

**■ Features**

- Slim size and low-resistance.
- Quick charge & discharge.
- High output current.
- Environmentally friendly products.
- RoHS compliant.

■ Applications

- Pulse power demand.
- Hybrid battery packs.
- Power tools.
- SSD.
- Wireless communications.
- LED Flash Light.

**1. Specifications :**

Operating Temp.	-40 to +70°C	
Storage Temp.	-40 to +85°C	
Characteristics	Capacitance range	-20% to +80% of initial measured value at +20°C
	Internal resistance range	≤1.5 times of initial measured value at +20°C
Endurance	Capacitance change	±30% of initial measured value (-40 to +70°C)
	Internal resistance change	≤ 2 times of initial specified value (at -20°C)

Note :

1. Capacitance measured at **10mA** discharged current from capacitor operation voltage to zero.
2. ESR @1 KHz measured by **0.25mA** sinusoidal wave. The period of sine wave is 1 mini-second (1 KHz frequency).
3. Not allowed to go through reflow and wave solder process.
4. Hand Soldering temperature **340°C < 8 sec.**

P/N	Nominal Voltage(V)	Max. Voltage(V)	Typical ESR ² (mΩ)	Capacitance ¹ (mF)	Leakage Current(mA)	Surge Voltage(V)
UC1903048D12S	3.3	3.6	75	48	0.06	4.0
UC1903070D12S	3.3	3.6	75	70	0.06	4.0
UC1905047D15S	5.2	5.4	120	47	0.06	6.0
UC1912007D30S	12.0	13.5	300	7	0.08	15.0
UC1912020D30S	12.0	13.5	300	20	0.08	15.0

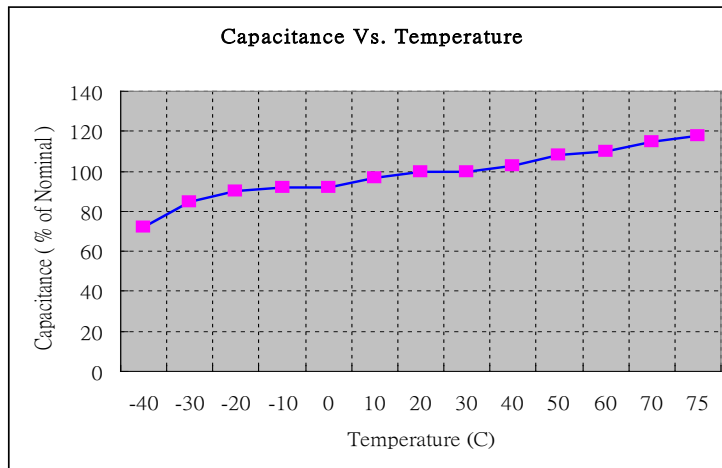


2. Part Numbering System :

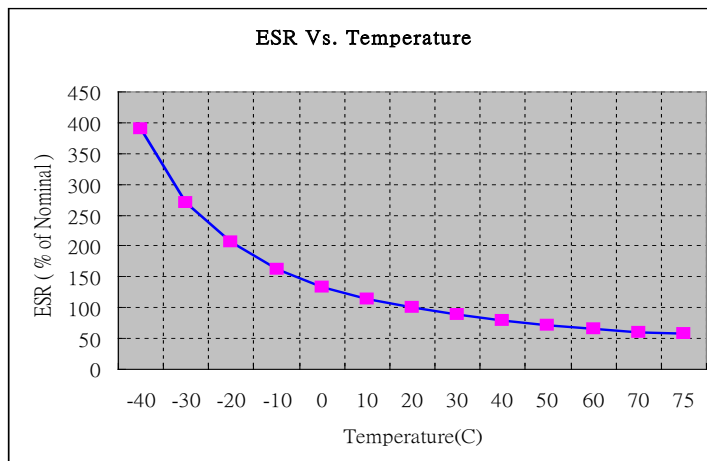
UC └	19 └	03 └	048 └	D └	12 └	S └
DURA	Body Size 19 = 19mm x 12mm	Nominal Voltage 03 = 3.3V	Capacitance code 048 = 48mF	Package D = 1912	Thickness 12 = 1.2mm	Lead Format S = SMD

