



# Lithium batteries - safety

## Instruction Leaflet

A single lithium chloride cell has an open circuit terminal voltage of 3.7V with a typical operating voltage of 3.5 to 3.6V. For this reason these cells must not be used as direct replacements for other battery systems having lower terminal voltages even though they may be dimensionally similar.

These batteries are very high energy systems containing highly active materials and as such should be treated with respect. However, all the RS cells are designed with a safety vent which will allow the quiet release of electrolyte under conditions of abuse. To ensure trouble free use of lithium batteries the following safety considerations should be observed.

### 1. Temperature

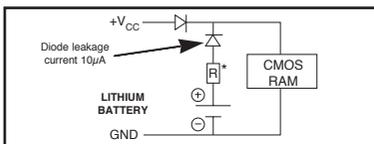
These batteries should not be used at temperatures in excess of 70°C and for safety reasons never exposed to temperatures above 100°C.

### 2. Electrical abuse

Lithium cells must not be connected in series with any electrical power source which would increase the forward current through the cells (forced discharge).

Where there is any possibility of a charging current flowing it is essential that the circuit for these cells shall include a blocking diode and an additional current limiting component. See Protection Circuit below and **RS** Battery Data Sheet for further details.

#### Protection circuit



\* a current limiting resistor R is recommended in case of diode failure and should be mounted adjacent to the +ve terminal of the battery. This resistor may be replaced with another diode if preferred.

In the event of forced discharging or charging the cell may overheat, vent or even vent violently.

### 3. Multi-cell batteries

A maximum of two cells, which must be undischarged and of the same age, type and capacity, may be connected in series if required. Cells must not be connected in a parallel arrangement unless diode isolation as shown above is used.

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