

# APPROVAL SHEET

**Customer:** Ozdisan






**Item:** Series For Approval

**Catalog Series:** CGH Series

**Date of Issue:** SEP.21.2023

**Approved NO. :** SD20230900586

BUYER'S STAMP	Approved by			

Su' scon	Submitted by			
	Approval	Check	Affirm	Design
				

**Su' scon**  
**Electrolytic Capacitor**

[www.su-scon.com](http://www.su-scon.com)



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**Halogen Free**  
RoHS COMPLIANT Environmental-Benefit Products

# RECORD OF REVISION

NO.	VERSION	REASON	DATE	CHECKED	REMARKS
1	A00	First Release	2023.09.21	劉冬冬	
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## CGL Series For Approval

<b>NO.</b>	<b>Customer Part No.</b>	<b>Specification</b>	<b>Su' scon Part No.</b>
1		EC,220uF/10V	CGH010M221F10PKKKV00R
2		EC,330uF/10V	CGH010M331F10PKKKV00R
3		EC,330uF/10V	CGH010M331G10PKKKV00R
4		EC,470uF/10V	CGH010M471G10PKKKV00R
5		EC,1000uF/10V	CGH010M102XDBPKKKV00R
6		EC,1500uF/10V	CGH010M152XDBPKKKV00R
7		EC,2200uF/10V	CGH010M222JGBPCKKV00R
8		EC,2700uF/10V	CGH010M272JGBPCKKV00R
9		EC,100uF/16V	CGH016M101F10PKKKV00R
10		EC,220uF/16V	CGH016M221F10PKKKV00R
11		EC,330uF/16V	CGH016M331G10PKKKV00R
12		EC,470uF/16V	CGH016M471G10PKKKV00R
13		EC,680uF/16V	CGH016M681XDBPKKKV00R
14		EC,1500uF/16V	CGH016M152JGBPCKKV00R
15		EC,100uF/25V	CGH025M101F10PKKKV00R
16		EC,220uF/25V	CGH025M221G10PKKKV00R
17		EC,330uF/25V	CGH025M331G10PKKKV00R
18		EC,470uF/25V	CGH025M471XDBPKKKV00R
19		EC,1000uF/25V	CGH025M102JGBPCKKV00R
20		EC,1500uF/25V	CGH025M152JGBPCKKV00R
21		EC,2200uF/25V	CGH025M222KGBPCKKV00R
22		EC,2700uF/25V	CGH025M272JQBPKKKV00R
23		EC,3300uF/25V	CGH025M332KQBPKKKV00R
24			
25			

## CGL Series For Approval

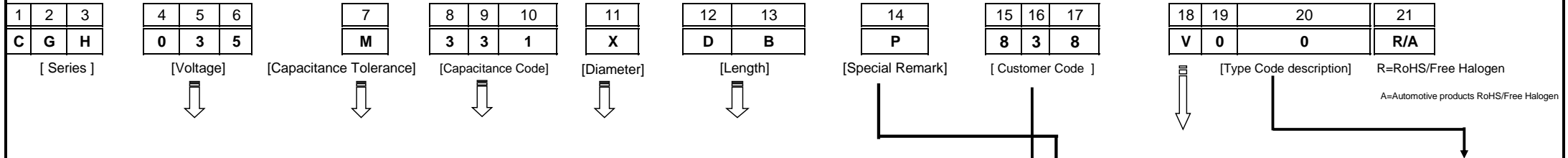
NO.	Customer Part No.	Specification	<i>Su' scon</i> Part No.
1		EC,100uF/35V	CGH035M101F10PKKKV00R
2		EC,220uF/35V	CGH035M221G10PKKKV00R
3		EC,330uF/35V	CGH035M331XDBPKKKV00R
4		EC,680uF/35V	CGH035M681JGBPCKKV00R
5		EC,1000uF/35V	CGH035M102JGBPCKKV00R
6		EC,1500uF/35V	CGH035M152JQBPKKKV00R
7		EC,2200uF/35V	CGH035M222JQBPKKKV00R
8		EC,47uF/50V	CGH050M470F10PKKKV00R
9		EC,100uF/50V	CGH050M101G10PKKKV00R
10		EC,220uF/50V	CGH050M221XDBPKKKV00R
11		EC,470uF/50V	CGH050M471JGBPCKKV00R
12		EC,680uF/50V	CGH050M681KGBPCKKV00R
13		EC,1000uF/50V	CGH050M102JQBPKKKV00R
14		EC,33uF/63V	CGH063M330F10PKKKV00R
15		EC,47uF/63V	CGH063M470G10PKKKV00R
16		EC,100uF/63V	CGH063M101G10PKKKV00R
17		EC,470uF/63V	CGH063M471JGBPCKKV00R
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# Explanation of Parts Numbers (ERP System)

Draw Up:1999.12.15  
Revise:2016.06.15

Codification:DKK/III-00-002  
Edition:A08

## Explanation of Parts Numbers



004=4V	J= ±5 %	0R1=0.1uF	C=4Φ
006=6.3V	K= ±10%	1R0=1uF	D=5Φ
010=10V	M= ±20 %	100=10 uF	5=5.5Φ
016=16V	A= 0 %~+20 %	101=100 uF	E=6.3Φ
025=25V	S= 0 %~+40 %	102=1000 uF	V=6.5Φ
035=35V	R= 0 %~+50 %	103=10000 uF	F=8Φ
050=50V	D= -5 %~+20 %	223=22000 uF	G=10Φ
063=63V	V= -10 %~+20 %	G52=1650 uF	H=12Φ
080=80V	Q= -10 %~+30 %		X=12.5Φ
100=100V	T= -10 %~+50 %	P=35Φ	I=13Φ
160=160V	E= -15 %~+20 %	Q=40Φ	Y=14.5Φ
350=350V	I= -30 %~+20 %	W=42Φ	J=16Φ
400=400V	B= +10 %~+30 %	8=45Φ	K=18Φ
420=420V	N= +10 %~+25 %	R=51Φ	L=20Φ
450=450V	C= -5 %~+15 %	S=64Φ	M=22Φ
500=500V	Z= -0 %~+30 %	T=76Φ	N=25Φ
		U=90Φ	Z=25.4Φ
		B=100Φ	O=30Φ

1) Length < 100mm Integer, Input it direct.

