

Material Safety Data Sheet

		Remarks
Company Code	334610	
Company Name	RICOH COMPANY, LTD.	Affiliates
Product Name	RECHARGEABLE L-ION BATTERY DB-110	
Issue Date	1st : 01/01/2019 2ND : 01/01/2020	mm/dd/yyyy
Product Code		Maker Tohoku Murata Manufacturing Co.,Ltd.
MSDS Number	0267	
Trade Names	RECHARGEABLE L-ION BATTERY DB-110	
Synonyms		
EMERGENCY	EMERGENCY CONTACT NO. 3E COMPANY TEL: 1-760-476-3962 Access Code: 334610	
UN No./Class	UN3480/Class 9	

Tohoku Murata Manufacturing Co., Ltd.

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SAFETY DATA SHEET

1. Product and Company Identification

Product Information

Company Name : Ricoh Company, Ltd
Product Category : Lithium Ion Polymer Rechargeable Battery Pack (Single Cell Battery)
Model Name : DB-110 / SP87YRCN2YC
Rated Capacity : 1350 mAh (4.9 Wh)
Average Operating Voltage : 3.60 V

Company Identification

Supplier's Name : Tohoku Murata Manufacturing Co., Ltd.
Supplier's Address : 1-1 Shimosugishita, Takakura, Hiwada-machi, Koriyama-shi, Fukushima,
963-0531 Japan
Information Telephone : +81-24-955-7770
Date Prepared : Jan. 01, 2020
Signature of Paper :



2. Hazard Identification

Class Name : Not applicable for regulated class
Hazard : It may cause heat generation or electrolyte leakage if battery terminals contact with other metals. Electrolyte is flammable. In case of electrolyte leakage, move the battery from fire immediately.
Toxicity : Vapor generated from burning batteries, may make eyes, skin and throat irritate.

3. Composition / Information on Ingredients

IMPORTANT NOTE:

The battery pack uses one SP873440N lithium ion polymer rechargeable cell and control circuit on the PWB. The battery pack should not be opened or burned since the following ingredients contained within the cell that could be harmful under some circumstance if exposed or misused.

The cell contains neither metallic lithium nor lithium alloy.

Cathode : Lithium Nickel Cobalt Oxides (active material)
Polyvinylidene Fluoride (binder)
Graphite (conductive material)
Anode : Graphite (active material)
Polyvinylidene Fluoride (binder)
Electrolyte : Organic Solvent (gel type electrolyte)
Lithium Salt
Others : Heavy metals such as Mercury, Cadmium, Lead, and Chromium are not used in the battery.
UN number : UN3480
Watt-hour rating : 4.9 Wh for battery pack

4. First Aid Measures

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye contact : Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing, and call a doctor. If appropriate procedures are not taken, this may cause an eye irritation.
Skin contact : Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.
Inhalation : Remove to fresh air immediately, and call a doctor.

5. Fire Fighting Measures

- Use specified extinguishers (gas, foam, powder) and extinguishing system under the Fire Defense Law.
- Since corrosive gas may be produced at the time of fire extinguishing, use an air inhalator when danger is predicted.
- Use a large amount of water as a supportive measure in order to get cooling effect if needed.
(Indoor/outdoor fire hydrant)
- Carry away flammable materials immediately in case of fire.
- Move batteries to a safer place immediately in case of fire.

6. Accidental Release Measures

- Wipe off with dry cloth
- Keep away from fire
- Wear safety goggles, safety gloves as needed

7. Precautions for Safe Handling and Use

- Storage : Store within the recommended limit of -10°C to 30°C (14°F to 86°F), well-ventilated area.
Do not expose to high temperature (60°C/140°F). Since short circuit can cause burn hazard or gas release, do not store with metal jewelry, metal covered tables, or metal belt.
- Handling : Do not disassemble, remodel, or solder. Do not short + and - terminals with a metal.
Do not open the battery pack.
- Charging : Charge within the limits of 0°C to 45°C (32°F to 113°F) temperature. Charge with specified charger designed for this battery pack.
- Discharging : Discharge within the limits of -10°C to 50°C (14 °F to 122°F) temperature.
- Disposal : Dispose in accordance with applicable federal, state and local regulations.
- Caution : Risk of fire, burns or bursting.
Do not open, crush, short, heat above high temp (140°F/60°C) or incinerate.
Replace only with the same type. See instruction manual..

8. Exposure Controls/Personal protection (In case electrolyte is leaked from battery)

- Acceptable concentration : Not specified in ACGIH.
- Facilities : Provide appropriate ventilation such as local ventilation system in the storage.
- Protective clothing : Gas mask for organic gases, safety goggle, safety glove.

9. Physical and chemical Properties

- Appearance : The surface of lithium ion polymer rechargeable cell is Aluminum laminated film.
- Average Operating Voltage : 3.60 V

10. Stability and Reactivity

External short-circuit, deformation by crush, high temperature (over 100°C) exposure of a battery cause generation of heat and ignition.

11. Toxicological Information

- Acute toxicity : No information as a battery
- Local effects : No information as a battery

12. Ecological Information

When exhausted battery is buried in the ground, corrosion may be caused on the outer case of battery and electrolyte may be oozed. There is no information on environmental influence.

