

■ **Features**

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

■ **Applications**

- Pulse power demand.
- Hybrid battery packs.
- 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 **0.1A** 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)	Max. ESR ² (mΩ)	Capacitance (mF)	Leakage Current (A)	Surge Voltage (V)
UC1303016C12S	3.3	3.6	180	16	< 0.06	4.0
UC1303030C12S	3.3	3.6	180	30	< 0.06	4.0
UC1303042C12S	3.3	3.6	180	42	< 0.06	4.0
UC1305020C15S	5.2	5.4	270	20	< 0.06	6.0
UC1305027C15S	5.2	5.4	270	27	< 0.06	6.0

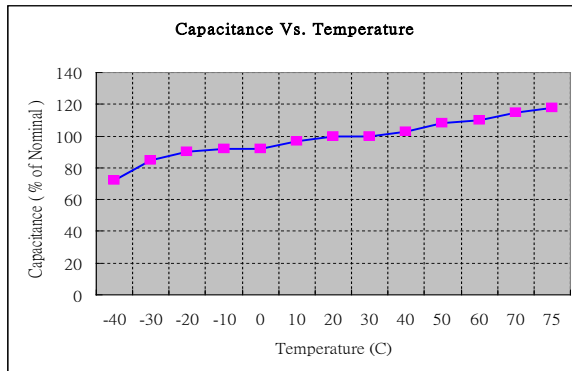


2. Part Numbering System :

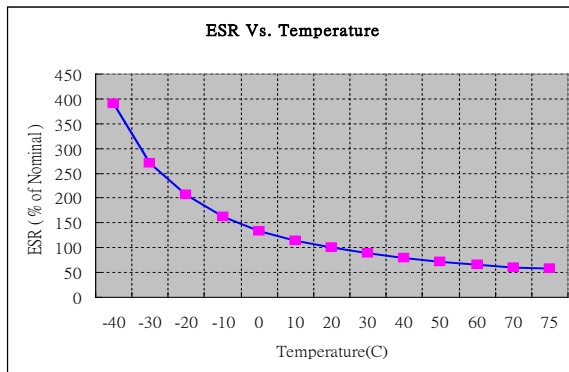
UC	13	03	016	C	12	S
DURA	Body Size 13 = 13mm x 10mm	Nominal Voltage 03 = 3.3V	Capacitance code 016 = 16mF	Package C = 1310	Thickness 12 = 1.2mm	Lead Format S = SMD

