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Jameco Part Number 740324

Y5V Dielectric

General Specifications



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.

Y5V's high dielectric constant allows the manufacture of the highest capacitance value in a given case size.

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

PART NUMBER (see page 2 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

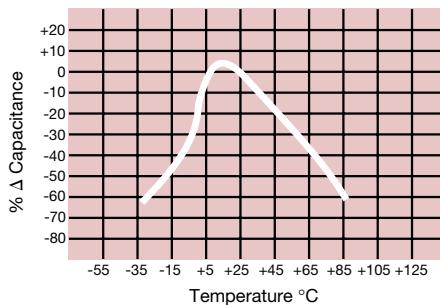
2

Packaging
2 = 7" Reel
4 = 13" Reel

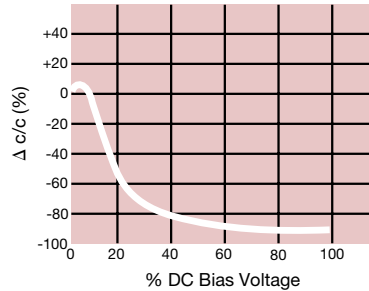
A

Special Code
A = Std.
Product

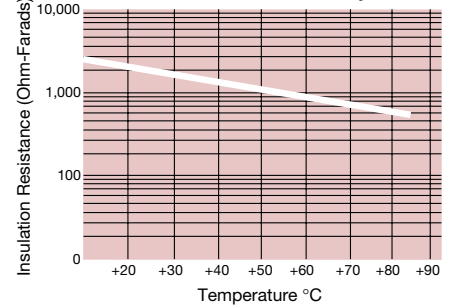
Temperature Coefficient



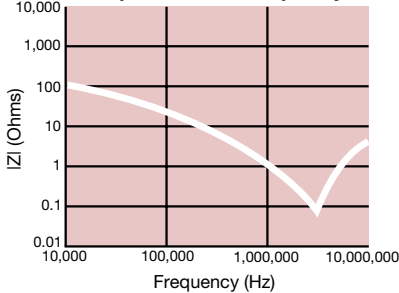
Capacitance Change vs. DC Bias Voltage



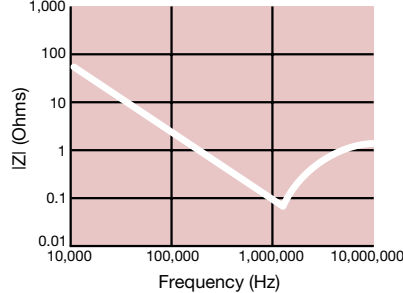
Insulation Resistance vs. Temperature



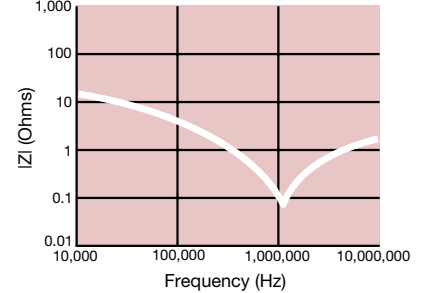
0.1 μF - 0603 Impedance vs. Frequency



0.22 μF - 0805 Impedance vs. Frequency



1 μF - 1206 Impedance vs. Frequency



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 \pm 10% Voltage: 1.0Vrms \pm .2V For Cap > 10 μ F, 0.5Vrms @ 120Hz	
Dissipation Factor		\leq 5.0% for \geq 50V DC rating \leq 7.0% for 25V DC rating \leq 9.0% for 16V DC rating \leq 12.5% for \leq 10V DC rating		
Insulation Resistance		100,000M Ω or 500M Ω - μ F, whichever is less	Charge device with rated voltage for 60 \pm 5 secs @ room temp/humidity	
Dielectric Strength		No breakdown or visual defects	Charge device with 300% 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 Test Time: 30 seconds 	
	Capacitance Variation	\leq \pm 30%		
	Dissipation Factor	Meets Initial Values (As Above)		
	Insulation Resistance	\geq Initial Value x 0.1		
Solderability		\geq 95% of each terminal should be covered with fresh solder	Dip device in eutectic solder at 230 \pm 5°C for 5.0 \pm 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 \pm 2 hours before measuring electrical properties.	
	Capacitance Variation	\leq \pm 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 \pm 2°	30 \pm 3 minutes
	Capacitance Variation	\leq \pm 20%	Step 2: Room Temp	\leq 3 minutes
	Dissipation Factor	Meets Initial Values (As Above)	Step 3: +85°C \pm 2°	30 \pm 3 minutes
	Insulation Resistance	Meets Initial Values (As Above)	Step 4: Room Temp	\leq 3 minutes
	Dielectric Strength	Meets Initial Values (As Above)	Repeat for 5 cycles and measure after 24 \pm 2 hours at room temperature	
	Load Life		No visual defects	Charge device with twice rated voltage in test chamber set at 85°C \pm 2°C for 1000 hours (+48, -0)
Load Humidity	Capacitance Variation	\leq \pm 30%	Remove from test chamber and stabilize at room temperature for 24 \pm 2 hours before measuring.	
	Dissipation Factor	\leq Initial Value x 1.5 (See Above)		
	Insulation Resistance	\geq Initial Value x 0.1 (See Above)		
	Dielectric Strength	Meets Initial Values (As Above)		
	Appearance	No visual defects		
Load Humidity	Capacitance Variation	\leq \pm 30%	Store in a test chamber set at 85°C \pm 2°C/ 85% \pm 5% relative humidity for 1000 hours (+48, -0) with rated voltage applied.	
	Dissipation Factor	\leq Initial Value x 1.5 (See above)		
	Insulation Resistance	\geq Initial Value x 0.1 (See Above)		
	Dielectric Strength	Meets Initial Values (As Above)		
	Appearance	No visual defects		

