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SPECIFICATION

ACROSS-THE-LINE AND INTERFERENCE SUPPRESSION CAPACITORS CLASS X1 --- CTX

1. REFERENCE STANDARDS:

UL 1414 , CSA C22.2

USED FOR ACROSS-THE LINE CAPACITORS, ANTENNA-COUPLING AND LINE-BY-PASS COMPONENTS.

VDE 0565-1

SEV IEC 384-14 Second Edition (1993) including AM.1 (1995)
[Safety tests] / EN 132 400 (1994) [Safety tests]

SEMKO IEC 384-14 Second Edition (1993) including AM.1 (1995)
[Safety tests] / EN 132 400 (1994) [Safety tests]

DEMCO IEC 384-14 Second Edition (1993) including AM.1 (1995)
[Safety tests] / EN 132 400 (1994) [Safety tests]

NEMKO IEC 384-14 Second Edition (1993) including AM.1 (1995)
[Safety tests] / EN 132 400 (1994) [Safety tests]

FIMKO IEC 384-14 Second Edition (1993) including AM.1 (1995)
[Safety tests] / EN 132 400 (1994) [Safety tests]

USED FOR RADIO INTERFERENCE SUPPRESSION CAPACITORS.

2. RATED VOLTAGE : 250/300 VAC, 50 ~ 60 Hz

3. CAPACITANCE RANGE : 0.0047 μ F ~ 10 μ 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 °C

7. INSULATION RESISTANCE : BETWEEN TERMINALS

(1) LESS THAN OR EQUAL TO 0.33 μ F $\geq 3 \times 10^4$ M Ω

(2) GREATER THAN 0.33 μ F $\geq 1 \times 10^4$ M Ω μ F

MEASURED AT 100 $\pm$ 15 VDC, 60 Sec./20 °C

8. WITHSTAND VOLTAGE :

APPLIED 1,200 VAC FOR 60 Sec. OR 2,100 VDC FOR 1 Sec.

SPECIFICATION

9. 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 $\leq$ 75%

95% FOR 30 DAYS PER YEAR CONTINUOUSLY

85% FOR THE REMAINING DAYS OCCASIONALLY

10. DRY HEAT RESISTANCE :

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

TEST TEMPERATURE : 100 ± 2 °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 : $\leq \pm 5\%$ 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 ± 2 °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 : $\leq \pm 5\%$ OF THE INITIAL VALUE

12. HUMIDITY TEST CONDITIONS :

TEST TEMPERATURE : 40 °C ± 2 °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 : $\leq \pm 5\%$ OF THE INITIAL VALUE

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

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

SPECIFICATION

13. 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 : $0.66 \times \text{RATED WITHSTAND VOLTAGE}$ 60 Sec.

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

(4) DISSIPATION FACTOR : $\leq 0.6 \times 10$ (0.06 %) OF INCREASED VALUE

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

14. SOLDERABILITY CONDITIONS :

SOLDER BATH TEMPERATURE : $230 \pm 5^{\circ}\text{C}$

SOLDER MATERIAL : 60 % OF TIN + 40 % OF LEAD

SOLDER TIME : 3 ± 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 : $260 \pm 5^{\circ}\text{C}$

SOLDER TIME : 5 ± 1 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

TEST DURATION : 6 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE

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

SPECIFICATION

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.
≤ 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. MARKING :

