

To.

DATE : 2016 . . .

RoHS	Halogen Free
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SPECIFICATION

PRODUCT : CDACAP

MODEL : CW Series

WRITTEN	CHECKED	APPROVED

CDA CORP.

Seller : CDA Co.,Ltd.

Address : No. 4, jifeng road, fongfeng district, taichung, Taiwan.

Responsible person : Quality Assurance Manager

Signature :(not applicable to submit this specification by e-mail)

Index

Page No.	ITEM	etc.
1	Cover Page	
2	Index	
3	Revision History	
	Manufacturer Information	
4	1. Scope	
	2. Part Number System	
	3. Photo	
	4. General Specifications	
5	5. Product Construction and Dimension	
6	6. Reliability Specifications	
7	7. Packing Specifications	
	8. Labeling Standards	
8	9. Measuring Method of Characteristics	
9	10. Mounting	
10-11	11. Cautions for Use	
12	12. Environmental Management	

1. Scope

This specification applies to CDACAP(Electric Double Layer Capacitor), submitted to specified customer in cover page.

2. Part Number System

$\frac{CW}{①}$ $\frac{5R5}{②}$ $\frac{105}{③}$ $\frac{C}{④}$ $\frac{F}{⑤}$ (Example)

- ① Series Name :w-(high Temp)
- ② Rated Voltage : 5.5VDC
- ③ Capacitance : 1.0 F (105 = $10 \times 10^{+5}$ uF)
- ④ Terminal Type : C-type
- ⑤ Pb-Free

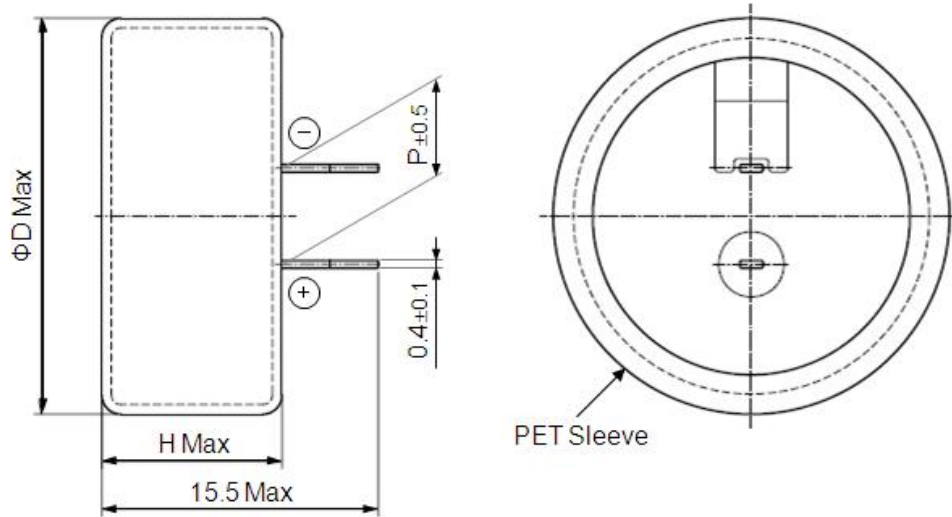
3. Photo



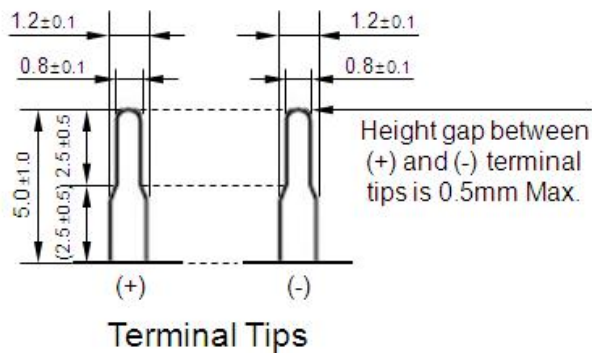
4. General Specifications

ITEMS	CW5R5474CF	CW5R5684CF	CW5R5105CF
Rated Voltage	5.5 VDC	5.5 VDC	5.5 VDC
Operating Temp.	-25 ~ +85 °C	-25 ~ +85 °C	-25 ~ +85 °C
Capacitance	0.47 F	0.68 F	1.0 F
Capacitance Tolerance	-20 ~ 80 %	-20 ~ 80 %	-20 ~ 80 %
Equivalent Series Resistance (ESR)	Less than 50Ω	Less than 50Ω	Less than 30Ω
Leakage Current (LC, 30min.)	Less than 1.5 mA	Less than 1.5 mA	Less than 1.5 mA