2) Length < 100mm Decimal, Please refer the code as below: Ex:11.5 isBB; 5.4 is 5A;

3. Length ≥ 100mm, First digit input No.0-9 · 2nd · 3rd refer as below Code11 Ex:115, Input B5.

Code12	Meaning
A	10
B	11
C	12
D	13
E	14
F	15
G	16
H	17
I	18
J	19
K	20
Q	21

Code13	Meaning
A	0.4
B	0.5
C	0.6
D	0.7
E	0.8
F	0.9
G	0.1
H	0.2
I	0.3

Code18	Code19	Code20	Code21
B			<1>Code No.18 is "P", Code No.19 · 20 is stand for Lead pitch.
C			<2>Code No.18 is C,N,E,F,D,H,W,K,L,Z, Code No.19 · 20 is stand for Lead length.
D			<3>Code No.18 is S, Code No.19 · 20 be filled in "00" is stand for General Long Lead
E			<4>Code No.18 is "B", Code No.19 · 20 be filled in "00" is stand for Forming Long Lead

Code13	Meaning
T	Convex Rubber seal (Standard : Lead Type 12.5Φ ≤ D ≤ 18Φ (Breathe freely)
P	Flat Rubber seal (Standard : Lead Type 4Φ ≤ D ≤ 12Φ : 20Φ · 22Φ · 25Φ)
0	Snap-in,U-LUG Type

KKK	For Standard Product which has no artifactious. (Bulk, Long-lead, No particular processing, rated spec.)
838	Customer No.(順隆博)

## 2.ERP P/N System compare with NCC's Description

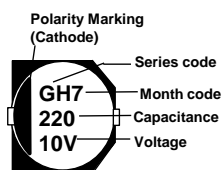
- "Finished Products" ----21 Codes ·
- Snap in Type---- "Semi-finished products P/N" has not demand · It's also 21 Codes
- Lead Type---- 17 codes for "Semi-finished products" · It's 17 codes (If Specially enquire and 17 codes can not be reached, It will be 21 code for that)
- Codes No.14 : Specially Code · It's difference between clients enquire and same Spec multiple enquired.
- Codes No.15-17 which is for clients Code.
- Length of Lead Cut and Forming bigger than 10.0mm or appendix digit · Letters Description ·

**DIMENSIONS(mm)**

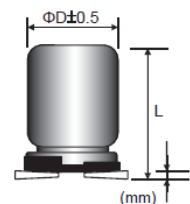
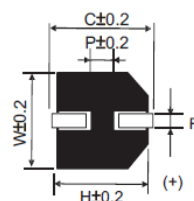
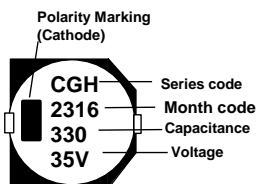
■ Chip Type

## FOR APPROVAL

**Fig.1 ΦD=4~10mm**



**Fig.2 ΦD≥12.5mm**



Size	ΦD	L	W	H	C	R	P	Vmax
8*10	8.0	10±0.5	8.3	8.3	9.0	0.7~1.1	3.2	0.3
10*10	10.0	10±0.5	10.3	10.3	11.0	0.7~1.3	4.5	0.3
12.5*13.5	12.5	13.5±0.5	13.0	13.0	13.7	1.1~1.4	4.5	0.4
16*16.5	16.0	16.5±0.5	17.0	17.0	18.0	1.4~1.8	6.4	0.4
16*21.5	16.0	21.5±0.5	17.0	17.0	18.0	1.4~1.8	6.4	0.4
18*16.5	18.0	16.5±1	19.0	19.0	20.0	1.4~1.8	6.4	0.4
18*21.5	18.0	21.5±1	19.0	19.0	20.0	1.4~1.8	6.4	0.4

**REMARKS:**

- Leakage Current Test:** 10V~63V at 20°C for 2 minutes ;
  - Operating temperature:** 10V~63V -40°C ~ +135°C ;
  - .Dissipation Factor Test:** at 20°C, 120 Hz.
  - Capacitance Test:** at 20°C, 120 Hz.
  - Ripple Current Test:** at 135°C, 100K Hz ;
  - Load Life:** 2000 hours with application of rated voltage at 135°C
- Capacitance Change:** Within ±30% of initial value;  
**tanδ:** 300% or less of initial specified value;  
**Leakage Current:** Initial specified value or less;
- Shelf Life:** The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours 135°C without voltage applide. Before the measurement, the capacitor shall be preconditioned by applying voltage according to them 4.1 of JIS C5101-4.  
**Capacitance Change:** Within ±30% of initial value;  
**tanδ:** 300% or less of initial specified value;  
**Leakage Current:** Initial specified value or less;
- 8. when have characteristic requested:** Load life & shelf life test and etc. , judgment standard reference to our catalogue.

**●SPECIFICATION**

Leakage Current 洩漏電流	10~63VV 8~10ΦI ≤ 0.01CV or 3 (μA) , 12.5~18ΦI ≤ 0.03CV or 4 (μA), which is greater.( After 2 minutes application of DC rated voltage, at 20°C)					
Dissipation Factor 散逸因素 (損失角) (tan δ)	Measurement Frequency:120Hz. Temperature:20°C					
	Rate Voltage(V)	10	16	25	35~50	63
	tan δ (MAX)	0.24	0.22	0.20	0.16	0.12
Low Temperature Stability 低溫特性	Measurement Frequency:120Hz.					
	Rate Voltage(V)	10	16	25	35~50	63
Impedance Ratio(MAX) 阻抗比率(MAX)	Z(-25°C)/Z(20°C)	4	3	2	2	2
	Z(-40°C)/Z(20°C)	8	6	4	3	3

**●Frequency Coefficient of Permissible Ripple Current**

Frequency (Hz) Capacitance (μF)	100 ≤ F < 1K	1K ≤ F < 10K	10K ≤ F < 100K	100K ≤ F
1~33	0.55	0.83	0.93	1.00
>33	0.60	0.86	0.93	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

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 DONG GUAN CITY, GUAN DONG CHINA (P.R.O.C) FAX: +86-769- 87318008

DIMENSIONS(mm)

■ Chip Type

**FOR APPROVAL**

Fig.1 ΦD=4~10mm

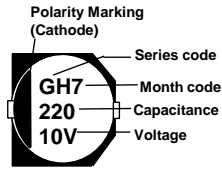
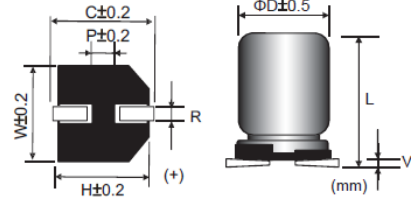
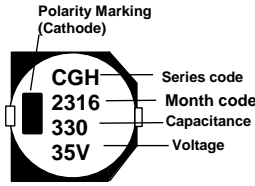


