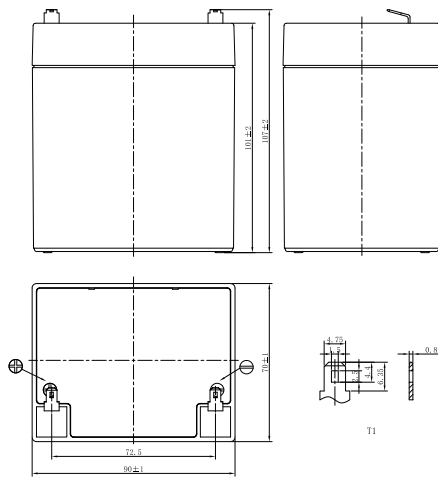


LP SERIES-GENERAL PURPOSE

LP12-4.5 (12V4.5Ah)



CHARACTERISTICS

| Item | Specifications | |
|-------------------------------|--|---------------------|
| Rated Voltage | 12V | |
| Nominal Capacity (25°C) | C ₂₀ : 1.75V/cell | 4.5Ah |
| Dimension | Length | 90mm (3.54inches) |
| | Width | 70mm (2.76inches) |
| | Container Height | 101mm (3.98inches) |
| | Total Height | 107mm (4.21inches) |
| Approx Weight | 1.44kg (3.17lbs) | |
| Terminal | T1/T2 | |
| Container Material | ABS (UL94 HB or V-0 optional) | |
| Short-circuit current | 126A | |
| Internal Resistance (25°C) | Approx 48 mΩ (Fully charged) | |
| Operating Temp. Range | Discharge | -15~50°C (5~122°F) |
| | Charge | -20~40°C (-4~104°F) |
| | Storage | -15~40°C (5~104°F) |
| Nominal Operating Temp. Range | 25±3°C (77±5°F) | |
| Max. Charging Current (25°C) | 0.3C | |
| Charge voltage (25°C) | Standby Use | Cycle Use |
| | 2.25-2.30V/cell | 2.35-2.45V/cell |
| Temp. Coefficient | -3mV/cell/°C | |
| | -5mV/cell/°C | |
| Effect of temp. to Capacity | 40°C (104°F) | 103% |
| | 25°C (77°F) | 100% |
| | 0°C (32°F) | 86% |
| Self Discharge | ≤3% per month at 25°C (77°F). LP series batteries may be stored up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter. | |

DISCHARGE TABLE

| Constant Current Discharge (Amperes) at 25°C (77°F) | | | | | | | | | | | | | | | | |
|--|------|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| F.V/Time | 5min | 10min | 15min | 20min | 30min | 45min | 1h | 1.5h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h |
| 1.85V/cell | 11.3 | 8.26 | 6.55 | 5.35 | 4.07 | 2.99 | 2.44 | 1.84 | 1.53 | 1.09 | 0.876 | 0.744 | 0.637 | 0.500 | 0.409 | 0.220 |
| 1.80V/cell | 12.2 | 8.69 | 6.81 | 5.51 | 4.17 | 3.04 | 2.48 | 1.87 | 1.56 | 1.11 | 0.888 | 0.755 | 0.645 | 0.507 | 0.413 | 0.222 |
| 1.75V/cell | 13.1 | 9.10 | 7.06 | 5.68 | 4.27 | 3.11 | 2.53 | 1.90 | 1.58 | 1.13 | 0.900 | 0.765 | 0.653 | 0.513 | 0.419 | 0.225 |
| 1.70V/cell | 14.1 | 9.50 | 7.31 | 5.84 | 4.37 | 3.16 | 2.57 | 1.94 | 1.61 | 1.14 | 0.910 | 0.775 | 0.662 | 0.519 | 0.424 | 0.227 |
| 1.67V/cell | 14.8 | 9.80 | 7.46 | 5.95 | 4.43 | 3.20 | 2.60 | 1.95 | 1.62 | 1.15 | 0.920 | 0.780 | 0.667 | 0.523 | 0.427 | 0.229 |
| 1.60V/cell | 16.0 | 10.4 | 7.80 | 6.17 | 4.56 | 3.29 | 2.66 | 2.00 | 1.66 | 1.17 | 0.940 | 0.795 | 0.679 | 0.532 | 0.433 | 0.231 |
| Constant Power Discharge (Watts/cell) at 25°C (77°F) | | | | | | | | | | | | | | | | |
| F.V/Time | 5min | 10min | 15min | 20min | 30min | 45min | 1h | 1.5h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h |
| 1.85V/cell | 21.3 | 15.8 | 12.6 | 10.3 | 7.86 | 5.79 | 4.74 | 3.59 | 3.01 | 2.15 | 1.73 | 1.47 | 1.26 | 0.990 | 0.812 | 0.489 |
| 1.80V/cell | 23.0 | 16.5 | 13.1 | 10.5 | 8.02 | 5.89 | 4.82 | 3.65 | 3.04 | 2.18 | 1.75 | 1.49 | 1.28 | 1.01 | 0.821 | 0.494 |
| 1.75V/cell | 24.7 | 17.2 | 13.4 | 10.8 | 8.18 | 5.98 | 4.89 | 3.69 | 3.09 | 2.21 | 1.76 | 1.50 | 1.29 | 1.02 | 0.831 | 0.499 |
| 1.70V/cell | 26.4 | 17.9 | 13.9 | 11.1 | 8.33 | 6.07 | 4.96 | 3.74 | 3.12 | 2.23 | 1.79 | 1.52 | 1.31 | 1.03 | 0.840 | 0.504 |
| 1.67V/cell | 27.4 | 18.4 | 14.0 | 11.3 | 8.42 | 6.13 | 5.00 | 3.77 | 3.15 | 2.25 | 1.80 | 1.53 | 1.31 | 1.04 | 0.845 | 0.507 |
| 1.60V/cell | 29.5 | 19.3 | 14.6 | 11.6 | 8.63 | 6.26 | 5.09 | 3.83 | 3.20 | 2.29 | 1.83 | 1.56 | 1.33 | 1.05 | 0.858 | 0.515 |

