

CR123A self-discharge rate Test Report

Technical department

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Client:	C	Application:		Salesman:		Information input:	E-mail
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1. Background

The customer wants to know the self-discharge rate of our CR123A product

2. Testing equipment and test methods

2.1 Testing equipment:

Testing equipment: ANBAI AT526C AC internal resistance tester, TA Instrument TAM IV Thermal activity microcalorimeter

2.2 Testing methods:

Test the open circuit voltage U[V] and internal resistance of the battery using an AC internal resistance tester

The temperature of the test chamber of the microcalorimeter was set at 25°C, and the benchmark heat flow P₀[uW] was obtained by running for 30min before putting the sample in, and then the sample was put in for testing. The average heat flow P[uW] was obtained by fitting a relatively smooth curve, and the annual self-discharge rate was calculated according to the following formula.

$$\text{年自放电率} = \frac{(P[\text{uW}] - P_0[\text{uW}]) \div U[\text{V}] \times 8760[\text{h/年}]}{1000[\text{uA/mA}] \times \text{额定容量} C_N[\text{mAh}]} \times 100\%$$

3. Test data and result analysis

3.1 The monitoring curve of battery calorific value is shown in Figure 1

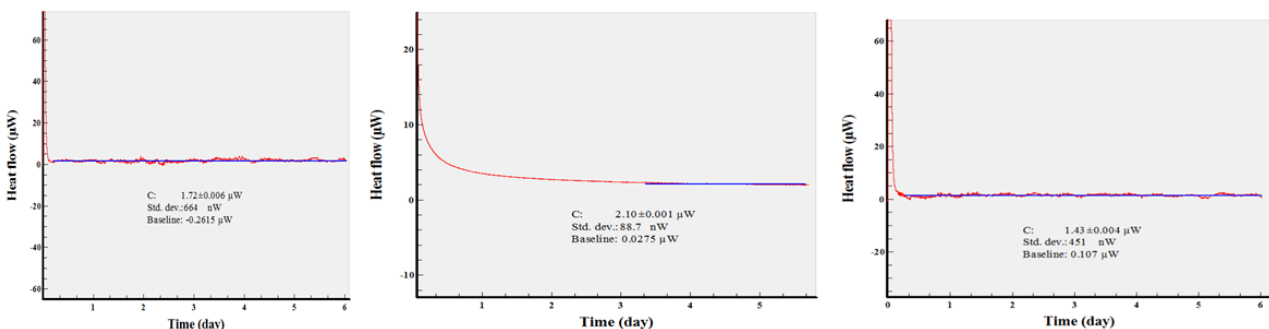


Figure 1

3.2 Battery self-discharge rate test result

Type	Temperature	OCV	P	P ₀	Total heat	Self-discharge current	Annual consumption capacity	Annual self-discharge rate
		V	μW	μW	μW	μA	mAh	%
CR123A	25°C	3.265	1.72	-0.261	1.981	0.608	5.326	0.355
		3.254	2.10	0.027	2.073	0.637	5.580	0.372
		3.245	1.43	0.107	1.323	0.408	3.574	0.238

Summary: The annual self-discharge rate of CR123A at 25°C is less than 1%.

4. Conclusion

According to the self-discharge rate test results of CR123A battery at 25°C, it can be calculated that the cumulative self-discharge rate of CR123A battery stored at 25°C for every year is less than 1%.