Fig.2 ΦD≥12.5mm



Size	ΦD	L	W	H	C	R	P	Vmax
8*10	8.0	10±0.5	8.3	8.3	9.0	0.7~1.1	3.2	0.3
10*10	10.0	10±0.5	10.3	10.3	11.0	0.7~1.3	4.5	0.3
12.5*13.5	12.5	13.5±0.5	13.0	13.0	13.7	1.1~1.4	4.5	0.4
16*16.5	16.0	16.5±0.5	17.0	17.0	18.0	1.4~1.8	6.4	0.4
16*21.5	16.0	21.5±0.5	17.0	17.0	18.0	1.4~1.8	6.4	0.4
18*16.5	18.0	16.5±1	19.0	19.0	20.0	1.4~1.8	6.4	0.4
18*21.5	18.0	21.5±1	19.0	19.0	20.0	1.4~1.8	6.4	0.4

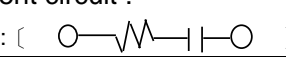
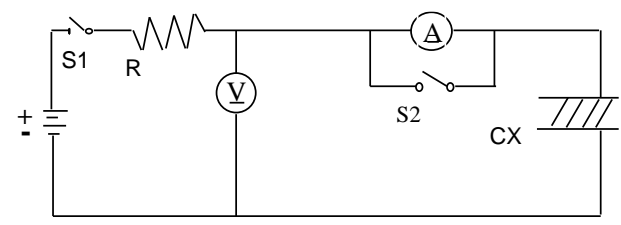
<b>Customer:</b> Ozdisan	<b>Electrolytic Capacitors</b> <b>CGH Series</b>	<b>Su'scon</b> <b>Code</b>
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Electric Characteristics:												
Ozdisan P/N	Su'scon P/N	Cap. (uF)	Cap. Tol. (%)	Rate Volt. (V-DC)	Surge Volt. (V-DC)	Oper. Temp. (°C)	Nominal Case Size D*L(mm)	Leakage Current Max (uA)	D.F. MAX (%)	R.C 100KHz (mA rms)	Load Life (hours)	
	CGH010M221F10PKKKV00R	220	±20	10	11.5	135	8*10	22	24	220	2000	
	CGH010M331F10PKKKV00R	330	±20	10	11.5	135	8*10	33	24	220	2000	
	CGH010M331G10PKKKV00R	330	±20	10	11.5	135	10*10	33	24	300	2000	
	CGH010M471G10PKKKV00R	470	±20	10	11.5	135	10*10	47	24	300	2000	
	CGH010M102XDBPKKKV00R	1000	±20	10	11.5	135	12.5*13.5	300	24	750	2000	
	CGH010M152XDBPKKKV00R	1500	±20	10	11.5	135	12.5*13.5	450	24	750	2000	
	CGH010M222JGBPKKKV00R	2200	±20	10	11.5	135	16*16.5	660	24	1000	2000	
	CGH010M272JGBPKKKV00R	2700	±20	10	11.5	135	16*16.5	810	24	1000	2000	
	CGH016M101F10PKKKV00R	100	±20	16	18.4	135	8*10	16	22	220	2000	
	CGH016M221F10PKKKV00R	220	±20	16	18.4	135	8*10	35	22	220	2000	
	CGH016M331G10PKKKV00R	330	±20	16	18.4	135	10*10	52	22	300	2000	
	CGH016M471G10PKKKV00R	470	±20	16	18.4	135	10*10	75	22	300	2000	
	CGH016M681XDBPKKKV00R	680	±20	16	18.4	135	12.5*13.5	326	22	750	2000	
	CGH016M152JGBPKKKV00R	1500	±20	16	18.4	135	16*16.5	720	22	1000	2000	
	CGH025M101F10PKKKV00R	100	±20	25	28.8	135	8*10	25	20	220	2000	
	CGH025M221G10PKKKV00R	220	±20	25	28.8	135	10*10	55	20	300	2000	
	CGH025M331G10PKKKV00R	330	±20	25	28.8	135	10*10	82	20	300	2000	
	CGH025M471XDBPKKKV00R	470	±20	25	28.8	135	12.5*13.5	352	20	750	2000	
	CGH025M102JGBPKKKV00R	1000	±20	25	28.8	135	16*16.5	750	20	1000	2000	
	CGH025M152JGBPKKKV00R	1500	±20	25	28.8	135	16*16.5	1125	20	1000	2000	
	CGH025M222KGBPKKKV00R	2200	±20	25	28.8	135	18*16.5	1650	20	1400	2000	
	CGH025M272JQBPKKKV00R	2700	±20	25	28.8	135	16*21.5	2025	20	1900	2000	
	CGH025M332KGBPKKKV00R	3300	±20	25	28.8	135	18*21.5	2475	20	2200	2000	
	CGH035M101F10PKKKV00R	100	±20	35	40.3	135	8*10	35	16	200	2000	
	CGH035M221G10PKKKV00R	220	±20	35	40.3	135	10*10	77	16	300	2000	
	CGH035M331XDBPKKKV00R	330	±20	35	40.3	135	12.5*13.5	346	16	750	2000	
	CGH035M681JGBPKKKV00R	680	±20	35	40.3	135	16*16.5	714	16	1000	2000	
	CGH035M102JGBPKKKV00R	1000	±20	35	40.3	135	16*16.5	1050	16	1000	2000	
	CGH035M152JQBPKKKV00R	1500	±20	35	40.3	135	16*21.5	1575	16	1900	2000	
	CGH035M222JQBPKKKV00R	2200	±20	35	40.3	135	16*21.5	2310	16	2200	2000	
	CGH050M470F10PKKKV00R	47	±20	50	57.5	135	8*10	24	16	160	2000	
	CGH050M101G10PKKKV00R	100	±20	50	57.5	135	10*10	50	16	240	2000	
	CGH050M221XDBPKKKV00R	220	±20	50	57.5	135	12.5*13.5	330	16	550	2000	
	CGH050M471JGBPKKKV00R	470	±20	50	57.5	135	16*16.5	705	16	850	2000	
	CGH050M681KGBPKKKV00R	680	±20	50	57.5	135	18*16.5	1020	16	1200	2000	
	CGH050M102JQBPKKKV00R	1000	±20	50	57.5	135	16*21.5	1500	16	1600	2000	
	CGH063M330F10PKKKV00R	33	±20	63	72.5	135	8*10	20	14	100	2000	
	CGH063M470G10PKKKV00R	47	±20	63	72.5	135	10*10	29	14	120	2000	
	CGH063M101G10PKKKV00R	100	±20	63	72.5	135	10*10	63	14	270	2000	
	CGH063M471JGBPKKKV00R	470	±20	63	72.5	135	16*16.5	888	14	820	2000	

