

## FOR BRIDGING OF BASIC OR SUPPLEMENTARY INSULATION --- CKX Y2

CKX Y2 type is self-healing flat style capacitor, which is wound with Metallized Polypropylene film dielectric and encapsulated in a flame retardant plastic (UL94V-0) case and epoxy resin end seal. They are for use in positions where a failure of the capacitor could expose somebody to dangerous electric shock. There are four sub-classes of Y capacitors.

### FEATURES

- The highest possible safety regarding active and passive flammability.
- Self-extinguishing UL 94V-0 encapsulation material.
- High dU/dt capability.
- Excellent self-healing properties.
- Ensures long life even when subject to frequent over voltages.
- Good resistance to ionization due to impregnated dielectric.
- Small dimensions.
- Safety approvals for worldwide use.
- The capacitors meet the most stringent IEC humidity class, 56 days.
- The impregnated paper ensures excellent stability giving outstanding reliability properties, especially in applications having continuous operation.

### REFERENCE STANDARDS

UL 1414 , CSA C22.2, IEC 384-14(1993), EN 132400

FOR BRIDGING OF BASIC OR SUPPLEMENTARY INSULATION

### SPECIFICATION

1. **RATED VOLTAGE** 250 VAC, 50 ~ 60 Hz
2. **CAPACITANCE RANGE** 0.0047 uF ~ 0.1 uF
3. **CAPACITANCE TOLERANCE** J ( ±5% ), K ( ±10% ), M ( ±20% )
4. **DIELECTRIC** METALLIZED POLYPROPYLENE FILM
5. **DISSIPATION FACTOR TAN δ** LESS THAN 0.1% AT 1K Hz / 20°C
6. **INSULATION RESISTANCE** BETWEEN TERMINALS
  - ( 1 ) LESS THAN OR EQUAL TO  $0.33 \text{ uF} \cdot \varepsilon \cdot 3 \times 10^4 \text{ M}\Omega$
  - ( 2 ) GREATER THAN  $0.33 \text{ uF} \cdot \gamma \cdot 1 \times 10^4 \text{ M}\Omega \cdot \text{uF}$MEASURED AT  $100 \pm 15 \text{ VDC}$ , 60 SEC / 20°C

## 7. WITHSTAND VOLTAGE

APPLIED 1,200 VAC FOR 1 SEC. OR 2,700 VDC FOR 1 SEC.

## 8. CLIMATIC CATEGORY IN ACCORDANCE WITH DIN 40040 GMF

G (MINIMUM LIMIT TEMPERATURE) = - 40 °C

M (MAXIMUM LIMIT TEMPERATURE) = +100 °C

F (HUMIDITY CATEGORY) = AVERAGE RELATIVE HUMIDITY  $\phi$  75%

95% FOR 30 DAYS PER YEAR CONTINUOUSLY

85% FOR THE REMAINING DAYS OCCASIONALLY

## 9. DRY HEAT RESISTANCE

IN ACCORDANCE WITH DIN 40046 SHEET 1 OR IEC 68-2-2 TEST BA. CONDITIONS

TEST TEMPERATURE :  $100 \pm 2^\circ\text{C}$

TEST DURATION : 16 HOURS

TEST CRITERIA :

( 1 ) APPEARANCE : NO VISIBLE DAMAGE AND NO LEAKAGE

( 2 ) WITHSTAND VOLTAGE :  $0.66 \times$  RATED WITHSTAND VOLTAGE 60 SEC.

( 3 ) CAPACITANCE CHANGE :  $\phi \pm 5\%$  OF THE INITIAL VALUE

( 4 ) INSULATION RESISTANCE :  $\gamma 50\%$  OF INITIAL SPECIFIED VALUE

## 10. COLD RESISTANCE

IN ACCORDANCE WITH DIN 40046 SHEET 1 OR IEC 68-2-1 TEST BA. CONDITIONS

TEST TEMPERATURE :  $-40 \pm 2^\circ\text{C}$

TEST DURATION : 2 HOURS

TEST CRITERIA :

( 1 ) APPEARANCE : NO VISIBLE DAMAGE

( 2 ) WITHSTAND VOLTAGE :  $0.66 \times$  RATED WITHSTAND VOLTAGE 60 SEC.

