



3.3 Tangent of Loss Angle (Tan δ).

The tangent of the loss angle when measured at a frequency of 120Hz at a temperature of (20°C \pm 2°C) (68°F \pm 3.6°F) shall be less than the values indicated below:

Tan δ (max., at 20°C, 120Hz)	W.V (V)	6,3	10	16	25	35	50	63	100	160~250	350~450
	Tan δ		0,28	0,24	0,20	0,16	0,14	0,12	0,10	0,08	0,20

When capacitance is over 1000 μ F, Tan δ shall be added 0.02 to the listed value with increase of very each 1000 μ F.

4. Test.

4.1 Damp heat.



The capacitor shall be stored at a temperature of 40 \pm 2°C and relative humidity of 90% to 95% for 240 \pm 8 hours. And then the capacitor shall be subjected to standard atmospheric conditions for 1 to 2 hours, after which measurements shall be made.

Capacitance change Max	Within \pm 20% of the initial value.
Tan δ	Within value specified above.
Leakage current	Within value specified above.

4.2 Load life.

After applying rated working voltage for 2000 hours at +85°C and then being stabilized at \pm 20°C, capacitors shall meet following limits.

Capacitance change Max	Within \pm 20% of the initial measured value.
Tan δ	\leq 200% of the initial specified value.
Leakage current	\leq The initial specified value.

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4.3 Shelf life.

After storage for 1000 hours at +85°C with no voltage applied and then being stabilized at +20°C capacitors shall meet following limits.

Capacitance change	Within $\pm 20\%$ of the initial measured value.
Tan δ	$\leq 150\%$ of the initial specified value.
Leakage current	\leq The initial specified value.

4.4 Impedance ratio at low temperature.

When capacitor are stored at the temperature of $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$, $-25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ respectively the ratio of impedance measured at each test temperature with the frequency of 120 Hz shall be less than value.

W.V (V)	6,3	10	16	25	35	50~100	160~250	350~450
Z-25°C/Z20°C	4	3	2	2	2	2	3	6
Z-40°C/Z20°C	12	10	8	5	4	3	5	-

4.5 Resistance to soldering heat.

For other procedures than those specified below soldering iron method.

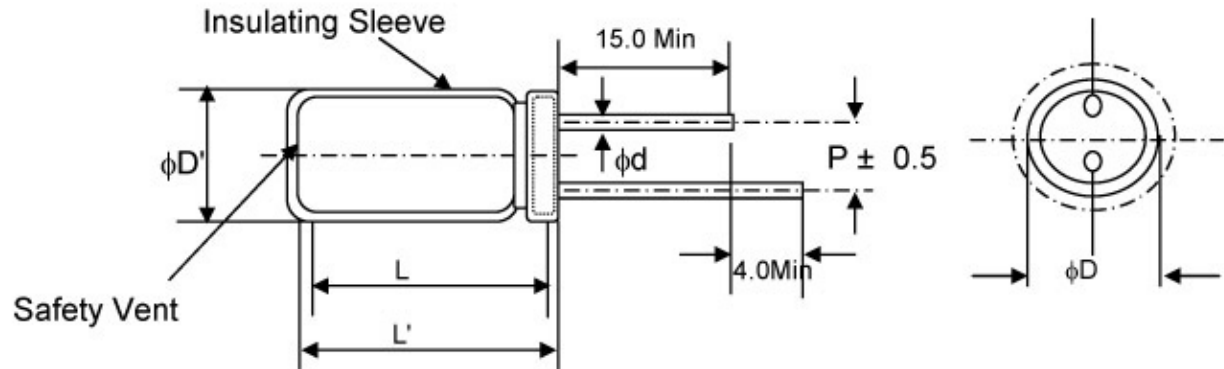
+ Temperature: $260 \pm 5^{\circ}\text{C}$

+ Application time of soldering iron: 10 sec

Capacitance change	Within $\pm 20\%$ of the initial value.
Tan δ	Within values specified above .
Leakage current	Within values specified above .



