



**FEATURES**

- Low Self Discharge/Up to 8 times energy density compared to standard Super Capacitors
- High Capacitance, Power type
- 3.8V High Operating Voltage
- No Explosion Safety
- REACH,RoHS Directive Compliant

**APPLICATIONS**

- Continuous power support,Back up power,Stand alone or augment existing ,Medical backup power/alarm,Water and gas smart meters.

**OPERATING TEMPERATURE RANGE**

- +350°C(4-5seconds by soldering)
- No clean soldering recommended.
- Do not wash the super capacitors.

**GENERAL SPECIFICATIONS**

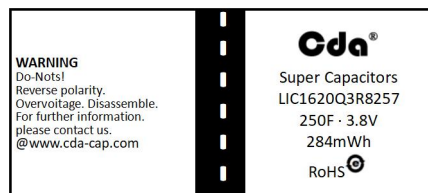


| Item  | Performance  |
|---|--|
| Operating temperature   | -20°C to +65°C @ 3.8V<br>-20°C to +85°C @ 3.5V   |
| Storage temperature   | -40°C to +85°C   |
| Capacitance range   | 10F to 750F  |
| Rated voltage   | 3.8 VDC  |
| Minimum rated voltage   | 2.5 VDC  |
| Surge voltage   | 4.2 VDC  |
| Temperature characteristics   | Capacitance change: Within ±50% of initial measured value at +25°C (-20°C to +70°C)<br>Internal resistance: Within ±800% of initial measured value at +25°C (at -20°C) |
| High temperature load time  | After 1000 hours:<br>Capacitance change: ±30% of initial rated value<br>Internal resistance: Within 2 times of initial specified value                                 |
| Projected cycle life<br>(From rated voltage to 1/2 rated voltage at 25°C) | After 50,000 cycles:<br>Capacitance change: Within ±30 % of initial rated value<br>Internal resistance: Within 2 times of initial specified value                      |
| Shelf life  | After 2 years at 25°C without load, the capacitor shall meet the specified endurance limits.   |

**PART NUMBER SYSTEM**

| <u>LIC</u> | <u>1840</u> | <u>Q</u>         | <u>3R8</u>    | <u>507</u>       | <u>***</u>   |
|------------|-------------|------------------|---------------|------------------|--------------|
| Series     | Size Code   | Cylindrical Code | Rated Voltage | Nominal Capacity | Special Code |

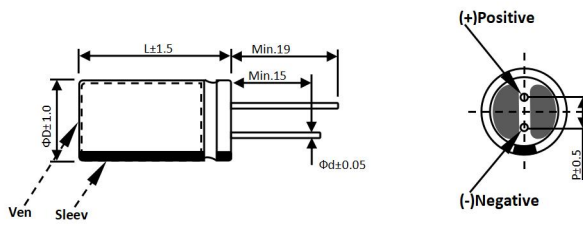
**Casing Display:**



**DIMENSIONS**

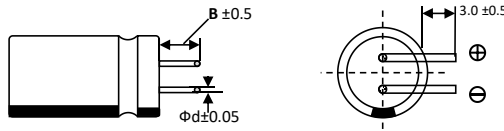


**RADIAL LEAD TYPE**



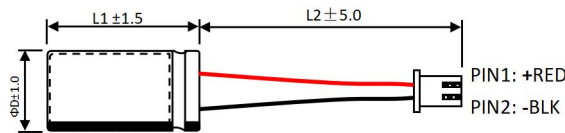
| Size(mm) |     |     |
|----------|-----|-----|
| ΦD       | P   | Φd  |
| 6.3      | 2.5 | 0.6 |
| 8        | 3.5 | 0.6 |
| 10       | 5.0 | 0.6 |
| 13       | 5.0 | 0.6 |
| 16       | 7.5 | 0.8 |
| 18       | 7.5 | 0.8 |

