

DBV

Double-best

廣立登股份有限公司

Double Best Corporation Limited

承認書

SPECIFICATION FOR APPROVAL

客戶

CUSTOMER

仁寶電腦工業股份有限公司

日期

DATE

2014 年 02 月 19 日

廠牌

BRAND

DBV

規格 ML1220 W:3.0cm Housing : ACES 50280(相容品)

DESCRIPT

背膠:Ø10*0.15mm 材質:PET+PET

廣立登料號

OUR PART NO

BML1220W3.0MFRG24P3B-D

客戶料號

CUSTOMER PART NO.

GC020021M00

臺北市內湖區基湖路 35 巷 49 號 7 樓

7F., No. 49, Lane 35, Jihu Rd., Neihu District, Taipei

City 114, Taiwan

TEL: 886-2-8751-9188

FAX: 886-2-8751-8387

1.Purpose

1.1 In order to avoid errors and deviations by different testing method or condition, we established this specification to define the battery model and test method of lithium battery manufactured by Double Best Corporation Limited

1.2 Give some guidance for using our products.

2. Description and Model

Table 1

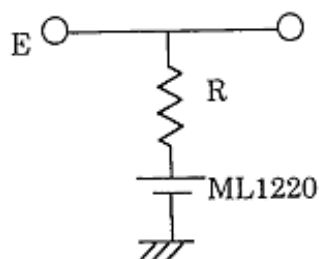
Description	Model
Rechargeable Lithium manganese dioxide button battery	ML1220

3. Technical parameters

Table 2

No.	Items	Contents	Remarks
1	Nominal Capacity	17mAh	Continuously discharged under 100k Ω load till 2.0V end-point voltage
2	Nominal Voltage	3V	
3	Nominal Discharge Current	30 μ A	For memory back up use
4	Charge-discharge cycles	About 30 cycles About 900 cycles	100% DOD (Operating at right conditions) 10% DOD (Operating at right conditions)
5	Charge Constant Voltage Charge Current	2.8~3.2V <1.2mA	Refer to the Fig 1 Never trickle At 2.5V of the battery voltage
6	Operating Temperature	-20~45 $^{\circ}$ C 45~60 $^{\circ}$ C	Nominal Within 100 days
7	Max. Outline Dimensions	Diameter: 12.5 mm, Height: 2.0 mm	
8	Weight for Reference	About 0.8g	

Fig1 Standard charging circuit and charging illustration



Charg Voltage (E)	3.1V
Resistance (R)	510 Ω
Charging time	45h

4. Characteristics and test method

4.1 Normal characteristics

Table 3

No.	Items	Standard		Test Method	
1	Max. Outline Dimension	Diameter: 12.5 mm, Height: 2.0 mm		Measured by slide caliper	
2	Appearance	The surfaces of the batteries are clean. The mark is clear. There should not be deformation, scar or leakage.		Visual inspection	
3	Terminals	The terminals should have good electro-conductibility. There is no rust, no leakage and no deformation.		Visual inspection	
4	Off-load Voltage	2.5V~3.2V		Measured by voltmeter	
5	Discharge Capacity	Initial	Stand: 17 mAh (a) Min: (a)×85% (b)	Continuously discharged under 100kΩ load till 2.0V end-point voltage (Initially the batteries must be charged by standard method as Fig 1 before discharge and storage. After stored, the batteries are discharged without charge) .	
		Storage	60 °C 20 days		Stand: (a)×90% Min: (b)×90%
			60 °C 40 days		Stand: (a)×80% Min: (b)×80%
6	Charge-discharge cycle characteristics	Charge-discharge cycle-1 (100% DOD Cycle)	The batteries should satisfy 25 cycles until dawn 50% of the initial cycle	Discharge condition: under 4.3kΩ load till 2.0V end-point voltage (The capacity at initial cycle: 13 ~ 16mAh); Charge condition: 3.1V of Constant Voltage, 510Ω of Protective resistance, charge for 40h.	
		Charge-discharge cycle-2 (10% DOD Cycle)	The batteries should satisfy 700 cycles until dawn 50% of the initial cycle	Discharge condition: under 4.3kΩ load discharging 2.5h (The capacity at initial cycle: 13 ~ 16mAh); Charge condition: 3.1V of Constant Voltage, 200Ω of Protective resistance, charge for 4h.	