3. Electrical Characteristics :

(a) Capacitance vs. Temperature



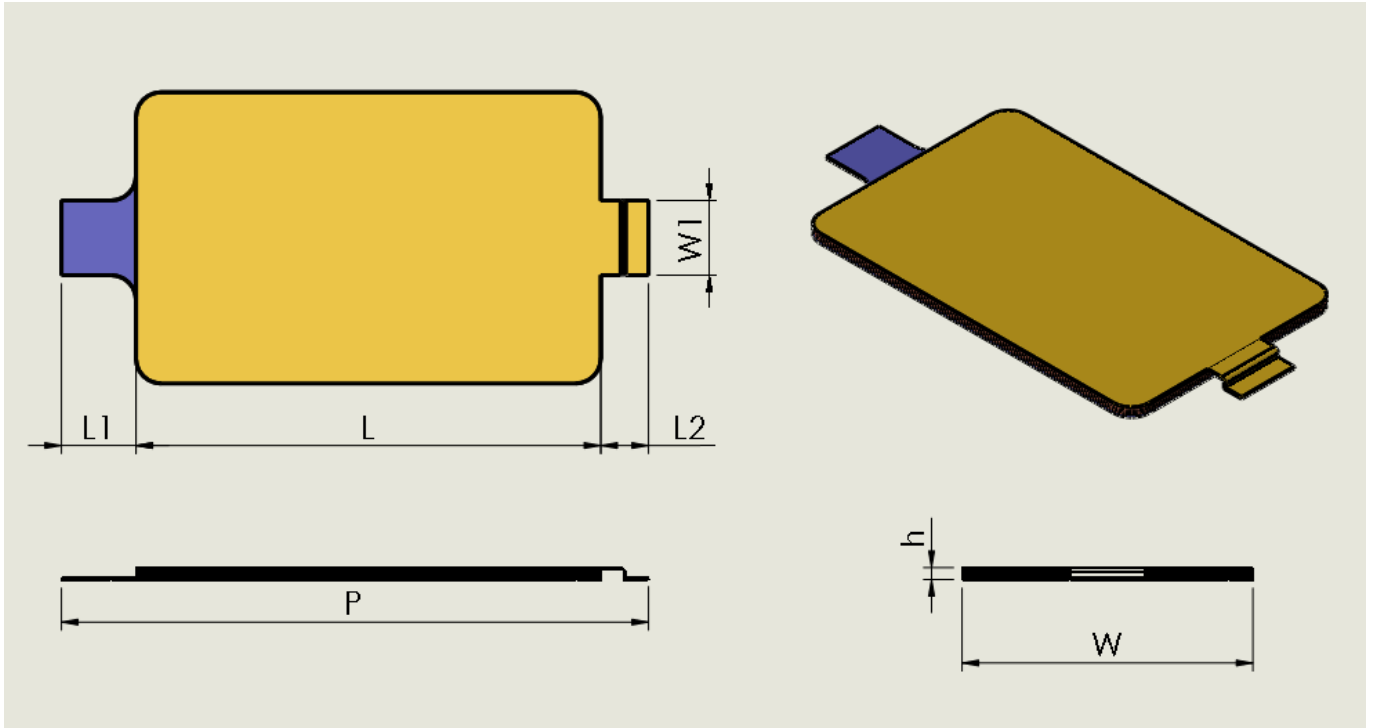
(b) ESR vs. Temperature





4. Mechanical Specifications :

4.1 Dimensions (mm) :



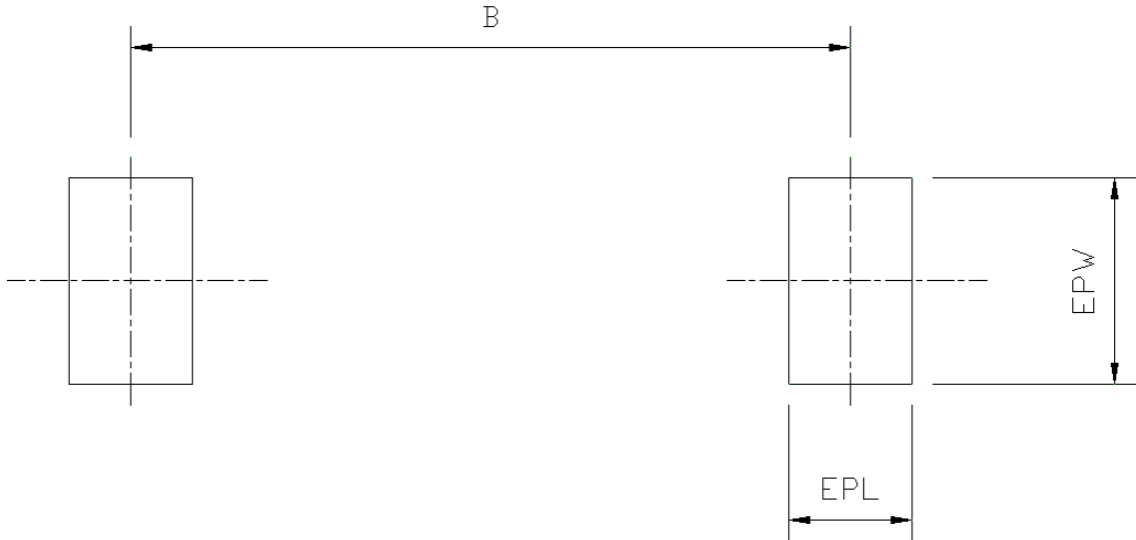
P/N	L	L1	L2	P	W	W1	H
UC1903048D12S	19.3±0.2	2.0±0.2	3.0±0.2	24.0±0.4	12.3±0.2	2.0±0.2	1.2±0.2
UC1903070D12S	19.3±0.2	2.0±0.2	3.0±0.2	24.0±0.4	12.3±0.2	2.0±0.2	1.2±0.2