( 3 ) CAPACITANCE CHANGE :  $\phi \pm 5\%$  OF THE INITIAL VALUE

## 11. HUMIDITY TEST CONDITIONS

TEST TEMPERATURE :  $40^\circ\text{C} \pm 2^\circ\text{C}$

RELATIVE HUMIDITY : 90 - 95%

TEST DURATION : 500 HOURS

TEST CRITERIA :

( 1 ) WITHSTAND VOLTAGE :  $0.66 \times$  RATED WITHSTAND VOLTAGE 60 SEC.

( 2 ) CAPACITANCE DRIFT :  $\phi \pm 5\%$  OF THE INITIAL VALUE

( 3 ) DISSIPATION FACTOR :  $\phi 200\%$  OF INITIAL SPECIFIED VALUE

( 4 ) INSULATION RESISTANCE :  $\gamma 50\%$  OF INITIAL SPECIFIED VALUE

## 12. LIFE TEST CONDITIONS

TEST TEMPERATURE :  $100^{\circ}\text{C} \pm 3^{\circ}\text{C}$

TEST VOLTAGE : 440 VAC AND 1,000 VAC/60 HZ FOR A PERIOD OF 0.1 SEC.  
ONCE EACH HOUR

TEST DURATION : 1,008 HOURS

TEST CRITERIA :

- ( 1 ) APPEARANCE : NO VISIBLE DAMAGE AND NO LEAKAGE
- ( 2 ) WITHSTAND VOLTAGE :  $0.66 \times$  RATED WITHSTAND VOLTAGE 60 SEC.
- ( 3 ) CAPACITANCE DRIFT :  $\phi \pm 3\%$  OF THE INITIAL VALUE
- ( 4 ) DISSIPATION FACTOR :  $\phi 0.6 \times 10$  (0.06%) OF INCREASED VALUE
- ( 5 ) INSULATION RESISTANCE :  $\geq 50\%$  OF SPECIFIED VALUE

## 13. SOLERABILITY CONDITIONS

SOLDER MATERIAL : SAC (Sn 96.5% + Ag 3.0% + Cu 0.5%)

SOLDER BATH TEMPERATURE :  $260 \pm 5$  °C

SOLDER TIME :  $2 \pm 0.5$  SEC.

TEST CRITERIA : 75% OF THE SURFACE TINNING

## 14. SOLDERING HEAT RESISTANCE

IN ACCORDANCE WITH DIN 40046 SHEET 18 OR IEC 68-2-20 TEST TA.1 & TB.1 CONDITIONS  
SOLDER BATH TEMPERATURE :  $260 \pm 5^{\circ}\text{C}$

SOLDER TIME :  $5 \pm 1$  SEC.

CAPACITANCE BODY MAY LIE ON PRINTING CIRCUIT BOARD

TEST CRITERIA :

- ( 1 ) APPEARANCE : NO DAMAGE AND GOOD TINNING
- ( 2 ) CAPACITANCE CHANGE :  $\phi \pm 3\%$  OF THE INITIAL VALUE

## 15. VIBRATION RESISTANCE

IN ACCORDANCE WITH DIN 40046 SHEET 8 OR IEC 68-2-6 TEST FC CONDITIONS

FREQUENCY RANGE : 10 - 55 Hz

DISPLACEMENT AMPLITUDE : 0.75 mm

CONFORMING TO MAX. : 10 g

TEST DURATION : 6 HOURS

TEST CRITERIA :

