Voltronic Power
Advancing Power

零 件 规 格 书

日月元科技(深圳)有限公司

文件种类:	☐ 技术文件 ☒ 材料规格	文件类别:	☒ 机密文件 ☐ 非机密文件
零件种类:	☐ 非标准外购料件 ☒ 标准外购料件	最初使用机种:	VESTA
料号:	26-000034-01G-B	物料品名:	BAT 理士/DJW12-7.0 12V 7AH 2.05KG
制造商名称:		标准外购料件(必填)	
制造商料号 (MPN)	DJW12-7		
说明:	☒ 电气规格 ☒机械结构 ☐标示说明 ☐安全规格 ☐其它，请说明:		
GP 要求:	☒ GP 物料 ☐ 非GP 物料		

外观图: 见下页。

ECN NO	变更记录事项 (详述变更内容)
ECN-100810700	理士奥 7AH 电池修模改善尺寸偏小晃动问题 ; CECN-101001900: 更新理士奥电池修模改善尺寸后的重量。
ECN-101103700	更新 26-000034-01G、26-000036-02G 的规格书进小版，实物正确.

备注: 其他规格同 26-000034-01G，只是外壳尺寸修改。

负责人: 黄丽娟 2010-10-14	安规:	RD 主管:

表单流程: RD 材料负责人→安规（安规零件）→材料负责单位主管审核→DCC 存档

***** 材料规格尺寸及其它附件请附在下页。

1. Production Features

Unique prescription of corrosion-resisting grid alloy and active material, advanced production technology, distinctive design, special gas recombination and compact construction, all of these together with strict technical and quality control make Leoch battery possess the following features：

● Long service life：Under the normal condition, the designed service life under float service is up to 16 years for DJ series, up to 12 years for DJM and DJW series.

● Low self-discharge：At the ambient temperature 25℃, the rate of self-discharge less than 1.8% after 28 days storage.

● Sufficient capacity：Guarantee 100% capacity, moreover, the voltage and capacity of battery is accordant. No disproportion phenomenon of voltage in valve regulated battery of whole series caused by negative absorption.

● Wide operating temperature range： Leoch battery can operate from -15~55℃. Due to unique prescription of alloy and lead-paste, Leoch battery has good discharge capability under low temperature, also strong capability to protect from corrosion.

● Good sealing capability：No pollution and corrosion, which ensures Leoch battery operate safely and efficiently in side and vertical position. The sealed construction can combine the generated gas to water, and no need to add water or check their specific gravity during the life of Leoch batteries.

● Good electric conductivity：Adopting red copper with silver plated patent terminal can make batteries discharge with high current.

● Good charge acceptance performance：So the charge acceptance of Leoch battery is more efficient, the charge time for Leoch battery is shorter, the capacity is easier and quicker to be recovered.

● Safe and reliable venting system：Safe venting system can eliminate the danger of explosion under large pressure.

2. Battery Specification

Nominal Voltage		12V
Nominal Capacity		7.0Ah
Capacity 25℃(77°F)	20 hr. Capacity (0.36A)	6.00Ah
	10 hr. Capacity (0.558A)	5.58Ah
	5 hr. Capacity (1.03A)	5.15Ah
	3 hr. Capacity (1.56A)	4.68Ah
	1 hr. Capacity (3.71A)	3.71Ah
Dimension	Length (L)	151.2±0.3mm
	Width (W)	64.9±0.3mm
	Height (H)	94±0.3mm
	Total Height (TH)	99.5±1mm

Approx Weight		2.05 kg ±5%
Standard Terminal		T2/T1
Internal Resistance	Fully charged 25℃(77°F)	≤35mΩ
Operate Temperature Range	Charge	0~40℃
	Discharging	-20~55℃
	Storage	-15~50℃
Life of Cycle Use	100% Depth of discharge	>250 Cycles
	50% Depth of discharge	>500 Cycles
	30% Depth of discharge	>1200 Cycles
Life of Float Use	Float Voltage 2.25V/Cell at 25℃	12Years
Capacity Affected by Temperature (20 hr)	40℃ (104°F)	103%
	25℃	100%
	0℃	86%
	-15℃	65%
Self Discharging 25℃(77°F)	Storage 3 Months	94%
	Storage 6 Months	88%
	Storage 1 Year	76%
Charge 25℃(77°F) — Cycle Use	Initial Charging Current less than1.8A Constant Voltage 14.4~15.0V	
Charge 25℃(77°F) — Float Use	No limit on initial Charging Current Constant Voltage 13.5~13.8V	