**RADIAL BENT LEAD TYPE**



| Style | B(mm) |
|-------|-------|
| A1    | 4.0   |
| C1    | 2.0   |

**CONNECTOR L TYPE**



\*Connectors can be customized

**STANDARD PRODUCTS**

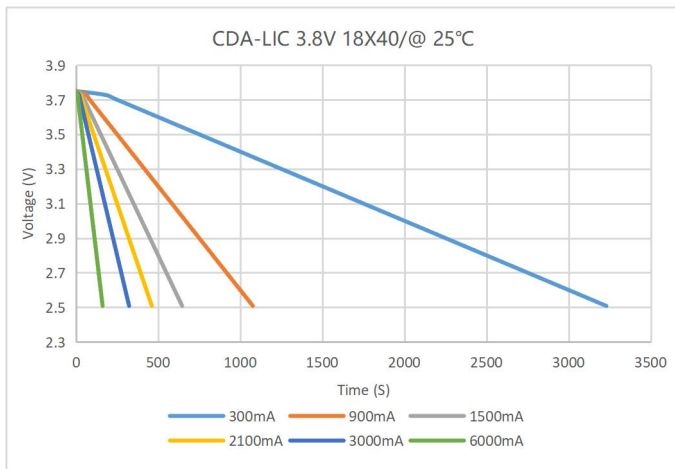
| Part Number    | Dimensions (mm) |    | Rated Cap. (F) | Capacitance Tolerance | 3.8V-2.5V Battery Cap. (mAh) | ESRAC (mΩ) (1 KHz) | Leakage Current (72hrs/mA) | Rated Current (A) | Max Current (A) | Weight/Unit (grams) | Energy Storage (mWh) |
|----------------|-----------------|----|----------------|-----------------------|------------------------------|--------------------|----------------------------|-------------------|-----------------|---------------------|----------------------|
|                | D               | L  |                |                       |                              |                    |                            |                   |                 |                     |                      |
| LIC0613Q3R8106 | 6.3             | 13 | 10             | -0%~+100%             | 3.6                          | 1500               | 0.001                      | 0.05              | 0.3             | 0.8                 | 11                   |
| LIC0813Q3R8106 | 8               | 13 | 10             | -0%~+100%             | 3.6                          | 600                | 0.001                      | 0.05              | 0.5             | 1.5                 | 11                   |
| LIC0813Q3R8206 | 8               | 13 | 20             | -0%~+100%             | 10                           | 600                | 0.001                      | 0.10              | 0.5             | 1.5                 | 23                   |
| LIC1013Q3R8256 | 10              | 13 | 25             | -0%~+100%             | 12                           | 400                | 0.001                      | 0.15              | 1.0             | 2.65                | 28                   |
| LIC0820Q3R8256 | 8               | 20 | 25             | -0%~+100%             | 12                           | 300                | 0.002                      | 0.20              | 1.5             | 2.0                 | 28                   |
| LIC1013Q3R8306 | 10              | 13 | 30             | -0%~+100%             | 13.5                         | 300                | 0.001                      | 0.15              | 1.0             | 2.65                | 34                   |
| LIC0825Q3R8306 | 8               | 25 | 30             | -0%~+100%             | 18                           | 200                | 0.002                      | 0.3               | 2.0             | 3.5                 | 34                   |
| LIC0820Q3R8406 | 8               | 20 | 40             | -20%~+80%             | 15                           | 200                | 0.002                      | 0.22              | 1.7             | 2.0                 | 46                   |
| LIC0825Q3R8506 | 8               | 25 | 50             | -20%~+80%             | 18                           | 180                | 0.002                      | 0.2               | 1.0             | 2.7                 | 57                   |
| LIC1313Q3R8706 | 13              | 13 | 70             | -20%~+80%             | 27                           | 200                | 0.002                      | 0.30              | 2.0             | 3.5                 | 80                   |
| LIC1020Q3R8806 | 10              | 20 | 80             | -20%~+80%             | 30                           | 120                | 0.002                      | 0.35              | 3.0             | 3.0                 | 91                   |
| LIC0825Q3R8906 | 8               | 25 | 90             | -20%~+80%             | 27                           | 300                | 0.002                      | 0.30              | 2.0             | 2.5                 | 102                  |
| LIC0825Q3R8107 | 8               | 25 | 100            | -20%~+20%             | 36                           | 350                | 0.003                      | 0.60              | 3.0             | 2.7                 | 114                  |
| LIC1030Q3R8107 | 10              | 30 | 100            | -20%~+80%             | 36                           | 110                | 0.003                      | 0.60              | 5.0             | 6.0                 | 114                  |
| LIC1030Q3R8127 | 10              | 30 | 120            | -20%~+80%             | 45                           | 100                | 0.003                      | 0.60              | 5.0             | 5.0                 | 137                  |
| LIC1320Q3R8127 | 13              | 20 | 120            | -20%~+80%             | 45                           | 220                | 0.003                      | 0.60              | 5.0             | 5.0                 | 137                  |
| LIC1335Q3R8257 | 13              | 35 | 250            | -20%~+80%             | 80                           | 150                | 0.005                      | 1.10              | 10.0            | 8.0                 | 284                  |
| LIC1620Q3R8257 | 16              | 20 | 250            | -20%~+80%             | 80                           | 70                 | 0.005                      | 1.10              | 10.0            | 8.0                 | 284                  |
| LIC1620Q3R8277 | 16              | 20 | 270            | -20%~+80%             | 85                           | 70                 | 0.013                      | 2.0               | 10.0            | 8.5                 | 307                  |
| LIC1640Q3R8507 | 16              | 40 | 500            | -20%~+80%             | 200                          | 80                 | 0.015                      | 2.25              | 25.0            | 15.0                | 569                  |
| LIC1840Q3R8507 | 18              | 40 | 500            | -20%~+80%             | 200                          | 80                 | 0.015                      | 2.25              | 30.0            | 16.0                | 569                  |
| LIC1840Q3R8757 | 18              | 40 | 750            | -20%~+80%             | 300                          | 60                 | 0.023                      | 3.00              | 30.0            | 20.0                | 853                  |