3. Electrical Characteristics :

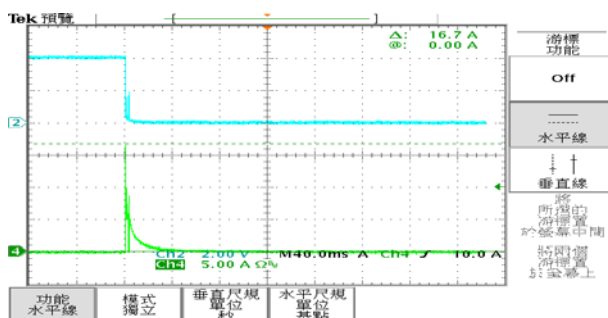
(a) Capacitance vs. Temperature



(b) ESR vs. Temperature



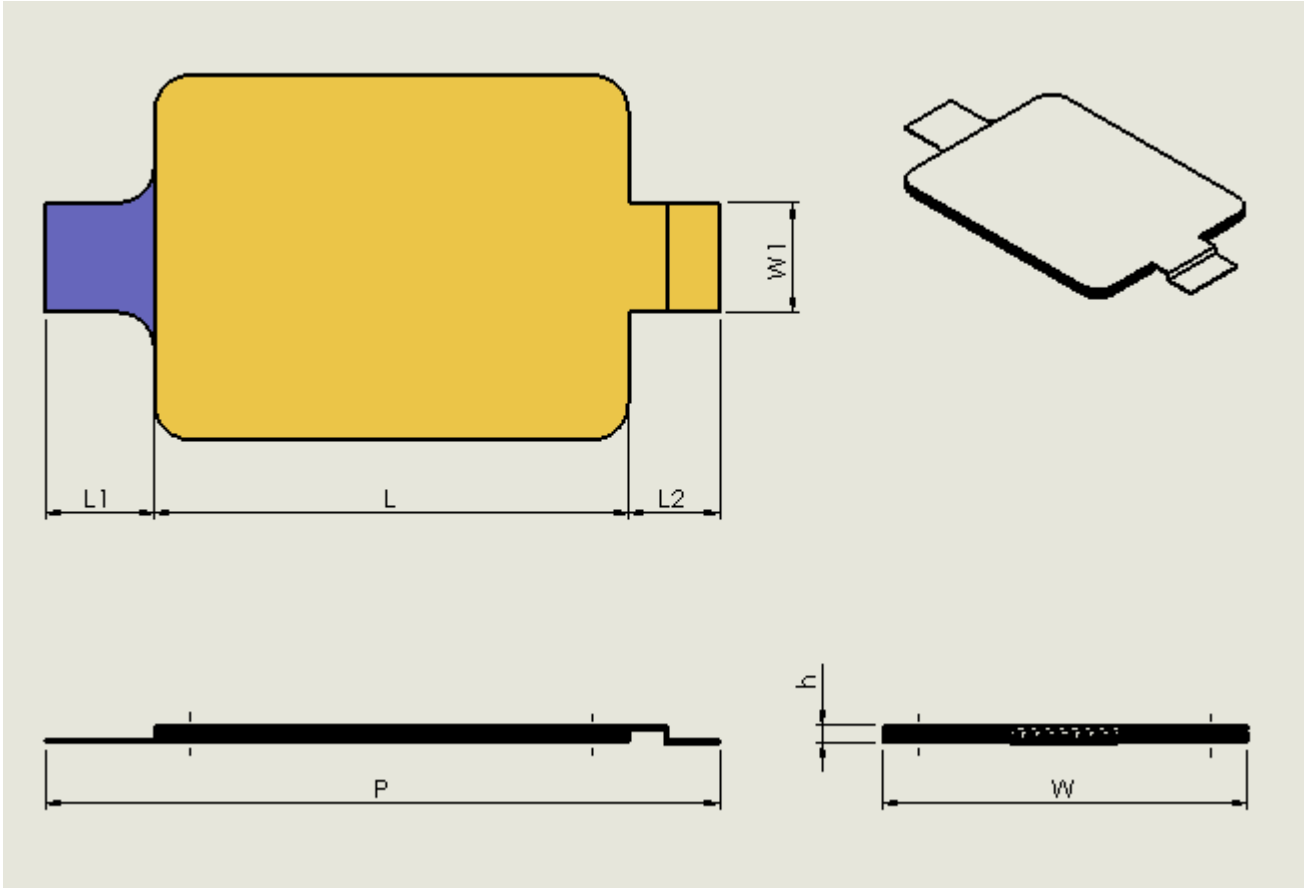
(c) Discharge Current (@16.7A Short)





4. Mechanical Specifications :

4.1 Dimensions (mm) :



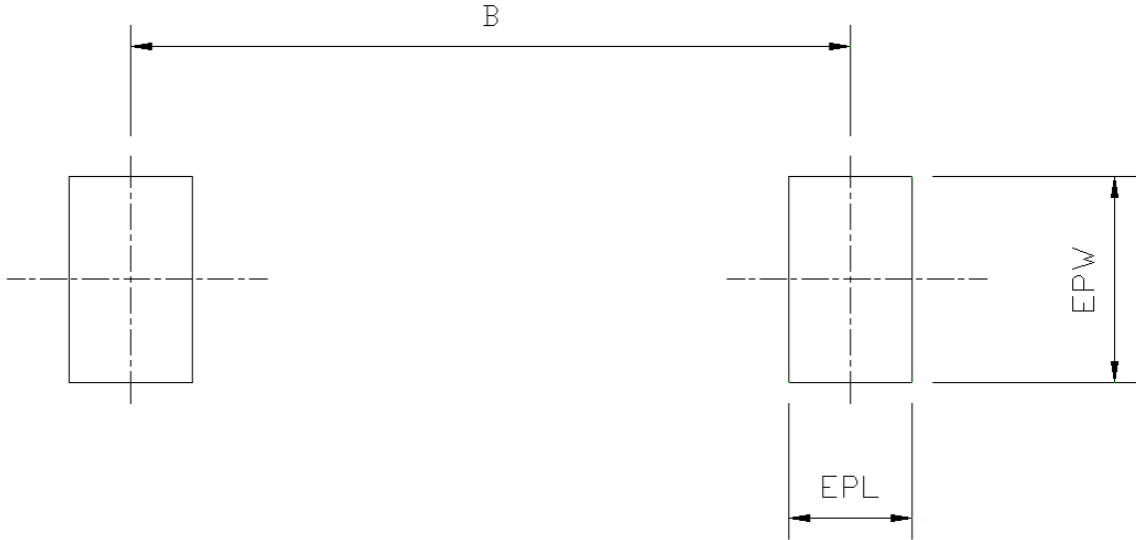
P/N	L	L1	L2	P	W	W1	H
UC1303016C12S	13.3±0.2	2.0±0.2	3.0±0.2	18.0±0.4	7.5±0.2	3.2±0.2	1.2±0.2
UC1303030C12S	13.3±0.2	2.0±0.2	3.0±0.2	18.0±0.4	7.5±0.2	3.2±0.2	1.2±0.2
UC1303042C12S	13.3±0.2	2.0±0.2	3.0±0.2	18.0±0.4	7.5±0.2	3.2±0.2	1.2±0.2
UC1305020C15S	13.3±0.2	2.0±0.2	3.0±0.2	18.0±0.4	7.5±0.2	3.2±0.2	1.5±0.2
UC1305027C15S	13.3±0.2	2.0±0.2	3.0±0.2	18.0±0.4	7.5±0.2	3.2±0.2	1.5±0.2