Notes: 1. Initially the batteries must be charged by standard method as Fig 1 before Tests and Storage. After stored, the batteries are discharged without charge. 2. When take Charge-discharge test, the charge circle refers to Fig 1, and the protective resistance changed with the test method.

4.2 Leakage resistance (Refer to item 7.3.2.1 of IEC, Second edition)

The battery should not leak at a temperature of 40±2°C and a relative humidity of 90±5% for 30 days. Leakage is checked visually.

4.3 Drop shock test (Refer to item 21 of UL 2054, Second edition)

Each of three batteries is to be dropped from a height of 1m so it strikes a concrete surface. Each battery is to be dropped three times. The batteries shall not explode or catch fire. The batteries shall be examined 6 hours after testing and shall not vent or leak, and the batteries shall not cracked.

4.4 Vibration Test (Refer to item 17 of UL 2054, Second edition)

The batteries should be subjected to a simple harmonic motion with an amplitude of 0.8mm(1.6mm total maximum excursion). The frequency is to be varied at the rate of 1Hz per minute between 10 and 55Hz. The test should be last 90min~100min and the cell should be tested in two mutually perpendicular direction. The batteries shall not explode or catch fire. The batteries shall be examined 6 hours after testing and shall not vent or leak.

5. Marking

5.1 Battery type: ML1220

5.2 Brand: DBV

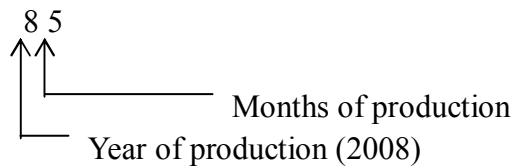
5.2 Nominal voltage: 3.0V

5.3 Polarity: +

5.4 Manufacturing marks: The year and month of production shall be marked on when needed.

5.6 Producing sequence number:

Example :



January to October → 1 ~ 0

November, December → a , b

6. Test Condition

6.1 Test timing: within a month from delivered day

6.2 Test conditions: unless otherwise specified, the tests are to be carried out at $23\pm 3^{\circ}\text{C}$ and 45%~75% of humidity.

6.3 Means of measurement

- (1) Dimension: Slide calipers with the precision of which is not less than 0.02mm
- (2) Voltage: Digital Voltmeter, accuracy $\pm 0.5\%$, input resistance more than 10M Ω
- (3) Load resistance: Accuracy $\pm 0.5\%$

7. Environment requirement

The product does not contain controlled substances of level 1.

8. Caution

8.1 Operating Temperature

Normal operating temperatures range is from -20°C to $+60^{\circ}\text{C}$. Even if temperature goes temporarily beyond this range, the batteries do not deteriorate greatly in performance. However, the extended operation or storage at temperatures exceeding 60°C may reduce battery performance. In case if the battery is to be operated at temperatures even below 60°C , but exceeding 45°C , please consult us.

8.2 Soldering

Do not solder anything directly to the battery.

8.3 Mounting

Avoid dust, foreign matter, and heat dissipating parts.

8.4 Storage

Store the battery in a cool, dry place.

8.5 Short-circuiting

Do not make short-circuit the battery, except when dipped in the solder tank.

Never attempt to insert the battery into any conductive mat or wrap it together with a Printed plate.

8.6 Please do not connect the batteries in series (If you need, be sure to consult us).

8.7 At near the end of life cycle the internal resistance increases largely.

9. Prohibitions

9.1 Never disassemble the battery.

The organic electrolyte inside the battery is harmful to skin.

