

PWY0150S

Solid-State Rechargeable Energy Storage

Product

- Solid-State Technology
- POWENCY™ Product Family
- 150μAh Capacity

Key Features

- Compactness < 30mm³
- High Power Density
 - Peak Current
 - Fast Charge
- SMD Assembly
 - QFN Package
 - 165°C Solder & Reflow
- Safety
 - 100% Hazard-Free
 - Short-Circuit Tolerance
- -20°C to 70°C Operating Temperature
- RoHS & REACH

Key Applications

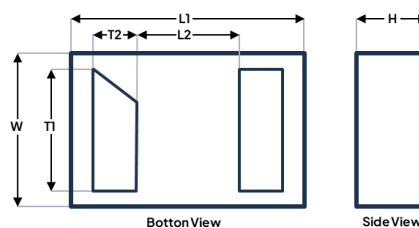
- PAN / LAN Wireless Sensors
- Ambient IoT / Maintenance-Free Sensors
- Remote Controls
- Healthcare Devices
- Active NFC Tags
- Data Loggers
- RTC & MCU Power Backup

The PWY0150S is a versatile, highly-integrated, high-power density, micro-energy storage device delivering peak currents up to 40mA to power up PAN/LAN wireless sensors (Bluetooth, 802.15.4, NFC, ...).

Designed and manufactured on ITEN's solid-state technology, the POWENCY™ product family leverages a unique ultra-thin full-ceramic electrode architecture to deliver unrivalled performances in an optimized SMD form factor.

Specifications

Parameter	Value	Unit
Minimum Capacity	150	μAh
Nominal Voltage	2.3	V
Charge - Discharge Voltage Range	2.7 - 1.5	V
Max Self-Discharge Current (25°C)	0.2	μA
Weight	73	mg



Dimensions (mm)

W	L1	H	T1	T2	L2
3.5	5.1	1.6	2.6	0.8	3.0
70.3	70.3	70.3	70.2	70.2	70.2

The polarity is indicated using a marking located on the top side of the PWY0150S and pointing out to the positive terminal.

Use-Cases

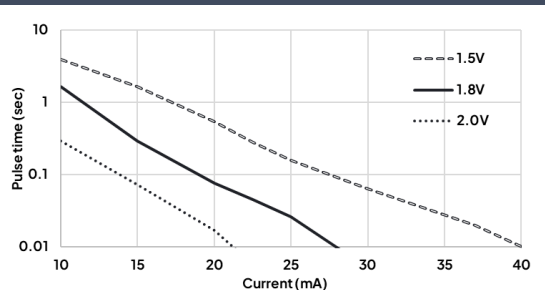
The versatility of the PWY0150S expands the potential uses for micro-energy storage. The PWY0150S is the ultimate solution to assist a primary battery or an Energy Harvesting module by acting as an energy buffer that delivers high peak currents. The PWY0150S also enables Power Backup / Always-On applications, which provide a constant current to the system between two charges.



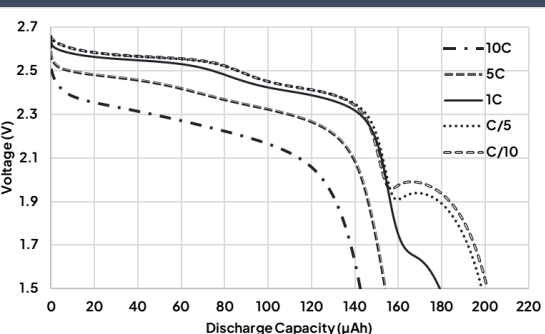
Unlike conventional energy storage elements, off-the-shelf DC/DC converters are sufficient to efficiently charge the PWY0150S e.g., LDO, Buck, Boost or PMIC. Please contact the ITEN Customer Support team for advice.