The lead material : Nickel

Unit : mm

Packaging material: PET

4.2 Layout :



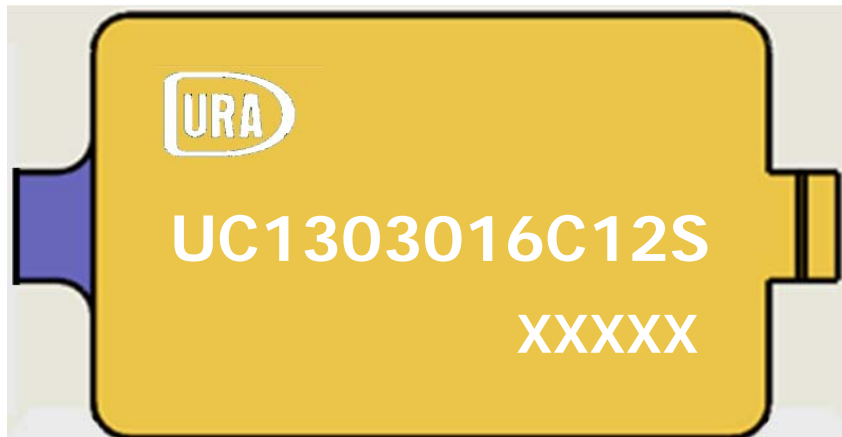
Dimensions	Nominal	Tolerance
B	18.0	±0.4
EPW	5.0	±0.1
EPL	3.0	±0.1
Unit : mm		

4.3 Label :

Brand logo →

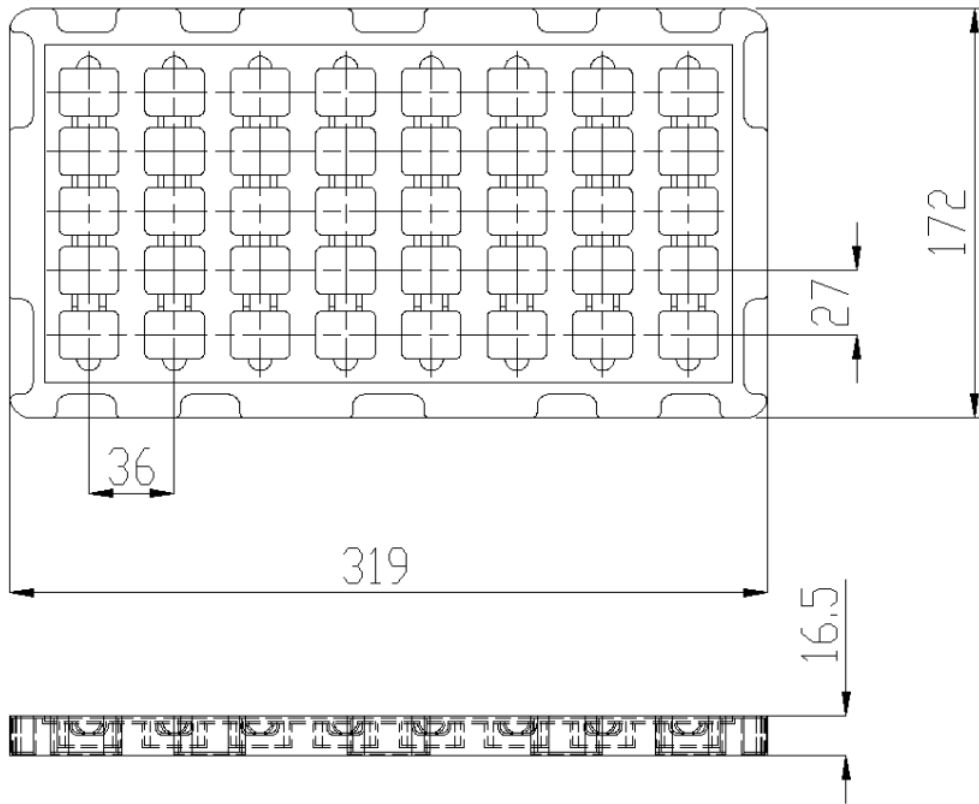
Specification →

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 30min	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.		Cap. ≥ 0.7 x rated
			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 70°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 50°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	