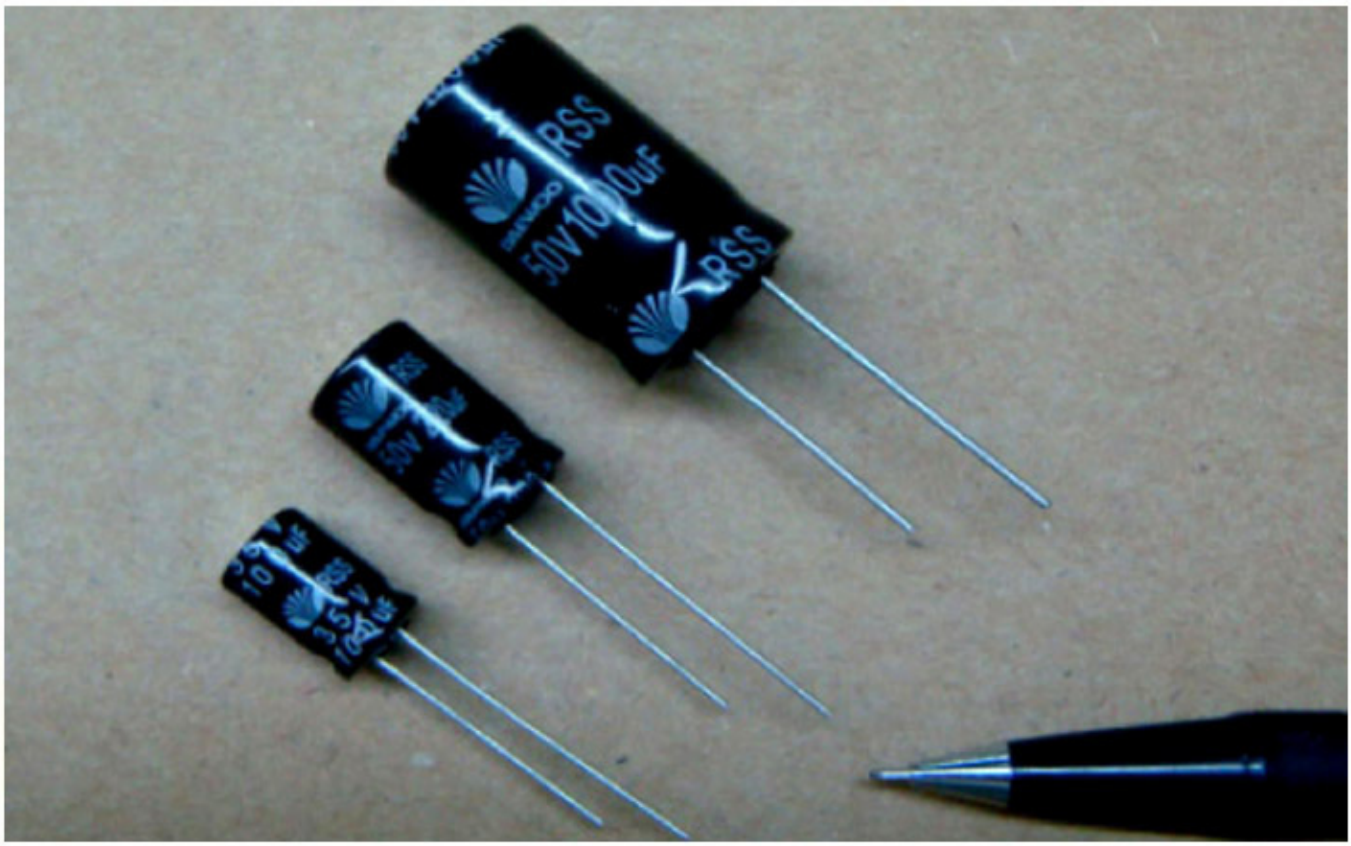
SICE - SP - R003	**SPECIFICATION**	REV. Date	2015.11.10
DAEWOO ELECTRONIC EQUIPMENT VIETNAM Co., Ltd.	ELECTROLYTIC CAPACITORS **RSS SERIES**	DACHS	