一. **Scope** 適用範圍：

This specification applies to Aluminum Electrolytic Capacitor, to measurement their performance by testing equipment  
 本說明對於用電子儀器設備進行檢測之鋁電解電容器適用

二. **Electrical/Mechanical Characteristics** 電氣/機械特性:

1	<b>SERIES</b>	CGH														
2	<b>Rated voltage</b> 額定電壓	10~63VDC														
3	<b>Operating Temperature Range</b> 應用溫度範圍	Operating temperature range is the range of allowable working temperature at Which the capacitor can be operated continuously at rated voltage. 溫度範圍: 指電容器在額定電壓連續使用時, 其允許的溫度範圍。 <b>spec:</b> 10V~63V -40°C ~ +135°C														
4	<b>Capacitance</b> 靜電容量	Measuring Temperature 測試溫度: 20±2°C Measuring frequency : 測定頻率: 120 Hz ± 20% Measuring voltage 測定電壓: 0.5Vrms or less +1.5 to 2.0VDC Measurement circuit : 測定電路: [  ] <b>spec: ±20%(M)</b>														
5	<b>Dissipation factor</b> 散逸因素(tan δ)	Measurement shall be made under the same conditions as those given for the measurement of capacitance. 測試電容時, 須符合以下之規定. <b>spec:</b> <table border="1" data-bbox="523 1075 1109 1160"> <tr> <td>Rated Voltage (V)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> </tr> <tr> <td>tan δ(Max)</td> <td>0.24</td> <td>0.22</td> <td>0.20</td> <td>0.16</td> <td>0.16</td> <td>0.14</td> </tr> </table>	Rated Voltage (V)	10	16	25	35	50	63	tan δ(Max)	0.24	0.22	0.20	0.16	0.16	0.14
Rated Voltage (V)	10	16	25	35	50	63										
tan δ(Max)	0.24	0.22	0.20	0.16	0.16	0.14										
6	<b>Leakage current</b> 洩漏電流	DC leakage current shall be measured after 2 minutes application of the DC rated working voltage through the series resistor 1,000 Ω at 20°C. 在20 °C下以工作電壓, 施加電流於串聯電容器之電阻1000Ω 2 分後 測定直流漏電流. Measurement circuit 測定電路:  R : 1000 ± 100Ω S1 : Switch 開關 (A) : DC current meter 直流電流計 S2 : Switch for protect of current meter 直流電流計的保護開關 (V) : DC voltage meter 直流電壓計 CX : Test capacitor 測試電容 The following specifications shall be satisfied when the rated voltage is applied for the required time. 印加額定工作電壓, 其通電時間, 須符合下面要求. <b>spec:</b> 10~63WV 8~10ΦI ≤ 0.01CV or 3 (μA) · 12.5~18ΦI ≤ 0.03CV or 4 (μA). which is greater. ( After 2 minutes application of DC rated voltage, at 20°C)														



7

### Characteristics of temperature 溫度特性

STEP 步驟	TEMPERATURE 溫度	STORAGE TIME 放置時間
1	20°C ± 2 °C	30 minutes
2	-40°C ± 3 °C	2 hours
3	20°C ± 2 °C	30 minutes
4	135°C ± 2°C	2 hours

Step 1. Measure the capacitance and impedance.

測定靜電容量及阻抗 (Z r0) .( | Z | , 20°C , 120Hz ± 10% )

Step 2. Measure the impedance at thermal balance after 5 hours.

達到熱平衡5小時後, 測定阻抗 (Zr) .( | Z | , -40 °C , 120Hz ± 10% )

Impedance ratio (Zr / Z r0 ) less than specified value.

阻抗比：低於規定值。

Step 4. Measure the capacitance and leakage current at thermal balance after 5 hours.

達到熱平衡5小時後, 測定靜電容量及漏電流。

Capacitance change :within ± 20% of the initial measured value.

靜電容量變化：最初測定值的± 20%以內。

Leakage current :Less than 10 times of initial specified value .

漏電流：初期規格值的10倍以內。

Measuring frequency : 120HZ

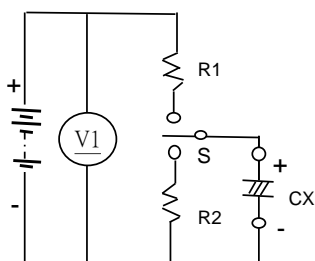
spec:

Rated Voltage(V)	10	16	25	35	50	63
Z(-25°C)/Z(20°C)	4	3	2	2	2	2
Z(-40°C)/Z(20°C)	8	6	4	3	3	3

Rated surge voltage shall be applied (switch on) for 30 ± 5 seconds and then shall be applied (switch off) with discharge for 5.5 ± 0.5 min. at room temperature . This cycle shall be repeated for 1,000 cycles . Duration of one cycle is 6 ± 0.5 minutes .

在常溫下,施加(開關通路)額定突波電壓 30 ± 5 秒,然後停止施加(開關斷路)突波電壓。

並放電 5.5 ± 0.5 分鐘.這個周期重复1000 次.以 6 ± 0.5分鐘為一循環周期。



Surge voltage

突波電壓

Protective series resistor(1kΩ)

R1:保護電阻

Test capacitor

CX: 測試電容

DC voltmeter

(V1) : DC 電壓計

Discharge resistor(1kΩ)

R2:放電電阻

Switch

S:開關

8

### Surge voltage Test 突波試驗

spec: Capacitance change : within ± 15% of the initial measured value.

靜電容量變化：最初測定值的 ±15%以內。

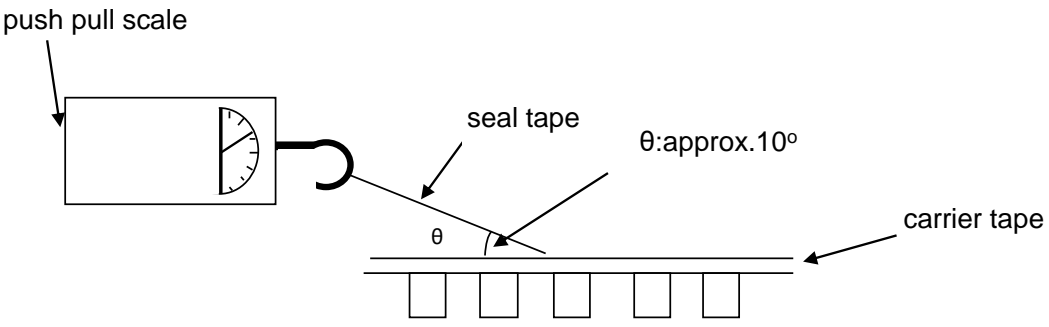
Dissipation factor: initial specified value or less.

