

04025C271JAT2A Datasheet

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DiGi Electronics Part Number	04025C271JAT2A-DG
Manufacturer	KYOCERA AVX
Manufacturer Product Number	04025C271JAT2A
Description	CAP CER 270PF 50V X7R 0402
Detailed Description	270 pF ±5% 50V Ceramic Capacitor X7R 0402 (1005 Metric)

This model 04025C271JAT2A is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:

04025C271JAT2A

Series:

-

Capacitance:

270 pF

Voltage - Rated:

50V

Operating Temperature:

-55°C ~ 125°C

Ratings:

-

Failure Rate:

-

Package / Case:

0402 (1005 Metric)

Height - Seated (Max):

-

Lead Spacing:

-

Manufacturer:

KYOCERA AVX

Product Status:

Active

Tolerance:

±5%

Temperature Coefficient:

X7R

Features:

-

Applications:

General Purpose

Mounting Type:

Surface Mount, MLCC

Size / Dimension:

0.039" L x 0.020" W (1.00mm x 0.50mm)

Thickness (Max):

0.022" (0.56mm)

Lead Style:

-

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8532.24.0020

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

X7R Dielectric

General Specifications



X7R formulations are called “temperature stable” ceramics and fall into EIA Class II materials. X7R is the most popular of these intermediate dielectric constant materials. Its temperature variation of capacitance is within ±15% from -55°C to +125°C. This capacitance change is non-linear.

Capacitance for X7R varies under the influence of electrical operating conditions such as voltage and frequency.

X7R dielectric chip usage covers the broad spectrum of industrial applications where known changes in capacitance due to applied voltages are acceptable.

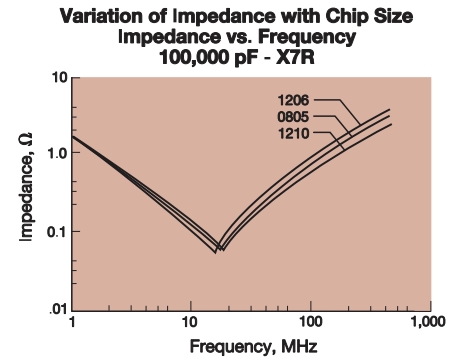
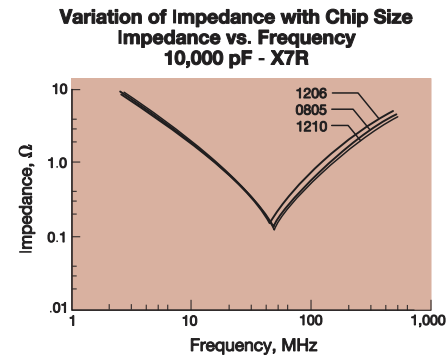
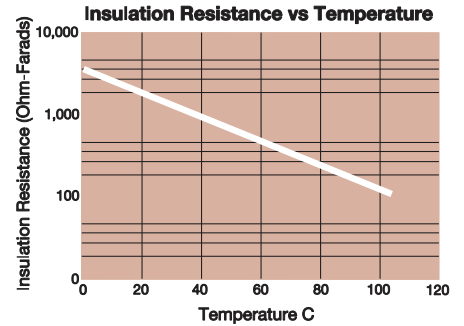
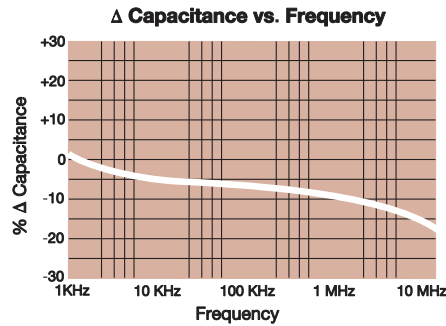


PART NUMBER (SEE PAGE 4 FOR COMPLETE PART NUMBER EXPLANATION)

