

INTRODUCTION

Y2X1 Series are constructed with special Metalized/Polypropylene film dielectric, copperplated lead, in plastic case and epoxy resin sealed. They are suitable for Line-By-Pass, antenna coupling, Across-The-Line, spark killer circuits EMI filter and switching power supply applications.

FEATURES

- Non-inductive construction
- Self-healing property (Metalized)
- Flame-retardant plastic case and epoxy resin (compliant to UL 94V-0)
- High moisture resistance
- Agency recognized

RECOGNITION

Agency	File number	Monogram
UL/CUL	E346827	
ENEC	No. SE/1 1048-2A	
CQC	CQC11001060988	

DIMENSIONS (mm)

Cap (µF)	Code	W	H	T	P	d
0.0010	102	13	9	4	10	0.6
0.0015	152	13	9	4	10	0.6
0.0022	222	13	10	5	10	0.6
0.0022	222	18	11	5	15	0.8
0.0033	332	13	10	5	10	0.6
0.0033	332	18	11	5	15	0.8
0.0047	472	13	11	5	10	0.6
0.0047	472	18	11	5	15	0.8
0.0056	562	18	11	5	15	0.8
0.0068	682	13	12	6	10	0.6
0.0068	682	18	11	5	15	0.8
0.0082	822	13	13	7	10	0.6
0.0082	822	18	11	5	15	0.8
0.0100	103	13	14	8	10	0.6
0.0100	103	18	11	5	15	0.8
0.0150	153	18	12	6	15	0.8
0.0220	223	18	13	7	15	0.8
0.0330	333	18	15	9	15	0.8
0.0470	473	18	17	10	15	0.8
0.0470	473	26	16	6	22.5	0.8
0.0680	683	26	16.5	7.5	22.5	0.8
0.1000	104	26	18	9	22.5	0.8
0.15 (m)	154	26	20	11	22.5	0.8
0.1500	154	26	20	11	22.5	0.8
0.2200	224	26	24	14	22.5	0.8

SPECIFICATIONS SUMMARY

Type	Performance
Operating Temperature Range	-40°C ~ + 110°C
Climatic Category	40/110/56/B
Capacitance Range (25°C)	0.001µF ~ 0.22µF
Capacitance Tolerance	±5% (J), ±10%(K), ±20%(M)
Rated Voltage	300V _{AC}
Dissipation Factor at 20 °C and 1KHz	0.10% max
Insulation resistance	100,000 MΩ or more (25°C)
dv/dt (v/µ sec) at 438 Vdc	800, Ls=10mm 600, Ls=15mm 500, Ls=22.5mm

STRAIGHT LEAD SPACING (P)

* Leadspacing is straight lead non-formed original leadspacing.

mm	10	15	22.5
Code	100	150	225

LEAD LENGTH FROM SEATING PLANE

mm	10	10	15
Code	100	100	150

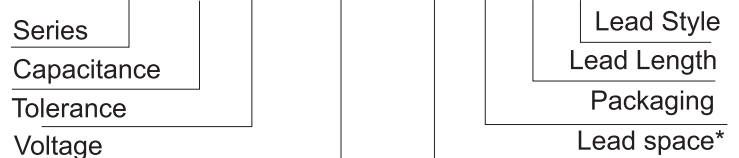
LEAD STYLE

CODE	STYLE
S	Straight
K	Kink-In (Stand off)
F	Form out**
I	Form in**

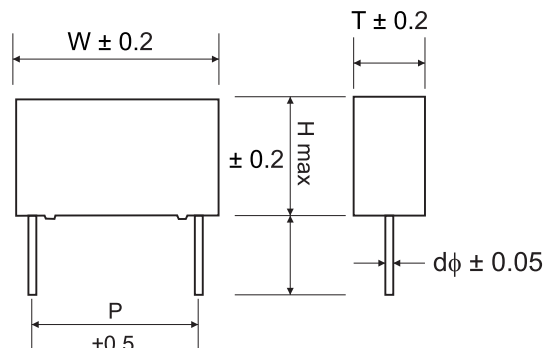
** For Bulk packaging with formed leads, add an additional 3 digit lead spacing code at end of part number.

