

# Powering Smart Devices

## EnerCera®

Rechargeable Li-ion Batteries

NGK offers safe, reliable and efficient battery solutions optimised for smart devices

### EnerCera® Pouch



- Ultra thin and bendable pouch type cell (thickness: 0.45mm)
- Can be embedded in IC card by hot lamination process
- Large current output (several 100mA)

### EnerCera® Coin

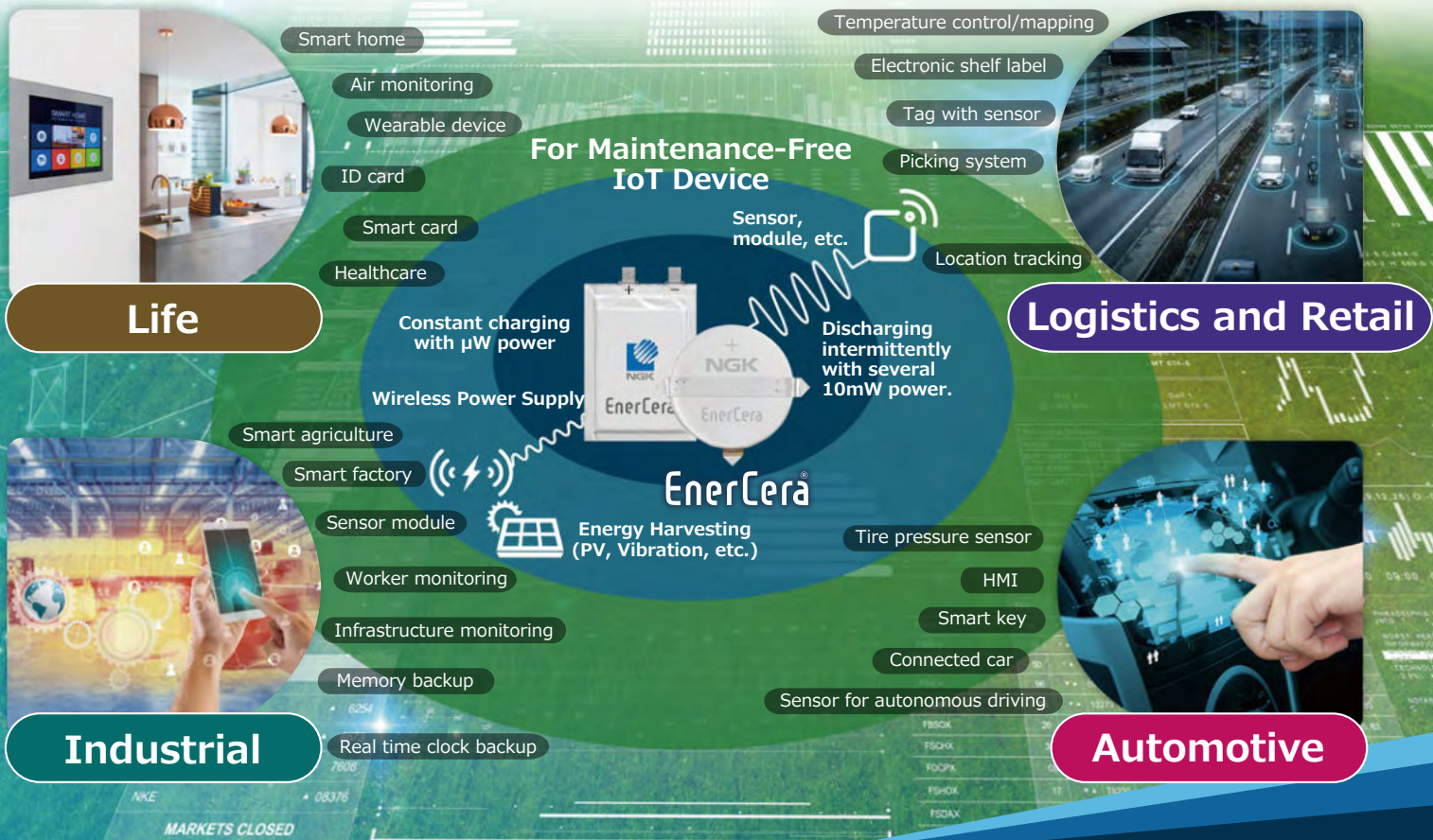


- Heat resistant coin type cell (Operating temperature up to 105°C)
- Can be mounted on board by Reflow Soldering
- Large current output (several 10mA)

## Future world enabled by EnerCera battery






With EnerCera battery, you can achieve maintenance-free IoT device and reduce the needs for battery replacement, saving you time and cost.

