

- 3.0 V DC output
- 360 F capacity
- 1 million cycle life
- High power density
- Solderable to PCB terminals
- Green

Model	CRE35S-0360
Rated Voltage $V_R$	3.00 V
Surge voltage $V_S$	3.10 V
Rated capacity $C$	360 F
Capacity Tolerance	-0% / +20 %
DC internal resistance ESR	$\leq 2.0 \text{ m}\Omega$
Leakage current $I_L$	$< 1.2 \text{ mA}$
Self-discharge rate	$< 20 \%$
Maximum continuous operating current $I_{MCC}(\Delta T = 15^\circ\text{C})$	25 A
Maximum current $I_{Max}$	329 A
Short-circuit current $I_S$	1.5 kA
Energy Storage $E$	0.45 Wh
Energy Density $E_d$	6.5 Wh/kg
Usable power density $P_d$	7.8 kW/kg
Impedance matched power density $P_{dMax}$	16.3 kW/kg

Model	CRE35S-0360
Operating temperature	-40 ~ 65°C
Storage temperature	-40 ~ 70°C
Thermal resistance $R_{Th}^{14}$	11.7 K/W
Thermal capacity $C_{th}^{15}$	83 J/K

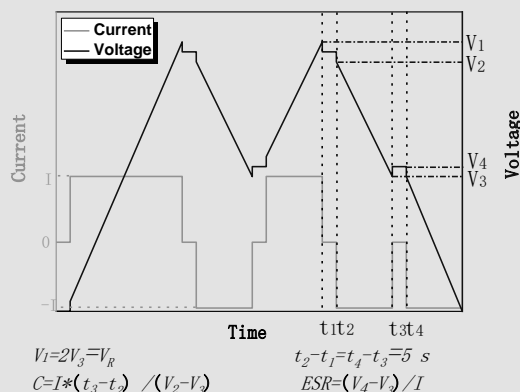
Model	CRE35S-0360
Accelerated aging life	1500 hours
Design life	10 years
Cycle life	1'000'000 cycles
Storage life	4 years

<b>Model</b>	<b>CRE35S-0360</b>
Safety	RoHS, REACH and UL810
Vibration	ISO16750 Table 12
Impact	IEC 60068-2-64
	IEC 60068-2-27

## Physical Characteristics

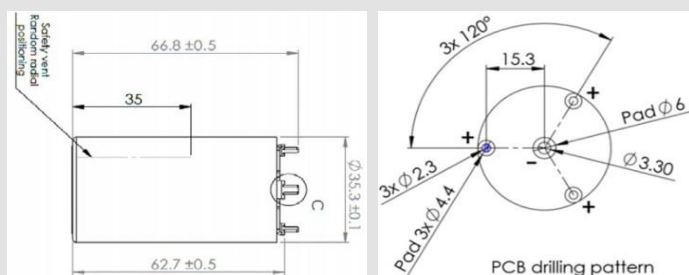
<b>Model</b>	<b>CRE35S-0360</b>
Weight (typical model)	69 g
Terminal	Solderable PCB
Size    Height	62.7 mm
Diameter	35.3 mm

- $V_S$ : the absolute maximum voltage that the supercapacitor can withstand, not the operating voltage, do not operate at this voltage for more than 1 second.
- $C$ : Rated capacity test method according to Figure 1, the test current is 100 C times the current, that is, 0.1 A/F, if the calculated test current is greater than 100 A, then 100 A is used



- Capacity tolerance: Typical capacity is 105% of rated capacity.
- Leakage current: The test method is to use constant current to charge the capacitor to the rated voltage (the charging current is 100C times the current, which is 0.1 A/F, or 100 A if the calculated test current is greater than 100 A), and keep the constant voltage charging for 72 hours, and the current value for 72 hours is the leakage current.
- Self-discharge rate: The test method is to charge the capacitor to the rated voltage using constant current (the charging current is 100C times the current, which is 0.1A/F, or 100A if the calculated test current is greater than 100A), keep the capacitor charged for 3 hours and then open the capacitor (no load), and measure the open circuit voltage after 72 hours.
- Max. continuous operating current:  $I_{MCC} = \sqrt{\Delta T / (ESR * R_{Th})}$  that is, the operating current of the supercapacitor when it is in equilibrium with Joule heat by natural convection heat dissipation from the case in still air.
- Max. current:  $I_{Max} = 0.5C * V_R / (\Delta t + ESR * C)$  that is, the discharge current of a supercapacitor discharging from the rated voltage to half of the rated voltage in 1 second.