SUPPLIER'S DAEWOO

Maker	Checker	Approval

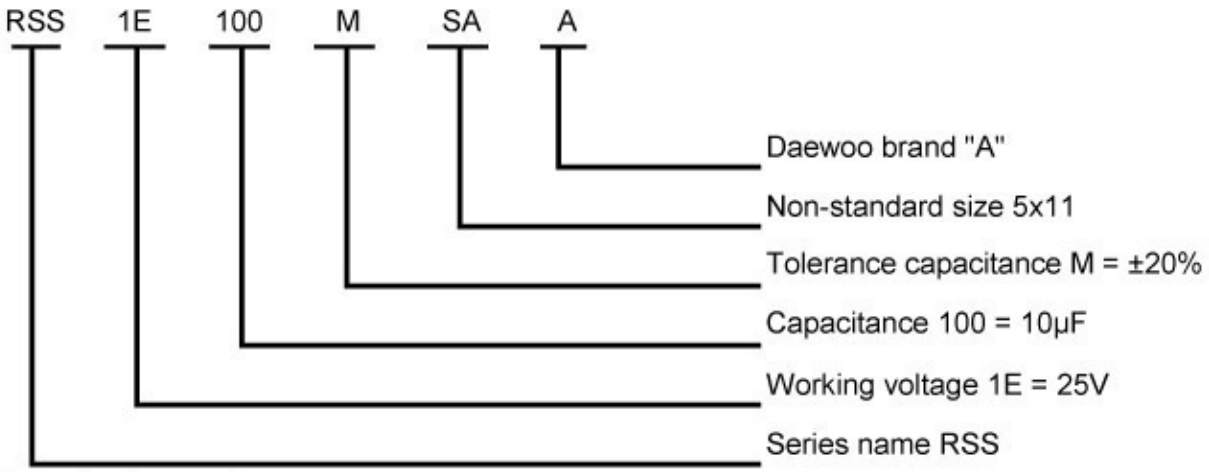
CUSTOMER'S DACHS

Maker	Checker	Approval

Please return us one copy your signed specification after you approved of it

We hand in this specification order to be approved of electrolytic capacitor RSS Series that out company is going to deliver your company.

1. Composition Type: Ex: RSS1E100MSAA (5x11)



2. Operating temperature range:

   6.3 ~ 250WV: -40°C to +85°C (-40°F to +185°F)

   350 ~ 450WV: -25°C to +85°C (-13°F to +185°F)

3. Electrical characteristic:

   3.1 Capacitance.

   The capacitance is measured at a frequency of 120Hz at a temperature of 20°C ± 2°C (68°F ± 3.6°F) with a maximum of 0.5 Vrms applied.

Capacitance tolerance	-20% ~ +20% (M)

   3.2 Leakage current (L.C)

6.3 ~ 100V	I ≤ 0.01CV or 3μA (2Min) (Whichever is greater)
160 ~ 250V	I ≤ 0.01CV + 10μA (3Min)
350 ~ 450V	I ≤ 0.02CV + 30μA (3Min)

I = DC Leakage current (μA)

C = Nominal capacitance (μF)

V = Rated Voltage (WV.DC)

3.3 Tangent of Loss Angle (Tanδ)

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

Tanδ (max., at 20°C,120Hz)	6,3	10	16	25	35	50	63	100	160~250	350~450
	0,26	0,22	0,17	0,15	0,12	0,10	0,10	0,08	0,20	0,20

When capacitance is over 1000μF, Tanδ shall be added 0.02 to the listed value with increase of every each 1000μF.

4. Test.

4.1 Damp heat

The capacitor shall be stored at a temperature of 40 ± 2°C and relative humidity of 90% to 95% for 240 ± 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	Within ± 20% of the initial value.
Dissipation factor	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 beging stabillized at ±20°C capacitors shall meet following limits.

Capacitance change	Within ± 20% of the initial value.
Dissipation factor	≤150% of specified value
Leakage current	≤The initial specified value.

4.3 Shelf life

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

Capacitance change Max	Within ± 20% of the initial value.
Dissipation factor	≤150% of specified value.
Leakage current	≤200% initial specified value.

4.4 Impedance ratio at low temperature

When capacitor are stored at the temperature of -40°C + 3°C, -25°C + 3°C and 20°C + 2°C respectively the ratio of impedance measured at each test temperature with the frequency of 120Hz 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	2	6
Z-40°C/Z20°C	10	8	6	4	3	3	3	-

4.5 Resistance to soldering heat

For other procedures than those specified below soldering iron method.

+ Temperature: 260 ± 5°C

+ Application time of soldering iron: 10 sec

Capacitance change Max	Within ± 20% of the initial value.
Dissipation factor	Within values specified above.
Leakage current	Within values specified above.

5. Recommended cleaning solvents

Methanol, isopropanol, isobutanaol, ethanol, petroleum ether, propanol and or commercial detergents.

Halogenated hydrocarbon cleaning agents such as freon (MF, TF, TMC or TC) trichloroethylene, trichloroethane, or methylchioride are not recommended as they may damage the capacitor.

