Y5V Specification Limits | Measuring Conditions | |
|---|---|---|---|---|
| **Operating Temperature Range** | | -30ºC to +85ºC | Temperature Cycle Chamber | |
| **Capacitance** | | Within specified tolerance | Freq.: 1.0 kHz ± 10%<br>Voltage: 1.0Vrms ± .2V<br>For Cap > 10 µF, 0.5Vrms @ 120Hz | |
| **Dissipation Factor** | | ≤ 5.0% for ≥ 50V DC rating<br>≤ 7.0% for 25V DC rating<br>≤ 9.0% for 16V DC rating<br>≤ 12.5% for ≤ 10V DC rating | | |
| **Insulation Resistance** | | 10,000MΩ or 500MΩ - µF, whichever is less | Charge device with rated voltage for 120 ± 5 secs @ room temp/humidity | |
| **Dielectric Strength** | | No breakdown or visual defects | Charge device with 250% of rated voltage for 1-5 seconds, w/charge and discharge current limited to 50 mA (max) | |
| **Resistance to Flexure Stresses** | Appearance | No defects | Deflection: 2mm<br>Test Time: 30 seconds<br>  | |
| | Capacitance Variation | ≤ ±30% | | |
| | Dissipation Factor | Meets Initial Values (As Above) | | |
| | Insulation Resistance | ≥ Initial Value x 0.1 | | |
| **Solderability** | | ≥ 95% of each terminal should be covered with fresh solder | Dip device in eutectic solder at 230 ± 5ºC for 5.0 ± 0.5 seconds | |
| **Resistance to Solder Heat** | Appearance | No defects, <25% leaching of either end terminal | Dip device in eutectic solder at 260ºC for 60 seconds. Store at room temperature for 24 ± 2 hours before measuring electrical properties. | |
| | Capacitance Variation | ≤ ±20% | | |
| | Dissipation Factor | Meets Initial Values (As Above) | | |
| | Insulation Resistance | Meets Initial Values (As Above) | | |
| | Dielectric Strength | Meets Initial Values (As Above) | | |
| **Thermal Shock** | Appearance | No visual defects | Step 1: -30ºC ± 2º | 30 ± 3 minutes |
| | Capacitance Variation | ≤ ±20% | Step 2: Room Temp | ≤ 3 minutes |
| | Dissipation Factor | Meets Initial Values (As Above) | Step 3: +85ºC ± 2º | 30 ± 3 minutes |
| | Insulation Resistance | Meets Initial Values (As Above) | Step 4: Room Temp | ≤ 3 minutes |
| | Dielectric Strength | Meets Initial Values (As Above) | Repeat for 5 cycles and measure after 24 ±2 hours at room temperature | |
| **Load Life** | Appearance | No visual defects | Charge device with twice rated voltage in test chamber set at 85ºC ± 2ºC for 1000 hours (+48, -0)<br><br>Remove from test chamber and stabilize at room temperature for 24 ± 2 hours before measuring. | |
| | Capacitance Variation | ≤ ±30% | | |
| | Dissipation Factor | ≤ Initial Value x 1.5 (See Above) | | |
| | Insulation Resistance | ≥ Initial Value x 0.1 (See Above) | | |
| | Dielectric Strength | Meets Initial Values (As Above) | | |
| **Load Humidity** | Appearance | No visual defects | Store in a test chamber set at 85ºC ± 2ºC/ 85% ± 5% relative humidity for 1000 hours (+48, -0) with rated voltage applied.<br><br>Remove from chamber and stabilize at room temperature and humidity for 24 ± 2 hours before measuring. | |
| | Capacitance Variation | ≤ ±30% | | |
| | Dissipation Factor | ≤ Initial Value x 1.5 (See above) | | |
| | Insulation Resistance | ≥ Initial Value x 0.1 (See Above) | | |
| | Dielectric Strength | Meets Initial Values (As Above) | | |



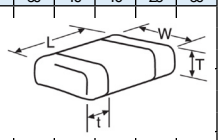
The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at www.avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.