8. CASE SIZE AND DIMENSION



* Standard lead style:

ϕD	5,0	6,3	8,0	10,0	12,5	16,0	18,0
P	2,0	2,5	3,5	5,0		7,5	
ϕd	0,5		0,6			0,8	

$$D' = [D + 0.5] \text{Max}$$

$$L' = [L + 1.0] \text{Max. at } D \leq 8.0$$

$$L' = [L + 1.5] \text{Max. at } D \geq 10.0$$

9. RIPPLE CURRENT COEFFICIENT

* Frequency

Cap(μ F) \diagdown Freq(Hz)	50	120	400	1K	10K	50 ~ 100K
Cap \leq 10	0,8	1,0	1,30	1,45	1,65	1,70
10 < Cap \leq 100	0,8	1,0	1,23	1,36	1,48	1,53
100 < Cap \leq 1000	0,8	1,0	1,16	1,25	1,35	1,38
1000 < Cap	0,8	1,0	1,11	1,17	1,25	1,28

* Temperature

Temperature	$\leq 60^{\circ}\text{C}$	70°C	85°C
Factor	1,65	1,37	1,0

**10. RM# SERIES****Dimension & Maximum permissible ripple current[mA(rms)at 85°C, 120Hz]** $\phi D \times L$ (mm)

W.V(V) CAP(μF)	6.3(0J)		10(1A)		16(1C)		25(1E)		35(1V)		50(1H)		63(1J)		100(2A)	
	SIZE	I _R	SIZE	I _R	SIZE	I _R	SIZE	I _R	SIZE	I _R	SIZE	I _R	SIZE	I _R	SIZE	I _R
0,47									5x11	18	5x11	16	5x11	15	5x11	14
1,0							5x11	18	5x11	22	5x11	20	5x11	19	5x11	19
2,2			5x11	31	5x11	28	5x11	22	5x11	32	5x11	32	5x11	28	5x11	30
3,3			5x11	35	5x11	32	5x11	29	5x11	38	5x11	37	5x11	34	5x11	40
4,7			5x11	49	5x11	35	5x11	38	5x11	40	5x11	44	5x11	40	5x11	47
10			5x11	62	5x11	60	5x11	63	5x11	60	5x11	65	5x11	68	6.3x11	73
22	5x11	60	5x11	78	5x11	89	5x11	90	5x11	92	5x11	97	5x11	102	6.3x11	122
33	5x11	71	5x11	90	5x11	101	5x11	110	5x11	110	5x11	120	6.3x11	148	8x11.5	169
47	5x11	95	5x11	100	5x11	105	5x11	120	5x11	130	6.3x11	153	6.3x11	173	10x12.5	255
100	5x11	110	5x11	210	5x11	155	6.3x11	195	6.3x11	205	8x11.5	278	10x12.5	305	10x20	424
220	5x11	200	5x11	210	6.3x11	260	8x11.5	350	8x11.5	375	10x12.5	470	10x16	566	12.5x20	740
330	6.3x11	275	6.3x11	280	8x11.5	385	8x11.5	425	10x12.5	517	10x16	634	10x20	705	12.5x25	890
470	6.3x11	310	6.3x11	330	8x11.5	460	10x12.5	587	10x16	678	10x20	793	12.5x20	1010	16x25	1270
680	8x11.5	470	8x11.5	510	10x12.5	675	10x16	784	10x20	896	12.5x20	1187	12.5x25	1372	16x35.5	1710
1000	8x11.5	550	10x12.5	680	10x16	836	10x20	985	12.5x20	1310	12.5x25	1495	16x25	1686	18x40	1850
1500	10x16	780	10x16	897	10x20	1075	12.5x20	1340	12.5x25	1590	16x31.5	1854	16x35.5	2150		
2200	10x20	1040	10x20	1154	12.5x20	1330	12.5x25	1680	16x25	1980	16x35.5	2370	18x35.5	2630		
3300	10x20	1200	12.5x20	1515	12.5x25	1728	16x25	2064	16x35.5	2525	18x35.5	2864	18x40	3090		
4700	12.5x20	1620	12.5x25	1901	16x25	2170	16x31.5	2585	18x35.5	3090	18x40	3110				
6800	12.5x25	2020	16x25	2324	16x31.5	2720	18x35.5	3220	18x40	3210						
10000	16x25	2410	16x35.5	2950	18x35.5	3350										
15000	16x35.5	3150	18x35.5	3495												
22000	18x40	3750														