3. Constant Current (Amp) and Constant Power (Watt) Discharge

Table

Constant Current (Current: Amp at 25℃)

Discharge Time / F.V. V/Cell	10mn	15mn	20mn	30mn	45mn	1H	2H	3H	4H	5H	6H	8H	10H	20H
1.90	7.34	5.89	5.03	4.03	3.12	2.68	1.65	1.28	1.04	0.87	0.75	0.60	0.492	0.270
1.85	9.45	7.40	6.19	4.81	3.61	3.03	1.81	1.40	1.12	0.94	0.81	0.64	0.525	0.285
1.80	11.6	8.92	7.34	5.58	4.09	3.37	1.98	1.51	1.21	1.01	0.86	0.68	0.558	0.300
1.75	12.8	9.7	7.86	5.84	4.25	3.51	2.05	1.56	1.24	1.03	0.88	0.70	0.565	0.303
1.70	14.0	10.4	8.36	6.11	4.40	3.64	2.12	1.61	1.27	1.06	0.90	0.71	0.573	0.307
1.67	14.7	10.8	8.65	6.28	4.49	3.71	2.17	1.63	1.30	1.07	0.92	0.71	0.578	0.309
1.60	16.4	11.8	9.36	6.66	4.71	3.90	2.27	1.71	1.35	1.12	0.95	0.72	0.589	0.316

Constant Power (Power: Watt/Cell at 25℃)

Discharge Time / F.V. V/Cell	10mn	15mn	20mn	30mn	45mn	1H	2H	3H	4H	5H	6H	8H	10H	20H

1.90	13.9	11.2	9.65	7.79	6.06	5.22	3.22	2.51	2.04	1.71	1.48	1.19	0.98	0.535
1.85	17.6	13.9	11.7	9.19	6.94	5.86	3.52	2.73	2.19	1.84	1.59	1.27	1.04	0.565
1.80	21.1	16.5	13.8	10.6	7.81	6.49	3.82	2.94	2.35	1.97	1.69	1.35	1.10	0.594
1.75	22.9	17.7	14.6	10.9	8.05	6.71	3.94	3.02	2.41	2.01	1.72	1.37	1.12	0.599
1.70	24.6	18.7	15.3	11.3	8.29	6.93	4.07	3.10	2.47	2.06	1.76	1.38	1.13	0.606
1.67	25.6	19.3	15.7	11.6	8.40	7.04	4.14	3.13	2.50	2.08	1.78	1.39	1.14	0.610
1.60	27.8	20.7	16.7	12.1	8.72	7.32	4.30	3.26	2.59	2.15	1.84	1.42	1.16	0.621

4. Battery Performance and test methods

（Temperature:20±5℃ Relative Humidity:65±20% Atmospheric Pressure:86~106kPa；
Perform Standard：GB/T 19639.1-2005）

4.1 Visual Requirements

Not leakage、 not deformation、 not flaws, etc, the sign clarity.

4.2 Construction

Batteries are composed of Positive plate、Negative plate、Separator、Container、Container cover、acid、Terminal、Vent valve etc.

4.3 20h rate Capacity

The battery shall be fully charged, then storage 5 hours, When the discharge is carried out at a discharge current of I_{20}, cycle 5 times, the discharge duration shall be 20 h or more.

4.4 7min rate Capacity

The battery shall be fully charged, then storage 5 hours, When the discharge is carried out at a discharge current of 60 I_{20}, F.V=1.60V/cell, the discharge duration shall be 7 min or more.

4.5 27min rate Capacity

The battery shall be fully charged, then storage 5 hours, When the discharge is carried out at a discharge current of 20 I_{20}, F.V=1.60V/cell, the discharge duration shall be 27 min or more.

4.6 Maximum Permissible Current

The battery shall be fully charged, Battery shall show no distortion or other damage when discharged at 300 I_{20} for 5 s.

