

Let's **Make**  
battery *Safer!*



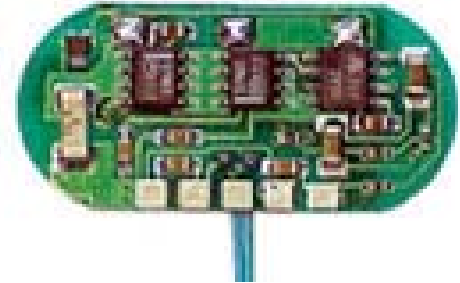
WAY-ON

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# Product –SCM

## SCM

SCM consists of a fuel gauge and a protection circuit that make a battery function more powerfully. Normally it will realize the power management functions. Fuel Gauge Circuit monitors power condition of battery and transmits data to host. Protection Circuit has primary and secondary protection functions to cut off overcharge and over-discharge for stability of the battery.

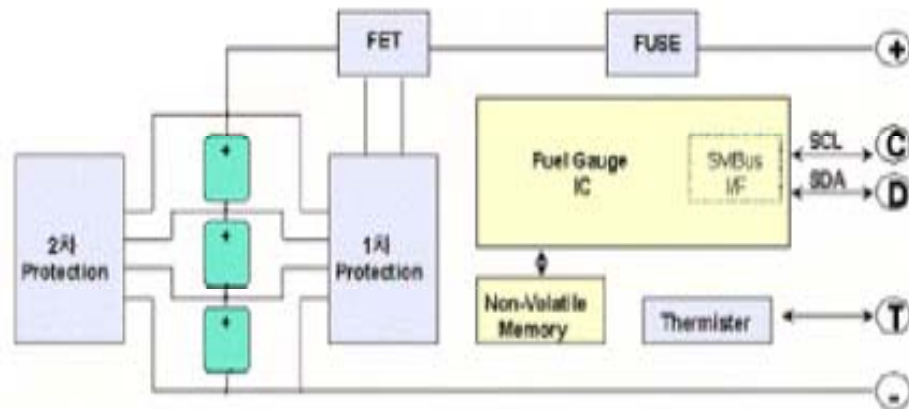


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# Power Management: SCM

Smart Battery is composed of fuel gauge and protection circuit.



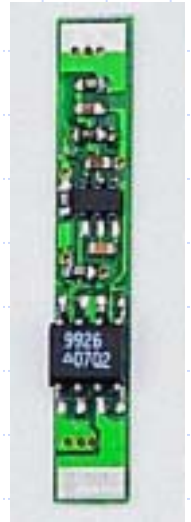
**Fuel Gauge Circuit --** Monitoring power condition of battery and transmits data to host (notebook, PC, video camera, or cell phone)

**Protection Circuit --** Providing primary and secondary protection functions to battery Code Identification,

# Product –PCM

## PCM

**Protection Circuit Module** is a device to protect a battery against risk of explosion, make longer its operation life and improve its performance by prevention of overcharge and over-discharge and cut-off of over-current through driving in the safe circuit at the time of charging and discharging.



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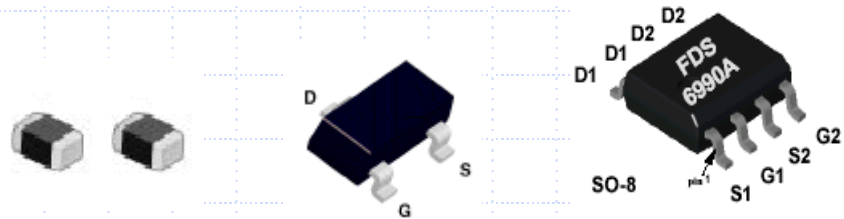
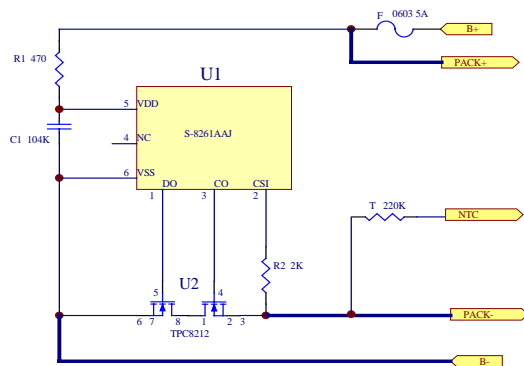
# Protection-PCM

