



CHENG TUNG INDUSTRIAL CO., LTD.

晟 通 實 業 有 限 公 司

NO. 88, RUIYUAN ST, BADE DIST, TAOYUAN CITY, TAIWAN

TEL : 8 8 6 - 3 - 3 6 8 0 9 0 9

FAX : 8 8 6 - 3 - 3 7 3 1 7 1 7

## SPECIFICATION

ACROSS-THE-LINE AND INTERFERENCE SUPPRESSION CAPACITOR CLASS **X1 -- CTX**

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1. REFERENCE STANDARDS: UL 60384-14, CSA C22.2  
USED FOR ACROSS-THE LINE CAPACITORS, ANTENNA-COUPLING AND  
LINE-BY-PASS COMPONENTS.  
ENEC EN 60384-14 : 2013/A1 : 2016  
CQC GB/T6346.14-2015  
KC Mark K60384-14  
USED FOR RADIO INTERFERENCE SUPPRESSION CAPACITORS.
2. RATED VOLTAGE : 310/300 VAC, 50 ~ 60 Hz
3. CAPACITANCE RANGE : **0.0047  $\mu$ F ~ 10 $\mu$ F**
4. CAPACITANCE TOLERANCE : J ( $\pm 5\%$ ), K ( $\pm 10\%$ ), M ( $\pm 20\%$ )
5. DIELECTRIC : METALLIZED POLYPROPYLENE FILM
6. DISSIPATION FACTOR TAN  $\delta$  : LESS THAN 0.1% AT 1K Hz/20  $^{\circ}$ C  
VOLTAGE 1.0 VAC (CAPACITANCE : 1K Hz/20  $^{\circ}$ C, VOLTAGE 1.0 VAC)
7. INSULATION RESISTANCE : BETWEEN TERMINALS  
(1) LESS THAN OR EQUAL TO 0.33  $\mu$ F  $\geq 3 \times 10^4$  M $\Omega$   
(2) GREATER THAN 0.33  $\mu$ F  $\geq 1 \times 10^4$  M $\Omega$ / $\mu$ F  
MEASURED AT 100  $\pm$  15 VDC, 60 Sec./20  $^{\circ}$ C
8. WITHSTAND VOLTAGE :
  - a) BETWEEN TERMINALS.... 2000V.DC FOR 1Sec.  
CUT-OFF CURRENT : 10mA
  - b) BETWEEN TERMINALS AND CASE....2120 VAC 60 Hz FOR 60 Sec.
9. CLIMATIC CATEGORY : IN ACCORDANCE WITH DIN 40040 GLF  
G (MINIMUM LIMIT TEMPERATURE) = - 40  $^{\circ}$ C  
L (MAXIMUM LIMIT TEMPERATURE) = + 110  $^{\circ}$ C  
F (HUMIDITY CATEGORY) = AVERAGE RELATIVE HUMIDITY  $\leq 75\%$   
95% FOR 30 DAYS PER YEAR CONTINUOUSLY  
85% FOR THE REMAINING DAYS OCCASIONALLY



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### **SPECIFICATION**

**10. DRY HEAT RESISTANCE :**

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

TEST TEMPERATURE :  $110 \pm 2$  °C

TEST DURATION : 16 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE AND NO LEAKAGE

(2) WITHSTAND VOLTAGE : RATED WITHSTAND VOLTAGE 60 Sec.

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

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

**11. COLD RESISTANCE :**

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

TEST TEMPERATURE :  $-40 \pm 2$  °C

TEST DURATION : 2 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE

(2) WITHSTAND VOLTAGE : RATED WITHSTAND VOLTAGE 60 Sec.

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

**12. HUMIDITY TEST CONDITIONS :**

TEST TEMPERATURE :  $40$  °C  $\pm 2$  °C

RELATIVE HUMIDITY : 90 – 95 %

TEST DURATION : 500 HOURS

TEST CRITERIA :

(1) WITHSTAND VOLTAGE : RATED WITHSTAND VOLTAGE 60 Sec.