9.2 Never throw the battery into a fire.

9.3 Never reverse the polarity (+) and (-).

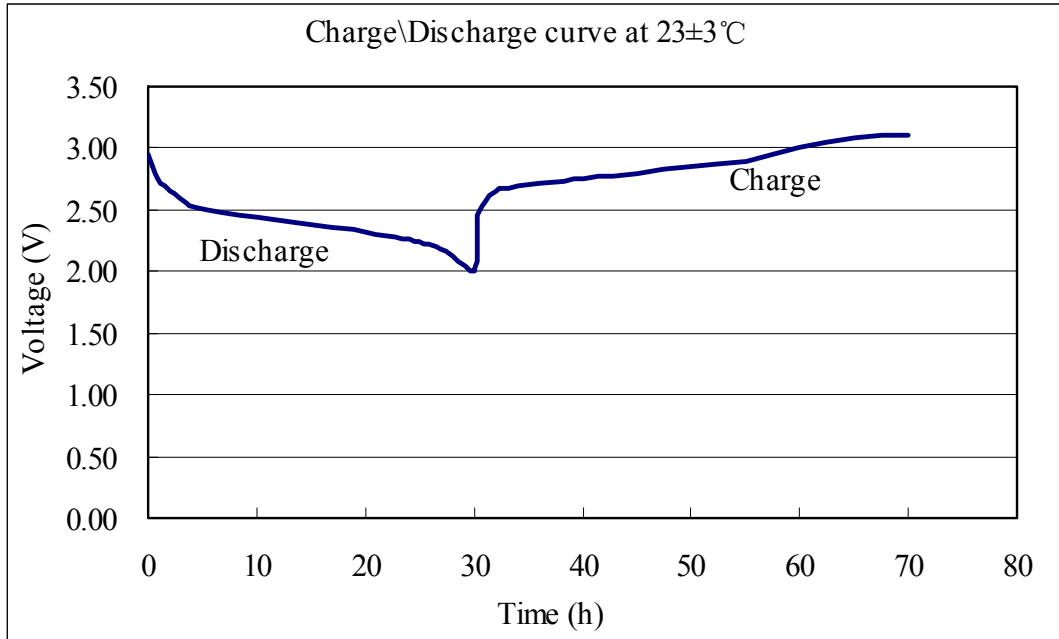
8.4 Never use different types of battery together.

9.5 Never pack batteries together.

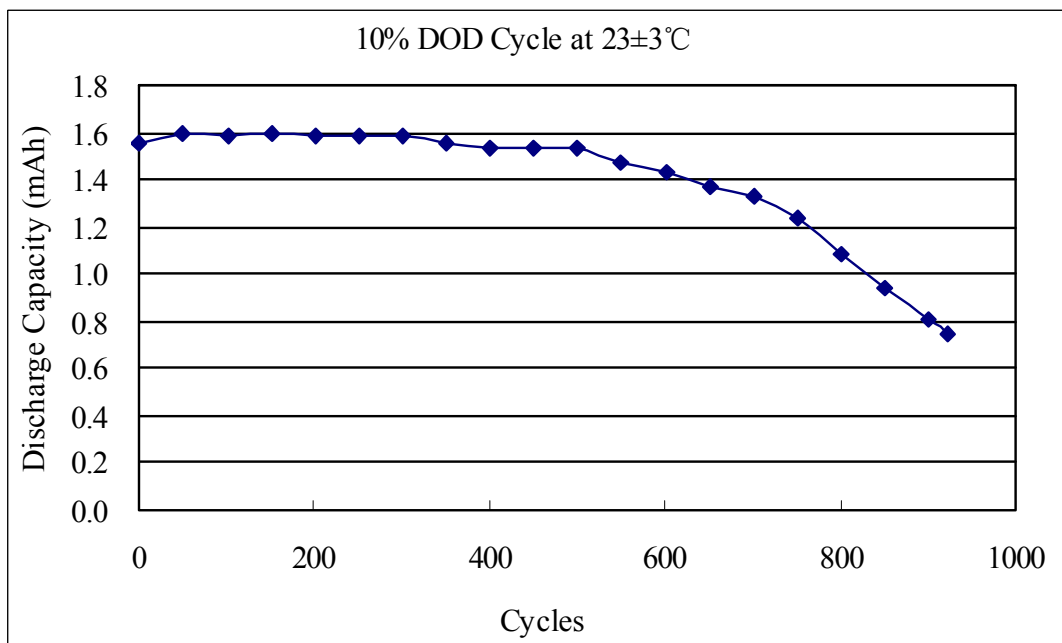
10. Declaration

- Please contact with **Double Best Corporation Limited** If you have any question with this specification.
- **Double Best Corporation Limited** keeps the right to change the specification.

