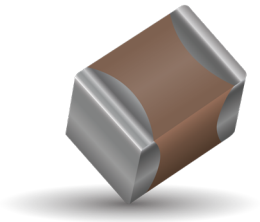
Y5V Dielectric, KGM Series

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.

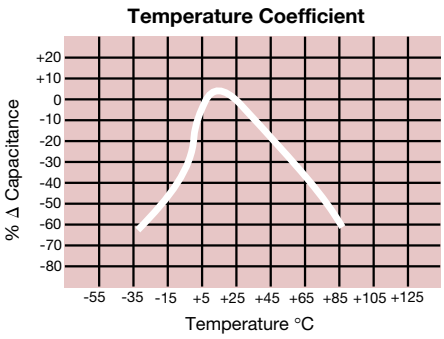
HOW TO ORDER

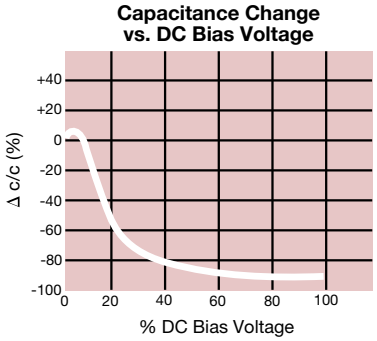
KGM	03	A	V5	0J	102	Z	H
Series General Purpose Tin/ Nickel Finish	**Size** 03 = 0201 05 = 0402 15 = 0603 21 = 0805 31 = 1206 32 = 1210	**Thickness** See Cap Chart	**Dielectric** Y5V = V5	**Voltage** 0G = 4.0V 0J = 6.3V 1A = 10V 1C = 16V 1E = 25V 1H = 50V	**Capacitance Code Code (in pF)** 2 Significant Digits +Number of zeros eg. 10µF = 106 10nF = 103 47pF = 470	**Capacitance Tolerance** Z = + 80 -20%	**Packaging** See Table Below

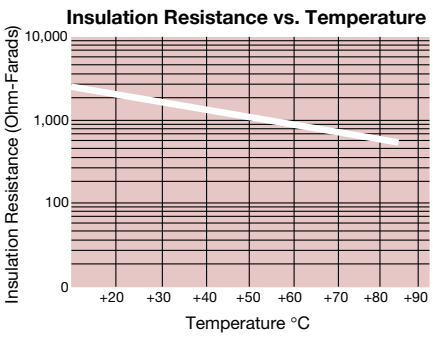
RoHS COMPLIANT

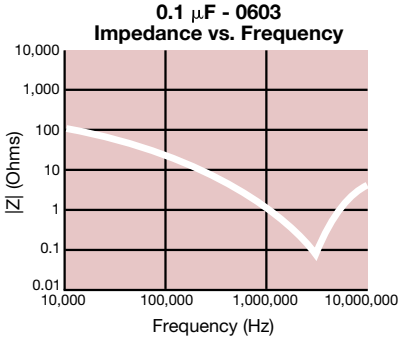
PACKAGING CODES

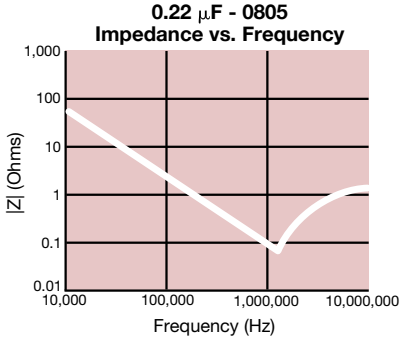
Code	EIA (inch)	IEC(mm)	7" Paper	7" Embossed	13" Paper	13"Embossed
03	0201	0603	H		N	
05	0402	1005	H		N	
15	0603	1608	T		M	
21	0805	2012		U		L
31	1206	3216	T	U	M	L
32	1210	3225		U		L

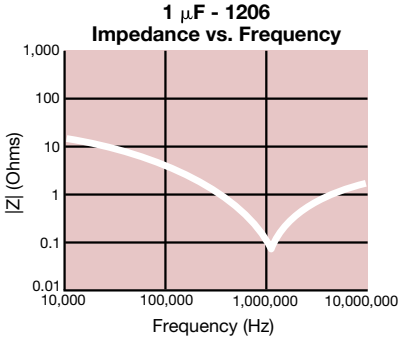












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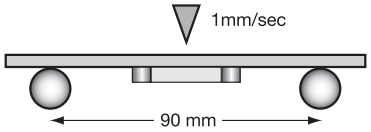
Specifications and Test Methods

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	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 Test Time: 30 seconds 	
	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)		

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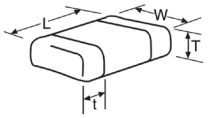
Capacitance Range

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		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			0.81 ±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±0.005		0.25±0.15			0.35±0.15				0.50±0.25				0.50±0.25				0.50±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	6.3	10	6	10	16	10	16	25	50	10	16	25	50	10	16	25	50	10	16	25	50
Cap	820																					
(pF)	1000	A	A																			
	2200	A	A																			
	4700	A	A																			
Cap	0.010	A	A	A	A	A	A	A	A	A	Y	Y	Y	Y	Z	Z	Z	Z				
(µF)	0.022	A		A	A	A	A	A	A	A	Y	Y	Y	Y	Z	Z	Z	Z				
	0.047	A		A	A	A	A	A	A	A	Y	Y	Y	Y	Z	Z	Z	Z				
	0.10	A		A	A	A	A	A	A	A	C	C	C	C	Z	Z	Z	Z	C	C	C	C
	0.22			A	A	A	A	A	A	A	C	C	C	C	Z	Z	Z	Z	C	C	C	C
	0.33			A	A	A	A	A	A		C	C	C	C	B	B	B	B	C	C	C	C
	0.47			A	A	A	A	A	A		C	C	C	C	B	B	B	B	C	C	C	C
	1.0			A	A		A	A	A		A	A	A	A	N	N	N	N	H	H	H	H
	2.2						A	A			A	A	A		A	A	A	A	L	L	L	L
	4.7						A				A	A			A	A	A		L	L	L	A
	10.0										A				A	A	K		K	K	K	L
	22.0										A				A	A			K	L		
	47.0																					
	WVDC	6.3	10	6	10	16	10	16	25	50	10	16	25	50	10	16	25	50	10	16	25	50
SIZE		0201		0402			0603				0805				1206				1210			



Case Size	0201 (KGM 03)	0402 (KGM 05)	0603 (KGM 15)	0805 (KGM 21)			1206 (KGM 31)						1210 (KGM 32)					
Thickness Letter	A	A	A	Y	C	A	Z	B	N	A	K		C	H	K	A	L	
Max Thickness(mm)	0.33	0.55	0.90	0.76	0.95	1.45	0.76	0.94	1.27	1.80	2.29		1.27	1.80	2.29	2.70	2.80	
Carrier Tape	PAPER	PAPER	PAPER	PAPER	PAPER	EMB	PAPER	PAPER	EMB	EMB	EMB		EMB	EMB	EMB	EMB	EMB	
Packaging Code 7"reel	H	H	T	T	T	U	T	T	U	U	U		U	U	U	U	U	
Packaging Code 13"reel	N	N	M	M	M	L	M	M	L	L	L		L	L	L	L	L	
	PAPER			PAPER		EMB	PAPER		EMB				EMB					