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

(3) DISSIPATION FACTOR :  $\leq 0.8\%$  OF INCREASED VALUE

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



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## **SPECIFICATION**

### **13. LIFE TEST CONDITIONS :**

TEST TEMPERATURE :  $110\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$

TEST VOLTAGE : 388 VAC AND 1,000 VAC/60 HZ FOR A PERIOD OF 0.1 Sec. ONCE EACH HOUR

TEST DURATION : 1,000 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE AND NO LEAKAGE

(2) WITHSTAND VOLTAGE : RATED WITHSTAND VOLTAGE 60 Sec.

(3) CAPACITANCE DRIFT :  $\leq \pm 10\%$  OF THE INITIAL VALUE

(4) DISSIPATION FACTOR :  $\leq 0.8\%$  OF INCREASED VALUE

(5) INSULATION RESISTANCE :  $\geq 50\%$  OF SPECIFIED VALUE

### **14. SOLDERABILITY CONDITIONS :**

SOLDER BATH TEMPERATURE & MATERIAL :

$230 \pm 5\text{ }^{\circ}\text{C}$ , 60 % OF TIN (Sn) + 40 % OF LEAD (Pb)

SOLDER BATH TEMPERATURE & MATERIAL :

$270 \pm 5\text{ }^{\circ}\text{C}$ , 99.96 % OF TIN (Sn) + 0.04 % OF SILVER (Ag)

SOLDER TIME :  $3 \pm 0.5$  Sec. TEST CRITERIA : 75% OF THE SURFACE TINNING

### **15. SOLDERING HEAT RESISTANCE :**

IN ACCORDANCE WITH DIN 40046 SHEET 18 OR IEC 68-2-20 TEST TA.1 & TB.1 CONDITIONS

SOLDER BATH TEMPERATURE :  $260 \pm 5\text{ }^{\circ}\text{C}$

SOLDER TIME : 4 Sec.

CAPACITANCE BODY MAY LIE ON PRINTING CIRCUIT BOARD

TEST CRITERIA :

(1) APPEARANCE : NO DAMAGE AND GOOD TINNING

(2) CAPACITANCE CHANGE :  $\leq \pm 3\%$  OF THE INITIAL VALUE

### **16. 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



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**SPECIFICATION**

TEST DURATION : 6 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE

(2) CAPACITANCE CHANGE :  $\leq \pm 2 \%$  OF THE INITIAL VALUE

**17. TENSILE STRENGTH OF TERMINALS**

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

CONDITIONS

TERMINAL	LOAD FORCE	HOLDING TIMES
DIA. (mm)	KG (N)	Sec.
$\leq 0.5$	0.5 (5)	10
$> 0.5$ TO $< 0.8$	1.0 (10)	10
$> 0.8$	2.0 (20)	20

TEST CRITERIA : NO WIRE BREAKAGE AND NO DAMAGE OF CAPACITOR

**18. 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

**19. APPROVED BY :**

UL、CUL FILE NO. E193049 (0.0047uF/310V~10uF/310V)

ENEC ENEC-02671(0.0047uF/310V~10uF/310V)

KC MARK HU03009-5003B (0.1uF 300V)

HU03009-5001C (0.15uF 0.22uF 0.33uF 300V)

HU03009-5002B (0.47uF 0.68uF 1.0uF 300V)

CQC FILE NO. CQC03001008997 (0.0047uF/310V~10uF/310V)

**20. MARKING :**

CAPACITORS ARE MARKED WITH TYPE IDENTIFICATION CAPACITANCE, CAPACITANCE TOLERANCE, RATED VOLTAGE, TEMPERATURE RANGE, NAME OF MANUFACTURE, DATE OF MANUFACTURE AND APPROVED CERTIFICATION MARKS.