Appendix 1:



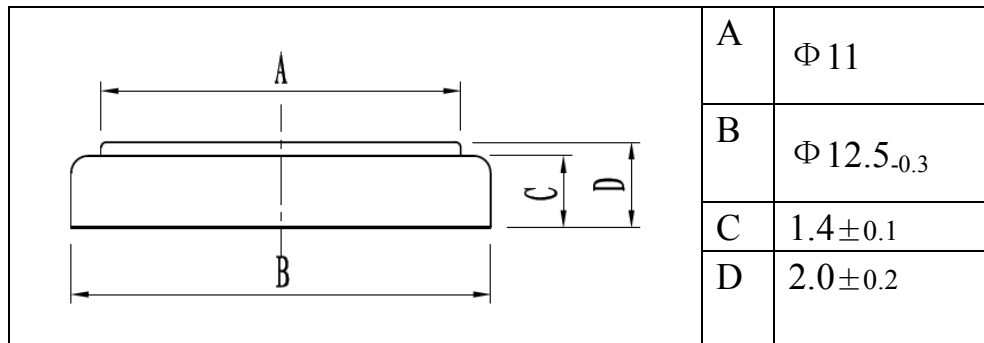
Discharge condition: under 4.3k Ω load till 2.0V end-point voltage; Charge condition: 3.1V of Constant Voltage, 510 Ω of Protective resistance, charge for 40h.



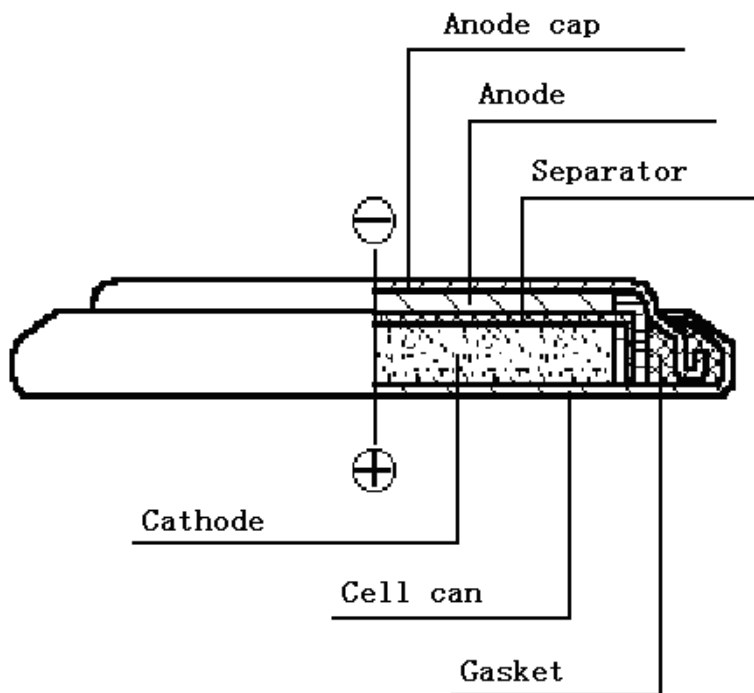
Discharge condition: under 4.3k Ω load discharging 2.5h; Charge condition: 3.1V of Constant Voltage, 200 Ω of Protective resistance, charge for 4h.

