Design of an Informative Lithium Rechargeable Cell Data Sheet

Virtual Seminar

February 28, 2023 - 3 hours training

Shmuel De-Leon Energy invites you to join 3 hours battery virtual seminar taking place on February 28, 2023 - 16:00 PM Central Europe Time, 10:00 AM EST USA Time.

Seminar includes 2 parts - Battery Essentials and Design and Reading of an Informative Lithium Rechargeable cell data sheet

Registration to seminar - $299 per person

- Seminar attendants will receive seminar presentation + Cell data sheet templet
- Discount registration rate for group registration - Contact us for more details

Training Syllabus:

Battery Essentials

- Battery History
- The strong need for batteries
- Cells & Battery Packs
- Cells classifications
- Internal cell components
- Anode and cathode structure
- Cell components affecting energy density
- Charge - Discharge operation
- Cells - Button & Coin Cells Shape
- Cells - Hard Case Cylindrical Shape
- Cells - Hard Case Prismatic Shape
- Cells - Prismatic Pouch Shape
- Batteries/Cells Standardization
- Cells - Common Size
- Cells Internal Construction - Bobbin and Spiral Types
- Li-Ion Energy Ver. Power Cell (Flat Plate Construction)
- Cells Internal Construction - Pin Type
- Cells Internal Construction - Flat Plates Type (Stacking)
- Cells Internal Construction – Flat Wound Type
- Cells Internal Construction – Z-Folding
- Cells – Internal Construction Thin Film Type
- Cells - Case Polarity, Seals
- Cell Voltage Definitions
- Internal Resistance/Impedance
- Operating Temperature – What Does it Mean?
- Storage Temperature
- Shelf Life, Cycle Life, Service/Calendar Life

- Factors Affecting Aging and State of Health
- Recommended Battery Storage Conditions
- State of Charge – State of Health
- What is a C-Rate (Apply to Charge and/or Discharge)
- Energy & Power Density

Design and Reading of an Informative Lithium Rechargeable cell data sheet

- Lithium rechargeable cells data sheets
- No One Way to Define Cell Data sheet
- Cell Data Sheet Validation
- Typical Data Sheets
- Cell Voltage Range - [V]
- Maximum Charging Voltage - [V]
- Maximum Open Circuit Voltage - [V]
- Standard Charge Current Rate (Slow Charging) – [A]
- Maximum Constant Current Charge Rate (Fast Charging) – [A]
- Maximum Pulse Current Charge Rate – [A]
- Standard Discharge Current Rate (Slow Discharging) – [A]
- Maximum Continues Discharge Current rate (Fast Discharging) – [A]
- Maximum Pulse Discharge Current rate (Fast Discharging) – [A]
- Safety Certifications and Status
- Cell Capacity – [Ah]
- Nominal Voltage – [V]
- Energy – [Wh]
- Weight Energy Density - [Wh/kg]
- Volumetric Energy Density –[Wh/l]
- Charge Capacity @ Temperature – [%]
- Discharge Capacity @ Temperature – [%]
- Discharge Capacity @ C-Rates – [Ah]
- Standard Cycle Life

- Fast Charge Cycle Life
- Cycle Life @ Discharge C-Rates
- Cycle Life @ Temperature
- AC Resistance (0%SOC, 25oC) – [mOhm]
- DC Resistance (50%SOC, 25oC) – [mOhm]
- Self-Discharge – [%]
- Thickness variation (0 to 100% SOC) – [%]
- Thickness variation as function of cycle life [%]
- Performance limits for BMS/PCM
- OCV vs SOC @Temperature for BMS
- Some Extra Information
- Identification and marking – Murata Example

About Shmuel De-Leon:

Shmuel De-Leon is Founder and CEO of Shmuel De-Leon Energy, Ltd.

Shmuel is a leading international expert in the business of batteries.

Prior to founding the company, Shmuel held for over 20 years various positions as a battery, engineering and

quality control team manager. Shmuel holds BSc. in mechanical engineering from Tel-Aviv University and MBA in quality control and reliability

engineering from the Technion Institute in Haifa as well as an Electronic Technician's.

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