Key Typical Performances

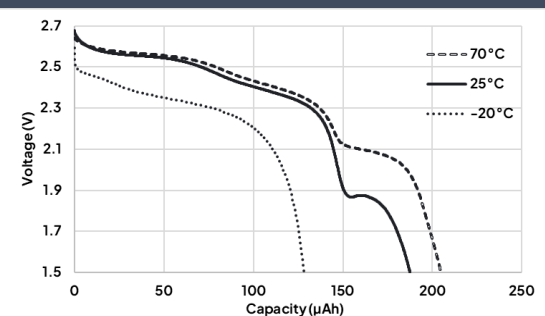
Current Pulse (25°C)



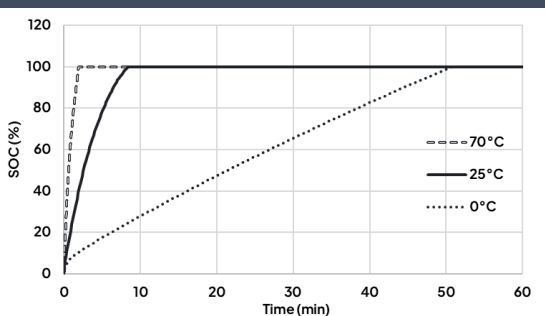
Discharge (25°C)



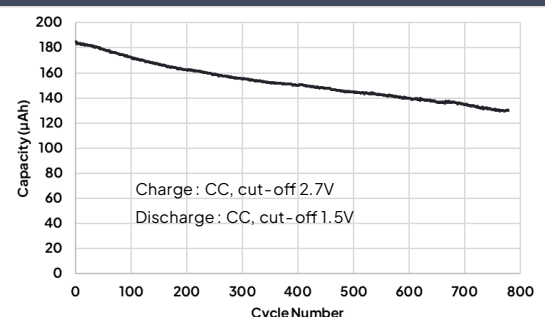
Temperature Discharge (C/5)



Charge (1C)



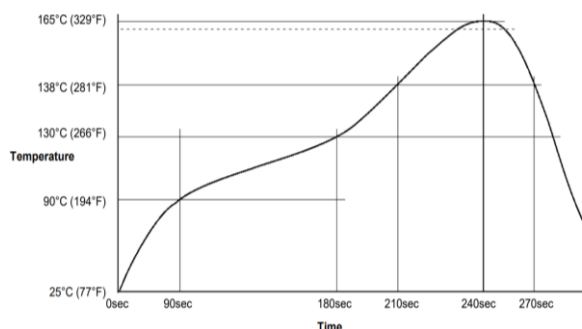
Cycling (1C - 25°C - 100% DoD)



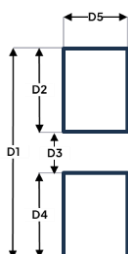
Soldering Conditions

Conditions recommended for air convection and IR reflow soldering:

- Before soldering, be sure to preheat the components to limit the thermal stress
- Use air for natural cooling. Using forced cooled air may lead to thermal shock cracks
- Recommended profile for Sn42Bi57.6Ag0.4 solder paste;
 - Temperature tested by using this solder paste: 165°C
 - Ref: <https://www.chipquik.com/datasheets/SMDLTLFP.pdf>



Footprint (according to IPC standards)



Packaging Type	D1 (mm)	D2 (mm)	D3 (mm)	D4 (mm)	D5 (mm)
QFN	5.75	1.95	1.85	1.95	2.90

Handling & Storage

The PWY0150S should not be disassembled, crushed or exposed to high temperatures (>120°C or >250°F). If the PWY0150S is kept for a long time (3 months or more), it is strongly recommended that the cell is preserved at dry and low-temperature.

It is preferable not to store the PWY0150S in an environment exposed to direct sunlight and/or containing corrosive elements, dust or moisture. Indeed, these conditions may cause the degradation of the packing performance and the oxidation of the electrodes which can deteriorate the solderability of the product.

The PWY0150S is recommended to be used within a time-frame of 1 year after shipment to optimize the solderability process. After that period, check the solderability before use.