Y5V Dielectric



Capacitance Range

PREFERRED SIZES ARE SHADED

SIZE		0201		0402					0603				0805				1206				1210							
Soldering		Reflow Only		Reflow Only					Reflow/Wave				Reflow/Wave				Reflow/Wave				Reflow/Wave							
Packaging		All Paper		All Paper					All Paper				Paper/Embossed				Paper/Embossed				Paper/Embossed							
(L) Length	MM (in.)	0.60 ± 0.03 (0.024 ± 0.001)		1.00 ± 0.10 (0.040 ± 0.004)					1.60 ± 0.15 (0.063 ± 0.006)				2.01 ± 0.20 (0.079 ± 0.008)				3.20 ± 0.20 (0.126 ± 0.008)				3.20 ± 0.20 (0.126 ± 0.008)							
	MM (in.)	0.30 ± 0.03 (0.011 ± 0.001)		0.50 ± 0.10 (0.020 ± 0.004)					.81 ± 0.15 (0.032 ± 0.006)				1.25 ± 0.20 (0.049 ± 0.008)				1.60 ± 0.20 (0.063 ± 0.008)				2.50 ± 0.20 (0.098 ± 0.008)							
(t) Terminal	MM (in.)	0.15 ± 0.05 (0.006 ± 0.002)		0.25 ± 0.15 (0.010 ± 0.006)					0.35 ± 0.15 (0.014 ± 0.006)				0.50 ± 0.25 (0.020 ± 0.010)				0.50 ± 0.25 (0.020 ± 0.010)				.50 ± 0.25 (0.020 ± 0.010)							
	WVDC	6.3	10	6.3	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)	2200	1000 pF																										
	2700	1000 pF																										
Cap (pF)	3300	A	A																									
	3900	A	A																									
	4700	A	A	C	C	C	C	C																				
	5600	A	A	C	C	C	C	C																				
Cap (µF)	6800	A	A	C	C	C	C	C																				
	8200	A	A	C	C	C	C	C																				
	0.010	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E												
	0.012	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E												
Cap (µF)	0.015	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E												
	0.018	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E												
	0.022	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E												
Cap (µF)	0.027	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E												
	0.033	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E												
	0.039	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E												
Cap (µF)	0.047	A	A	C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J								
	0.056			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J								
	0.068			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J								
Cap (µF)	0.082			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J								
	0.10			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J	J	J	J	J	J	J	J	
	0.12			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J	J	J	J	J	J	J	J	
Cap (µF)	0.15			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J	J	J	J	J	J	J	J	
	0.18			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J	J	J	J	J	J	J	J	
	0.22			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J	J	J	J	J	J	J	J	
Cap (µF)	0.27			C	C	C	C	C	G	G	G	G	E	E	E	E	J	J	J	J	J	J	J	J	J	J	J	
	0.33								G	G			J	J	M	M	J	J	J	J	J	J	J	J	J	J	J	
	0.39								G	G			J	J	M	M	J	J	J	J	J	J	J	J	J	J	J	
Cap (µF)	0.47								G	G			J	J	N	N	J	J	J	J	J	J	J	J	J	J	J	
	0.56								G	G			J	J	N	N	J	J	J	J	J	J	J	J	J	J	J	
	0.68								G	G			J	J	N	N	J	J	J	J	J	J	J	J	J	J	J	
Cap (µF)	0.82								G	G			J	J	N	N	J	J	J	J	J	J	J	J	J	J	J	
	1.0								G	G			N	N	N	N	J	J	J	J	J	J	J	J	J	J	J	
	1.2								G	G			N	N	N	N	J	J	J	J	J	J	J	J	J	J	J	
Cap (µF)	1.5								G	G			N	N	N	N	J	J	J	J	J	J	J	J	J	J	J	
	1.8												N	N	N	N	M	M	M	M	J	J	J	J	J	J	J	
	2.2												N	N	N	N	M	M	M	M	J	J	J	J	J	J	J	
Cap (µF)	2.7												N	N	N	N	M	M	M	M	J	J	J	J	J	J	J	
	3.3												N	N	N	N	M	M	M	M	P	P	P	P	P	P	P	
	3.9												N	N	N	N	P	P	P	P	P	P	P	P	P	P	P	
Cap (µF)	4.7												N	N	N	N	P	P	P	P	P	P	P	P	P	P	P	
	5.6																Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
	6.8																Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
Cap (µF)	8.2																Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
	10.0																Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
	12.0																Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
Cap (µF)	15.0																Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	
	18.0																X	X	X	X	X	X	X	X	X	X	X	
	22.0																X	X	X	X	X	X	X	X	X	X	X	
Cap (µF)	47.0																X	X	X	X	X	X	X	X	X	X	X	
	100.0																X	X	X	X	X	X	X	X	X	X	X	
	WVDC	6.3	10	6.3	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	BB	CC													
	Max. Thickness	0.33 (0.013)	0.56 (0.022)	0.71 (0.028)	0.86 (0.034)	0.94 (0.037)	1.02 (0.040)	1.27 (0.050)	1.40 (0.055)	1.52 (0.060)	1.78 (0.070)	2.29 (0.090)	2.54 (0.100)	2.79 (0.110)	3.05 (0.120)	3.175 (0.125)												
PAPER						EMBOSSSED																						

Contact Factory for Multiples