**PCM is not only used to protect the cells and applications from excessive discharge and recharge current, but also to maintain the nominal operating conditions for the battery packs.**

- ☐ Overcharge Protection
- ☐ Over-discharge Protection
- ☐ Over-current Protection
- ☐ Short Circuit Protection
- ☐ Additional function : Over-temperature protection, ESD protection, Code Identification, Power management



# PCM Basic Diagram



❑ MOSFET (Control Switch) turn off the charge or discharge depending on the output of the controller IC.

❑ Controller IC measures the voltage for each cell and shut off MOSFET to either prevent overcharging or over-discharging. The voltage of the control switch is measured on both ends and in order to prevent over-current, both control switches are shut off if the voltage exceeds specifications.

❑ Thermistors (optional) accurately measure the battery temperature and battery

# Applications

- ❑ Lithium-ion Batteries
- ❑ Lithium-ion Polymer Batteries
- ❑ Application fields

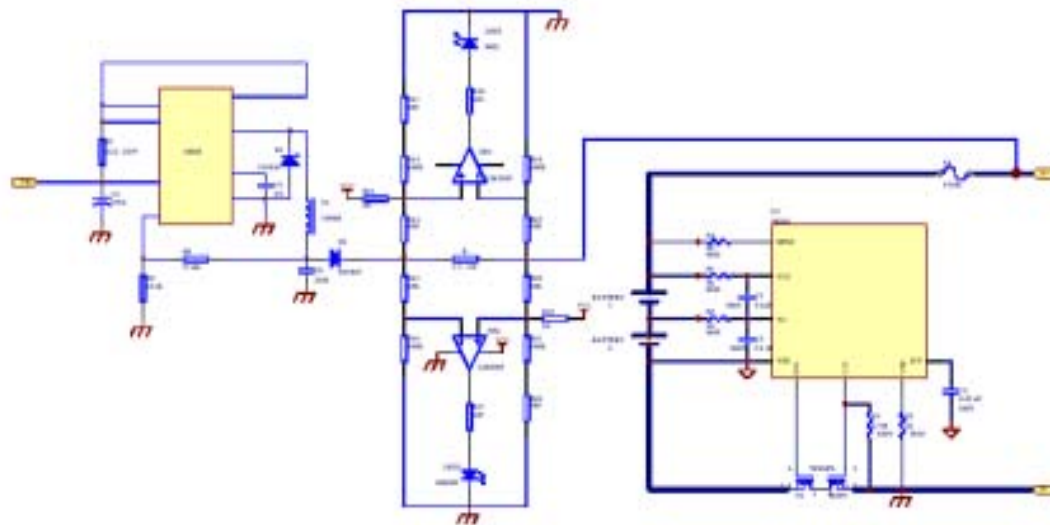
Mobile phone, Notebook PC,  
Video camera, DVD, PDA, and  
other portable devices



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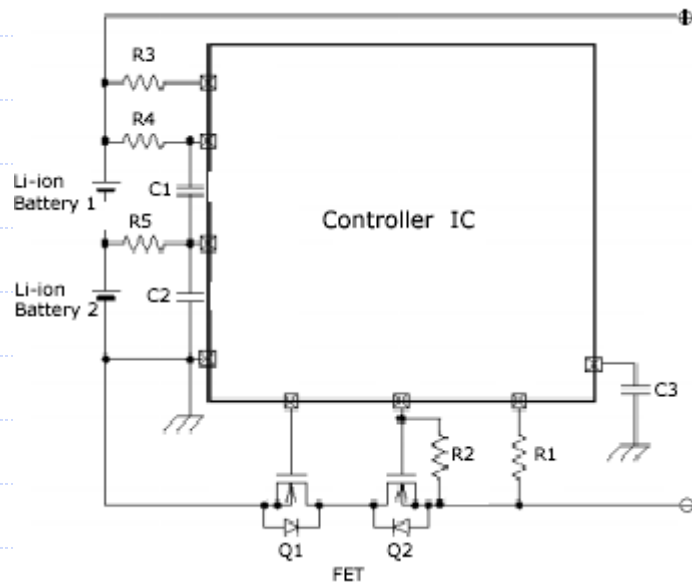
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# PCM Diagram for DVD Batteries