- Size :



- Standard Labels

- + Manufacturer, part number, serial number.
- + Rated voltage, rated capacity, positive and negative pole marking, warning content.
- + Stored energy(Wh)

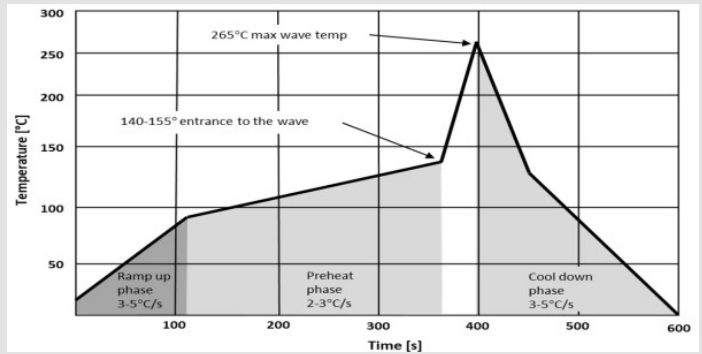
- Installation suggestions

- + The welding dimensions are shown in the attached drawing.
- + Provide sufficient distance between the units to meet the insulation strength.
- + Leave enough space around the explosion-proof tank and above to keep clean and avoid mechanical damage.

- The content of this article is subject to change without notice.

- The recommended temperature profile for soldering by wave soldering with lead-free alloys (figure below).

8. Short-circuit current  $I_s = V_R / ESR$ , SI system units or their conversion units are used for each parameter, and this current cannot be used as operating current.
9. Energy storage  $E = 0.5C * V^2 / 3600$
10. Energy density  $E_d = E / M$
11. Available power density  $P_d = 0.12V_R^2 / (ESR * M)$
12. Impedance matched power density  $P_{dMax} = 0.25V_R^2 / (ESR * M)$
13. Storage temperature: Discharge state storage (monomer voltage <0.2V)
14. Thermal resistance  $R_{Th} = 1 / (h * A)$ , where  $h=10 \text{ W}/(\text{m}^2 \cdot \text{K})$ ,  $A$  is the external area of the capacitor
15. Thermal capacity: for the entire supercapacitor
16. Accelerated aging life: At the maximum operating temperature (65°C) of supercapacitor, the voltage remains constant at its rated voltage for 1500h, the capacity remains above 80% of the rated capacity at room temperature, and the internal resistance is less than 200% of the rated internal resistance.
17. Design Life: Maintain the supercapacitor at its rated voltage. The life criterion is to maintain the capacity at 80% or more of the rated capacity and the internal resistance at 200% or less of the rated internal resistance.
18. Cycle life: constant current charge/discharge within the voltage range of rated voltage  $V_R$  and  $0.5 V_R$ , standing for 5 seconds between charge/discharge, test current is 100C times current, i.e. 0.1 A/F, if the calculated test current is greater than 100 A, then 100 A is used.
19. Storage life: in storage temperature range, discharged state.
20. Lead terminal: Tinned terminal, solderable PCB board.



The total welding time, i.e., from room temperature up to the peak temperature of 265°C plus cooling, is a maximum of 10 minutes. The rise time to the required temperature is influenced by the design of the product structure and the power of the preheating section of the soldering equipment. The temperature measurement point for soldering comes from the pin end on the top side of the PCB, which is recommended to be 2.4 to 3.2 mm thick.

Soldering	Lead-free (Sn96.5/Ag 3.0/Cu0.5) melting point 217°C
Recommended fluxes	Kaster 979T
Temperature rise rate	3°C-5°C/s (Max)
Preheat	140 - 155°C, 2-3°C/s plate top surface
Rising temperature zone to peak temperature	200°C/s
Peak temperature	265°C 1.5 - 5s (Max)
Cooling down rate	3°C-5°C/s (Max)
Chain speed	40-50cm/min