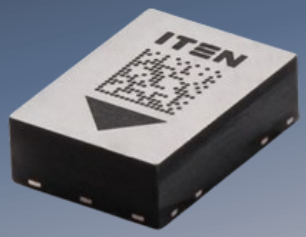
PWY0250S

Solid-State Ceramic (SSC) Power Device



Product

- Solid-State Ceramic (SSC) Technology
- POWENCY™ Product Family
- 85322400 HS Code
- 250µAh Capacity

Key Features

- Compactness < 35mm³
- 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

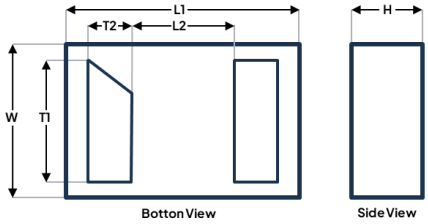
- PAN / LAN Wireless Sensors
- Ambient IoT / Maintenance-Free Sensors
- Remote Controls
- Healthcare Devices
- Active NFC Tags
- Data Loggers
- RTC & MCU Power Backup

PWY0250S 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 ceramic (SSC) 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	**250**	µAh
Nominal Voltage	**2.3**	V
Charge – Discharge Voltage Range	**2.7 – 1.5**	V
Max Self-Discharge Current (25°C)	**0.4**	µA
Weight	**95**	mg



Dimensions (mm)

W	L1	H	T1	T2	L2
3.5	5.1	1.9	2.6	0.8	3.0
±0.1	±0.1	±0.1	±0.2	±0.2	±0.2

The polarity is indicated using a marking located on the top side of PWY0250S and pointing out to the positive terminal.

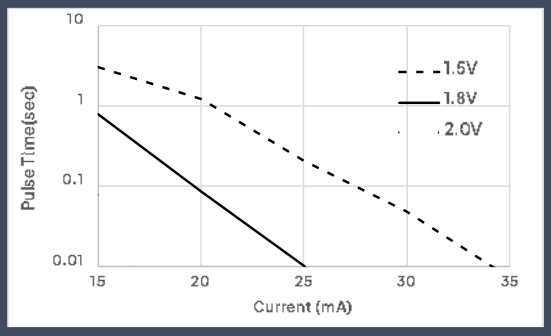
Use-Cases

The versatility of the PWY0250S expands the potential uses for micro-energy storage. PWY0250S is the ultimate solution to assist a primary battery or an Energy Harvesting module by acting as an energy buffer that deliverers high peak currents. PWY0250S also enables Power Backup / Always-On applications, which provide a constant current to the system between two charges.

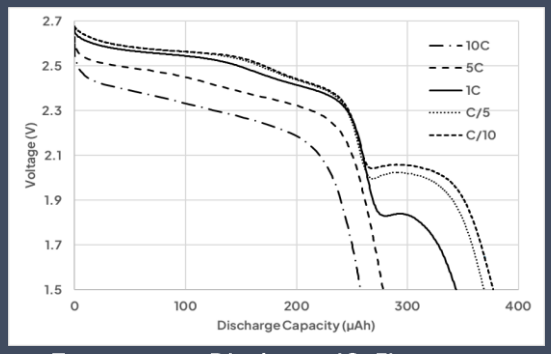
Unlike conventional energy storage elements, off-the-shelf DC/DC converters are sufficient to efficiently charge the PWY0250S e.g., LDO, Buck, Boost or PMIC. Please contact the ITEN Customer Support team for advice.

Key Typical Performances

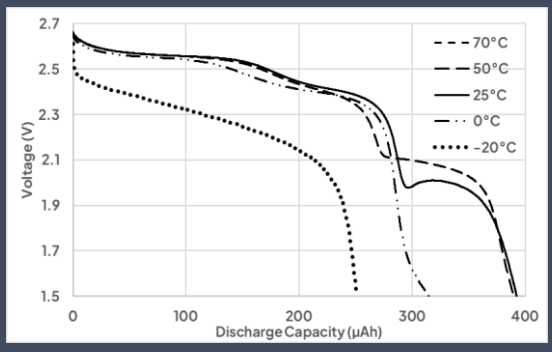
Current Pulse (25°C)



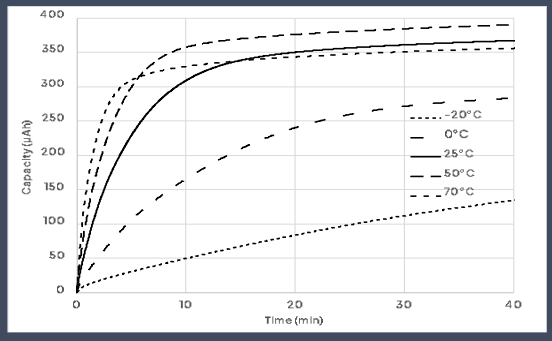
Discharge (25°C)



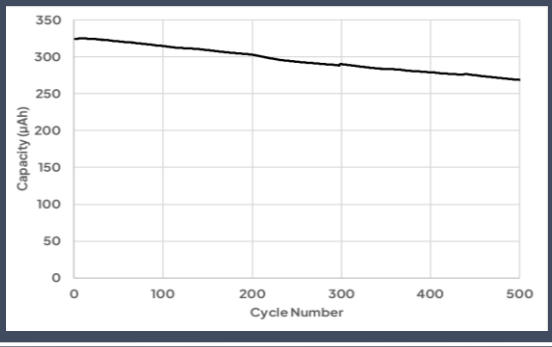
Temperature Discharge (C/5)



Charge (CV)



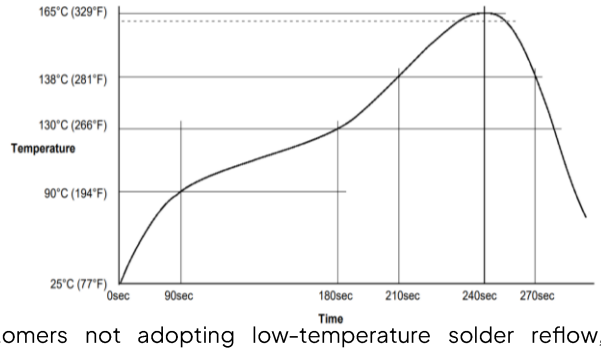
Cycling (1C – 25°C – 100% DoD)



Soldering Conditions

Conditions recommended for air convection and IR reflow soldering:

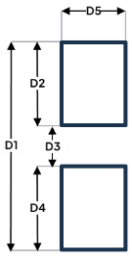
- Before soldering, be sure to preheat the components to limit the thermal stress
- Use air for natural cooling. Using forced cooled air may lead to thermal shock cracks
- Recommended profile for Sn42Bi57.6Ag0.4 solder paste;
  - Temperature tested by using this solder paste: 165◦C
  - Ref: https://www.chipquik.com/datasheets/SMDLTLFP.pdf



- For customers not adopting low-temperature solder reflow, a socket-based implementation is available as an alternative integration path. Please refer to the Socket Product Brief and associated application notes for further details on specifications and usage

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

PWY0250S should not be disassembled, crushed or exposed to high temperatures (>120°C or >250°F). If PWY0250S is kept for a long time (3 months or more), it is strongly recommended that the cell is preserved at dry (10–20%RH) and low-temperature (<40°C or < 100°F).

It is preferable not to store PWY0250S 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.

PWY0250S 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.