W.V(V) Cap(μF)	160(2C)		200(2D)		250(2E)		350(2V)		400(2G)		450(2W)	
	SIZE	I _R	SIZE	I _R	SIZE	I _R	SIZE	I _R	SIZE	I _R	SIZE	I _R
1,0	6.3x11	15	6.3x11	16	6.3x11	16	6.3x11	20	8x11.5	25	8x11.5	24
2,2	6.3x11	27	6.3x11	28	6.3x11	28	8x11.5	37	8x11.5	40	10x12.5	38
4,7	6.3x11	52	8x11.5	63	8x11.5	63	10x12.5	70	10x16	70	10x16	68
10	10x12.5	95	10x12.5	106	10x12.5	110	10x16	115	10x20	120	12.5x20	105
22	10x16	168	10x16	168	10x20	179	12.5x20	198	12.5x25	205	12.5x25	200
33	10x20	213	10x20	227	12.5x20	258	12.5x25	280	16x25	292	16x25	285
47	12.5x20	296	12.5x20	296	12.5x25	329	16x25	358	16x25	360	16x35.5	346
100	12.5x25	475	16x25	524	16x31.5	582	16x35.5	596	18x40	600	18x40	435
220	16x31.5	877	18x35.5	920	18x40	1000	18x40	680				
330	18x35.5	1126	18x40	1010								

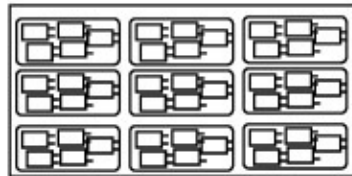
IR : Maxium permissible ripple current [mA(rms) at 85°C,120Hz]



11. Packing methode

11.1 Cutting products shall be packed in a vinyl bag then put un inner box.

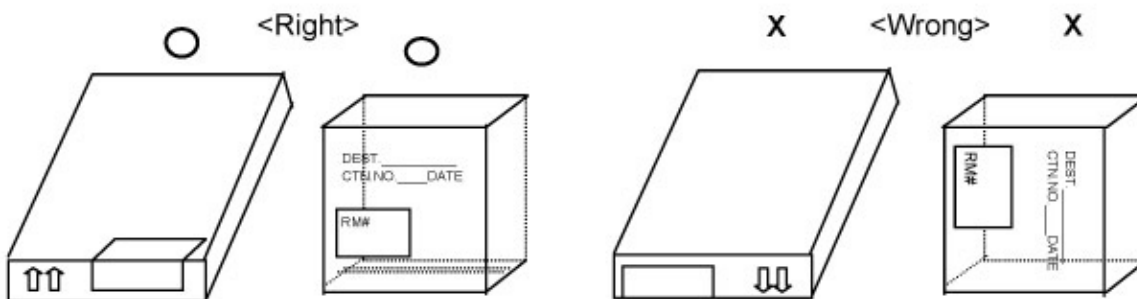
There shall be a single part number in a inner carton.



11.2 Polarity identifications on a cardboard box shall match the polarity of products.

11.3 Inner carton box shall be handled as follows.

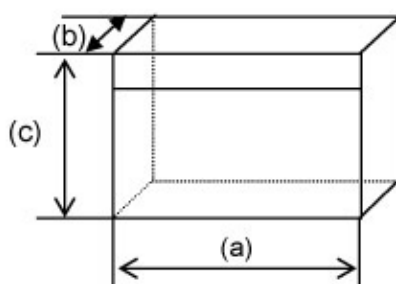
- * No more than 10 inner carton boxes shall be piled.
- * In case of putting the boxes lengthways, the indication of porarity shall face up.
- * The products shall be handled with care.