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

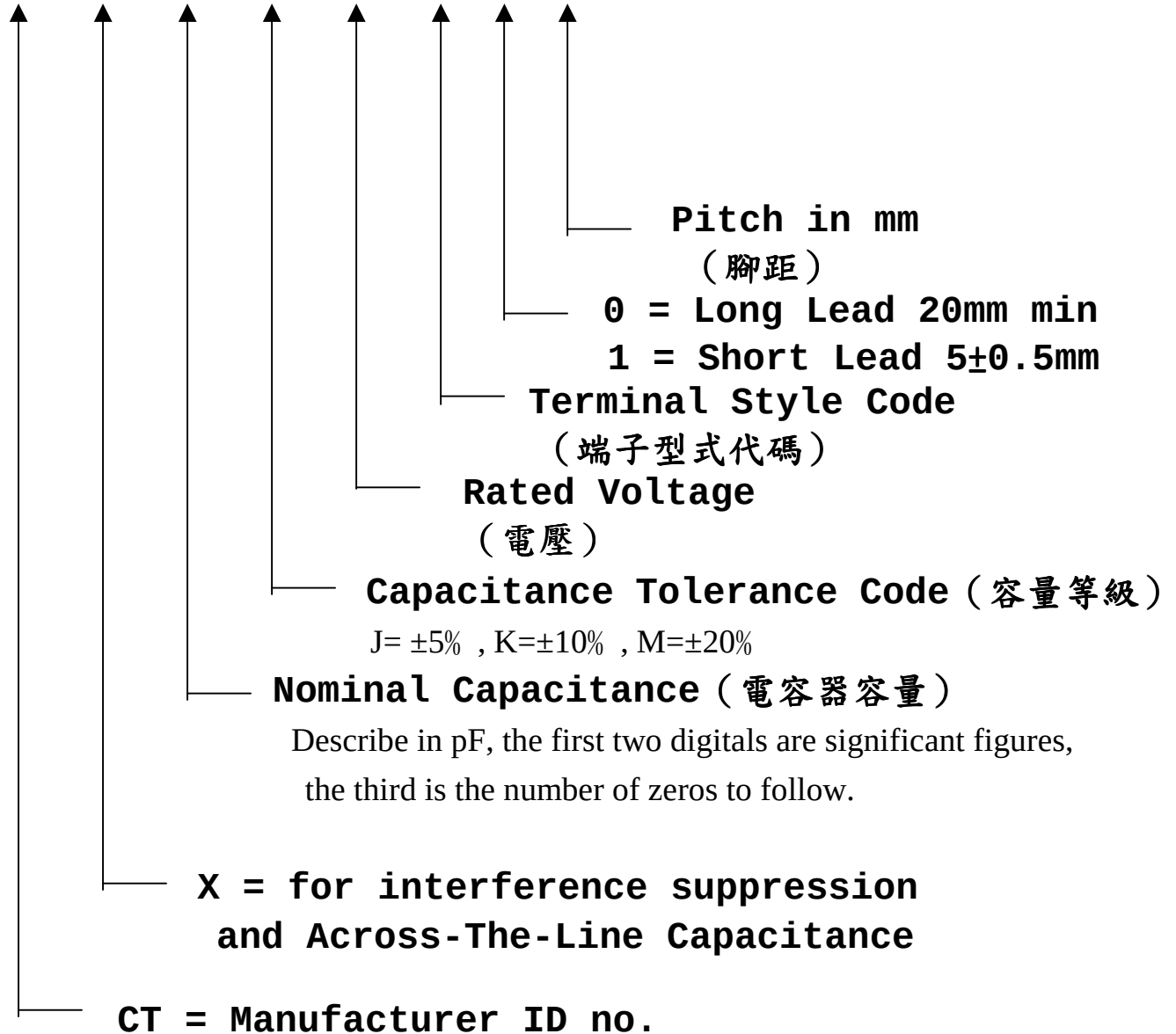
MARKING EXAMPLE :

20. APPROVED BY :

UL	FILE NO. E193049	98NK14748	(0.0047uF/300V~1.0uF/300V)
UL	FILE NO. E211230	00NK18090	(1.0uF/300V~10uF/300V)
CUL	FILE NO. E193049	98NK14748	
VDE	FILE NO. 22658-4670-0001/311NW		
SEV	FILE NO. 99.770009.01		
SEMKO	FILE NO. 9819223/01		
DEMKO	FILE NO. 308247		
NEMKO	FILE NO. P98102716		
FIMKO	FILE NO. 204283		

PART NO. DESIGNATION

CT X 224 K 300 S 0 P15



List of Standard Product

Capacitance	Rated-Voltage	PVC Wire(W±0.75)		Dimensions in mm		
uF	VAC	W±0.5	H±0.5	T±0.5	P±0.5	D±0.5
0.0047	300	13	11	5	10	0.8
0.0047	300	18	10	5	15	0.8
0.01	300	18	10	5	15	0.8
0.015	300	18	10	5	15	0.8
0.022	300	17	11	5.5	15	0.8
0.033	300	18	10	5	15	0.8
0.047	300	13	12	6	10	0.8
0.047	300	18	10	5	15	0.8
0.056	300	18	10	5	15	0.8
0.068	300	18	10	5	15	0.8
0.082	300	17	11	5	15	0.8
0.1	300	13	12	6	10	0.6/0.8
0.1	300	17	11	5.5	15	0.8
0.15	300	18	13.5	6	15	0.8
0.22	300	17	15.5	7.5	15	0.8
0.22	300	25	14.5	6	22.5	0.8
0.27	300	26.5	16.5	7	22.5	0.8
0.33	300	17	16.5	9.5	15	0.8
0.33	300	26.5	16.5	7	22.5	0.8
0.39	300	26.5	17	8.5	22.5	0.8
0.47	300	17	19	11	15	0.8
0.47	300	26.5	17	8.5	22.5	0.8
0.56	300	26.5	19	10	22.5	0.8
0.6	300	31.5	20	11	27.5	0.8
0.68	300	26.5	19	10	22.5	0.8
0.68	300	31.5	20	11	27.5	0.8
0.82	300	31.5	20	11	27.5	0.8
1.0	300	25	23.5	14	22.5	0.8
1.0	300	30	21	11.5	27.5	0.8
1.0	300	37	24	13.5	32.5	0.8
1.2	300	31.5	25	14	27.5	0.8
1.2	300	37	24	13.5	32.5	0.8
1.5	300	31.5	25	14	27.5	0.8
1.5	300	37	24	13.5	32.5	0.8
2.2	300	37	26.5	16	32.5	0.8
2.7	300	37	28.5	18	32.5	0.8
3.3	300	37	34	22	32.5	0.8
3.3	300	51	27.5	17.5	47.5	0.8
3.9	300	37	34	22	32.5	0.8
3.9	300	51	27.5	17.5	47.5	0.8
4.7	300	51	30.5	20	47.5	0.8
5.6	250	51	34	22.5	47.5	0.8
6.8	250	51	34	22.5	47.5	0.8
7.5	250	51	37	24	47.5	0.8
8.2	250	51	37	24	47.5	0.8
10	250	51	43.5	29	47.5	0.8