6. Marking

The following items shall be marked indelibly and legibly on the spoci-fled location.

1). Brand:

2). Series Designation: RSS

3). Rated Voltage (DC): 25V

4). Capacitance (μF): 10μF

5). Capacitance Tolerance: (M): ±20%

6). Maximum Operating Temperature: 85°C

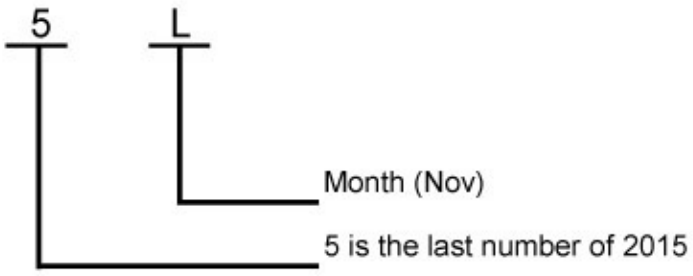
7). Lot No : 5L

8).Sleeve Colour: BLACK

7. Lot Number

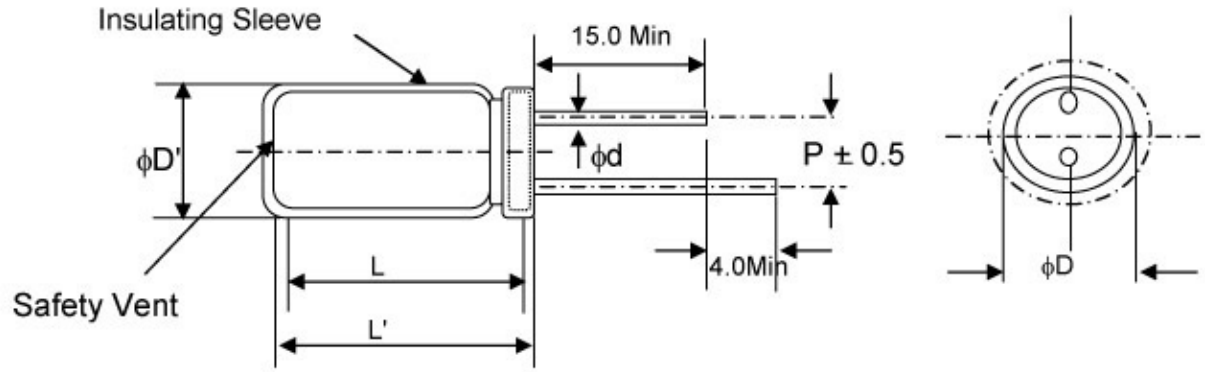
The lot number regulates the following formula. But 1, 0, I are exception

Ex: Nov 2015



MONTH YEAR	1	2	3	4	5	6	7	8	9	10	11	12
2010 2019	A	B	C	D	E	F	G	H	J	K	L	M

8. CASE SIZE AND DIMENSION



* Standard lead style:

ϕ D	5,0	6,3	8,0	10,0	13,0	16,0	18,0
P	2,0	2,5	3,5	5,0		7,5	
ϕ d	0,5		0,6			0,8	

D' = [D + 0.5]Max

L' = [L+1.0]Max. at D ≤8.0

L' = [L+1.5]Max. at D ≥ 10.0

9. RIPPLE CURRENT COEFFICIENT

* Frequency

Cap(μF) \ Freq(Hz)	50	120	400	1K	10K	50 ~ 100K
Cap ≤ 10	0,8	1,0	1,3	1,45	1,65	1,70
10 < Cap ≤ 100	0,8	1,0	1,23	1,36	1,48	1,53
100 < Cap ≤ 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	≤ 60°C	70°C	85°C
Factor	1,65	1,37	1,0