4.7 Over-discharge

The battery shall be fully charged, Take the current 40*I_{20}±10% which caused by 2 V/cell as the resistance load, constant discharge 15 days, and remove the resistance voltage 2.5V/cell, and then charge 24h as the current 6*I_{20},then storage 5h after charged, and do 20HR capacity test, 20h rate Capacity test, the discharge duration shall be 15 h or more.

4.8 Over-charge

The battery shall be fully charged at a current of 2 I_{20} for 48 h.

Not distortion, then storage 5 hours, 20h rate Capacity test, the discharge duration shall be 19 h or more.

4.9 Gas Recombinating characteristics

The battery shall be fully charged at a current of 2 I_{20} for 48 h, Abidance of 0.1 I_{20} 29h.

Immediately after lapse of 25 h from current passing, collection of gas shall be started.

The duration of gas collection shall be 5 h.

Calculation of gas recombinating efficiency ≧95%

4.10 Operation of Vent valve

A pneumatic pressure is applied to the vent valve or the vent valve attached to a battery and increased, and the gauge pressure when the valve opens shall be measured. The pressure is decreased from the above gauge pressure and the pressure when the valve closes shall be measured.

Pressure when the valve opens 10 ~ 30kPa; Pressure when the valve closes 2 ~ 10kPa.

4.11 Safety

The battery shall be fully charged at a current of 4 I_{20} for 5 h, stopped charge and then converted 48hours, the appearance shall be checked visually, No leakage, No distortion.

4.12 Prevent explode

The battery shall be fully charged, then constant charge at a current I_{20} after 1 hours, At be apart from to line up the spirit part 4 mms inside, 24V DC break a 1A fuse, experiment again and again 2 times, no blast.

4.13 Charge Retention

The battery shall be fully charged, allow the battery to stand for 120 days at 25±5℃, 20h rate Capacity test, the discharge duration shall be 15 h or more.

4.14 Resistance to Vibration

The battery shall be fully charged, the test shall be carried out under the conditions stated below.

Directions of vibration: the directions shall be vertical direction, longitudinal directions and lateral direction.

Conditions of vibration: the vibration shall be applied continuously for 1 h in each direction by using a sinusoidal wave with a peak to peak amplitude of 4 mm and a frequency of 16.7 Hz. After the application of vibration the appearance of battery shall be checked visually and the battery voltage shall be measured with a voltmeter.

The battery shall be free from such abnormalities as noticeable deformation, damage and electrolyte leakage, and the terminal voltage shall be the nominal voltage or more.

4.15 Drop test

The battery shall be fully charged, the test shall be carried out under the conditions stated below.

Method of fall: the battery shall be allowed to fall freely with its bottom face being

downwards from a height of 20 cm on to a flat hard wooden plate of 10 mm or more in thickness. The number of falls: the number shall be three. After fall, the appearance of battery shall be checked visually and the battery voltage shall be measured with a voltmeter.

The battery shall be free from such abnormalities as noticeable deformation, damage and electrolyte leakage, and the terminal voltage shall be the nominal voltage or more.

4.16 Endurance in cycles

The battery shall be fully charged.

1) The discharge at 5 I_{20} for 2h, the constant current I for 6h;

2) Verification of capacity: after a series of 25、50、75… cycles the battery shall be fully charged, the actual capacity.

Timing for completion of test : if in the course of this cycling the battery voltage U falls below n*1.65V。

The number of cycles shall be not less than 300.

5. Applications

- UPS
- Power station system
- Emergency lighting system
- Alarm systems for fire protection, security
- Portable instruments
- Electric vehicles
- Electric instruments, etc.
- Telecommunication system
- Railway system
- Automatic control system
- Solar, wind powered systems
- Medical equipment
- Marine Equipment