# Y5V Dielectric

## Capacitance Range

### PREFERRED SIZES ARE SHADED

| SIZE | | 0201 | | 0402 | | | | | 0603 | | | | 0805 | | | | 1206 | | | | 1210 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soldering | | Reflow Only | | Reflow/Wave | | | | | Reflow/Wave | | | | Reflow/Wave | | | | ReflowMfeve | | | | Reflow/Wave | | | |
| Packaging | | All Paper | | All Paper | | | | | All Paper | | | | Paper/Embossed | | | | Paper/Embossed | | | | Paper/Embossed | | | |
| (L) Length | mm | 0.60 ± 0.09 | | 1.00 ± 0.10 | | | | | 1.60 ± 0.15 | | | | 2.01 ± 0.20 | | | | 3.20 ± 0.20 | | | | 3.20 ± 0.20 | | | |
| | (in.) | (0.024 ± 0.004) | | (0.040 ± 0.004) | | | | | (0.063 ± 0.006) | | | | (0.079 ± 0.008) | | | | (0.126 ± 0.008) | | | | (0.126 ± 0.008) | | | |
| W) Width | mm | 0.30 ± 0.09 | | 0.50 ± 0.10 | | | | | .81 ± 0.15 | | | | 1.25 ± 0.20 | | | | 1.60 ± 0.20 | | | | 2.50 ± 0.20 | | | |
| | (in.) | (0.011 ± 0.004) | | (0.020 ± 0.004) | | | | | (0.032 ± 0.006) | | | | (0.049 ± 0.008) | | | | (0.063 ± 0.008) | | | | (0.098 ± 0.008) | | | |
| (t) Terminal | mm | 0.15 ± 0.05 | | 0.25 ± 0.15 | | | | | 0.35 ± 0.15 | | | | 0.50 ± 0.25 | | | | 0.50 ± 0.25 | | | | .50 ± 0.25 | | | |
| | (in.) | (0.006 ± 0.002) | | (0.010 ± 0.006) | | | | | (0.014 ± 0.006) | | | | (0.020 ± 0.010) | | | | (0.020 ± 0.010) | | | | (0.020 ± 0.010) | | | |
| | WVDC | 63 | 10 | 6 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 |
| Cap | 820 | | | | | | | | | | | | | | | | | | | | | | | |
| (pF) | 1000 | | A | | | | | | | | | | | | | | | | | | | | | |
| | 2200 | | A | | | | | | | | | | | | | | | | | | | | | |
| | 4700 | | A | | | | | | | | | | | | | | | | | | | | | |
| Cap | 0.010 | A | A | | | | | | | | | | | | | | | | | | | | | |
| (µF) | 0.022 | A | | | | | | | | | | | | | | | | | | | | | | |
| | 0.047 | A | | | | C | | | | | | | | | | | | | | | | | | |
| | 0.10 | | | | C | C | | | | | G | G | | | | K | | | | | | | | |
| | 0.22 | | | | | | | | | G | | | | | | | | | | | | | | |
| | 0.33 | | | | | | | | | G | | | | | | | | | | | | | | |
| | 0.47 | | | | | C | | | | G | G | | | | | | | | | | | | | |
| | 1.0 | | | C | C | | | | G | G | J | | | N | N | N | | M | M | M | | | | N |
| | 2.2 | | | | C | | | | J | | | | | N | N | | | | K | Q | | | | |
| | 4.7 | | | | | | | | | | | | N | N | N | | | P | Q | | | N | N | |
| | 10.0 | | | | | | | | | | | | N | P | | | Q | Q | X | | X | Q | Q | Z |
| | 22.0 | | | | | | | | | | | | | | | | Q | | | | X | Z | | |
| | 47.0 | | | | | | | | | | | | | | | | | | | | | | | |
| | WVDC | 63 | 10 | 6 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 |
| SIZE | | 0201 | | 0402 | | | | | 0603 | | | | 0805 | | | | 1206 | | | | 1210 | | | |




| 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 | | | | | | | |