10. RSS SERIES

Dimension & Maximum permissible ripple current[mA(rms)at 85°C, 120Hz ϕD x 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
0,1											5x11	6	5x11	6	5x11	6
0,22											5x11	8	5x11	8	5x11	8
0,33									5x11	8	5x11	10	5x11	9	5x11	10
0,47					5x11	10	5x11	11			5x11	14	5x11	14	5x11	14
1,0					5x11	15	5x11	16			5x11	19	5x11	19	5x11	21
2,2					5x11	20	5x11	25			5x11	29	5x11	30	5x11	32
3,3					5x11	30			5x11	34	5x11	37	5x11	40	5x11	45
4,7					5x11	35	5x11	38	5x11	40	5x11	45	5x11	50	5x11	52
10					5x11	49	5x11	60	5x11	65	5x11	68	5x11	72	6.3x11	85
22			5x11	78	5x11	84	5x11	90	5x11	95	5x11	105	6.3x11	120	8x11.5	142
33			5x11	102	5x11	108	5x11	110	5x11	120	6.3x11	140	6.3x11	157	10x12.5	207
47	5x11	120	5x11	125	5x11	130	5x11	140	6.3x11	157	6.3x11	172	8x11.5	210	10x16	284
100	5x11	135	5x11	150	6.3x11	200	6.3x11	210	8x11.5	258	8x11.5	283	10x12.5	365	12.5x20	470
220	6.3x11	240	6.3x11	255	8x11.5	330	8x11.5	360	10x12.5	470	10x16	545	10x20	638	16x25	820
330	6.3x11	310	8x11.5	365	8x11.5	415	10x12.5	523	10x16	615	10x20	720	12.5x20	910	16x25	1095
470	8x11.5	400	8x11.5	430	10x12.5	550	10x16	730	10x20	810	12.5x20	965	12.5x25	1150	16x31.5	1370
1000	10x12.5	690	10x16	810	10x20	1020	12.5x20	1220	12.5x25	1510	16x25	1760	16x31.5	1850		
2200	12.5x20	1240	12.5x20	1310	12.5x25	1590	16x25	1835	16x31.5	2090	18x35.5	2540	18x35.5	2750		
3300	12.5x20	1460	12.5x25	1685	16x25	2010	16x31.5	2315	18x35.5	2740	18x40	2810				
4700	16x25	1990	16x25	2120	16x31.5	2485	18x35.5	2875	18x35.5	2895						
6800	16x25	2275	16x31.5	2550	18x35.5	2990										
10000	16x31.5	2760	18x35.5	3160												
15000	18x35.5	3270														

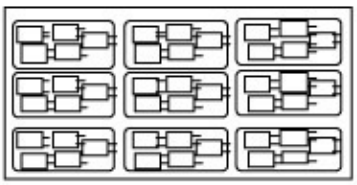
W.V(V) / Cap(μF)	160(2C)		200(2D)		250(2E)		350(2V)		400(2G)		450(2W)	
	SIZE	I_R	SIZE	I_R	SIZE	I_R	SIZE	I_R	SIZE	I_R	SIZE	I_R
1,0	6.3x11	22	6.3x11	22	6.3x11	22	8x11.5	24	8x11.5	24	8x11.5	24
2,2	6.3x11	33	6.3x11	33	8x11.5	39	10x12.5	45	10x12.5	47	10x12.5	47
3,3	8x11.5	51	8x11.5	51	10x12.5	58	10x12.5	56	10x16	58	10x16	58
4,7	8x11.5	57	10x12.5	64	10x16	73	10x16	72	10x16	74	10x20	76
10	10x16	95	10x16	95	10x20	108	10x20	118	12.5x20	132	12.5x20	135
22	10x20	171	10x20	171	12.5x20	205	12.5x25	215	16x25	235	16x25	235
33	12.5x20	248	12.5x25	265	12.5x25	275	16x25	270	16x31.5	298	16x35.5	305
47	12.5x25	295	12.5x25	305	16x25	340	16x35.5	368	16x35.5	405	18x40	415
100	16x25	530	16x31.5	540	18x35.5	560	18x40	640				
220	18x35.5	890	18x40	910								

I_R : 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.



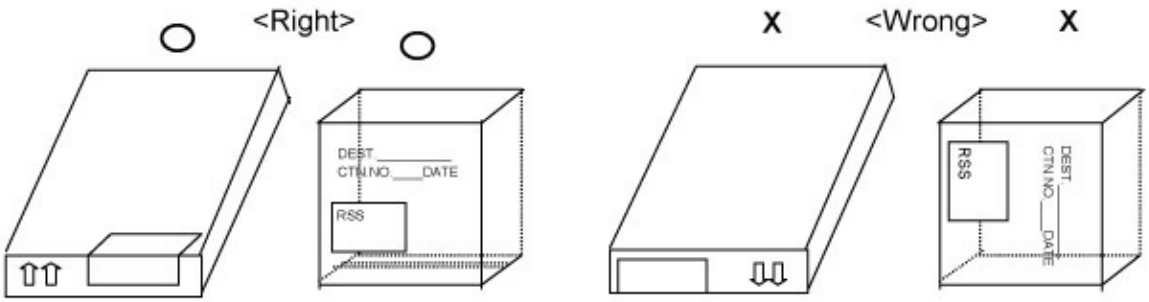
11.2 Polarity identifications on a cardboard box shall match the polaritry of products.

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.