5. Product Construction and Dimension



* There is no plating on the cut surface



Part No.	Dimension (mm)		
	ØD	H	P
CW5R5474CF	21.5	10.5	5.0
CW5R5684CF	21.5	10.5	5.0
CW5R5105CF	21.5	10.5	5.0

6. Reliability Specifications

Item		Specification		Test Condition (JISC5102)			
Temperature Characteristics	Capacitance Change	Step 2	Within ± 30% of Initial Value	Measure electrical characteristics after exposing CDACAP Capacitor to each temperature atmosphere for one(1) hour			
	ESR		5Times or less than Initial Value				
	Capacitance Change	Step 4	Within ± 30% of Initial Value			Step	Temperature
	ESR		4Times or less than Initial Value			1	20±2℃
	LC(30min.)		4Times or less than Initial Value			2	-25±2℃
	Capacitance Change	Step 5	Within ± 10% of Initial Value			3	20±2℃
	ESR Change		Within ± 10% of Initial Value			4	85±2℃
	LC Change (30min.)		Within ± 10% of Initial Value			5	20±2℃
Humidity Resistance	Capacitance Change	± 30% of Initial Value		Temp. : 40±2℃ Humidity : 90 ~ 95%RH Time : 240±8 Hours No Voltage Applied			
	ESR	3Times or less than Spec. Value					
	LC(30min.)	2Times or less than Spec. Value					
	Appearance	No Marked Defect					
Self Discharge Characteristics	Voltage	More than 4.2Vdc		Charging Condition	Voltage : 5.5Vdc Current : 50 mA Charge Time : 24 Hours		
				Self Discharge Condition	Duration : 24 Hours Temp. : Less than 25℃ Humidity : Less than 70%RH		
Vibration Resistance	Capacitance	Spec. Value		Amplitude : 1.5 mm Frequency : 10 ~ 55 Hz Direction : X, Y, Z 3 Directions Test Time : 6 Hours			
	ESR	Spec. Value					
	LC(30min.)	Spec. Value					
	Appearance	No Marked Defect					
Terminal Strength	Appearance	Terminals shall not be separated		Load 1kg , 10±1 Sec.			
Terminal Bend Strength				Load 1kg , Angle 90° , 1Cycle			
Endurance	Capacitance Change	Within ± 30% of Initial Value		Temp. : 85±2℃ Test Time : 1,000(+24,-0) Hours Applied Voltage : 5.5Vdc			
	ESR	4Times or less than Initial Value					
	LC(30min.)	Spec. Value					
	Appearance	No Marked Defect					
Cycle Characteristics	Capacitance Change	Within ± 30% of Initial Value		Temp. : 25±2℃ Cycle No. : 10,000 Charge Voltage : 5.5Vdc Resistance : 100Ω, Time : 9min. Discharge Resistance:100Ω, Time:1min.			
	ESR	4Times or less than Initial Value					
	LC(30min.)	Spec. Value					
	Appearance	No Marked Defect					

7. Packing Specifications

Part Number	Quantity (PCS)			Size (W × L × H mm)		Type
	Tray	Inner Box	Outer Box	Inner Box	Outer Box	
CW5R5474CF(684, 105)	100	400	1600	310× 300×100	360× 330× 230	Tray

8. Labeling Standards

 臺灣智烽維科技有限公司 TAIWAN ZHIFENGWEI TECHNOLOGY LIMITED			
成品編碼 Model No.	CW5R5105CF-ZJ		
Lot No	190120		
系列 Series	CW	規格 Spec	5.5V1.0F
容量誤差 Capacitance Tolerance	-20%~+80%	尺寸 Size	21.5*10*5
包裝方式 Modes of Packing	R	數量 Qty	400 PCS

