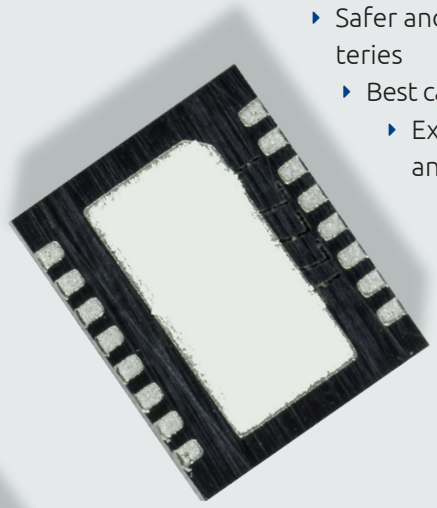
EnerChip™

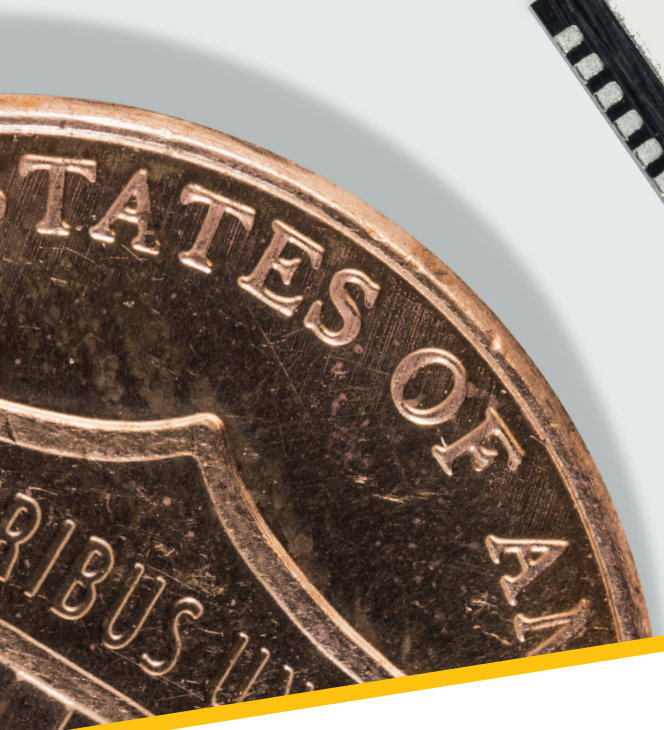
CARDINAL COMPONENTS

Cardinal´s new **EnerChip™** solid state batteries and EnerChip™ CC solid state Energy Storage Devices combined with integrated power management in a single chip are a breakthrough in battery technology. These thin film rechargeable solid-state smart batteries are packed into low profile surface mount QFN or DFN packages, operating at 3.8V / 3.3V within a temperature range of -20°C to +70°C and being more than 5000 times rechargeable. Versions are available in capacities of 5µAh, 12µAh and 50µAh.

Product advantages

- Rechargeable Solid State / Thinfilm Technology
- Operating temperature -20°C to +70°C
- Storage temperature -40°C to 125°C
- Ultra-low profile and small footprint surface mount QFN and DFN package
- RoHS, REACH and WEEE compliant
- Lead-Free/RoHS reflow soldering
- Tube, Tray and T&R packaging for automatic assembly
- Long shelf life
- Lasts product life cycle
- Ultra low Self Discharge (80%+ after 10 years)
- Integrated power management to charge up to 10 single EnerChip™ connected in parallel
- Recharging to 80% capacitance within 10 to 20 minutes
- No Battery holders required
- Environmental Friendly
- No leakage and no use of hazardous chemicals
- No special disposal
- Can be mounted on both sides of PCB
- No abrupt change in performance over temperature
- Safer and more reliable than conventional batteries
  - Best candidates for future wearable computers
    - Excellent for bendable devices, flex PCB´s and new flexible displays
      - Bare die available without package to place directly with other IC´s using wire bonding in single or multi-chip module.





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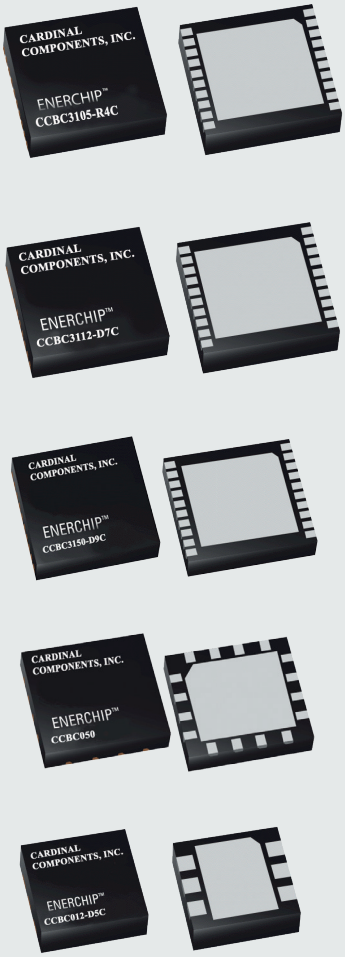
Part	Capacitance	Voltage	Type	Package
CCBC012	12µAh	3.8V	Rechargeable Thinfilm Solid State Battery	DFN 5x5mm
CCBC050	50µAh	3.8V	Rechargeable Thinfilm Solid State Battery	QFN 8x8mm
CCBC3105	5µAh	3.3V	Rechargeable Thinfilm Solid State Energy Storage Device with integrated charging circuit *)	DFN 4x5mm
CCBC3112	12µAh	3.3V	Rechargeable Thinfilm Solid State Energy Storage Device with integrated charging circuit *)	DFN 7x7mm
CCBC3150	50µAh	3.3V	Rechargeable Thinfilm Solid State Energy Storage Device with integrated charging circuit *)	DFN 9x9mm

*) charging up to 10 additional EnerChip solid state Batteries connected in parallel



Customer Benefits

- Space saving SMT package
- Mountable on both sides of PCB
- Automatic assembly with other SMT parts
- RoHS/lead-free reflow soldering
- Long Cycle Life (>5,000 Cycles)
- No battery replacement during product life time
- RoHS, REACH and WEEE compliant
- No special disposal and no transport restrictions
- Fast charging (80% of capacitance within 10 to 20 minutes)

Application Examples

- Back-up / standy supply for non-volatile SRAM, micro controllers, memories, real-time-clocks
- Storage Device for Energy Harvesting-powered microelectronic systems
- Wireless sensors and RFID tags and other powered low duty cycle applications
- Power bridging during exchange of primary batteries
- SmartCard Power applications

Distribution:

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