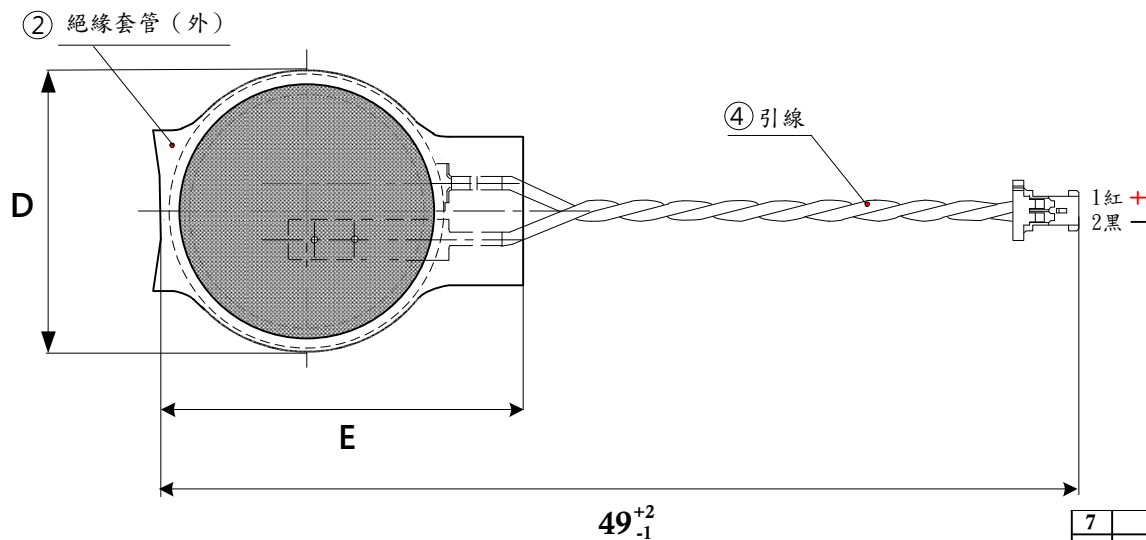
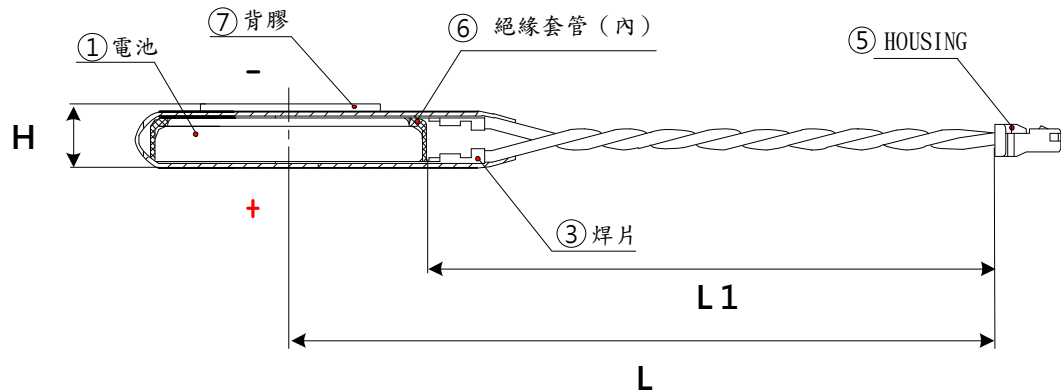
Appendix 2:

ML1220 Dimensions

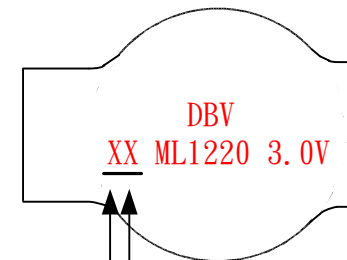


ML1220 Cross section view





正極面標示



Months of production (月)
Year of production(年)

版別	修正內容	日期	確認
01	NEW	2013/11/20	
02	電池本體含線長5.0cm改為4.0cm	2014/01/24	
03	電池本體含線長4.0cm改為4.9cm，E尺寸限制為19.5Max.	2014/02/19	

1. 引線電池需橫套黑色熱縮套管，套外正極面標示型號，生產編碼和“DBV”字樣，負極面貼 $\varnothing 10 \times 0.15\text{mm}$ 雙面膠，居中貼正
2. HOUSING：JCTC 11255H00-2P-HF(無齒)，ACES：50280-002H0H0-001相容品；號位：紅(+)1，黑(-)2

ITEM	DESCRIPTION	MATERIAL	Q.TY	REMARK
7	背膠	3M 9888T	1	$\varnothing 10 \text{ mm} \times 0.15\text{mm}$
6	絕緣套管(內)	PET	1	黑色PET0195060*4.5
5	HOUSING	JCTC 11255H00-2P-HF	1	(相容品)ACES：50280-002H0H0-001
4	引線	3302#28AWG	2	引線規格：紅(+)1，黑(-)2
3	焊片	不銹鋼片	2	T=0.1鉚接
2	絕緣套管(外)	PET	1	黑色PET0150060*20
1	電池	ML1220	1	電池品牌“DBV”