0805	5	C	103	M	A	T	2	A
Size (L" x W")	Voltage 4V = 4 6.3V = 6 10V = Z 16V = Y 25V = 3 50V = 5 100V = 1 200V = 2 500V = 7	Dielectric X7R = C	Capacitance Code (In pF) 2 Sig. Digits + Number of Zeros	Capacitance Tolerance J = ± 5%* K = ±10% M = ± 20%	Failure Rate A = Not Applicable	Terminations T = Plated Ni and Sn Z = FLEXITERM®** *Optional termination **See FLEXITERM® X7R section	Packaging 2 = 7" Reel 4 = 13" Reel Contact Factory For Multiples	Special Code A = Std. Product

*≤1μF only, contact factory for additional values

NOTE: Contact factory for availability of Termination and Tolerance Options for Specific Part Numbers. Contact factory for non-specified capacitance values.



X7R Dielectric

Specifications and Test Methods

Parameter/Test		X7R Specification Limits	Measuring Conditions	
Operating Temperature Range		-55°C to +125°C	Temperature Cycle Chamber	
Capacitance		Within specified tolerance		
Dissipation Factor		$\leq 10\%$ for $\geq 50V$ DC rating $\leq 12.5\%$ for 25V DC rating $\leq 12.5\%$ for $\leq 10V$ DC rating Contact Factory for DF by PN	Freq.: 1.0 kHz $\pm 10\%$ Voltage: 1.0Vrms $\pm .2V$ For Cap > 10 μ F, 0.5Vrm @ 120Hz	
Insulation Resistance		10,000M Ω or 500M Ω - μ F, whichever is less	Charge device with rated voltage for 120 \pm 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) Note: Charge device with 150% of rated voltage for 500V devices.	
Resistance to Flexure Stresses	Appearance	No defects	Deflection: 2mm Test Time: 30 seconds	
	Capacitance Variation	$\leq \pm 12\%$		
	Dissipation Factor	Meets Initial Values (As Above)		
	Insulation Resistance	\geq Initial Value x 0.3		
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	$\leq \pm 7.5\%$		
	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: -55°C \pm 2°	30 \pm 3 minutes
	Capacitance Variation	$\leq \pm 7.5\%$	Step 2: Room Temp	≤ 3 minutes
	Dissipation Factor	Meets Initial Values (As Above)	Step 3: +125°C \pm 2°	30 \pm 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 \pm 2 hours at room temperature	
Load Life	Appearance	No visual defects	Pre-treatment: After mounting, perform heat treatment 150+0/-10C for 2 hour, then stabilise for 24+/-2 hour at room temp, then measure. Charge device with \geq rated voltage in test chamber set at 125°C \pm 2°C for 1000 hours (+48, -0). Pre-treatment: After remove from test chamber, perform heat treatment 150+0/-10C for 2 hour, then stabilise for 24+/-2 hour at room temp, then measure. Contact KYOCERA AVX for datasheet of specific parts.	
	Capacitance Variation	$\leq \pm 12.5\%$		
	Dissipation Factor	\leq Initial Value x 2.0 (See Above)		
	Insulation Resistance	\geq Initial Value x 0.3 (See Above)		
	Dielectric Strength	Meets Initial Values (As Above)		
Load Humidity	Appearance	No visual defects	Pre-treatment: After mounting, perform heat treatment 150+0/-10C for 2 hour, then stabilise for 24+/-2 hour at room temp, then measure. 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. Pre-treatment: After remove from test chamber, perform heat treatment 150+0/-10C for 2 hour, then stabilise for 24+/-2 hour at room temp, then measure.	
	Capacitance Variation	$\leq \pm 12.5\%$		
	Dissipation Factor	\leq Initial Value x 2.0 (See Above)		
	Insulation Resistance	\geq Initial Value x 0.3 (See Above)		
	Dielectric Strength	Meets Initial Values (As Above)		