11.4 The inner cartons shall be packed in a cardboard box for transportation.

Various part number can be packed in a outer carton.

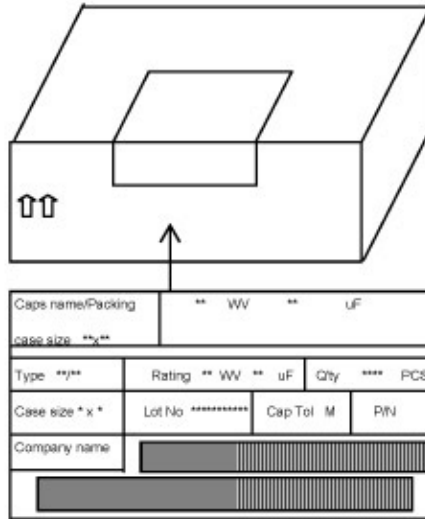
11.5 Shape & dimensions of inner carton shall be as follows.



Case size		(a)	(b)	(c)
ϕD	L			
$\phi 5\sim 8$	11~11.5	350	260	310
$\phi 10$	16~20	350	260	310
$\phi 12.5$	20~25	350	260	310
$\phi 16$	25~35.5	350	260	310
$\phi 18$	20~40	350	260	310

* Note: The dimensions listed above may be changed without notice. The carton shall be suitable for the auto-insert machines after change.

* Inner box packing standard:

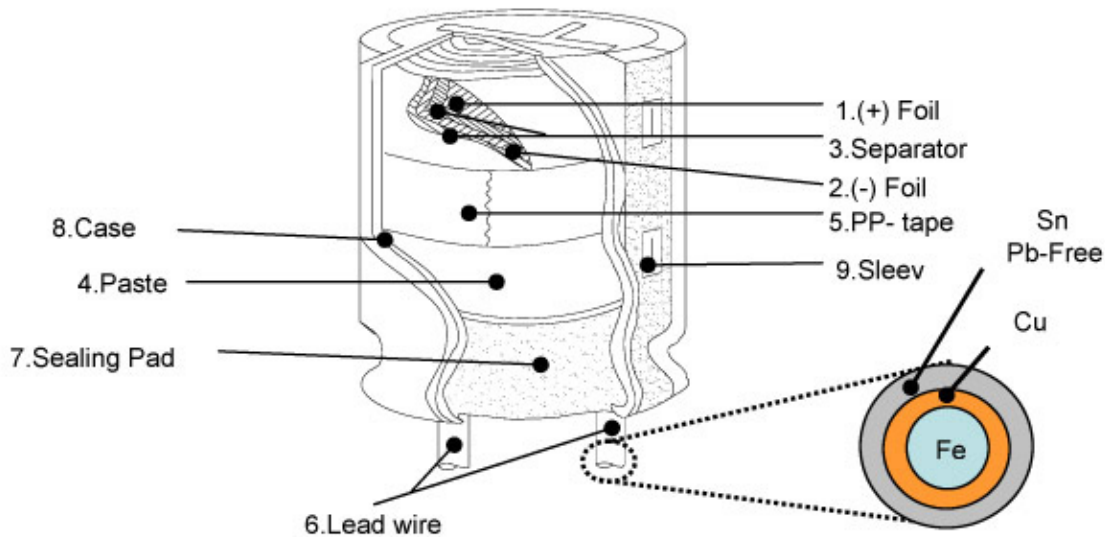


11.6 Packing standard quantity:



Product diameter [mm]	Inner carton quantity min. Packing quantity [Pcs]	Outer carton quantity [Pcs]
φ5	7000	14000
φ6.3	6000	12000
φ8	3600	7200
φ10	2400	4800
φ12.5	1200	2400
φ16	500	1000
φ18	400	800

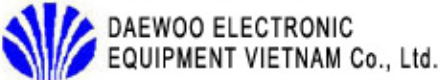



12.CONSTRUCTION RADIAL TYPE CAPACITORS.