\*operating temperature can be extended to 85°C with appropriate voltage

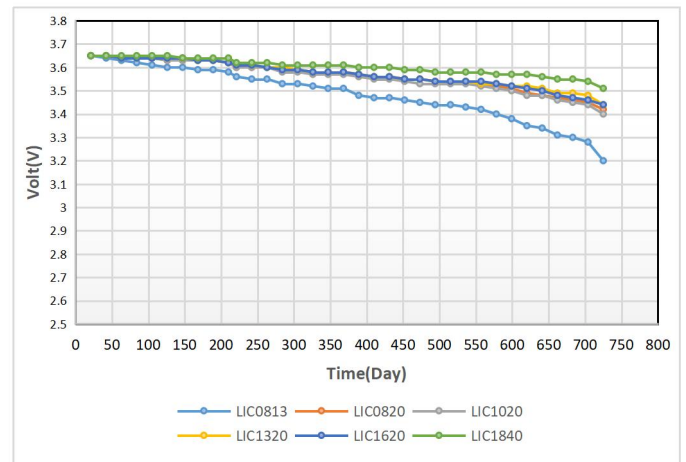
**THE FEATURE DIAGRAM**



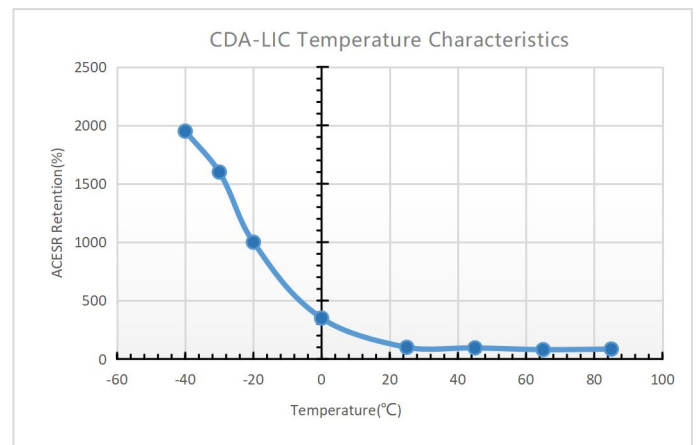
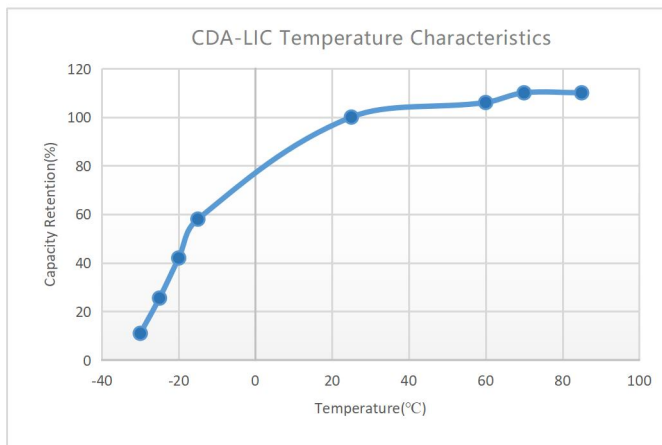
● **Discharge multiplier characteristics**