損失角：低於規定值

Leakage current : initial specified value or less.

漏電流：低於規定值

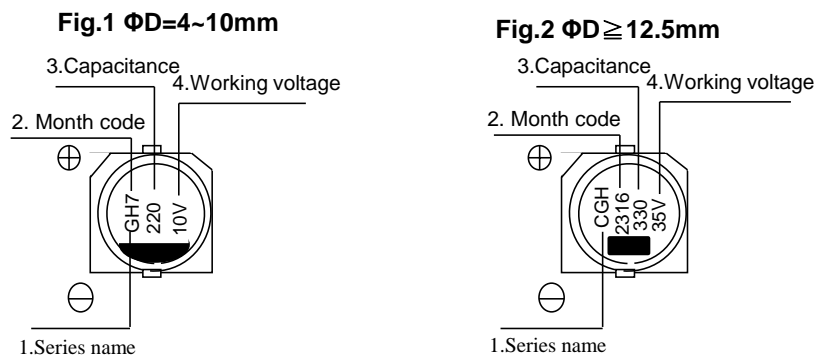
Rated Voltage(WV)	10	16	25	35	50	63
Surge Voltage(SV)	11.5	18.4	28.8	40.3	57.5	72.5

9	<p>Adhesion Test 密著性試驗方法</p>	<p>Reasonable pulling strength:0.1~0.7N 最適當拉張度之強度:0.1~0.7N</p> <p>Pulling speed:300mm/min 拉扯之速度:300mm/min</p> 
10	<p>Solder ability 焊錫性</p>	<p>The leads are dipped in the solder bath of Sn at <math>245 \pm 5 \text{ }^\circ\text{C}</math> for <math>3 \pm 0.5</math> seconds . The dipping depth should be set at 1.5 ~ 2.0 mm . 端子浸沒在 <math>245 \pm 5 \text{ }^\circ\text{C}</math> 的錫焊液中 <math>3 \pm 0.5</math> 秒 . 浸沒深度設定為 1.5 ~ 2.0 mm .</p> <p>spec: The solder alloy shall cover the 95% or more of the dipped lead's area . 錫液要覆蓋導針浸入表面積的 95% 以上 .</p>
11	<p>Resistance to soldering heat 焊錫耐熱性</p>	<p>The leads immerse in the solder bath of Sn at <math>250 \pm 5 \text{ }^\circ\text{C}</math> for <math>30 \pm 1</math> seconds until a distance of 1.5~ 2mm from the case . 導針在 <math>250 \pm 5 \text{ }^\circ\text{C}</math> 的錫焊液中浸沒至離本體 1.5 ~ 2 mm 的地方 <math>30 \pm 1</math> 秒鐘 .</p> <p>spec: No damage or leakage of electrolyte . 無損傷或電解液漏出 .</p> <p>Capacitance change :within <math>\pm 10\%</math> of the initial measured value . 容量變化 :最初測定值的 <math>\pm 10\%</math> 以內 .</p> <p>Dissipation factor : initial specified value or less . 損失角 : 低於規定值 .</p> <p>Leakage current : initial specified value or less . 洩漏電流 : 低於規定值 .</p>
12	<p>Vibration 耐振性</p>	<p>The frequency of the vibration shall vary uniformly within the range 10 to 55 Hz with the amplitude of 1.5 mm , completing the cycle in the internal of one minute .</p> <p>The capacitor shall be vibrated in three mutually perpendicular directions for a period of 2 hours in each direction .(a total 6 hours) 振動頻率要均勻 , 範圍為 10 Hz , 到 55 Hz , 振幅為 1.5 mm , 在 1 分鐘內完成該循環 . 電容器將由端子牢固地固定 . 電容器會被向三個互相垂直的方向每個方向 振動 2 小時 . (總時間為6小時)</p> <p>spec Capacitance : no unsteady . 靜電容量 : 穩定 .</p> <p>Appearance : no abnormal . 外觀 : 無異常 .</p> <p>Capacitance change: within <math>\pm 5\%</math> of initial measured value . 容量變化 : 最初測定值的 <math>\pm 5\%</math> 以內 .</p>

13	<p>Damp heat ( steady state ) 耐 濕 性 ( 穩定狀態 )</p>	<p>Subject the capacitors to <math>40 \pm 2^{\circ}\text{C}</math> and 90% to 95% relative humidity for <math>500 \pm 8</math> hours . 電容器在 <math>40 \pm 2^{\circ}\text{C}</math> 及相對濕度 90% ~ 95% 的條件下經歷 <math>500 \pm 8</math> 小時 .</p> <p>spec: Capacitance change :within <math>\pm 10\%</math> of the initial measured value . 容量變化 :最初測定值的 <math>\pm 10\%</math>以內 .</p> <p>Dissipation factor : initial specified value or less. 損失角 : 低於規定值 .</p> <p>Leakage current : initial specified value or less. 洩漏電流 : 低於規定值 .</p>
14	<p>Shelf life 高溫無負荷</p>	<p>The following specifications shall be satisfied when the capacitors are restored to <math>20^{\circ}\text{C}</math> . after exposing them for 1,000 hours at <math>135^{\circ}\text{C}</math> , without voltage applied. During testing The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. 在未加電壓下情形下 ,電容器放置於環境溫度 <math>135^{\circ}\text{C}</math> 1000 小時後 在 <math>20^{\circ}\text{C}</math> 的環境下測試需符合標準 . 測試時須放於室溫最最少24小時不超過48小時 , 印加額定電壓30分鐘進行測試 .</p> <p>spec: 1,000hours, no voltage applied, at <math>135^{\circ}\text{C}</math> . After Test:UR to be applied for 30 minutes, 24 to 48 hours before measurement. They meet the specified value for endurance characteristics listed above.</p>
15	<p>Load life 高溫負荷</p>	<p>The following specifications shall be satisfied when the capacitors are restored to <math>20^{\circ}\text{C}</math> after the rated voltage applied for 2,000 hours at <math>135^{\circ}\text{C}</math> . 印加額定電壓情形下 , 電容器置於環境溫度 <math>135^{\circ}\text{C}</math> 2,000小時後在 <math>20^{\circ}\text{C}</math> 環境下測試需符合標準 .</p> <p>spec: Capacitance change : within <math>\pm 30\%</math> of the initial measured value. 靜電容量變化 :最初測定值的 <math>\pm 30\%</math>以內 .</p> <p>Dissipation factor : 300% or less of initial specified value. 損失角 : 低於最初規定值的 300% .</p> <p>Leakage current : initial specified value or less. 洩漏電流 : 低於規定值</p>
16	<p>Storage at low temperature 低溫貯存</p>	<p>The capacitor shall be stored at temperature of <math>-40 \pm 3^{\circ}\text{C}</math> for 16(-0/+2) hours , during which time no voltage shall be applied . And then the capacitor shall be subjected to standard atmospheric conditions for 16 hours or more , after which measurements shall be made . 電容器貯存在 <math>-40 \pm 3^{\circ}\text{C}</math> 中 達 16(-0/+2) 小時 , 其間不施加電壓 . 之後 , 在標準大氣壓中露置 16 小時以上 , 然後進行測試 .</p> <p>spec: Capacitance change : within <math>\pm 10\%</math> of the initial measured value. 電容量變化 :最初測定值的 <math>\pm 10\%</math>以內 .</p> <p>Dissipation factor : initial specified value or less. 損失角 : 低於規定值 .</p> <p>Leakage current : initial specified value or less. 洩漏電流 : 低於規定值 .</p> <p>Appearance : no abnormal . 外 觀 : 無異常 .</p>