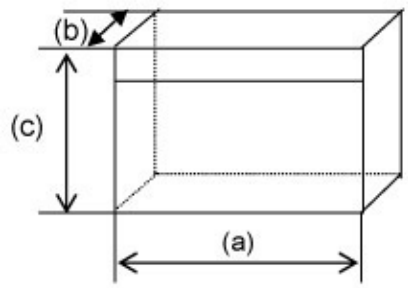
* The products shall be handled with care.



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.

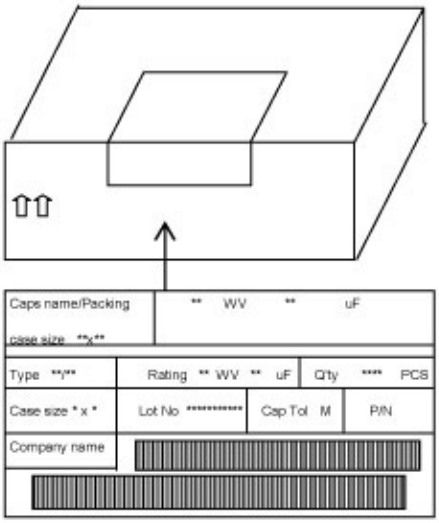


Case size		(a)	(b)	(c)
ϕD	L			
ϕ 5~8	11~11.5	350	260	310
ϕ 10	16~20	350	260	310
ϕ 12.5	20~25	350	260	310
ϕ 16	25~35.5	350	260	310
ϕ 18	20~40	350	260	310

△1

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

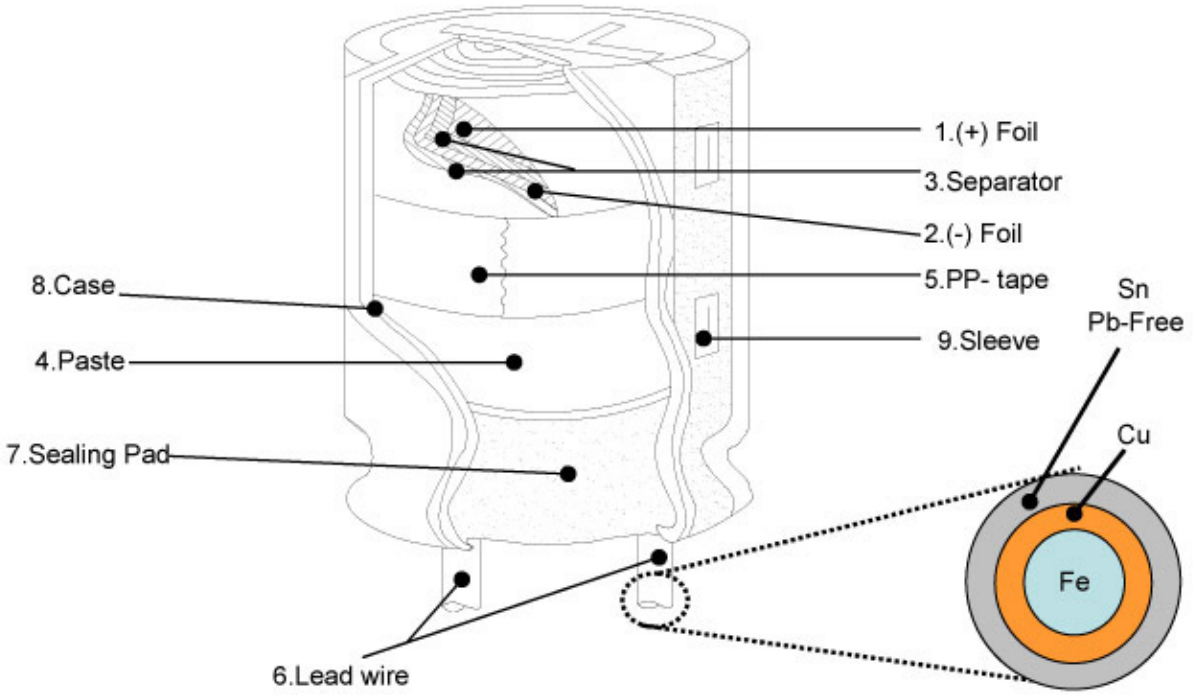
* Inner box packing standard:



11.6 Packing 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	

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, 50μm)	* 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	

CONFIRMATION AND ACTION PLAN TABLE

No	Banned Substances and total abbolish	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(Tributhyl 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	Polyvinylchloride (PVC)		X	
13	Organic bromine compound except PBB and PBDE	X		
14	Manufacturing Process : Ozone Depleting Substances	X		
15	Manufacturing Process : Chlorined organic solvent	X		