

Chip-Type Ceramic Rechargeable Battery

EnerCera® Series



EnerCera® EVERYWHERE



EnerCera® Pouch

- Ultra thin and bendable pouch type cell (0.45mm thick)
- Can be embedded in IC cards by hot lamination process
- High current output (several 100 mA)

EnerCera® Coin

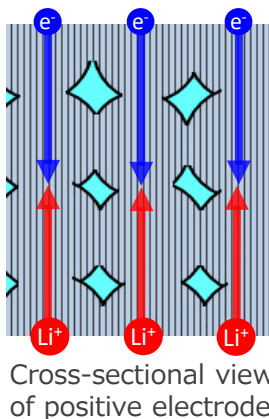
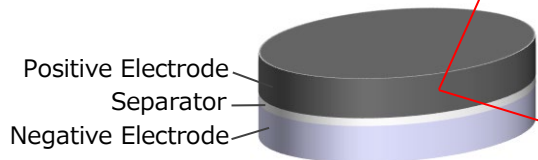
- Heat resistant coin type cell (Operating temperature up to 105°C)
- Can be mounted on board by Reflow Soldering
- High current output (several 10 mA)

NGK's Key Technology

Semi-Solid State Battery

Small amount of electrolyte is immersed into the crystal oriented ceramic plate

⇒ High heat resistance



Crystal Oriented Ceramic Electrode Plate

Formed only with active material by sintering

⇒ Li-ion move smoothly inside NGK Ceramic Electrode Plate

● Electrolyte






✓ High Energy Density
✓ High Heat Resistance

✓ Low Internal Resistance
✓ Long Life

Surprising Ceramics.

 NGK INSULATORS

EnerCera[®] Pouch

Model Number	EC382504P-P	EC382204P-C	EC382704P-C	EC382704P-H	ET271704P-H
Appearance					
Dimensions	38 x 25mm	38 x 22mm	38 x 27mm	38 x 27mm	27 x 17mm
Thickness	0.45mm				
Nominal Capacity (Charging voltage)	20mAh (4.2V)	20mAh (4.3V) 18mAh (4.2V)	27mAh (4.3V) 24mAh (4.2V)	20mAh (4.2V)	5mAh (2.7V)
Nominal Voltage	3.8V				2.3V
Constant Voltage(CV) Charging	N/A (CC-CV charging required)				OK (No current control required)
(Ref.) Peak Discharge Current*1	500mA	200mA	260mA	130mA	100mA
Bendability	Conforming to ISO 14443-1 standard No deterioration after bending and torsion tests				
Operation Temp. (recommended)	Discharge : -20°C ~ 45°C (Charge : 0°C ~ 45°C)			Discharge : -20°C ~ 60°C (Charge : 0°C ~ 60°C)	-40°C ~ 70°C
Heatproof Temp. (in process)	80°C			135°C	
Features	High power	High capacity		High heat resistance	Fast charging*2



*1 Voltage drop is less than 0.5V with continuous discharge for 0.1 sec. (25°C)

*2 Can be charged from 0% to 80% capacity in 14 min.

IEC62133 certified

Contents may be changed without notice.

EnerCera[®] Coin

Model Number	ET2016C-R	ET1210C-H	ET2016C-H	ET920C*1	ET1616C*1
Appearance					
Size	Φ20 x 1.6mm	Φ12.5 x 1.0mm	Φ20 x 1.6mm	Φ9.5 x 2.0mm	Φ16 x 1.6mm
Nominal Capacity (2.7V charge)	25mAh	4mAh	20mAh	11mAh	21mAh
Nominal Voltage	2.3V			2.3V	
Constant Voltage(CV) Charging	OK (No current control required)			OK (No current control required)	
(Ref.) Peak Discharge Current*2	60mA	23mA	50mA	15mA	40mA
Operation Temp. (recommended)	-40°C ~ 60°C	-20°C ~ 105°C		-20°C ~ 60°C	
Heatproof Temp. (in process)	260°C (reflow soldering applicable)			-	

*1 ET920C and ET1616C are designed for solar watches.

*2 Voltage drop is less than 0.5V with continuous discharge for 0.1 sec. (25°C)

ET2016C-R, ET1210C-H and ET2016C-H are IEC62133 certified.

(ET920C, ET1616C will be certified subsequently.)

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