Try it today and create new value with EnerCera battery!



# "EnerCera Pouch" with 0.45mm for embedding in ultra-thin devices & "EnerCera Coin" for mounting on a circuit board

## EnerCera® Lineup

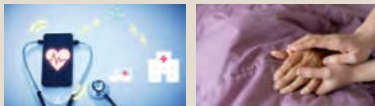
Model Number		EC382704P-T	EC382704P-Hr	ET382704P-H	ET2016C-R	ET1210C-H
Appearance						
Dimensions/Diameter (Without terminals)		38mm×27mm			20mm	12.5mm
Thickness (With terminals)		0.45mm			2.05mm	1.3mm
Nominal Capacity		27mAh(4.3V) 24mAh(4.2V)	20mAh	20mAh	25mAh	4mAh
Nominal Voltage		3.8V			2.3V	
Charge	Charging Method	Constant Current (CC) – Constant Voltage (CV) charging			Constant Voltage (CV) charging (No current control required)	
	Charging Voltage	4.3V 4.2V	4.2V		2.7V	
	Standard Charge Current	13.5mA (4.3V) 12.0mA (4.2V)	10mA		-	
Discharge	End Voltage	3.0V			1.5V	
	Standard Discharge Current <sup>※1</sup>	27mA (4.3V) 24mA (4.2V)	10mA	40mA	2.5mA	0.8mA
	(Ref.) Peak Discharge Current <sup>※2</sup>	560mA	130mA	300mA	60mA	20mA
Bendability		Conforming to ISO 14443-1 standard No deterioration after bending and torsion tests			-	
Operation Temperature		Discharge: -20℃ ~ 45℃ (Charge: 0℃ ~ 45℃)	Discharge: -20℃ ~ 60℃ (Charge: 0℃ ~ 60℃)	-40℃ ~ 70℃		-20℃ <sup>※5</sup> ~ 105℃
Features		High power	High heat resistance <sup>※3</sup>	Fast charging <sup>※4</sup>	Reflow soldering unapplicable <small>Applicable type under development</small>	Reflow soldering applicable <sup>※6</sup>

※1 Current with which nominal capacity can be used. ※2 Voltage drop is less than 0.5V with continuous discharge for 0.1 sec. (at 25℃) ※3 Compatible with hot lamination for IC card manufacturing.  
 ※4 Can be charged from 0% to 80% capacity in 14min. ※5 From -40℃ to 105℃ for RTC backup applications. ※6 Recommended conditions Max.240℃ x 1 time Please contact us for details.

IEC62133 certified. Contents may be changed without notice.

### For aging society

With aging population, the needs for monitoring and preventive medication are increasing.



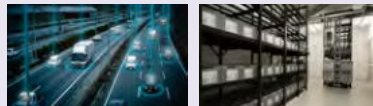
"I would like to use IoT devices that can be installed easily and useful in daily life..."



Limited access to care Battery replacement Large/Heavy

### For logistics society

Labor shortages, small quantity and frequent deliveries and growing needs for high quality logistics.



"I would like to consider high-efficient logistics tags for saving labor..."



Battery replacement Large/Heavy Reading data manually Temperature resistance

### For manufacturing

Growing needs for predictive detection of equipment failures.



"I would like to utilize sophisticated devices..."



Bulky device Hassle of installing power cable Heat resistance

### The solution enabled by EnerCera battery

- Ultra-thin and lightweight for a good fit
- Ideal safe battery for wearable devices
- Telemedicine by wireless monitoring and communication

- Can be attached to curved surface
- Available for cold chains at -40℃
- Achieve maintenance-free IoT devices by wireless power transfer, etc.

- Can install small/thin maintenance-free devices everywhere without wiring
- EnerCera Coin can be used up to 105℃

### Contact



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Corporate site



Special site open!