Lot No. System

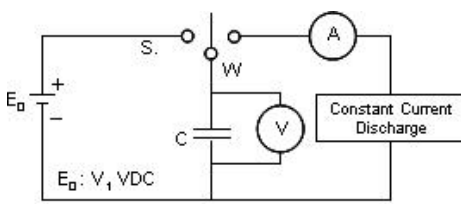
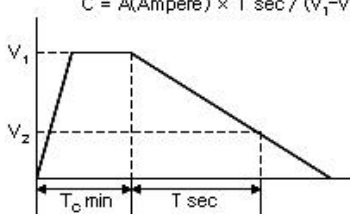
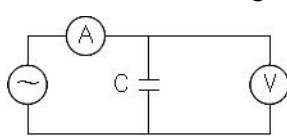
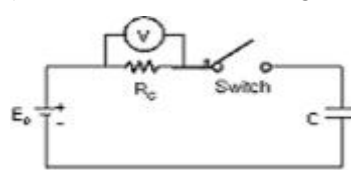
Special qr code

Ex.) C Z B A C 002

① ② ③ ④ ⑤ ⑥

- ① Product Code : C (CDACAP)
- ② Production Year Code : Y (2014), Z (2015), A (2016)...
- ③ Factory Identification Code : B (Factory 2)
- ④ Production Month Code : A (Jan.), B (Feb.), ... , J (Oct.), K (Nov.), L (Dec.)
- ⑤ Production Date Code : 1 (1st), 2 (2nd), ... , 9 (9th), A (10th), B (11th), C (12th) ...
Q (26th), R (27th), S (28th), ... , V (31th)
- ⑥ Lot Issuing Serial Code : 001 (First lot of a specific day), 002 (Second lot of a specific day), 003 (Third lot of a specific day)...

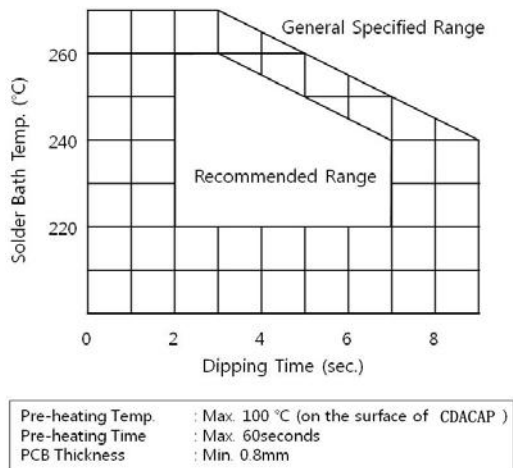
9. Measuring Method of Characteristics

<p>Capacitance</p>	<ol style="list-style-type: none"> 1) Charge the CDACAP with constant current $50 \pm 0.1 \text{ mA}$ to the voltage of $V_1 (=4.4\text{V})$ for 1 hour. 2) Discharge the CDACAP with constant current (A) $3 \pm 0.1 \text{ mA}$ to the voltage of $V_2 (=2.2\text{V})$ while measure the discharge time (T). 3) Calculate capacitance using the following formula.  $C = A(\text{Ampere}) \times T \text{ sec} / (V_1 - V_2) \text{ V [F]}$ 
<p>Equivalent Series Resistance (ESR @1kHz)</p>	<ul style="list-style-type: none"> • Measure ESR by the LCR meter. (Frequency:1 kHz , Bias Voltage : $0^{+0.05}\text{V}$) or • Calculate ESR using the following formula.  $R[\Omega] = V[V] / I[A] \quad * i [\text{mA}] = I[A] \times 10^{-3}$ <p>R : Internal resistance(ESR) [Ω] V : Measured voltage between terminals [V] i : Current 1mA(A.C.)</p> $ESR[\Omega] = V / i$
<p>Leakage Current</p>	<ol style="list-style-type: none"> 1) Apply $5.5 \pm 0.1\text{V}$ to the CDACAP. (E_0) 2) Measure V_R after $30 \pm 0.5 \text{ min}$. 3) Calculate current using the following formula.  $LC = (V_R / R_C) \times 10^3 \text{ [mA]}$ <p>V_R = Measured value $R_C = 100 \Omega$ (0.47F, 0.68F) 1000Ω (1F)</p>
<p>☞ The CDACAP should be shorted before each measurement as follows ; Capacitance : 60 min. , ESR : 15 min. , LC : 15 min.</p>	