LP SERIES-GENERAL PURPOSE

LP12-4.5 (12V4.5Ah)



APPLICATIONS

- Uninterruptable Power Supply (UPS)
- Electric Power System (EPS)
- Emergency backup power supply
- Alarm and security system
- Communication power supply
- DC power supply
- Auto control system

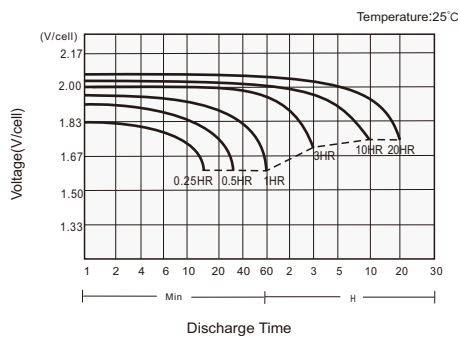
GENERAL FEATURES

- 5 years design life (25°C)
- Lead calcium alloy, sealed design, no watering required
- Puncture resistant micro-porous glass mat separators extend life
- Unique technology optimizes power capacity, cell consistency, and long-term reliability
- Designed for a wide range of applications

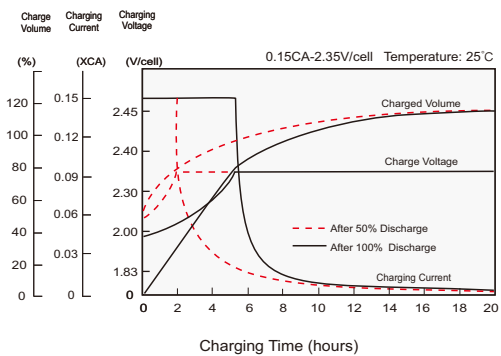
STANDARDS

- Compliance with IEC 60896 standards, EU Battery Directive
- UL, CE Approved
- Manufactured in Leoch@IATF 16949, ISO 45001, ISO 9001 and ISO 14001 certified production facilities

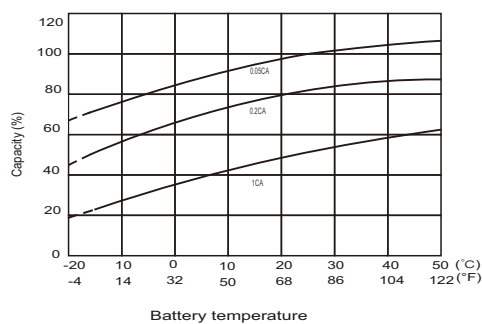
Discharge Characteristics



Charging Characteristics



Effects of Temperature on Capacity



Self Discharge Characteristics

