Energy Kernel Battery Power Co., Ltd

SPECIFICATION

CUSTOMER:_____

DESC:___Ni-MH D8000mAh 1.2V_____

DATE:_____2020-05-21_____

PART NO:_____

APPROVE	CONFIRM	AUTHORIZED
Robert	David	Harry

CONFIRM

DEPT	PURCHASE	Q.C.	R&D
CONFIRM			

Specification

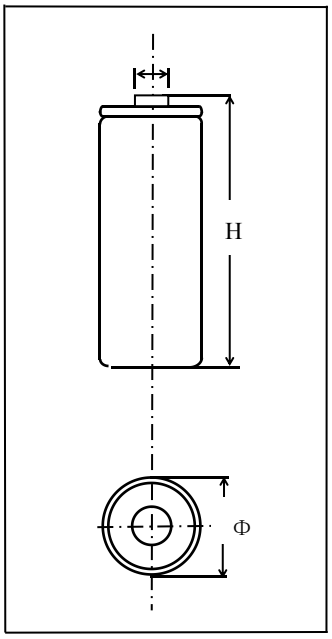
Type : Rechargeable Ni-MH Cylindrical Cell

Nominal Dimension : Φ=33.0(+0/-1.0) mm, H=61.5(+0/-1.5)(with sleeve)

Nominal Capacity : 8000mAh (20ºC,0.2C discharge to 1.0V/cell)

Nominal Voltage : 1.2V

Internal Resistance : ≤ 15mΩ (at 1 kHz, fully charged, 20ºC,average)



Applications : Recommended discharge current 0.05C to 2.0C

Standard Charge : 0.1C for 16hrs at 20℃

Service Life : >300 cycles (20ºC，IEC Standard)

Average Weight : 160g

Typical Capacity : (20ºC)
8000mAh (0.2C to 1.0V)

Max. Discharge Current : 2.0C (continuous)

Fast charge : 0.5C to 1.0C, Charge termination control recommended
(20ºC，-ΔV=5～10mV，Timer =120% nominal input)

Continuous overcharge : 0.1C(less than 100hrs)

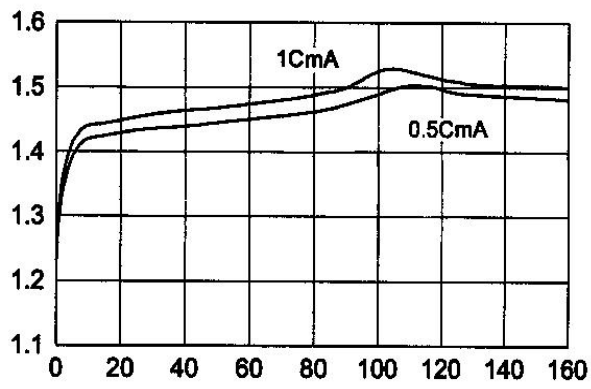
Permanent charge : 0.02C to 0.05C

Operation& storage temperatures :

0ºC to +70ºC （standard charge 0.1C）
0ºC to +70ºC （Trickle Charge 0.05C）
+10ºC to +35ºC （fast charge 0.5C）
-10ºC to +70ºC （discharge 2C）
-10ºC to +50ºC （storage Less than 30 days）
-10ºC to +40ºC （storage Less than 90 days）
-10ºC to +30ºC （storage Less than 360 days）

Fast Charge Curve

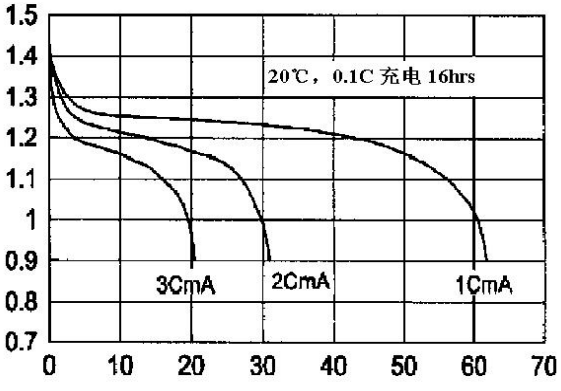
Voltage (V)