ITEM	(SIZE)MM	MODEL:	BATTERY WITH WIRE	Underwriters Laboratories Inc. BCCV2.MH46388
L	36 ⁺² / ₋₁	ML1220	SCALE	BML1220W3.0MFRG24P3B-D
L1	30 ⁺² / ₋₁			
H	3.0MAX			
D	13.0MAX	UNIT:mm		
E	19.5MAX	VER: 03		

DBV 廣立登股份有限公司
Double Best Corporation Limited

核准 APPROVED BY: *Allan Kao*
繪圖 DRAWN BY: *Johany Wang*
日期 DATE: _____
設計 DESIGN BY: _____
核對 CHECKED BY: _____
比例 SCALE: _____

DESCRIPTION:

ML1220 Battery With Wire

DRAWING NO: _____ SHEET NO: _____ DAET: 2014/02/19
VERSI ON 1 _____ VERSI ON 3 _____
VERSI ON 2 _____ VERSI ON 4 _____

DBV Batteries

材料安全資料表 Material Safety Data Sheet

1 化學品及企業標識(Chemical Product and Company Identification)		
產品名稱 Product Name	可充-鋰/二氧化錳扣式電池 Lithium Manganese Dioxide Rechargeable Coin Battery	
製造商名稱 Manufacturers Name	廣立登股份有限公司 Double Best Corporation Limited	
地址 Address	114 台北市內湖區基湖路 35 巷 49 號 7 樓 7F., No.49, Ln. 35, Jihu Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)	
緊急聯絡電話 Emergency Number	02-8751-9188	
傳真 Fax	02-8751-8387	
2 成分/組成資訊(Composition/Information on Ingredients)		
危險性組分: Hazardous Components:		
名稱 Description	含量 Percent (wt %)	化學文摘號 CAS No.
二氧化錳 Manganese dioxide	13-16	1313-13-9
鋰 Lithium	7-15	7439-93-2
鋁 Aluminum		7429-90-5
高氯酸鋰 Lithium Perchlorate	0.5-1	7791-03-9
碳酸丙烯酯 Propylene carbonate	3-4	108-32-7
乙二醇二甲醚 1,2 Dimethoxyethane	0.8-1	110-71-4
3 危險性概述(Hazards Summarizing)		
鋰 Lithium	與水接觸劇烈反應,易燃燒。只能用蘇打粉,沙子等滅火。 It reacts violently when in contact with water,and it is flammable.Use only soda ash or sand to extinguish flame.	
鋁 Aluminum		
二氧化錳 Manganese dioxide	強氧化劑,具腐蝕性,攝入有毒。可用 CO ₂ 滅火。 A toxic material also an corrosive and an oxidising agent.Use only CO ₂ or halon to extinguish flame.	
碳酸丙烯酯 Propylene carbonate	可腐蝕眼睛和皮膚。 可用 CO ₂ 滅火。 Will irritate the eyes and the skin by absorption,harmful if ingested or inhaled. Use only CO ₂ or halon to extinguish flame.	
乙二醇二甲醚 1,2 Dimethoxyethane	極易燃。吸入和攝入有害。可用 CO ₂ 滅火。 Highly flammable. Harmful if ingested or inhaled. Use only CO ₂ or halon to extinguish flame.	

