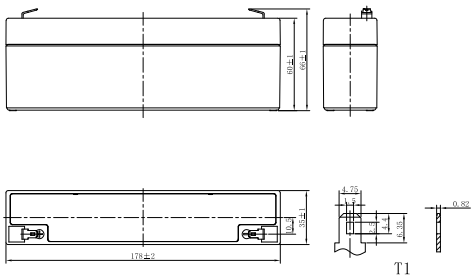
# LP Series-General Purpose
# LP12-1.9(12V1.9Ah)

LEOCH BATTERY

## Specifications

| | | |
|---|---|---|
| Rated Voltage | | 12V |
| Nominal Capacity | 1.9Ah | ($C_{20}$,1.75V/cell) |
| Dimension | Length<br>Width<br>Container Height<br>Total Height | 178±2mm (7.00 inches)<br>35±1mm (1.38 inches)<br>60±1mm (2.36 inches)<br>66±1mm (2.60 inches) |
| Approx Weight | | 0.88 Kg (1.94 lbs) |
| Terminal | | T1 |
| Container Material | | ABS |
| Rated Capacity (25°C) | 1.90 Ah<br>1.80 Ah<br>1.68 Ah<br>1.47 Ah<br>1.22 Ah | (20hr,0.095A,1.75V/cell)<br>(10hr,0.180A,1.75V/cell)<br>(5hr,0.335A,1.75V/cell)<br>(3hr,0.490A,1.75V/cell)<br>(1hr,1.22A,1.60V/cell) |
| Max. Discharge Current | | 29A (5s) |
| Internal Resistance (25°C) | | Approx 85mΩ |
| Operating Temp.Range | Discharge<br>Charge<br>Storage | -15 ~ 50°C (5 ~ 122°F)<br>0 ~ 40°C (32 ~ 104°F )<br>-15 ~ 40°C (5 ~ 104°F) |
| Nominal Operating Temp. Range | | 25±3°C (77±5°F ) |
| Cycle Use | Initial Charging Current less than 0.57A. Voltage 14.4V~15.0V at 25°C(77°F)Temp. Coefficient -30mV/°C | |
| Standby Use | Initial Charging Current less than 0.57A. Voltage 13.5V~13.8V at 25°C(77°F)Temp. Coefficient -20mV/°C | |
| Effect of temp. to Capacity | 40°C (104°F)<br>25°C (77°F)<br>0°C (32°F) | 103%<br>100%<br>86% |
| Self Discharge | LP series batteries may be stored for 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. | |

## Layout




## 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 | 5.30 | 3.31 | 2.71 | 2.18 | 1.62 | 1.21 | 1.10 | 0.813 | 0.648 | 0.474 | 0.383 | 0.326 | 0.279 | 0.220 | 0.176 | 0.093 |
| 1.80V/cell | 5.70 | 3.51 | 2.84 | 2.26 | 1.67 | 1.24 | 1.13 | 0.830 | 0.660 | 0.482 | 0.389 | 0.331 | 0.284 | 0.223 | 0.178 | 0.094 |
| 1.75V/cell | 6.01 | 3.65 | 2.94 | 2.33 | 1.71 | 1.27 | 1.15 | 0.846 | 0.672 | 0.490 | 0.394 | 0.335 | 0.287 | 0.226 | 0.180 | 0.095 |
| 1.70V/cell | 6.29 | 3.80 | 3.04 | 2.39 | 1.75 | 1.30 | 1.17 | 0.860 | 0.682 | 0.497 | 0.400 | 0.340 | 0.290 | 0.228 | 0.182 | 0.096 |
| 1.67V/cell | 6.51 | 3.91 | 3.11 | 2.44 | 1.78 | 1.32 | 1.19 | 0.871 | 0.690 | 0.502 | 0.403 | 0.343 | 0.293 | 0.230 | 0.183 | 0.097 |
| 1.60V/cell | 6.91 | 4.07 | 3.22 | 2.51 | 1.83 | 1.35 | 1.22 | 0.890 | 0.704 | 0.511 | 0.411 | 0.348 | 0.297 | 0.233 | 0.185 | 0.098 |

## 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 | 10.0 | 6.31 | 5.19 | 4.19 | 3.12 | 2.34 | 2.15 | 1.59 | 1.27 | 0.932 | 0.755 | 0.644 | 0.553 | 0.436 | 0.349 | 0.186 |
| 1.80V/cell | 10.7 | 6.64 | 5.41 | 4.33 | 3.21 | 2.40 | 2.19 | 1.62 | 1.29 | 0.946 | 0.765 | 0.653 | 0.561 | 0.442 | 0.353 | 0.188 |
| 1.75V/cell | 11.1 | 6.86 | 5.56 | 4.43 | 3.27 | 2.44 | 2.23 | 1.64 | 1.31 | 0.958 | 0.774 | 0.660 | 0.566 | 0.447 | 0.356 | 0.190 |
| 1.70V/cell | 11.5 | 7.08 | 5.71 | 4.53 | 3.34 | 2.49 | 2.26 | 1.67 | 1.33 | 0.971 | 0.783 | 0.668 | 0.572 | 0.451 | 0.360 | 0.192 |
| 1.67V/cell | 11.8 | 7.24 | 5.83 | 4.62 | 3.39 | 2.52 | 2.29 | 1.68 | 1.34 | 0.979 | 0.790 | 0.673 | 0.577 | 0.454 | 0.362 | 0.193 |
| 1.60V/cell | 12.3 | 7.45 | 5.99 | 4.73 | 3.47 | 2.57 | 2.33 | 1.71 | 1.36 | 0.994 | 0.802 | 0.682 | 0.584 | 0.460 | 0.367 | 0.195 |

