

NP SERIES – FOR GENERAL PURPOSE, STANDARD SIZE, 85°C

◆ Applicable Standard

Characteristic W of JIS C 5141

◆ Operating Temperature Range

-40°C ~+85°C

◆ Rated Working Voltage Range

6.3~250 V.DC

◆ Rated Voltage and Surge Voltage

Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250
Surge Voltage (V)	8	13	20	32	44	63	79	125	200	250	300

◆ DC Leakage Current

Applying the rated DC voltage to the capacitor. The leakage current is measured at 5 minutes after the DC voltage across the capacitor reached the rated voltage. The leakage current shall not exceed the value below. (at 25°C)

$$I \leq 0.03 CV \text{ or } 3 \mu A, \text{ whichever is greater}$$

Where, I: Leakage Current (μA) C: Nominal Capacitance (μF)

V: Rated Voltage (V)

◆ Capacitance Tolerance

The capacitance shall be within the following tolerance to the nominal capacitance.
-20%~+20% (At 25°C, 120Hz)

◆ Tangent of Loss Angle (Tan δ)

Tan δ shall not exceed the value below. (At 25°C, 120Hz). When nominal capacitance is over 1000 μF .
Tan δ shall be added 0.02 to the listed value with increase of every 1000 μF .

Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250
Tan δ	0.25	0.23	0.20	0.15	0.15	0.12	0.12	0.12	0.15	0.20	0.20

◆ Temperature Characteristics

Impedance ratio of the -25°C or -40°C value to the 25°C value shall not exceed the value below. (At 120Hz)

Rated Voltage (V)	6.3	10	16	25~100	160~250
Z(-25°C)/Z(25°C)	4	3	2	2	3
Z(-40°C)/Z(25°C)	10	8	6	4	5

◆ Load Life

The following specifications shall be satisfied when the capacitors are restored to 25°C after the rated voltage is applied for 2000 hours at 85°C.

Capacitance Change	$\leq \pm 20\%$ of the initial value.
Tan δ	$\leq 200\%$ of the initial specified value.
Leakage Current	\leq The initial specified value.

◆ Shelf Life

The following specifications shall be satisfied when the capacitors are restored to 25°C after exposing them for 500 hours at 85°C without voltage applied. The capacitors shall be subjected to voltage treatment specified in item 4.4 of JIS C 5102, before the measurements.

Capacitance Change	$\leq \pm 20\%$ of the initial value.
Tan δ	$\leq 200\%$ of the initial specified value.
Leakage Current	\leq The initial specified value.

◆ Solder ability

The lead wires shall be dipped into Methanol (JIS K 1501) or Isopropyl Alcohol (JIS K 1522 or JIS K 8839) solution of 10 $\pm 20\%$ Rosin (JIS K 5902) for 2 ± 0.5 seconds, and then dipped into solder H63A (JIS Z 3282) at 235 $\pm 5^\circ\text{C}$ for 2 ± 0.5 seconds. The depth of immersion shall be 2 to 2.5 mm of the capacitor body.

After immersion, the solder shall cover at least 3/4 of the lead wire surface immersed.

◆ Lead Strength

Pull Strength

The lead wire shall not get loose or cut off, while a parallel force is gradually applied to the lead wire up to 5N and retained for 10 second.

Bending Strength

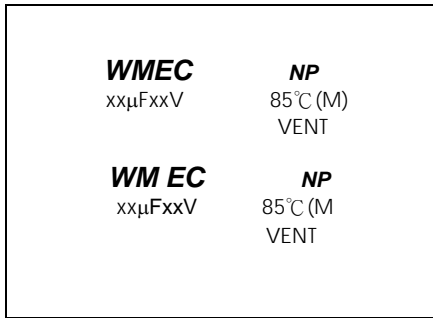
Apply the 0.25Kg weight to the end of the lead wire, and lean the capacitors body 90° and return to the original position within approximately 5 seconds. Then, repeat this cycle in the posite direction at the same speed. After that, the lead wire shall not loose or cut off.

◆ Marking

Color Style: white marking on dark-green sleeve.