● **LIC two-year self-discharge data**

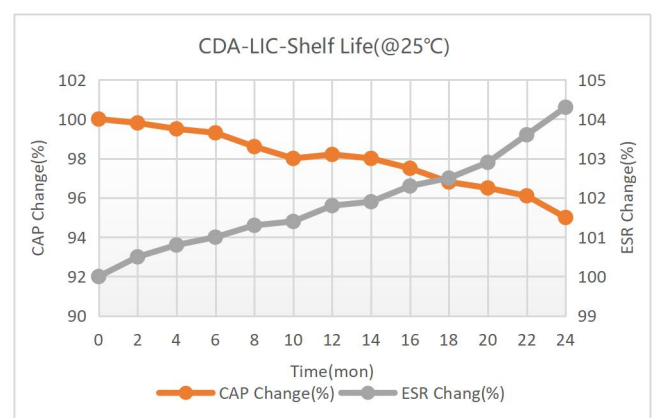
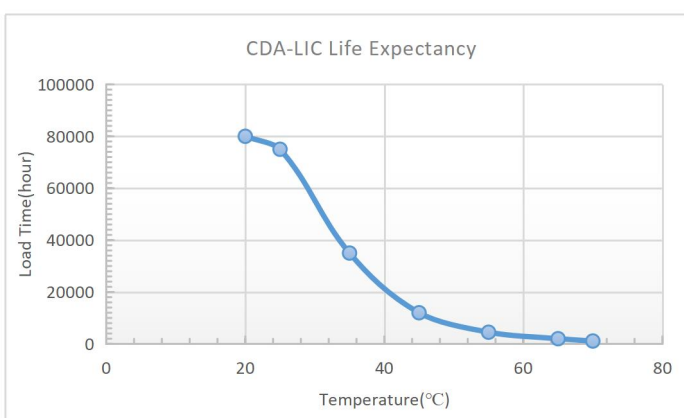


● **Representative average temperature characteristics of capacitance and ESR.**



● **Lifetime estimation at different temperatures.**

● **Shelf life at room temperature (@25 °C)**



**SAFETY RECOMMENDATIONS** 



**WARNINGS**

- To Avoid Short Circuit, after usage or test, Lithium Ion Capacitor voltage needs to discharge to > 2.5V (Not lower than 2.5V)
- Do not Apply Over-voltage, Reverse Charge, Burn or Heat Higher than 150°C, explosion-proof valve may break open.
- Do not Press, Damage or disassemble the Lithium Ion Capacitor, housing could heat to high temperature causing Burns.
- If you observe Overheating or Burning Smell from the capacitor disconnect Power immediately, and do not touch.

**REGULATORY**

- MSDS, UN38.3
- RoHS Compliant
- Reach Compliant

**TRANSPORTATION**

Not subjected to US DOT or IATA regulations  
 UN3508, <0.3Wh, Non-Hazardous Goods  
 International shipping description –  
 “Electronic Products –Capacitor”

**Measuring**

- Capacitance, Equivalent series resistance (ESR) and Leakage current are measured
- Leakage current at +20 °C after 72 hour charge and hold.
- Stored energy (mWh) =  $\frac{0.5 \times (V^2_{min1} - V^2_{min2}) \times C}{3600} \times 1000$
- Peak power (W) =  $\frac{V^2}{4 \times ESR}$
- Pulse current for 1 second from full rate voltage to minimum rated

$$\text{voltage. (A)} = \frac{(V_{min1} - V_{min2}) \times C}{(1 + ESR \times C)}$$

- Continuous current with a 15 °C temperature rise. Continuous current (A)

$$= \sqrt{\frac{\Delta T}{ESR \times R_{th}}}$$

- Short circuit current is for safety information only. Do not use as operating current.

- Cycling between rated voltage and 2.5 V, 3 second rest at +20 °C.

**Note:** Do not discharge Lithium Ion Capacitor below minimum working voltage.

**PRECAUTIONS DURING USE** 