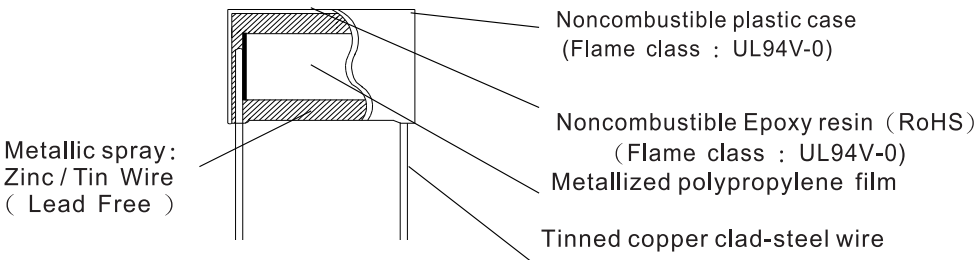
PART NUMBER EXAMPLE

Y2X1 472 M 300VAC 100 B 200 S



* Leadspacing is straight lead non-formed original leadspacing.



TYPE: Y2/X1		METALLIZED POLYPROPYLENE CAPACITOR	
PRODUCT SPECIFICATION			
1. Scope	Metallized polypropylene dielectric fixed capacitor is approved by UL&CUL, ENEC, and CQC. Related documents: IEC60384-14, EN132400, UL1414 CSA C22.2 No.1, GB/T14472 (1998) Typical applications: interference suppression and <<across-the-line>> applications		
2. Product Range	Operating temperature range.	-40 to + 100°C (IEC60384-14) + 110°C max. (UL&CUL) (including temperature rise on unit surface)	
	Rated voltage	300VAC max. (IEC60384-14) 300VAC max. (UL&CUL) 1000VDC max.	
	Capacitance	Measured @ 1.0 ± 0.2KHz @25°C, 1 Vrms	
3. Appearance	1. Marking shall be legible. 2. Plated lead-wire, no rust. 3. Coating shall be without crack, pinhole.		
4. Construction	Non-inductive construction, wound with Metallized polypropylene film dielectric. <div style="display: flex; align-items: center; justify-content: center;">  </div>		
5. Conditional Standard Test	The test temperature of from 15°C to 35°C, RH45 to 75%.		
CHARACTERISTICS			
NO.	Item	Performance	
1.	Tensile Termination Strength	<ul style="list-style-type: none"> Straight lead pull gradually for 10 ± 1 second No broken or 100se terminations shall be found 	IEC 60384-14-4.3 (IEC 60384-1-4.13)
2.	Termination Bending Strength	<ul style="list-style-type: none"> Lead wire to be bent 90°C in opposing directions, one time No broken or loose terminations shall be found 	IEC 6038-14-4.4.3 (IEC 6038-1-4.13)
3.	Vibration Test	<ul style="list-style-type: none"> 10Hz to 55Hz, amplitude 1.5mm, 1 minute test cycle Test duration 2 hours, 3 mutually perpendicular directions Electrical, Visual inspection during last 30 min in each direction No opens or shorts, no mechanical damage 	IEC 60384-14-4.7 (IEC 60384-1-4.17) IEC 6008-2-6 Test Fc
4.	Solderability	<ul style="list-style-type: none"> Solder dip at 235 ± 5°C for 2 ± 0.5 sec, Depth 1.5+0.5mm from bottom of cap body 95% tinning 	IEC 60384-14-4.5 (IEC 60384-1-4.15) IEC 60068-2-20 Test Ta
5.	Soldering Heat Resistance	<ul style="list-style-type: none"> Solder dip up to 1.5 +0.5mm from terminal root using heat shielding solder temp 350°C ± 10°C for 3.5 ± 0.5 sec, or 260 ± 5°C for 10 ± 1sec, Cool down to room temp 1 ± 5 hours ΔC/C ≤ ± 3% of starting value 	IEC 60384-14-4.4 (IEC 60384-1-4.14) IEC 60068-2-20 Test Tb