UC1905047D15S	19.3±0.2	2.0±0.2	3.0±0.2	24.0±0.4	12.3±0.2	2.0±0.2	1.5±0.2
UC1912007D30S	19.3±0.2	2.0±0.2	3.0±0.2	24.0±0.4	12.3±0.2	2.0±0.2	3.0±0.3
UC1912020D30S	19.3±0.2	2.0±0.2	3.0±0.2	24.0±0.4	12.3±0.2	2.0±0.2	3.0±0.3

The lead material : Nickel

Unit : mm

Packaging material: PET

4.2 Layout :



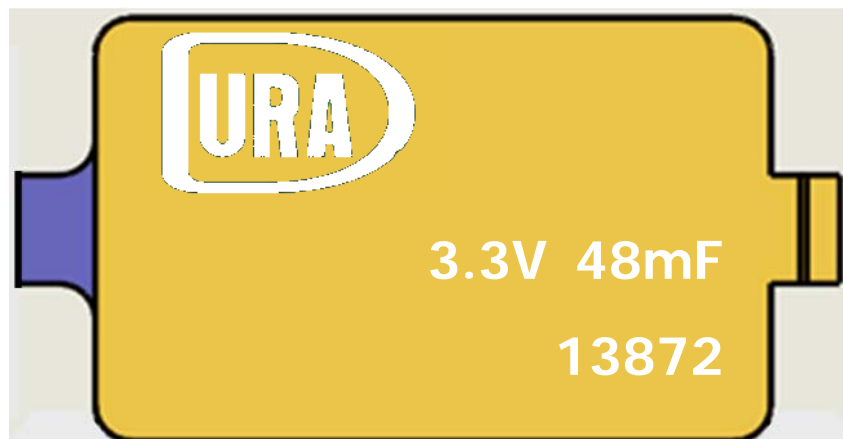
Dimensions	Nominal	Tolerance
B	24.0	±0.1
EPW	5.0	±0.1
EPL	3.0	±0.1
Unit : mm		