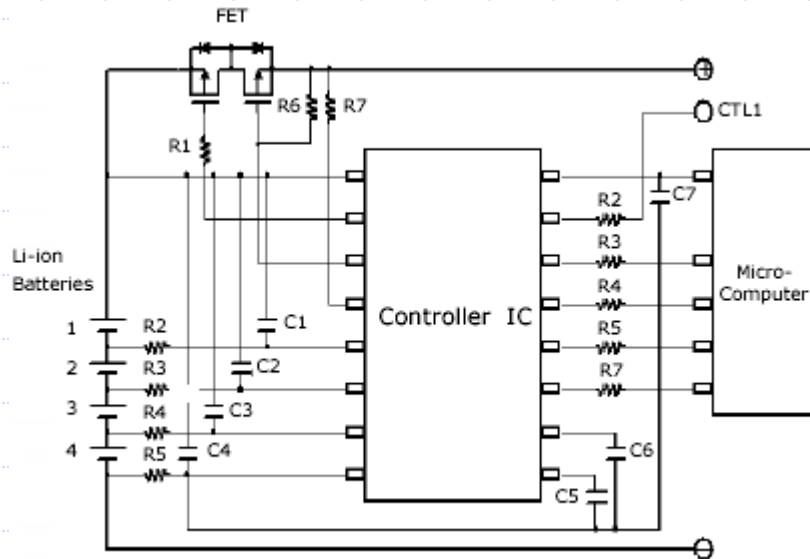




# PCM diagram (for 2 cells)



# PCM diagram (for 4 cells)



# Major parts involved

- ☐ Control IC
- ☐ Rigid PCB or Flexible PCB
- ☐ MOSFET (Control Switch)
- ☐ Resistors
- ☐ Capacitors
- ☐ The following parts may be used to obtain certain functions according to different design.

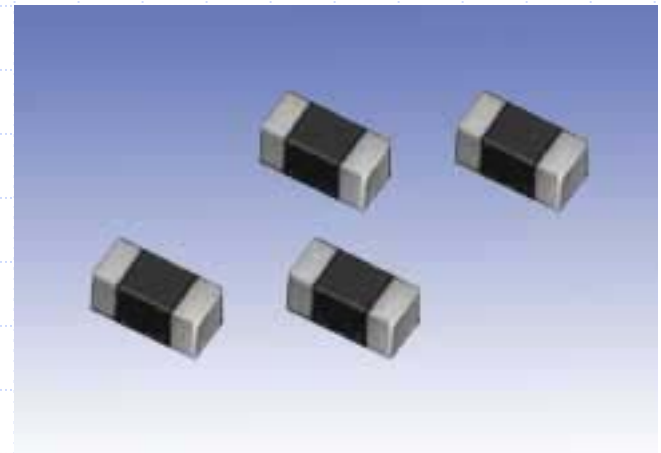
PTC, NTC, ESD, FUSE, Control IC, ID resistor, fuel Gauge Circuit, Power convert circuit etc.



# Products introduce –NTC

## NTC:

- ❑ Min nature size ,no lead,
- ❑ ideal for high density SMT installation,
- ❑ Ideal for wave or reflow soldering.
- ❑ Agency recognition: UL、 CSA、 TUV



# Products introduce –Thermal cutoff

## TP series:

- ❑ Realized the super slim package with less than 1mm thickness.  
With smaller package, can meet the requirement of smaller battery pack
- ❑ Nickel lead terminals are corrosion-proof and durable for bending, and also available with spot-welding
- ❑ Not only provide thermal cutoff functions but also current cutoff functions



*Thanks!*



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