<p>其他組分不活潑,或者危害較小。 Other materials are either inert or have low hazard associated with their exposure.</p>
<p>4 急救措施(First-aid Measures)</p>
<p>眼睛:用水沖洗,立即就醫。 Eyes:irrigate thoroughly with water.Obtain medical attention.</p>
<p>皮膚:用水徹底沖洗,脫掉受污染的衣物並清洗。除非少量接觸,否則就醫。 Skin:drench the skin thoroughly with water.Remove contaminated clothing and wash before re-use.Unless contact has been slight,obtain medical attention.</p>
<p>吸入:離開污染場所,休息並保暖。嚴重時就醫。 Inhalation:remove from exposure,rest and keep warm.In severe cases,obtain medical attention.</p>
<p>食入:用水徹底沖洗口部後大量飲水。就醫。 Ingestion:wash out mouth thoroughly with water and give plenty of water to drink.Obtain medical attention.</p>
<p>5 消防措施(Fire-fighting Measures)</p>
<p>大量電池燃燒,可能發生爆炸。適合的滅火介質為 CO₂,乾粉滅火器和沙子。不可用水滅火。消防人員應配戴空氣呼吸器,防護頭盔,眼鏡等。 There would be explosion in the case where significant quantities of lithium-manganese dioxide batteries have been involved in a fire. Applicable extinguishing media: CO₂ fire extinguisher , ABC dry powder extinguisher , sand ,etc.Do not use water as extinguishing agent. Firemen should wear the air breathe machine, helmet, glasses ,etc.</p>
<p>6 洩露應急處理(Accidental Release Measures)</p>
<p>不可呼吸洩漏液蒸汽,或用手接觸液體。若皮膚已接觸電解質,立即用大量水沖洗。可用泥土和沙子吸收洩漏液。將漏液電池和沙子按特殊廢棄物處理。 Do not breath vapours or touch liquid with bare hands.If the skin has come into contact with the electrolyte it should be washed thoroughly with water.Earth or sand should be used to absorb the exudation.Seal leaking battery and earth in a heavy-duty Polythene bag and dispose of as special waste.</p>
<p>7 操作處置與儲存(Handling and Storage)</p>
<p>保證電池包裝完整,避免短路。 Pack the batteries well,and avoid short circuit.</p>
<p>不要拆卸電池。 Never disassemble batteries.</p>
<p>不要吸入電池蒸汽或用光手接觸電池內部物質。 Do not breathe cell vapors or touch internal material with bare hands.</p>
<p>將電池儲存在陰涼通風的地方,避免陽光直射。 Store batteries in cool well-ventilated area,keep out of direct sunlight.</p>
<p>8 接觸控制/個體防護(Exposure Controls/Personal Protection)</p>
<p>外部含鎳殼蓋的腐蝕可能生成有毒產物。避免吞咽電池。接觸後洗手。 External corrosion of the nickle can could result in theformation of toxic metal salts.Avoid ingestion,Wash hands after contact.</p>
<p>9 理化特性(Physical and Chemical Properties)</p>
<p>本品為固態,無味。其他指標不適用。 This battery is solid state , and inodorous.The other items are not applicable.</p>

10 穩定性和反應性(Stability and Reactivity)	
有害物質被密封在殼體內,在正常情況下本產品穩定,無害。 Hazardous materials are housed within a sealed unit,under normal conditions this unit is stable and non-hazardous.	
若電池密封被損壞,金屬鋰會與水反應放出可燃性氣體。 Lithium will react with water and produce flammable gas if the seal of battery is damaged.	
11 毒理學資料(Toxicological Information)	
若電池不損壞,無毒。 No toxicity unless the battery is damaged.	
12 生態學資料(Ecological Information)	
不適用。 Not Applicable.	
13 廢棄處置(Disposal)	
不要焚燒電池或將電池加熱超過 80°C。根據當地法規處理電池。 Do not incinerate or subject cells to temperature in excess of 80°C .Dispose of in accordance with local regulations.	
14 運輸資訊(Transport Information)	
根據國際民用航空組織 (ICAO) 和國際航空運輸協會 (IATA) 的規定,廣立登出品的所有的鋰-二氧化錳扣式電池均可作為非危險品運輸。因為他們滿足特殊規定“PI965-PI970”條例的所有要求和 UN 38.3 項下所有測試條款。並且不包含 IATA DGR 特殊規定 A154 下所列的任何專案。我司扣式電池分類為鋰金屬電池 (UN3090),包裝符合國際航空運輸協會頒佈的危險品條例第 53 版包裝指令 968 SECTION II 規定。 All DOUBLE-BEST Lithium manganese dioxide coin batteries can be transported as non-dangerous goods by the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA), because they meet all the requirements of Special Provision “PI965-PI970” regulations and UN Manual of tests subsection 38.3, they do not contain any item listed under IATA DGR Special Provision A154 also. Even classified as Lithium metal batteries (UN3090), IATA Dangerous Goods Regulations 53 rd edition packing instruction 968 Section II is required.	
運輸時,應避免電池短路。 The batteries being transported must be protected from shorting-circuiting and protected from movement that could lead to short-circuiting.	
15 法規資訊(Regulatory Information)	
特殊要求依據當地法規。 Special requirement be according to the local regulations.	
16 其他資訊(Other Information)	
填表時間 Date of Issue	2012.01.16
填表部門 Dept. of Issue	名稱: 廣立登股份有限公司技術部 Name: the R&S dept. of Double Best Corporation Limited
文件號 Document Number	DBV-QR-824-38
備註 Remarks	以上資料只基於對產品目前狀態的瞭解。 The above information is given based on the present state of our knowledge of this product.