17	<b>Reflow Soldering Temperature Profile</b> 回焊爐測試	<p style="text-align: center;"><b>Reflow Soldering Test</b></p>																																				
		<p><b>Test conditions</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Profile Feature</th> <th colspan="2">Pb Free Assembly</th> </tr> <tr> <th>4~6.3Ø</th> <th>8~18Ø</th> </tr> </thead> <tbody> <tr> <td>Average Ramp-up Rate</td> <td>3°C/second max</td> <td>3°C/second max</td> </tr> <tr> <td>Preheat</td> <td></td> <td></td> </tr> <tr> <td>Temperature Min(T1 min)</td> <td>150°C</td> <td>150°C</td> </tr> <tr> <td>Temperature Max(T2 max)</td> <td>180°C</td> <td>180°C</td> </tr> <tr> <td>Time ( t1 Max)</td> <td>120secs</td> <td>120secs</td> </tr> <tr> <td>Ramp-up Rate (T2 ~T3 )</td> <td>3°C/second max</td> <td>3°C/second max</td> </tr> <tr> <td>Time maintained above Temperature(T3)</td> <td>217°C</td> <td>217°C</td> </tr> <tr> <td>Time( t2 Max)</td> <td>90secs</td> <td>40secs</td> </tr> <tr> <td>Peak Temperature(T4)</td> <td>260°C</td> <td>245°C</td> </tr> <tr> <td>Time( t3 Max)</td> <td>5secs</td> <td>5secs</td> </tr> <tr> <td>Reflow cycles</td> <td>1</td> <td>2 or less</td> </tr> </tbody> </table> <p>* Please ensure that the capacitor became cold enough to the room temperature( 5~35°C) before the second reflow.</p>	Profile Feature	Pb Free Assembly		4~6.3Ø	8~18Ø	Average Ramp-up Rate	3°C/second max	3°C/second max	Preheat			Temperature Min(T1 min)	150°C	150°C	Temperature Max(T2 max)	180°C	180°C	Time ( t1 Max)	120secs	120secs	Ramp-up Rate (T2 ~T3 )	3°C/second max	3°C/second max	Time maintained above Temperature(T3)	217°C	217°C	Time( t2 Max)	90secs	40secs	Peak Temperature(T4)	260°C	245°C	Time( t3 Max)	5secs	5secs	Reflow cycles
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Reflow cycles	1	2 or less																																				
18	Standards 參考標準	JIS C-5101-4(IEC 60384)																																				

**Marking :**



**1. Series name:**

<b>Fig.1</b>	Code	S	H	N	K	D	GH	<b>Fig.2</b>	CS	CH	CN	CK	CD	CDL	CGH
	Series	CS	CH	CN	CK	CD	CGH		CS	CH	CN	CK	CD	CDL	CGH

**2. Month code:**

<b>Fig.1</b>	Code	1	4	7	O	<b>Fig.2</b>	Date Code	Production Date
	Month	1~3	4~6	7~9	10~12		2316	The 16th week of 2023Y

**3. Capacitance:**

Code	10	100	1000
Capacitance (uF)	10	100	1000

**4. Working voltage:**

Code	6.3V	10V	16V	25V	35V	50V
WV (V)	6.3V	10V	16V	25V	35V	50V

## 鋁電解電容器存放環境與控制

### Storage Conditions and Control for Aluminum Electrolytic Capacitor

1. 環境溫度：5°C ~ 35°C，環境相對濕度：75%以下。

Store the capacitor at a temperature of 5°C to 35°C and at a relative humidity of less than 75% .

2. 存放環境不應有陽光直射，不宜高溫。

Store the capacitor in low temperature places free from direct sun shine .

3. 存放環境不能有鹽分、油含量高的霧氣。

Store the capacitor in places free from oil vapor、salt water vapor.

4. 存放在遠離氯氣、氨氣、硫化氫、亞硫酸、硝酸等有害氣體含量高的地方。

Store the capacitor in places far from toxic gases ( chlorine、ammonium、hydrogen sulfide、sulphurous acid、nitric acid , etc ) .

5. 儲存環境不能有臭氧、紫外線或輻射。

Store the capacitor in place free from Ozone、ultraviolet ray or radiation .

**Detergent needing attention:**

使用清潔劑之注意事項:

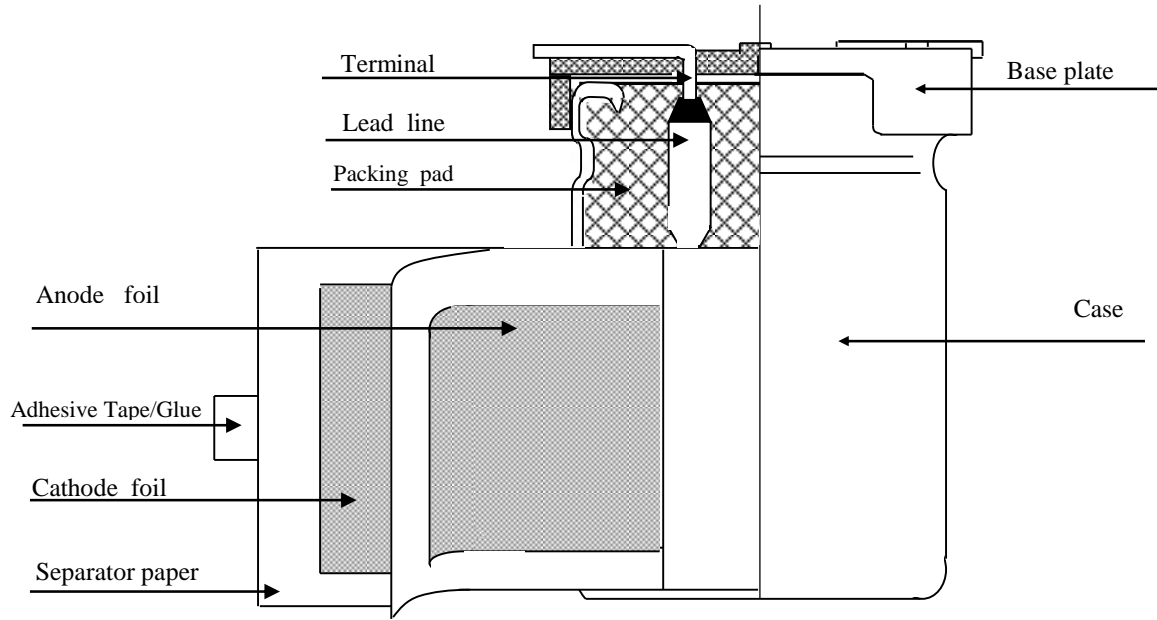
**Hydrogen carbide liquid and halogen liquid can cause Aluminium Electrolytic Capacitor to corrode. Some of Safe and Unsafe detergent are as follows;**

鋁質電解電容器會受含有碳化氫鹵素容劑之侵蝕,下列為各種安全與不安全之清潔劑,為避免不必要的損失,您所使用有關印刷基板之清潔劑名請事先告知本公司.

Safe 安全	Unsafe 不安全
<b>Methanol</b> 甲醇	<b>1.1.2- trichloroethane</b> 1.1.2- 三氯乙烷
<b>Ethanol</b> 乙醇	<b>Tetrachloroethylene</b> 四氯化碳
<b>Propanol</b> 丙醇	<b>Chloroform(colorless volatilizable liquid)</b> 哥羅仿(無色揮發性液體)
<b>Butanol</b> 丁醇	<b>Dichloromethane</b> 二氯甲烷
<b>Detergent</b> 去垢劑	<b>Trichlorethylene</b> 三氯甲烯
	<b>Dimethybenzene</b> 二甲苯

# V-Chip Aluminum Electrolytic Capacitors

## Structure and materials



## V-Chip type capacitors component

Part name	Materials
Terminal	Tin Coated Copper Covered Steel Wire
Lead line	Aluminum 99.92%
Packing pad	Synthetic rubber
Anode Foil	Formed aluminum 99.9% over
Cathode Foil	Formed aluminum 98.4% over
Separator paper	Manila Espartos
Adhesive Tape/Glue	Phenylene Sulfide ;Glue:PVA
Base plate	Polyphenylene oxide;Glass fibre
Case	Aluminum 99.5%+PU coating

## 6. PRECAUTIONS AND GUIDELINES TO USERS

When using aluminum electrolytic capacitors, pay strict attention to the following:

### 1. Electrolytic capacitors for DC application require polarization.

Confirm the polarity. If used in reversed polarity, the circuit life may be shortened or the capacitor may be damaged. For use on circuits whose polarity is occasionally reversed, or whose polarity is unknown, use bi-polarized capacitors(BP-series).

Also, note that the electrolytic capacitor cannot be used for AC application.

### 2. Do not apply a voltage exceeding the capacitor's voltage rating.

If a voltage exceeding the capacitor's voltage rating is applied, the capacitor may be damaged as leakage current increases.

When using the capacitor with AC voltage superimposed on DC voltage, care must be exercised that the peak value of AC voltage does not exceed the rated voltage.

### 3. Do not allow excessive ripple current to pass.

Use the electrolytic capacitor at current values within the permissible ripple range. If the ripple current exceeds the specified value, request capacitors for high ripple current applications.

### 4. Ascertain the operating temperature range.

Use the electrolytic capacitors according to the specified operating temperature range. Usage at room temperature will ensure longer life.

### 5. The electrolytic capacitor is not suitable for circuits in which charge and discharge are frequently repeated.

If used in circuits in which charge and discharge are frequently repeated, the capacitance value may drop, or the capacitor may be damaged. Please consult our engineering department for assistance in these applications.

If the electrolytic capacitor is allowed to stand for a long time, its withstand voltage is liable to drop, resulting in increased leakage current. If the rated voltage is applied to such a product, a large leakage current occurs and this generates internal heat, which damaged the capacitor. If the electrolytic capacitor is allowed to stand for a long time, therefore, use it after giving voltage treatment.(However,the electrolytic capacitors can be guarantee for 2 years if keep in the normal temperature.)

### 6. Be careful of temperature and time when soldering.

When soldering a printed circuit board with various components, care must be taken that the soldering temperature is not too high and that the dipping time is not too long. Other wise, there will be adverse effects on the electrical characteristics and insulation sleeve of electrolytic capacitors in the case of small-sized electrolytic capacitors, nothing abnormal will occur if dipping is performed at less than 260 °C for less than 10 seconds.

### 7. Do not place a soldering iron body of the capacitor.

The electrolytic capacitor is covered with a vinyl sleeve. If the soldering iron comes in contact with the electrolytic capacitor body during wiring, damage to the vinyl sleeve and/or case may result in defective insulation, or improper protection

### 8. Cleaning circuit boards after soldering.

Some solvents have adverse effects on capacitors.

Please refer to the next page.

### 9. Do not apply excessive force to the lead wires or terminals.

If excessive force is applied to the lead wires and terminals, they may

be broken or their connections with the internal elements may be affected. (For strength of terminals, refer to

JIS C5101-1, JIS C5101-4)

### 10. Care should be used in selecting a storage area.

If electrolytic capacitors are exposed to high temperatures caused by such things as direct sunlight, the life of the capacitor may be adversely affected. Storage in a high humidity atmosphere may affect the solderability of lead wires and terminals.

### 11. Surge voltage:

Rated surge voltage shall be applied for 30 seconds and then shall be applied with discharge,for 330 seconds at room temperature .This cycle shall be repeated for 1000 cycles;Duration of one cycle is 6 minutes ;then to judge capacitor's characteristics and appearance.