6. Precautions

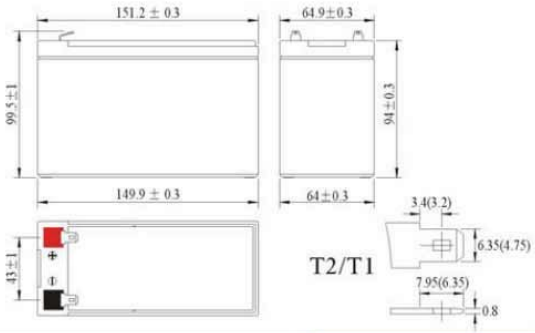
- According to the requirement of application and design to choose battery model, characteristics and mounting method.
- Avoid mixing use of the batteries with different capacity, manufacturers, characteristics and models.
- It is recommended to charge the battery using the method of constant voltage-limited current. Under the ambient temperature 25℃: for standby use, the charging voltage is 2.25~2.30V/cell, and no limit on the maximum current; for cycle use, the charging voltage is 2.40~2.50V/cell,average charging voltage: 2.35~2.40v/cell.The maximum current is 0.3CA.
- During operating, please adjust the battery charging voltage according to the ambient temperature. The temperature compensation coefficient is -3mv/℃cell for standby use, i.e. the temperature increases 1℃, the charging voltage decreases 3mV/cell; on the contrary, the temperature decreases 1℃, the charging voltage increases 3mV/cell.The temperature compensation coefficient is -5mV/℃cell for cycle use; average charging time: -4mV/℃cell.
- Do not charge the battery in a sealed container or in upside down position. It is recommended to charge the battery in a well ventilated place.
- Do not charge the battery near a heater, or the place where heat accumulation may occur. Do not charge the battery in a place where there is direct sunshine.
- Never have the batteries deposited with organic solvents to prevent the container from

being out of shape or corrosion.

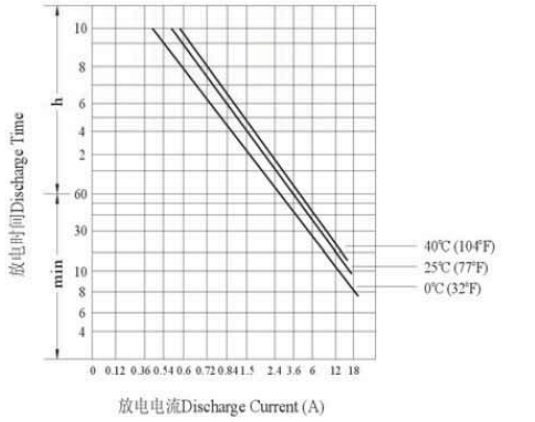
- Battery should never be stored in a discharge state for a long period of time, please recharge the battery after discharge to keep the capacity. During operating, do not over discharge to avoid the plates severe sulphation which affects the service life and capacity.
- Do not over charge the battery, as the safety vent opens constantly, which will cause the loss of water, finally shorten the service life of battery.
- Red color stands for positive, and black for negative. Please connect the pole of batteries correctly.
- Keep the whole battery clean and connection strong. Avoid the damage due to the loose connection.
- Do not disassemble or throw the battery into fire, against the explosion.

DJW12-7.0 (12V7.0AH)

外形尺寸Dimensions (mm)



放电电流与放电时间的关系 Discharging Current & Discharge Duration Time



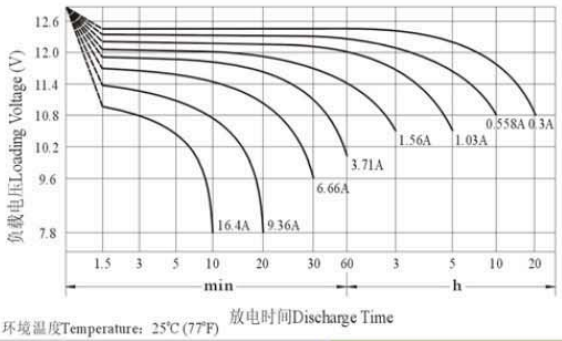
电池规格Battery Specification

额定电压Nominal Voltage		12V
额定容量Nominal Capacity		7.0AH
尺寸Dimension	长度Length	151.2 ± 0.3mm
	宽度Width	64.9 ± 0.3mm
	高度Container Height	94 ± 0.3mm
	总高Total Height	99.5 ± 1mm
参考重量Approx Weight		2.05kg
标准端子Standard Terminal		T2/T1

主要特性Electrical Specification

容量率 Rated Capacity	20 hr (0.30A) 10 hr (0.558A) 5 hr (1.03A) 3 hr (1.56A) 1 hr (3.71A)	6.00AH 5.58AH 5.15AH 4.68AH 3.71AH	恒压限流充电 Constant-Voltage Charge	循环使用 Cycle Use	初始充电电流少于 Initial Charging Current less than: 1.8A 充电电压Charging Voltage: 14.4~15.0V at 25℃(77°F) 温度补偿系数Temperature Coefficient: -30mV/℃
容量受温度的影响 Capacity affected by Temperature	40℃(104°F) 25℃(77°F) 0 ℃(32°F)	103% 100% 86%		浮充使用 Float Use	初始充电电流不限 No limit on initial Charging Current. 浮充电压Charging Voltage: 13.5~13.8V at 25℃(77°F) 温度补偿系数Temperature Coefficient: -20mV/℃