No	Raw Materials			Contents(ppm=mg/kg)						ICP Data
	Part Name	Vendor	Material	cd	pb	Hg	Cr6+	PBB	PBDE	
1	FOIL(+)	HAIXING, HFCC	Aluminium	0	0	0	0	0	0	#1
2	FOIL(-)	ELE-CON	Aluminium	0	0	0	0	0	0	#2
3	Paper	KAN	Pulp	0	0	0	0	0	0	#3
4	PASTE	CAPCHEM	MEG	0	0	0	0	0	0	#4
5	Adhesive Tape	TAPEX	Polypropylene	0	0	0	0	0	0	#5
6	Lead wire	LITON	Al,Fe+Sn	0	0	0	0	0	0	#6
7	Rubber	LIEN EKI	Rubber	0	0	0	0	0	0	#7
8	Case	OAKLEY	Aluminium	0	0	0	0	0	0	#8
9	Sleeve	MOODEUNG	PVC	0	0	0	0	0	0	#9
10	Sleeve Ink	MOODEUNG	INK	0	0	0	0	0	0	#10
11	Box Packing	TRUONG HUNG	Kraft	0	0	0	0	0	0	#11
TOL				0	0	0	0	0	0	
SAMSUNG Eco-Partner Standard				5	100	800	800	100	100	

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RAW MATERIAL SUPPLIERS LIST						
Items	Company name	Country	Contents	Using of CE	Remark	
Anode Foil	- HFCC	- CHINA	* Low and high gain Anode Foil	* All series of CE	* Forming(+)	
	- HAIXING	- CHINA	* High voltage (160Fv up) Foil			
Cathode Foil	- ELE-CON	- CHINA	* Cathode Foil (20, 40, 50 μ m)	* All series of CE	* Etching(-) * PURITY : 98.4%	
Lead wire	- LITON	- CHINA	* Lead-wire welding and press	* 04 type only	* Sn 100% coated	
Case	- OAKLEY	- CHINA	- 04 ~ 18 Al-case press	* All series of CE		
Sleeve	- MOODEUNG	- KOREA	* PVC tube	* 04, Snap-in all		
Paper	- KAN	- CHINA	* 100% from CHINA	* All series of CE		
Rubber	- LIEN EKI	- MALAYSIA	* Normal and butyl Rubber	* All series of CE		
Paste	- CAPCHEM	- CHINA	* Adipic Acid, Boric Acid	* All series CE		
Adhesive Tapex	- TAPEX	- KOREA	* Element winding film	* 04, Snap-in all		

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CONFIRMATION AND ACTION PLAN TABLE

No	Banned Substances and total abolish	PART OR RAW MATERIAL MANUFACTURER		ACTION PLAN TO ELIMINATE IF STILL USING
		NOT USE	USE	
1	Cadmium and cadmium compounds	X		
2	PBB and PBDE	X		
3	Chlorinated paraffins (chlorine flame retarding materials/plasticizers)	X		
4	Polychlorinated biphenyl (PCB) category	X		
5	Polychlorinated naphthalene category	X		
6	Organic tin compounds(Tributyl tin category/Triphenyl tin category)	X		
7	Asbestos	X		
8	Azo compounds	X		
9	Lead and its compounds	X		
10	Mercury and its inorganic compounds	X		
11	Hexavalent chromium compounds	X		
12	Polyethylene terephthalate (PET)		X	
13	Organic bromine compound except PBB and PBDE	X		
14	Manufacturing Process : Ozone Depleting Substances	X		
15	Manufacturing Process : Chlorinated organic solvent	X		