Rated Voltage(WV)	10	16	25	35	50	63
Surge Voltage(SV)	11.5	18.4	28.8	40.3	57.5	72.5

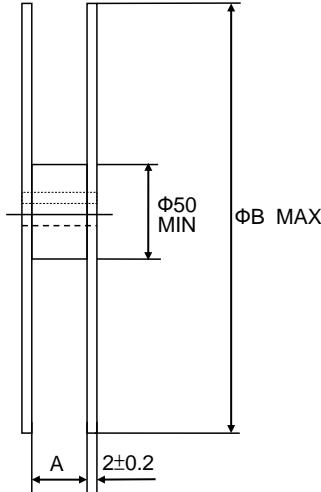
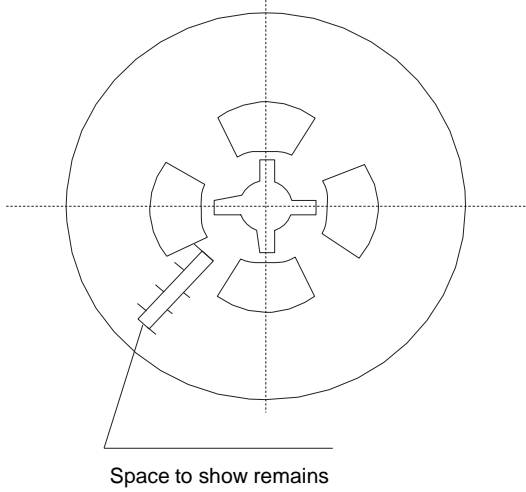
For methods of testing, refer to JIS C 5101-1, JIS C 5101-4.

※ The above mentioned material according to EIAJRCR-2367B (issued in March, 2002), titled "Guideline of notabilia for aluminum electrolytic capacitors for use in electronic equipment". Please refer to the book for details.



# Su'scon CAPACITORS PACKING INFORMATION

## ● V-CHIP REEL



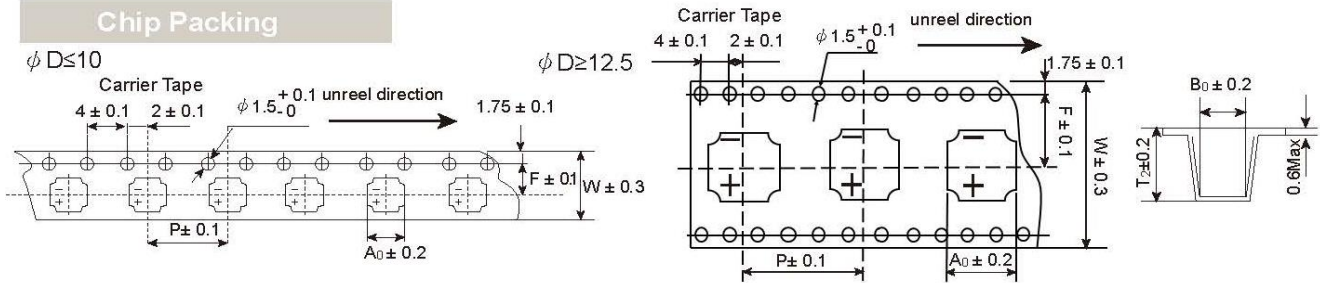
Package Quantity	
Size(Φ×L)	Q'ty/reel
Φ4	2000pcs
Φ5	1000pcs
Φ6.3×4~8L	1000pcs
Φ6.3×8.4L	800pcs
Φ8× (6~7L)	1000pcs
Φ8× (10~11)	500pcs
Φ10× (7~11)	500pcs
Φ10× (12~13)	400pcs
Φ10× (16~17)	300pcs
Φ12.5 × (13~14)	250pcs
Φ12.5/16 × (16~17)	200pcs
Φ16× (21~22)	125pcs
Φ18× (16~17)	150pcs
Φ18× (21~22)	100pcs

(單位 : mm)

Size	φ 4~5	φ 6.3	φ 8	φ 10	φ 12.5	φ 16	φ 18
A	14	18	26	26	34	46	46
B	382	382	382	382	382	382	382

## ■ V-CHIP PACKAGE

### ● Carrier tape



(單位 : mm)

Size (Φ×L)	Item					
	W	P	F	A <sub>0</sub>	B <sub>0</sub>	T <sub>2</sub>
4 × 5.3~5.6L	12.0	8.0	5.5	5.0	5.0	5.8
4 × 5.7~6.3L	12.0	8.0	5.5	5.0	5.0	6.3
4 × 7L	12.0	8.0	5.5	5.0	5.0	7.5
5 × 5.3~5.6L	12.0	12.0	5.5	5.0	5.0	5.9
5 × 5.7~6.3L	12.0	12.0	5.5	5.0	5.0	6.3
5 × 6.4~7.0L	12.0	12.0	5.5	5.0	5.0	7.6
6.3 × 4.5L	16.0	12.0	7.5	7.0	7.0	4.8
6.3 × 5.4~5.6 L	16.0	12.0	7.5	7.0	7.0	5.9
6.3 × 5.7~6.3L	16.0	12.0	7.5	7.0	7.0	6.5
6.3 × 7~8L	16.0	12.0	7.5	7.0	7.0	8.3
6.3 × 8.1~9L	16.0	12.0	7.5	7.0	7.0	9.3
8 × 6~7L	16.0	12.0	7.5	8.7	8.7	6.9
8 × 10~11L	24.0	16.0	11.5	8.7	8.7	11
10 × 7.7L	24.0	16.0	11.5	10.7	10.7	8.7
10 × 10~11L	24.0	16.0	11.5	10.7/11.4(G)	10.7/11.4(G)	11/11.4(G)
10 × 12~13L	24.0	16.0	11.5	10.7	10.7	13.1
10 × 16~17L	24.0	16.0	11.5	10.7	10.7	17.5
12.5 × 13~14L	32.0	24.0	14.2	13.4	13.4	15
12.5 × 16~17L	32.0	24.0	14.2	13.4	13.4	17.5
16× 16~17L	44.0	28.0	20.2	17.5	17.5	17.5
16× 21~22L	44.0	28.0	20.2	17.5	17.5	23
18× 16~17L	44.0	32.0	20.2	19.5	19.5	17.5
18× 21~22L	44.0	32.0	20.2	19.5	19.5	23

(G) "Anti-vibration Structure"

使用時注意事項:Precautions for users

- 1.輕拿輕放handle gently
- 2.取出托盤時,請用手托住紙盤底部,以免電容鬆散.When take the tray out, pls support the bottom of the paper plate with your hands to avoid loose capacitors.