CHARACTERISTICS															
NO.	Item	Performance													
6.	Cold Resistance	<ul style="list-style-type: none"> • Test box - $40 \pm 3\%$ for 2 hours. Room Temp 1.5 ± 0.5 hours • $\Delta C/C \leq \pm 5\%$ of starting value 	IEC 60384-14-11.4 IEC 60068-2-1 Test Aa												
7.	Dry Heat Resistance	<ul style="list-style-type: none"> • Test box $+110 \pm 2^\circ\text{C}$ for 2 hours, RoomTemp 1.5 ± 0.5 hours • $I_R \geq 50\%$ of starting value • $\Delta C/C \leq \pm 5\%$ of starting value 	IEC 60384-14-4.11.2 (IEC 60384-1-4.21.2 IEC 60068-2-2 Test Ba												
8.	Humidity Resistance	<ul style="list-style-type: none"> • $90-95\%$ RH at $+40 \pm 2^\circ\text{C}$ for 56 days • Room Temp/RH for 1.5 ± 0.5 hours • No failure with 1500Vac applied for 1 min • $I_R \geq 50\%$ of specified value • $\Delta C/C \leq \pm 5\%$ of specified value • $DF \leq 0.15\%$ @ 1KHz 	IEC 60384-14-4.12 (IEC 60384-1-4.22 IEC 60068-2-3 Test Ca												
9.	Impulse Voltage	<ul style="list-style-type: none"> • 24 Impulses of 5KVdc • No permanent breakdown or flashover • After impulse test capacitor is to be exposed to high temp loading 	IEC 60384-14-4.13												
10.	High Temp Loading	<ul style="list-style-type: none"> • 1000 hour @ 110°C @ 170% of rated voltage, ea hour cycle voltage to 1000 Vrms for 0.1 sec • No failures when 1500 Vac for 1 min-Terminal to Terminal • No failures when 1500 Vac for 1 min-Terminal to Enclosure • $I_R \geq 50\%$ spec, between terminals • $DF \leq 0.15\%$ @ 1KHz 	IEC 60384-14-4.14												
UL/CSA															
1.	Across-the-line discharge test	<ul style="list-style-type: none"> • Apply 240VAC 60Hz to capacitor, and pulse 5K Vdc from Dump capacitor 4 times with 5 sec interval between discharges, maintain 240 VAC for 30 sec after Last pulse • No glowing, flame, or expulsion of material from the capacitor <table border="1"> <thead> <tr> <th>Capacitor Under test (Ct)</th> <th>Dump capacitor (Vdc)</th> <th>Applied voltage (Vdc)</th> </tr> </thead> <tbody> <tr> <td>0.001~0.005 μF</td> <td>0.005 μF</td> <td rowspan="4">$5000 \cdot (Cd+Ct)$ Cd</td> </tr> <tr> <td>0.0051~0.05 μF</td> <td>0.05 μF</td> </tr> <tr> <td>0.051~0.5 μF</td> <td>0.5 μF</td> </tr> <tr> <td>0.51~1.0 μF</td> <td>1.0 μF</td> </tr> </tbody> </table>	Capacitor Under test (Ct)	Dump capacitor (Vdc)	Applied voltage (Vdc)	0.001~0.005 μF	0.005 μF	$5000 \cdot (Cd+Ct)$ Cd	0.0051~0.05 μF	0.05 μF	0.051~0.5 μF	0.5 μF	0.51~1.0 μF	1.0 μF	UL1414.13 CSA C22.2 NO.1 10.5.1
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0.0051~0.05 μF	0.05 μF														
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0.51~1.0 μF	1.0 μF														
2.	Line-by-pass Discharge Test	<ul style="list-style-type: none"> • 10K Vdc pulse from 0.001μF Capacitor, 5 second interval between pulses • No abnormal condition terminal-terminal or terminal to case when 1,000VAC applied for 1 minute 	UL1414.16 CSA C22.2 NO.1 6.12.2												
3.	Damp Heat Insulation	<ul style="list-style-type: none"> • $93 \pm 2\%$ RH for 48 hours. 20 to 30°C • $I_R=2M\Omega$ or more @ 250Vdc 	UL1283.29												
4.	Flame test	<ul style="list-style-type: none"> • Apply flame for 15 sec, remove, capacitor no flame after 15 seconds repeat 3 times, no flame after 60 seconds • See UL test procedure for more detail 	UL1414.9												

■ **RATINGS**

Rated Voltage Pulse Slope dV/dt (V/μs)	Pitch V _R	10 mm	15 mm	22.5 mm
	1000VDC	800	600	500
Climate Category	code letter G and number 40 = Minimum limit temperature.... -40°C code letter M and number 110 = Maximum limit temperature.... +110°C code letter F and number 56 = Maximum limit of Relative Humidity [The days of damp heat test56 days] code letter B = Category of Passive flammability.			