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## Applications

- All purpose
- 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

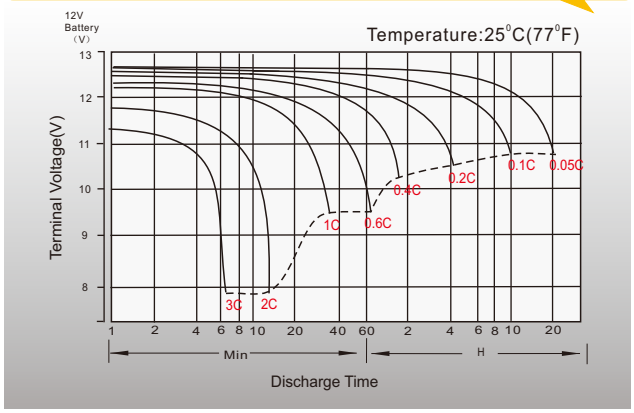
## General Features

- 5 years design life(25℃)
- Special exhaust structure and sealing technology, safe and reliable, flexible installation, convenient maintenance
- PbCaSn alloy for plate grids: less gassing, less self-discharging
- High quality AGM separator: extend cycle life and prevent micro short circuit
- High purity raw material: ensure low self discharge rate

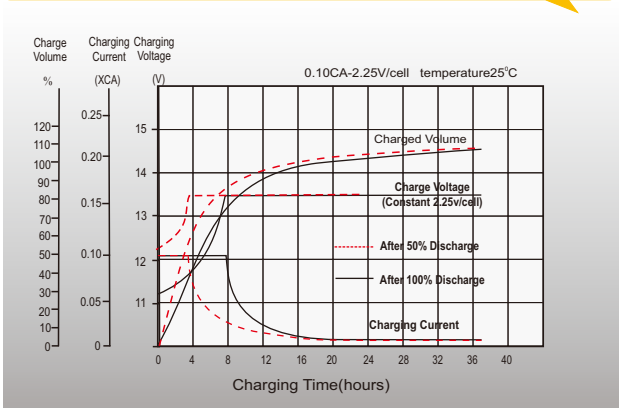
## Standards

- Compliance with IEC 60896 standards, EU Battery Directive
- UL, CE Certified
- Manufactured in Leoch®IATF16949, ISO45001,ISO 9001 and ISO 14001 certified production facilities

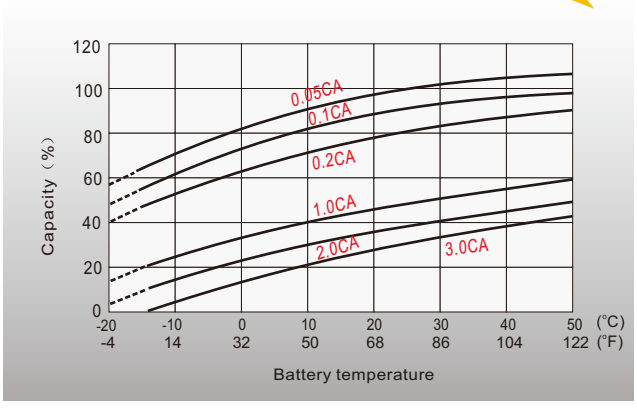
## Discharge Characteristics



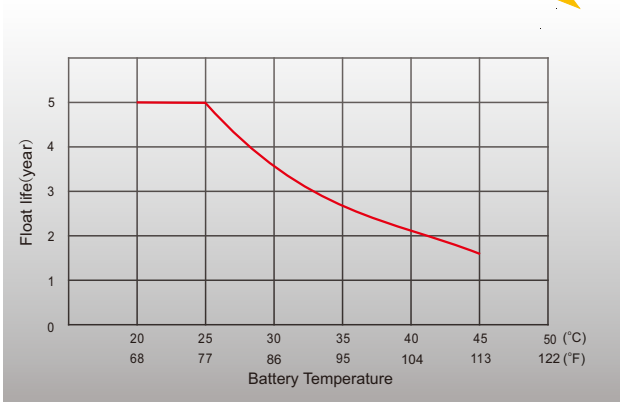

## Float Charging Characteristics




## Temperature Effects in Relation to Battery Capacity




## Float Service Life

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