BBCV2.MH46388 Lithium Batteries - Component

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Lithium Batteries - Component

[See General Information for Lithium Batteries - Component](#)

DOUBLE BEST CO LTD

MH46388

7TH FL 49 LN 35

JIHU RD NEIHU DISTRICT

TAIPEI, 114 TAIWAN

Model No.	Primary Type ^[a]	Max Abnormal Charging Current mA	Max Abnormal Charging Voltage, V dc	Replacement [b],[c]
CR1025 (j) (k)	Lithium/manganese dioxide	2.5	5.0	User
CR1216 (j) (k)	Lithium/manganese dioxide	2.5	5.0	User
CR1220 (j) (k)	Lithium/manganese dioxide	2.5	5.0	User
CR1225 (j) (k)	Lithium/manganese dioxide	2.5	5.0	User
CR1616 (j) (k)	Lithium/manganese dioxide	2.5	5.0	User
CR1620 (j) (k)	Lithium/manganese dioxide	2.5	5.0	User
CR1632 (j) (k)	Lithium/manganese dioxide	2.5	5.0	User
CR2016 (j) (k)	Lithium/manganese dioxide	10	5.0	User
CR2025 (j) (k)	Lithium/manganese dioxide	10	5.0	User
CR2032 (j) (k)	Lithium/manganese dioxide	10	5.0	User
CR2320 (j) (k)	Lithium/manganese dioxide	10	5.0	User
CR2325 (j) (k)	Lithium/manganese dioxide	10	5.0	User
CR2330 (j) (k)	Lithium/manganese dioxide	10	5.0	User
CR2335 (j) (k)	Lithium/manganese dioxide	10	5.0	User
CR2354 (j) (k), CR2354C (j) (k)	Lithium/manganese dioxide	10	5.0	User
CR2430 (j) (k)	Lithium/manganese dioxide	15	5.0	User
CR2450 (j) (k)	Lithium/manganese dioxide	15	5.0	User
CR2450C (j) (k)	Lithium/manganese dioxide	15	5.0	User
CR2477 (j) (k)	Lithium/manganese dioxide	15	5.0	User
CR3032 (j) (k)	Lithium/manganese dioxide	15	5.0	User

CR927 (j)(k)	Lithium/manganese dioxide	2.5	5.0	User
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Model No.	Secondary Type ^[d]	Max Charging Current (I _c), mA	Max Charging Voltage, V dc ^[e]	Test Compliance ^[f]
ML1220	Lithium ion (Coin)	100	5.0	2

[a] These cells and batteries are not rechargeable. The circuit containing these cells or batteries is to contain a protective component that prevents charging. The circuitry is to include a current-limiting component intended to protect the cell or battery, in the event the protective component malfunctions, from a charging current in excess of the maximum abnormal charging current indicated.

[b] User - These primary cells and batteries are intended for use in applications subject to replacement by a user.

[c] Technician - These primary cells and batteries are intended for use in applications subject to replacement only by a trained service technician.

[d] These cells and batteries are rechargeable. The circuitry containing these cells or batteries is to contain protective components intended to protect the cells or batteries from currents in excess of the maximum charging current and voltage indicated.


[e] The Max Charging Voltage noted in the column is the maximum voltage employed during the abnormal charging test of the secondary lithium ion cell. However, the maximum recommended charging voltage for lithium ion cells is 4.2 V, unless indicated otherwise.

[f] Test Compliance - The cells comply with the tests in UL 1642 as noted:

- 1 - Complies with all single-cell tests
- 2 - Complies with all single-cell tests except the impact test
- 3 - Complies with all single-cell tests except the projectile test
- 4 - Complies with all single-cell tests except the crush test

(j) - These cells may have various insulating tube, ring, or tape

(k) - These cells and batteries may come with an optional single or multiple alphanumeric suffix denoting various pin, tab, cap or wire termination types

Marking: Company name or tradename "DBV" , Recognized Component Mark,  on the cell or smallest shipping package containing the cell.
Last Updated on 2013-09-02

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