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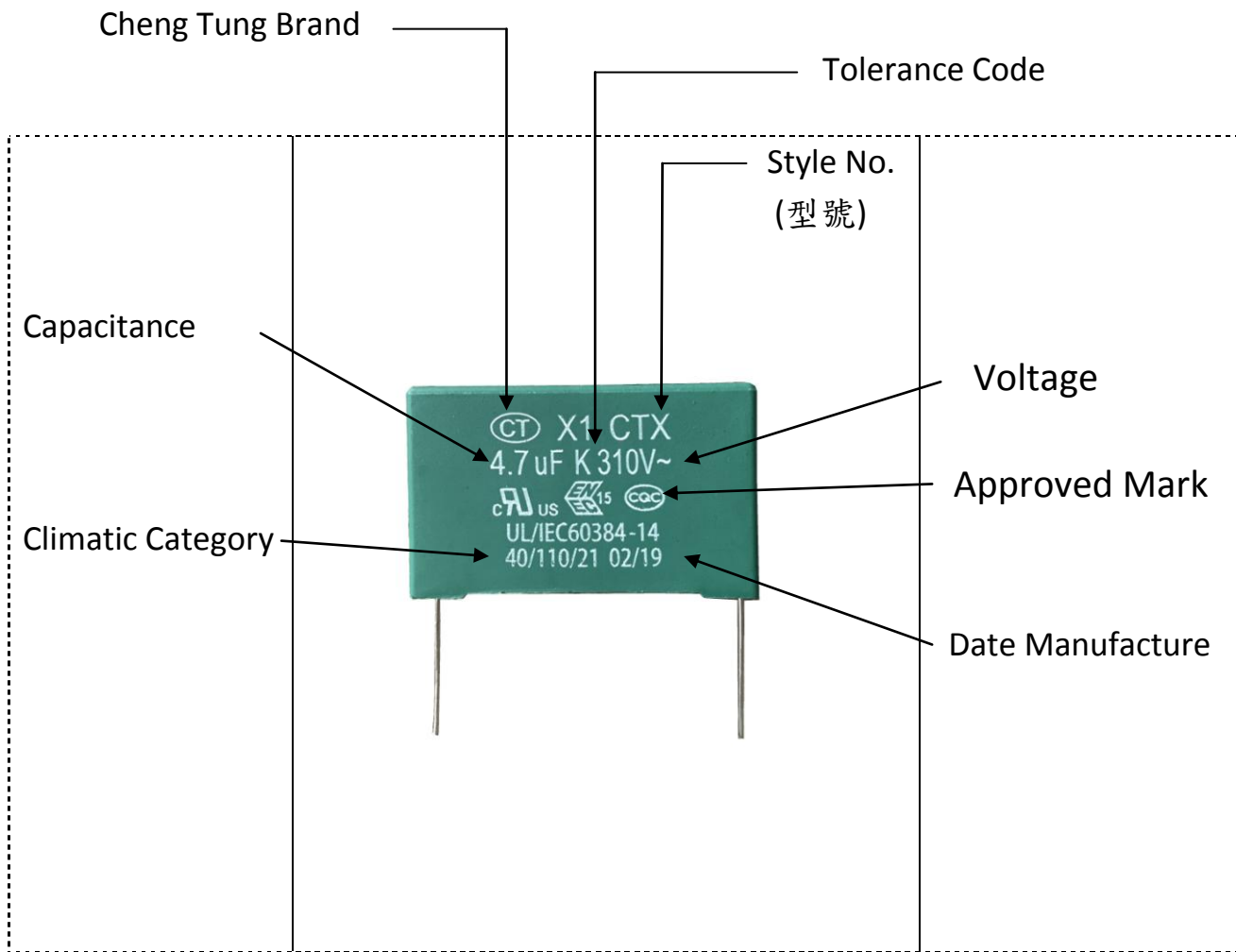
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Marking Example:

0.0047 ~ 10 uF





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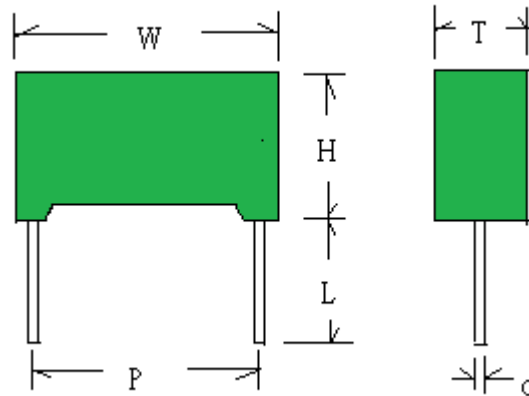
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Diagram of Dimensions (Unit=mm)