放电特性曲线Discharge Characteristics

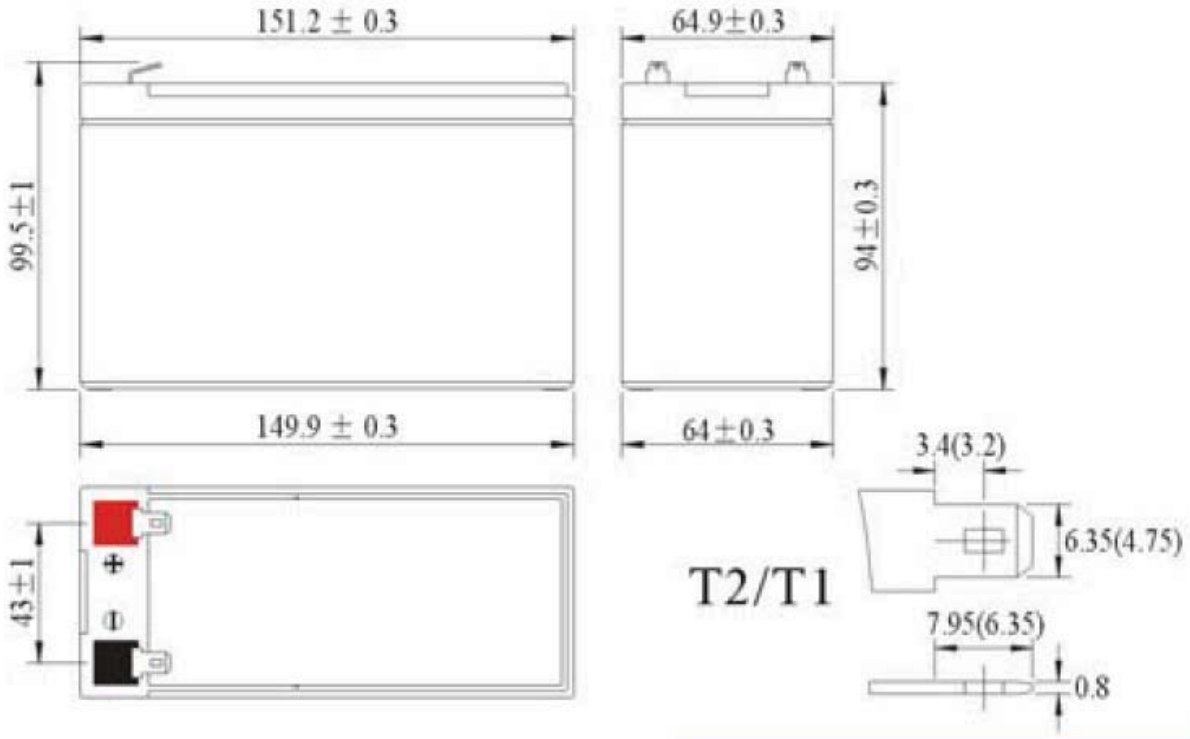


恒流和恒功率放电表Constant Current (Amp) and Constant Power (Watt) Discharge Table

环境温度Temperature：25℃ (77°F)

放电时间Discharge Time(min) / 终止电压Final Voltage / Cell / 恒流Constant Current / 恒功率Constant Power / Cell	10	15	20	30	45	60	120	180	240	300	360	480	600	1200
	1.30	1.30	1.30	1.60	1.60	1.67	1.70	1.75	1.75	1.75	1.75	1.80	1.80	1.80
电流Current (Amp)	16.4	11.8	9.36	6.66	4.71	3.71	2.12	1.56	1.24	1.03	0.88	0.68	0.558	0.300
功率Power (Watt)	27.8	20.7	16.7	12.1	8.72	7.04	4.07	3.02	2.41	2.01	1.72	1.35	1.10	0.594

外形尺寸Dimensions (mm)



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