X7R Dielectric Capacitance Range

PREFERRED SIZES ARE SHADED

SIZE	1210							1812					1825			2220					2225			
	Reflow Only Paper/Embossed							Reflow Only All Embossed					Reflow Only All Embossed			Reflow Only All Embossed					Reflow Only All Embossed			
(L) Length	3.30 ± 0.4 (0.130 ± 0.016)							4.50 ± 0.40 (0.177 ± 0.016)					4.50 ± 0.40 (0.177 ± 0.016)			5.70 ± 0.50 (0.224 ± 0.020)					5.70 ± 0.40 (0.224 ± 0.016)			
(W) Width	2.50 ± 0.30 (0.098 ± 0.012)							3.20 ± 0.40 (0.126 ± 0.016)					6.40 ± 0.40 (0.252 ± 0.016)			5.00 ± 0.40 (0.197 ± 0.016)					6.30 ± 0.40 (0.248 ± 0.016)			
(t) Terminal	0.50 ± 0.25 (0.020 ± 0.010)							0.61 ± 0.36 (0.024 ± 0.014)					0.61 ± 0.36 (0.024 ± 0.014)			0.64 ± 0.39 (0.025 ± 0.015)					0.64 ± 0.39 (0.025 ± 0.015)			
WVDC	10	16	25	50	100	200	500	16	25	50	100	200	500	50	100	200	25	50	100	200	500	50	100	200
Cap (pF)	100	101																						
	150	151																						
	220	221		K	K	K	M																	
	330	331		K	K	K	M			N	N	N	N											
	470	471		K	K	K	M			N	N	N	N											
	680	681		K	K	K	M			N	N	N	N											
	1000	102	K	K	K	K	M	N	N	N	N	N	N	X	X	X	X	X	X	X	X	X	X	X
	1500	152	K	K	K	K	M	N	N	N	N	N	N	X	X	X	X	X	X	X	X	X	X	X
	2200	222	K	K	K	K	M	N	N	N	N	N	N	X	X	X	X	X	X	X	X	X	X	X
	3300	332	K	K	K	K	P	N	N	N	N	N	N	X	X	X	X	X	X	X	X	X	X	X
	4700	472	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	6800	682	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
Cap (µF)	0.01	103	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.015	153	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.022	223	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.033	333	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.047	473	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.068	683	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.1	104	K	K	K	K	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.15	154	K	K	K	M	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.22	224	K	K	K	M	P	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.33	334	K	K	K	M	Q	N	N	N	N	N	P	X	X	X	X	X	X	X	X	X	X	X
	0.47	474	M	M	M	P	N	N	N	N	N	Q	X	X	X	X	X	X	X	X	X	X	X	
	0.68	684	M	M	P	X	Q	Q	Q	Q	Z		X	X	X	X	X	X	Z	X	X	X	X	
	1.0	105	P	P	P	X	Q	Q	Q	X	Z		X	X	X	X	X	X	7	X	X	X	X	
	1.5	155	N	N	Z	Z	Z	Z	Z	Z			X	X	Z	X	X	Z		X	X	Z	Z	
	2.2	225	X	X	Z	Z	Z	Z	Z	Z			X	X	Z	X	X	Z		X	X	Z	Z	
	3.3	335	X	X	Z	Z	Z	Z	Z	Z			X	X		X	Z			X	X			
	4.7	475	Z	Z	Z	Z	Z	Z	Z	Z			X	X		Z	Z			X	X			
	10	106	Z	Z	Z	Z	Z	Z	Z	Z			Z	Z		Z	7			Z	Z			
	22	226	Z	Z	Z											Z								
	47	476	Z																					
	100	107																						
WVDC	10	16	25	50	100	200	500	16	25	50	100	200	500	50	100	200	25	50	100	200	500	50	100	200
SIZE	1210							1812					1825			2220					2225			



Letter	A	B	C	E	G	J	K	M	N	P	Q	X	Y	Z	7
Max. Thickness	0.33 (0.013)	0.22 (0.009)	0.56 (0.022)	0.71 (0.028)	0.90 (0.035)	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)	3.30 (0.130)
	PAPER						EMBOSSED								

NOTE: Contact factory for non-specified capacitance values

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