Capacity input(%)

High Rate Discharge

Voltage (V)



Discharge time(min)

1. Performance

Except for special notice, the test should be carried out with a month after delivery under the following conditions:

The ambient temperature is: 20±5℃

The ambient humidity is: 65±20%

The testing instrument must meet the following:

Voltmeter : IEC 485 prescribed 0.5 grade or more, resistance must be more than 10KΩ/V

Galvanometer : IEC 51/IEC 485 prescribed 0.5 grade or more, total resistance must be less than 0.01Ω

Ri ohmmeter: AC sine 1KHz, 4 terminal

Test	Unit	Specification	Conditions	Remarks
Capacity	mAh	≥7800	Standard charge and discharge	Allow 3 cycles
High Rate Discharge	min	≥54	Standard charge, rest 0.5hrs 0.2C discharge to 1.0V/pack	Allow 3 cycles
Discharge at Low Temperature	mAh	≥60% Nominal Capacity	Standard charge at 20℃ 0.2C discharge to 1.0V/pack at 0℃	
Charge at High Temperature	mAh	≥80% Nominal Capacity	1.0C charge at 40℃, -ΔV=10mV /pack，Standard discharge at 20℃	
Self-discharge	mAh	≥60% Nominal Capacity	Standard charge, storage 28 day at 20℃, Standard discharge	
Humidity		Deformation	1Cfully charged, 33±3℃， 80±5%R.H.， storage 14 day	
The Resistance to Vibration		The change of voltage: ≤0.02V/pack The change of Ri: ≤15mΩ/pack	Charge: 16hrs at 0.1C Rest: 24hrs Inspect the pack before and after vibration Vibration conditions: Amplitude: 1.5mm Frequency: 3000CPM at random orientation for 60 min	
The Resistance to Shock		The change of voltage: ≤0.02V/pack The change of Ri: ≤15mΩ/pack	Charge: 16hrs at 0.1C Rest: 24hrs Inspect the pack before and after Shock condition: Drop 3 times onto solid wood (10mm thickness) from 1.5m height at random orientation.	

Over Charge		No rupture	1C for 5hrs	
Over Discharge		No rupture	Standard charge Short circuit: 1h Conductor: 0.75mm^2×20mm (Cu line)	
IEC Cycles Life	cycle	≥500	IEC61951-2（2001）4.4.1	See note 1
Accelerated Cycles Life	cycle	≥300	0.5C charged, rest 30min, 0.5C discharge to1.0V/pack capacity ≥60% Nominal Capacity	cutoff condition: -ΔV=10mV/packl ortimer cutoff =110% of input capacity

2. Appearance

Pack should be without any cracking、rupture、dirt、shading、leakage and deformation.

3. Standard of quality assurance (AQL)

All tests should be done according the following methods（ref.MIL-STD-105E）

Number	Item of test	Sampling criteria	Standard of quality assurance
1.	Cosmetic	I grade	1.5
2.	Dimension	I grade	0.65
3.	Performance	I grade	0.4

Including: capacity、 performance of charge and discharge at 1C、 open current voltage、 Internal resistance.

4. Warranty

One year’s guarantee is valid for the defects caused by processing and materials.

5. Caution

5.1 Do not dispose of pack into a fire or dismantled under any condition

5.2 Do not mix different pack types and capacities in the same battery assembly

5.3 Charge and discharge under specified current recommend to the specification

5.4 Short circuit leading to cell venting must be avoided

5.5 Never solder onto cell directly

5.6 Pack reversal should be avoided

5.7 Use batteries in extreme condition may affect the service life, such as: extreme temperature 、deep cycle、extreme overcharge and over discharge

5.8 Batteries should be stored in a cool, dry place， Please discharge before mass storage or transportation

5.9 Once problems be found ， stop using，send batteries to local agent

5.10 Because the limit of the electrochemical system, charged the packl of 80%~100% nominal input under long storage is recommended

5.11 To maintain the performance of the pack stored for about 6 months, cycling(charging and discharging) the pack for several times is recommended