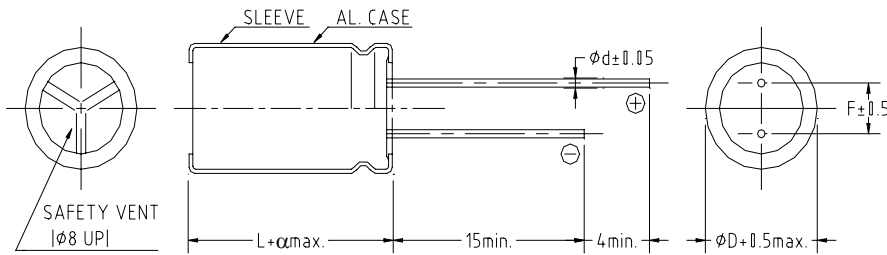
The following items shall be marked on each capacitor.

Example:



- (1) Series Name
- (2) Maximum Operating Temperature
- (3) Capacitance Tolerance
- (4) Safety Device Marking
(Safety vent more than 8mm Diameter product)
- (5) WMEC Electronics Co., Ltd. Marking
- (6) Nominal Capacitance
- (7) Rated Voltage

◆ Dimensions (mm)



ϕD	5	6.3	8	10	12	13	16	18	22	25
F	2.0	2.5	3.5	5.0			7.5		10.0	
ϕd	0.5		0.5or0.6	0.6		0.6or0.8		0.8	1.0	
α	1.0			1.5					2.0	

◆ Case Size & Permissible Max. Ripple Current Case Size : ϕ D×L (mm)
 Max. Ripple Current : mA (rms) (85°C, 120Hz)

WV μF	6.3		10		16		25		35	
	SIZE	R.C.	SIZE	R.C.	SIZE	R.C.	SIZE	R.C.	SIZE	R.C.
1.0			5X11	18						
2.2									4x7	20
22							5X11	73	6.3X11	84
33					5X11	78	6.3X11	103	6.3X11	103
47			5X11	87	6.3X11	107	6.3X11	123	8X11	145
68	5X11	100	5X11	120	8X11	129	8X11	175	8X12	203
100	6.3X11	139	6.3X11	145	8X11	184	8X12	245	8X14	270
220	8X11	244	8X12	295	8X14	347	8X16	437	10X17	437
330	8X12	347	8X14	396	8X16	464	10X20	535	13X21	628
470	8X14	454	8X16	516	10X17	553	13X21	750	13X25	818
680	10X17	595	10X20	729	13X21	781	13X25	984	16X26	1091
1000	10X20	847	13X21	883	13X25	1033	16X26	1323	16X31	1519
2200	13X21	1272	13X25	1463	16X26	1781	16X31	2254	18X40	2481
3300	13X25	1672	16X35	1985	18X40	2360	22X40	2890	25X40	3157
4700	16X35	2221	18X40	2579	22X40	2987	25X50	3927		
6800	18X40	2840	22X40	3214	25X50	4004				
10000	22X40	3516	25X50	4290						

WV μF	50		63		100		160		200		250	
	SIZE	R.C.	SIZE	R.C.	SIZE	R.C.	SIZE	R.C.	SIZE	R.C.	SIZE	R.C.
0.22	5X11	9										
0.68	5X11	14	5X11	14	5X11	14						
1.0	5X11	18	5X11	18	5X11	18						
2.2	5X11	26	5X11	26	5X11	26						
3.3	5X11	32	5X11	32	6.3X11	32	8X11	49	10X12	42	10X20	46
4.7	5X11	38	5X11	38	6.3X11	44	10X12	59	10X16	55	10X21	65
6.8	5X11	46	5X11	46	8X11	62	10X17	77	10X20	78	13X21	78
10	5X11	55	6.3X11	64	10X12	75	10X20	109	13X21	95	13X25	103
22	8X11	94	8X12	111	10X17	142	13X21	177	13X25	170	16X26	186
33	8X11	136	10X12	158	10X20	189	13X25	240	16X25	239	16X35	256
47	8X14	189	10X17	207	13X20	265	16X26	329	16X35	321		
68	8X16	249	10X17	272	13X25	384	16X35	425				
72					13X21	421						
100	10X17	329	10X20	329	13X30	468	16X36	500				
150					16X26	596						
220	10X24	574	13X25	850	16X35	797						
330	13X25	850	16X26	1164	18X40	1098						
470	16X26	1110	16X31	1577	22X30	1443						
680	16X31	1503	18X35	1311	22X40	1896						
1000	18X40	1912	22X40	2105								
2200	22X40	3221										

