

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.



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

0805
Size
(L" x W")

3
Voltage
6.3V = 6
10V = Z
16V = Y
25V = 3
50V = 5

G
Dielectric
Y5V = G

104
Capacitance Code (In pF)
2 Sig. Digits + Number of Zeros

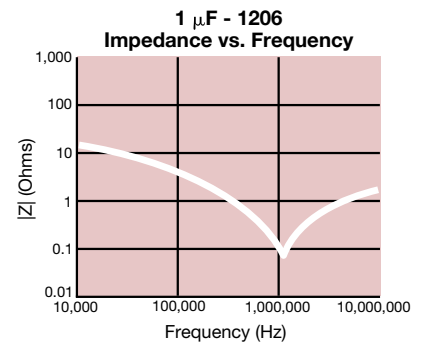
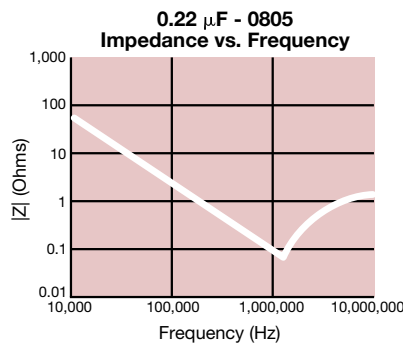
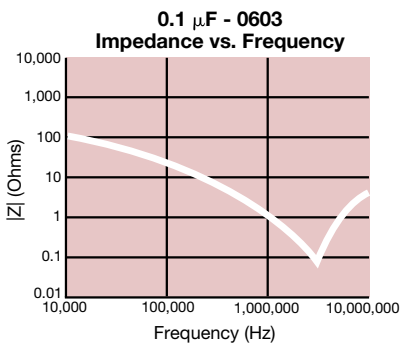
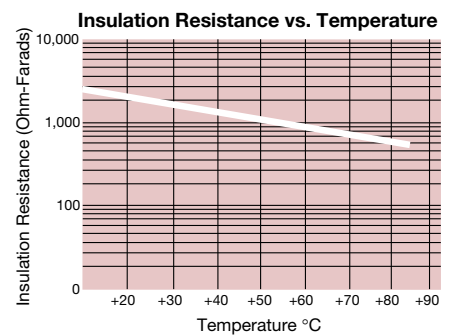
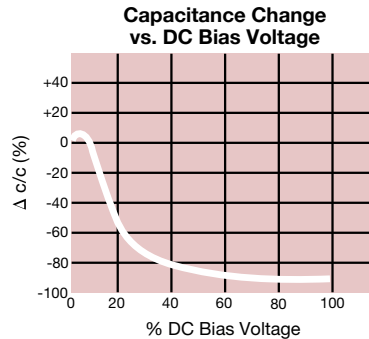
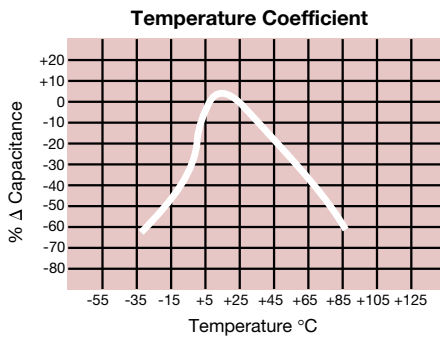
Z
Capacitance Tolerance
Z = +80 -20%

A
Failure Rate
A = Not Applicable

T
Terminations
T = Plated Ni and Sn

2
Packaging
2 = 7" Reel
4 = 13" Reel

A
Special Code
A = Std. Product



Y5V Dielectric

Specifications and Test Methods

| Parameter/Test | | Y5V Specification Limits | Measuring Conditions | |
|---------------------------------------|-----------------------|---|--|----------------|
| Operating Temperature Range | | -30°C to +85°C | Temperature Cycle Chamber | |
| Capacitance | | Within specified tolerance | Freq.: 1.0 kHz ± 10% Voltage: 1.0Vrms ± .2V For Cap > 10 µF, 0.5Vrms @ 120Hz | |
| Dissipation Factor | | ≤ 5.0% for ≥ 50V DC rating ≤ 7.0% for 25V DC rating ≤ 9.0% for 16V DC rating ≤ 12.5% for ≤ 10V DC rating | | |
| Insulation Resistance | | 10,000MΩ or 500MΩ - µF, whichever is less | | |
| Dielectric Strength | | No breakdown or visual defects | | |
| Resistance to Flexure Stresses | Appearance | No defects | Deflection: 2mm Test Time: 30 seconds 1mm/sec  | |
| | 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 ± 5°C 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 260°C 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: -30°C ± 2° | 30 ± 3 minutes |
| | Capacitance Variation | ≤ ±20% | Step 2: Room Temp | ≤ 3 minutes |
| | Dissipation Factor | Meets Initial Values (As Above) | Step 3: +85°C ± 2° | 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 85°C ± 2°C for 1000 hours (+48, -0) 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 85°C ± 2°C / 85% ± 5% relative humidity for 1000 hours (+48, -0) with rated voltage applied. 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) | | |

Y5V Dielectric Capacitance Range

PREFERRED SIZES ARE SHADED

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

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JONHON

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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А