- ( 1 ) APPEARANCE : NO VISIBLE DAMAGE
- ( 2 ) CAPACITANCE CHANGE :  $\phi \pm 2\%$  OF THE INITIAL VALUE

**16. TENSILE STRENGTH OF TERMINALS**

IN ACCORDANCE WITH DIN 40046 SHEET 19 OR IEC 68-2-21 TEST UA.1 CONDITIONS

TERMINAL DIA. (mm)	LOAD FORCE KG (N)	HOLDING TIMES SEC.
φ0.5	0.5 (5)	10
> 0.5 TO φ 0.8	1.0 (10)	10
> 0.8	2.0 (20)	20

TEST CRITERIA :

NO WIRE BREAKAGE AND NO DAMAGE OF CAPACITOR

**17. BENDING OF TERMINALS**

IN ACCORDANCE WITH DIN 40046 SHEET 19 OR IEC 68-2-21 TEST UB. CONDITIONS

LOAD FORCE : 0.5 KG (5N)

BENDING TIME : TWO CONSECUTIVE BENDS (4 x 90°C)

TEST CRITERIA :

NO WIRE BREAKAGE AND DAMAGE OF CAPACITOR

**18. MARKING**

CAPACITORS ARE MARKED WITH TYPE IDENTIFICATION CAPACITANCE, CAPACITANCE TOLERANCE, RATED VOLTAGE, TEMPERATURE RANGE, LOGO OF MANUFACTURER, DATE CODE OF MANUFACTURE AND APPROVED CERTIFICATION MARK.

MARKING EXAMPLE :



**19. APPROVED BY**

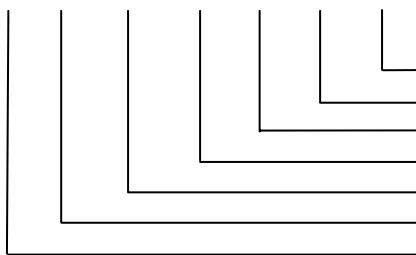
UL1414

USA

FILE NO. E 209251

**20. DESIGNATION ( Order Code )**

Y 103 K 250 A 150 □



- Suffix
- Dimension of pitch
- Electric current ; A=AC / D=DC
- Working voltage
- Capacitance tolerance
- Identification capacitance
- The digital code of " Y " =CKX Y2

© CKX Y2 CASE SIZE OF STANDARD PRODUCTS

Capacitance $\mu F$	Rated-Voltage VAC	Dimensions in mm					Max du/dt V/us
		W	H	T	P	d	
0.0047	250	18.0	11.0	5.0	15.0	0.6	800
0.0047	250	13.0	11.0	5.0	10.0	0.6	800
0.0056	250	18.0	11.0	5.0	15.0	0.6	800
0.0056	250	13.0	11.0	5.0	10.0	0.6	800
0.0068	250	18.0	11.0	5.0	15.0	0.6	800
0.0068	250	13.0	12.0	6.0	10.0	0.6	800
0.0082	250	18.0	11.0	5.0	15.0	0.6	800
0.0082	250	13.0	12.0	6.0	10.0	0.6	800
0.010	250	18.0	11.0	5.0	15.0	0.6	800
0.010	250	13.0	12.0	6.0	10.0	0.6	800
0.012	250	18.0	11.0	5.0	15.0	0.6	600
0.012	250	13.0	12.0	6.0	10.0	0.6	600
0.015	250	17.0	11.0	5.5	15.0	0.6	600
0.018	250	17.0	11.0	5.5	15.0	0.6	600
0.022	250	17.0	11.0	5.5	15.0	0.6	600
0.027	250	17.0	11.0	5.5	15.0	0.6	600
0.033	250	18.0	11.0	5.0	15.0	0.6	600
0.047	250	18.0	11.0	5.0	15.0	0.6	600
0.056	250	17.0	15.5	7.5	15.0	0.6	600
0.068	250	17.0	15.5	7.5	15.0	0.6	600
0.082	250	18.0	16.5	8.5	15.0	0.6	600
0.10	250	18.0	16.5	8.5	15.0	0.6	600
0.10	250	26.5	16.5	7.0	22.5	0.8	600
0.10	250	31.5	16.5	7.5	27.5	0.8	600