_____ Ripple current (mA rms) at 85°C, 120Hz
 _____ Case size ϕ D×L (mm)

◆ Ripple Current Coefficients

Frequency Multipliers

Cap.(μ F) \ Freq.(Hz)	60(50)	120	300	1K	\geq 10K
0.1 ~ 47	0.75	1.00	1.35	1.55	2.0
68 ~ 680	0.80	1.00	1.25	1.34	1.5
1000 ~ 15000	0.85	1.00	1.10	1.13	1.15

Temperature Multipliers

Temp. ($^{\circ}$ C)	40	60	70	85
coefficient	2.0	1.5	1.3	1.0

◆ Packaging Specification

Case size ϕ D \times L (mm)	Plastic Bag Capacity	Small Box Capacity		Carton Box Capacity		Small Box Size			Carton Box Size		
	pcs. / per bag	Bag / per small box	pcs. / per small box	small box / per carton box	pcs. / per carton box	L (mm)	H (mm)	W (mm)	L (mm)	H (mm)	W (mm)
4 \times 5	500	50	25,000	2	50,000	300	295	225	470	310	310
5 \times 5	500	50	25,000	2	50,000	300	295	225	470	310	310
6.3 \times 5	500	50	25,000	2	50,000	300	295	225	470	310	310
4 \times 7	500	50	25,000	2	50,000	300	295	225	470	310	310
5 \times 7	500	50	25,000	2	50,000	300	295	225	470	310	310
6.3 \times 7	500	40	25,000	2	50,000	300	295	225	470	310	310
5 \times 11	500	40	20,000	2	40,000	300	295	225	470	310	310
6.3 \times 11	500	30	15,000	2	30,000	300	295	225	470	310	310
8 \times 12	250	40	10,000	2	20,000	300	295	225	470	310	310
8 \times 14	250	30	7,500	2	15,000	300	295	225	470	310	310
8 \times 20	200	25	5,000	2	10,000	300	295	225	470	310	310
10 \times 16	200	25	5,000	2	10,000	300	295	225	470	310	310
10 \times 20	200	25	5,000	2	10,000	300	295	225	470	310	310
10 \times 24	200	25	5,000	2	10,000	300	295	225	470	310	310
13 \times 21	100	25	2,500	2	5,000	300	295	225	470	310	310
13 \times 21	100	25	2,500	2	5,000	300	295	225	470	310	310
13 \times 30	100	25	2,500	2	5,000	300	295	225	470	310	310
16 \times 26	100	6	600	4	2,400	300	145	225	470	310	310
16 \times 31	50	10	500	4	2,000	300	145	225	470	310	310
16 \times 36	50	8	400	4	1,600	300	145	225	470	310	310
18 \times 31	50	6	300	4	1,200	300	145	225	470	310	310
18 \times 40	50	6	300	4	1,200	300	145	225	470	310	310
22 \times 40	50	4	200	4	800	300	145	225	470	310	310
25 \times 40	25	8	200	4	800	300	145	225	470	310	310

The following items shall be marked on the box.

WMEC ®		Customer	
WANMING P/N		PO. No.	
ot No.		Customer P/N	
Final Date		Description	
Inspection		Quantity	PCS.

◆ Other

For other specifications, Characteristic W of JIS C 5141 shall be satisfied.

Corrosion, which is caused by and homogenate hydrocarbon solvents may damage aluminum Electrolytic Capacitors.

Please let us know in advance the solvent name and conditions for your P.C.B. cleaning.

We guarantee our products without any prohibited substance about environment.