Product No.	Cap.	Voltage	Dimensions in mm					
	uF	VAC	W±0.5	H±0.5	T±0.5	P±1.0	Lmin	d±0.05
CTX472K310VP10	0.0047	310	13	11	5	10	20	0.6
CTX472K310VP15	0.0047	310	18	10	5	15	20	0.8
CTX682K310VP10	0.0068	310	13	11	5	10	20	0.6
CTX103K310VP10	0.01	310	13	11	5	10	20	0.6
CTX103K310VP15	0.01	310	18	10	5	15	20	0.8
CTX153K310VP15	0.015	310	18	10	5	15	20	0.8
CTX223K310VP10	0.022	310	13	11	5	10	20	0.6
CTX223K310VP15	0.022	310	17	11	5.5	15	20	0.8
CTX333K310VP10	0.033	310	13	11	5	10	20	0.6
CTX333K310VP15	0.033	310	18	10	5	15	20	0.8
CTX473K310VP10	0.047	310	13	11	5	10	20	0.6
CTX473K310VP15	0.047	310	18	10	5	15	20	0.8
CTX683K310VP10	0.068	310	13	12	6	10	20	0.6
CTX683K310VP15	0.068	310	18	10	5	15	20	0.8
CTX823K310VP15	0.082	310	17	11	5.5	15	20	0.8
<b>CTX104K310VP10</b>	<b>0.1</b>	<b>310</b>	<b>13</b>	<b>12</b>	<b>6</b>	<b>10</b>	<b>20</b>	<b>0.6</b>
CTX104K310VP15	0.1	310	17	11	5.5	15	20	0.8
CTX154M310VP10	0.15	310	13	12	6	10	20	0.6
CTX154K310VP15	0.15	310	18	13.5	6	15	20	0.8
CTX224M310VP10	0.22	310	12	14	8	10	20	0.6
CTX224K310VP15	0.22	310	17	15.5	7.5	15	20	0.8
CTX224K310VP225	0.22	310	25	14.5	6	22.5	20	0.8



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Product No.	Cap.	Voltage	Dimensions in mm					
	uF	VAC	W±0.5	H±0.5	T±0.5	P±1.0	Lmin	d±0.05
CTX334K310VP15	0.33	310	17	16.5	9.5	15	20	0.8
CTX334K310VP225	0.33	310	26.5	16.5	7	22.5	20	0.8
CTX474K310VP15	0.47	310	17	19	11	15	20	0.8
CTX474K310VP225	0.47	310	26.5	17	8.5	22.5	20	0.8
CTX474K310VP275	0.47	310	31.5	20	11	27.5	20	0.8
CTX564K310VP225	0.56	310	26.5	19	10	22.5	20	0.8
CTX684K310VP15	0.68	310	17	21	12	15	20	0.8
CTX684K310VP225	0.68	310	26.5	19	10	22.5	20	0.8
CTX684K310VP275	0.68	310	31.5	20	11	27.5	20	0.8
CTX824K310VP275	0.82	310	31.5	20	11	27.5	20	0.8
CTX105K310VP225	1.0	310	25	23.5	14	22.5	20	0.8
CTX105K310VP275	1.0	310	30	21	11.5	27.5	20	0.8
CTX125K310VP275	1.2	310	31.5	25	14	27.5	20	0.8
CTX155K310VP275	1.5	310	31.5	25	14	27.5	20	0.8
CTX185K310VP325	1.8	310	37	26.5	16	32.5	20	0.8
CTX225K310VP275	2.2	310	32	26.5	18	27.5	20	0.8
CTX225K310VP325	2.2	310	37	26.5	16	32.5	20	0.8
CTX275K310VP325	2.7	310	37	28.5	18	32.5	20	0.8
CTX335K310VP325	3.3	310	37	34	22	32.5	20	0.8
CTX395K310VP325	3.9	310	37	34	22	32.5	20	0.8
CTX475K310VP475	4.7	310	51	30.5	20	47.5	20	0.8
CTX565K310VP475	5.6	310	51	34	22	47.5	20	0.8
CTX605K310VP475	6.0	310	51	43.5	29	47.5	20	0.8
CTX685K310VP525	6.8	310	58	37	32	52.5	20	0.8
CTX905K310VP525	9.0	310	57.5	50	34.5	52.5	20	0.8
CTX106K310VP525	10.0	310	57.5	50	34.5	52.5	20	0.8