4.3 Label :

Brand logo →

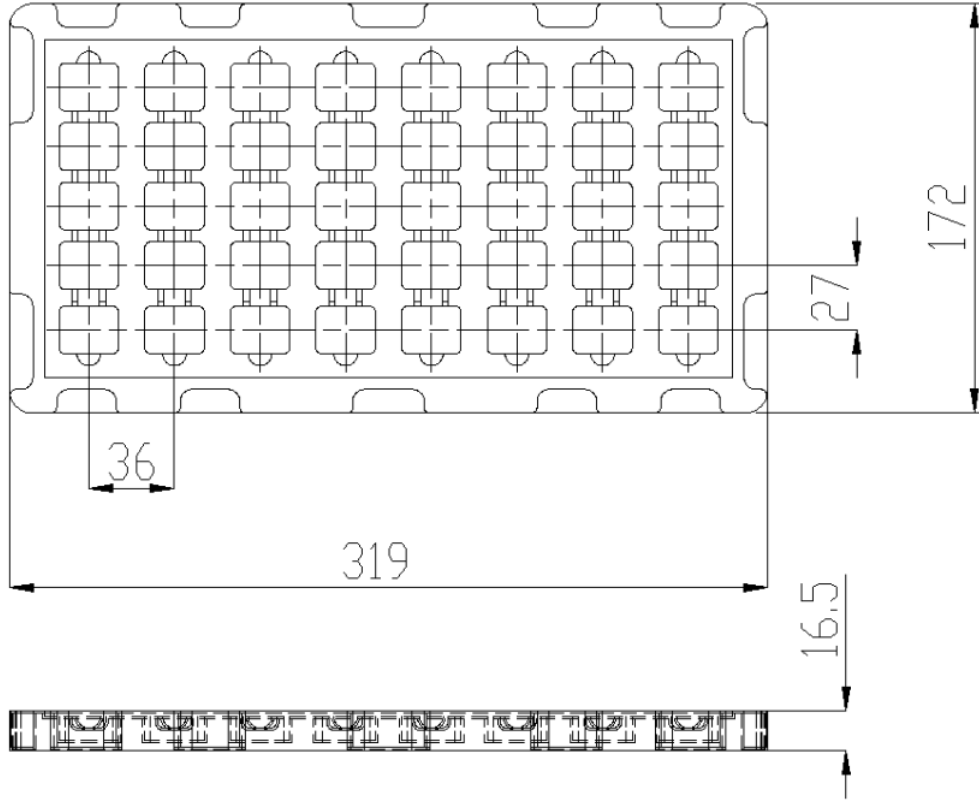
Specification →

Lot Number →





4.4 Packaging Specifications :



Packaging Quantities :

No. of Row	No. of Columns	Pieces / Tray
5	8	40



5. Qualification Test Summary :

Items	Test	Test Method	Parameter	Limits
1	Initial Cap. Measurement	Discharge cells with a constant current after a full charge.	Cap.	+80% /-20% of rated Cap.
2	Initial DCL. Measurement	Apply rated voltage. Note current after 3 hours.	Leakage Current	Within limit
3	Initial ESR. Measurement	Measurement frequency @1KHz.	ESR	≤ 1.5x of rated ESR.
4	Humidity Life	Maintain at 40°C/95% RH for 1000 hours. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL	≤ 2.0 x rated max.
			Cap.	≥ 0.7 x rated
			ESR.	≤ 1.5 x rated
5	Leg pull strength	Apply an increasing force in PIN until leg pulls away.	Yield Force	Not less than 5 pounds
6	Surge Voltage	Step 1. Apply surge voltage for 10 seconds.	DCL	≤ 2.0 x rated max.
		Step 2. Short the cell for 10 seconds.	Cap	≥ 0.7 x rated
		Step 3. Repeat 1 and 2 for 1000 cycles.	ESR	≤ 2.0 x rated
7	Temperature Cycling	Step 1. Ramp oven down to -40°C and then hold for 30 min.	DCL	≤ 1.5 x rated max.
		Step 2. Ramp oven up to 75°C, then hold for 30 min.	Cap.	≥ 0.7 x rated
		Step 3. Repeat 1 and 2 for 100 cycles.	ESR.	≤ 1.5 x rated
8	Temperature Characteristics	Maintain at -40°C for 4 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL	DCL ≤ 3 x rated. Cap. ≥ 0.7 x rated
			Cap.	
			ESR.	
		Maintain at -20°C for 4 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL	ESR ≤ 2.0 x rated
			Cap.	
			ESR.	
		Maintain at -10°C for 4 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL	
			Cap.	
	ESR.			
Maintain at 0°C for 4 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL			
	Cap.			
	ESR.			
Maintain at 25°C for 4 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL			
	Cap.			
	ESR.			
Maintain at 40°C for 4 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL			
	Cap.			
	ESR.			
Maintain at 70°C for 4 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL			
	Cap.			
	ESR.			
Maintain at 75°C for 4 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL			
	Cap.			
	ESR.			
9	Thermal Shock	Place cells into an oven at -40°C for 30 min.	DCL	≤ 2.0 x rated max.
		in less than 15seconds, then move to 75°C oven for 30min.	Cap.	≥ 0.7 x rated
		Repeat the action for 100cycles.	ESR.	≤ 2.0 x rated
10	Shelf Life	Maintain at 85°C for 1000 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL	≤ 1.5 x rated max.
			Cap.	≥ 0.7 x rated
			ESR.	≤ 2.0 x rated
11	Load Life	Apply nominal voltage at 70°C for 1000 hour. Allow to cool to room temperature and measure Cap. DCL and ESR.	DCL	≤ 2.0 x rated max.
			Cap.	≥ 0.7 x rated
			ESR.	≤ 2.0 x rated