13. Disposal considerations

When battery is disposed, isolate positive (+) and negative (-) terminals of the battery to avoid those terminals from touching each other. Batteries may be short-circuited when piled up or mixed with the other batteries in disorder. Dispose in accordance with applicable federal, state and local regulations

14. Transport information

- When a number of batteries are transported by ship, vehicle and railroad, avoid high temperature and dew condensation.
- Avoid transportation which may cause damage of package.
- Lithium ion batteries are not subject to dangerous goods regulation for the purpose of transportation by the International Maritime Dangerous Goods regulations(IMDG). For Lithium ion batteries, the Watt-hour rating is no more than 20Wh/cell and 100Wh/battery pack can be treated as “non-dangerous goods” by the United Nations Recommendations on the Transport of Dangerous Goods/Special Provision 188, provided that the products are prevented from being short-circuited with each other and are packaged in an appropriate condition which satisfies Packing Group II performance level.
- IATA (International Air Transport Association): Dangerous Goods Regulation Packing Instruction 965 (Lithium ion or lithium polymer cells and batteries without electronic equipment) With effect 1 April 2016: Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. UN 3480, PI 965, Section IA and IB and II will be restricted to carriage on cargo aircraft. All packages must bear the Cargo Aircraft Only label in addition to the other marks and labels required by the Regulations.

Section II requirements apply to lithium ion cells with a Watt-hour rating not exceeding 20Wh and lithium ion batteries with a Watt-hour rating not exceeding 100Wh packed in quantities that within the allowance permitted in Section II, Table 965-II.

TABLE 965-II

Contents	Lithium ion cells and/or batteries with a Watt-hour rating of 2.7Wh or less	Lithium ion cells with a Watt-hour rating of more than 2.7Wh but not more than 20Wh	Lithium ion batteries with a Watt-hour rating of more than 2.7Wh but not more than 100Wh
Maximum number of cells/batteries per package	No limit	8 cells	2 Batteries
Maximum net quantity per package	2.5 kg	N/A	N/A

Lithium ion cells and batteries meeting the requirements in this section are not subject to other additional requirements of these Regulations except for:

- each cell and battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3;
- cells and batteries must be manufactured under a quality management program;
- for batteries, The Watt-hour rating must be marked on the outside of the battery case;
- Each package must be capable of withstanding a 1.2m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the lithium battery mark and the cargo aircraft only Label.
- A shipper is not permitted to offer for transport more than one package prepared according to Section II in any single consignment.

Section IB requirements apply to lithium ion cells with a Watt-hour rating not exceeding 20Wh and lithium ion batteries with a Watt-hour rating not exceeding 100Wh packed in quantities that exceed the allowance permitted in Section II, Table 965-II.

Quantities of lithium ion cells or batteries that exceed the allowance permitted in Section II, Table 965-II must be assigned to Class 9 and are subject to all of the applicable provisions of Regulation.

Even classified as lithium batteries packed with equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 966 is applied.

Even classified as lithium batteries installed in equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 967 is applied.

15. Regulatory information

- IMDG Code: International Maritime Dangerous Goods (IMDG) Code 2018 Edition
- ICAO TI: International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air 2019-2020 Edition
- IATA DGR: International Air Transport Association (IATA) Dangerous Goods Regulations 61th Edition

16. Other Information

The information contained within is provided for your information only. The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, Tohoku Murata Manufacturing **MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON IT.**

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リチウムイオン電池認証書 (類似機種用)
Lithium-ion cell or battery(polymer) cell or battery
Certification for Similar Models

No:SEW-AVG1434

Date:2014-12-24

1. 単電池/single cell single cell battery
組電池/battery(pack) (セル構成/composition of cell : 1P1S)
2. 機種名/customer model name : DB-110 Sony model name : SP87YRCN2YC
3. 顧客名/customer : RICOH
4. 定格/rated

項目/item	規格値/specification	備考/remarks
公称電圧/nominal voltage	3.6V	
定格容量/rated capacity	1350mAh	
ワット時定格値(Wh) /Watt-hour rating	4.9Wh	単電池/cells ≤20Wh 組電池/batteries≤100Wh

5. 類似機種及び試験結果/Similar Model and Test Result

- 1) 類似機種名/Similar Model (Sony model name) : SP87ZOPN2YC (3.6V 1350mAh 4.9Wh)
2) 試験結果/Test Result

国連勧告テスト結果/Test results of the UN Recommendations on the Transport of Dangerous Goods

国連勧告テスト及び判定基準 (38.3 リチウム電池)		テスト結果/ test results	備考/remarks
NO	テスト項目 test item		
T1	高度シミュレーション/Altitude simulation	OK	
T2	温度試験/Thermal test	OK	
T3	振動/Vibration	OK	
T4	衝撃/Shock	OK	
T5	外部短絡/External short circuit	OK	
T6	衝突 (Impact) /圧壊 (Crush)	OK	
T7	過充電/Overcharge	OK	single cell は対象外
T8	強制放電/Forced discharge	OK	

試験実施日/Tested Date : 2014/07/11~2014/08/05

梱包試験実施日/Tested Date for Package : 2013/07/01~2013/07/04

上記テスト結果は国連勧告試験(UN Manual of Tests and Criteria 5th revised edition Amendment 1, Part III, sub-section 38.3)に従い確認した結果であることを証明いたします。

We, Sony Electronics (Wuxi) Co., Ltd., hereby certify that above results are confirmed in accordance with the Manual of Tests and Criteria of the UN Recommendations on the Transport of Dangerous Goods, 5th revised edition Amendment 1, Part III, sub-section 38.3.

- 3) 類似機種とのワット時定格値(Wh)、電圧比率/Ratios for Watt-hour, Voltage 類似機種に対して、ワット時定格値(Wh)の変化が20%以内、且つ電圧の増加が20%以内であることを証明します。

We certify the change of the subject model to the similar model is in Watt-hour rating of less than 20% and the increase in voltage of less than 20%.

SP87YRCN2YC / SP87ZOPN2YC : ワット時定格値(Wh 比) / Watt-hour Ratio = 100%、
電圧比 / Voltage Ratio = 100%

Weiwei Tang / Senior Manager
Quality Assurance Department
Sony Electronics (Wuxi) Co., Ltd.