10. Mounting

When you solder CDACAP to a printed circuit board, excessive thermal stress could cause the CDACAP's electrical characteristics to deteriorate, compromise the integrity of the seal or cause the electrolyte to leak due to increased internal pressure.

① Recommended condition of flow soldering



② Recommended condition of manual soldering

- Soldering Tip Temp. : 350°C or less
- Soldering Time : 3 sec. or less
- Times : Three times or less at intervals of 9 sec. or more
- ※ Do not touch the metal case of CDACAP with a soldering iron.

③ It is not allowed to go through reflow (IR, Atmosphere heating methods etc.) process.

④ The terminals are plated for good solderability. Rasping terminals may damage the plating layer and degrade the solderability.

Do not apply a large force to the terminals. Otherwise, they may break or come off or the CDACAP characteristics may be deteriorated.

11. Cautions for Use

Please be careful for following points when you use CDACAP.

1) Do not apply more than rated voltage.

If you apply more than rated voltage, CDACAP's electrolyte will be decomposed and its ESR increase. At the worst, it may be broken.

2) Do not use CDACAP for ripple absorption.

3) Polarity

Please mount it in accordance with its polarity.

4) Operating temperature and life

Generally, CDACAP has a lower leakage current, longer back-up time and longer life in the low temperature i.e. the room temperature. But it has a higher leakage current, shorter back-up time and shorter life in the high temperature.

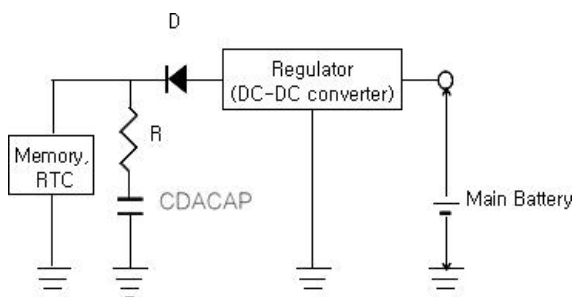
Please design to keep CDACAP away from calorific parts.

5) Cleaning

Some detergent or high temperature drying causes deterioration of CDACAP.

If you wash CDACAP, Consult us.

6) Following figure shows the general back-up circuit.



D : Diode to prevent the reverse current

R : Resistor to control the charging current

7) Short-circuit CDACAP

You can short-circuit between terminals of CDACAP without resistor.

8) Storage

In long term storage, please store CDACAP in following condition;

- ① TEMP. : 15 ~ 35 °C
- ② HUMIDITY : 45 ~ 75 %RH
- ③ Non-dust, non-acidic and/or non-alkaline atmosphere
- ④ Avoid direct sun light, strong magnetic field

Storage period limit is one(1) year when a CDACAP is stored in the above condition.

Storage in improper condition may cause some damage on terminal surface or on outer tube of CDACAP.

9) Do not disassemble CDACAP. It contains electrolyte.

10) Series connection of CDACAP

Over-rated voltage may be applied to a single CDACAP in series connection due to the deviation of capacitance and ESR of each CDACAP. Please inform us if you are using CDACAP in series connection and please design so as not to apply over-rated voltage to each CDACAP, and use CDACAPs from same lot.

11) The tips of CDACAP terminals are very sharp. Please handle with care.

12. Environmental Management

All CDACAP products are RoHS compliant, Halogen Free and environment friendly.

Series	RoHS directive (Pb, Cr+6, Hg, Cd, PBB,PBDE)	ELV directive (Pb, Cr+6, Hg, Cd)	PVC	Halogen Flame Retardant Free (Cl, Br)	etc.
CW	N.D.	N.D.	N.D.	N.D.	

* N.D. : Not detected