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## 產品規格說明書

### Product Specification

客戶名稱 Buyer Name		客戶代碼 Buyer Code	
產品名稱 Product Name	Coin Type Micro Vibration Motor	產品編碼 Product Part No.	C1234BE03L27-3.7V
規格書號 Specification No.	IND20230422S001A	發佈日期 Date of Release	2023-04-22

貴司確認本產品樣品後，在決定採購本產品之前，請您仔細閱讀本產品規格說明書，並在客戶承認欄內簽名及蓋章並回傳此頁給我司相關人員備案。After you approve the product samples, please read this specification carefully and return this page to us with your signature and company chop in below *Customer Approval* table before you decide to purchase this product.

客戶承認欄 <i>Customer Approval</i>				
	工程 <i>Engineering</i>	品質 <i>Quality</i>	生產 <i>Production</i>	採購 <i>Procurement</i>
簽名及蓋章 <i>Signature &amp; Company Chop</i>				
日期 <i>Date</i>				

愛立德工廠承認欄 <i>INEED Factory Approval</i>			
	批准 <i>Approved by</i>	審核 <i>Checked by</i>	編制 <i>Prepared by</i>
簽名及蓋章 <i>Signature &amp; Company Chop</i>	幹方飛 <i>FF GAN</i>	易紅婷 <i>HT YI</i>	周嫻靜 <i>XJ ZHOU</i>
日期 <i>Date</i>	2023-04-22	2023-04-22	2023-04-22

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# 規格說明SPECIFICATIONS

## 1. 適用範圍 General Scope

本產品規格說明書適用於我司生產的扁平型微型振動電機，產品編碼為C1234BE03L27-3.7V。

This product specification applies to our coin-type micro vibration motor, part number C1234BE03L27-3.7V.

## 2. 使用條件 Operating Conditions

序號 No.	專案 Items	規格 Specifications
2-1	額定電壓 Rated Voltage	3.7V DC
2-2	使用電壓範圍 Operating Voltage Ranges	3.0~4.5V DC
2-3	旋轉方向 Rotation	CW(clockwise) or CCW(contrary clockwise)
2-4	使用環境 Operating environment	-20~+70°C, 10~90%RH
2-5	保存環境 Storage environment	-20~+70°C, 10~90%RH

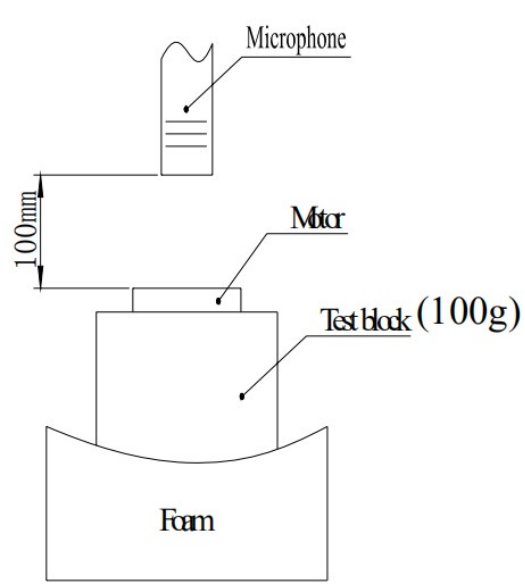
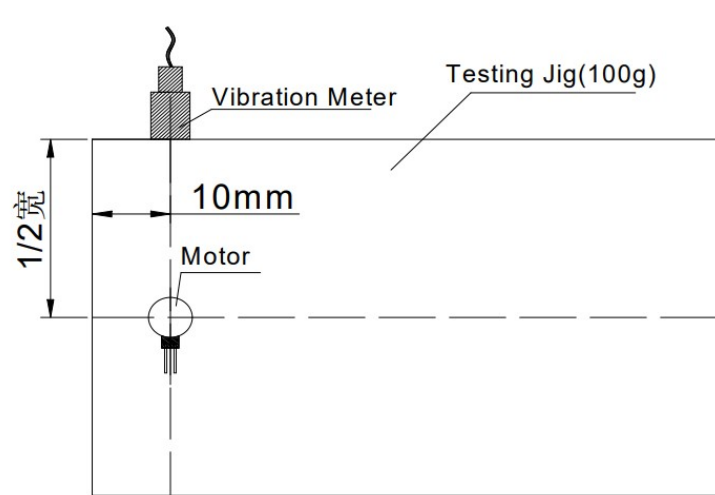
## 3. 初期電氣性能 Initial Electrical Characteristics

序號 No.	專案 Items	規格 Specifications	測定條件 Measuring Conditions
3-1	額定轉速 Rated Speed	8000 RPM Min	額定電壓下和額定負載下。 At rated voltage and rated load.
3-2	額定電流 Rated Current	100mA Max	
3-3	起動電流 Starting Current	200mA Max	在最小啟動電壓下啟動。 The motor is rotating at min starting voltage.
3-4	起動電壓 Starting Voltage	2.3V DC Max	
3-5	絕緣電阻 Insulation Resistance	10MΩ Min	在 100V 直流下，導線和機殼測量。 At DC 100V between lead wire and case.
3-6	端子阻抗 Terminal Resistance	50Ω±20% (相接觸) 80Ω±20% (相串聯)	在 25°C 下。 At 25°C.

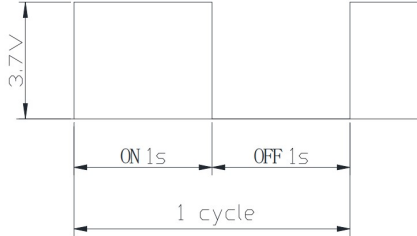
說明：上述數據在常溫常濕下測試。若對測試結果有任何疑義，均以溫度 25±3°C、相對濕度 65±20%環境下的測試數據為準。

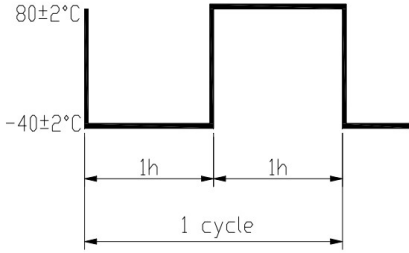
Notes: Above data are measured at room temperature and humidity. For any doubts about the judgment, measurements shall be made at such environment: temperature 25±3°C, related humidity 65±20%.

#### 4. 機械性能 Mechanical Characteristics

序號 No.	專案 Items	規格 Specifications	測定條件 Measuring Conditions
4-1	底蓋偏轉強度 Bracket deflection strength	9.8N 以上 ≥9.8N	
4-2	機械噪音 Mechanical noise	小於 50 分貝. A 計權 ≤50dB (A)	<p>在額定電壓下， 背景噪音：不大於 30dB.A 計權， 電機軸向水平固定在約 100g 測試夾具上。 拾音器沿軸向正對電機平面。 測試距離 10cm</p> <p>At rated voltage and scene noise as 30 dB (A)Max, the shaft is horizontally fastened to the test jig (100g). The Microphone faces the plane of the motor along the shaft. The distance is 10cm.</p> 
4-3	Vibration Test 振動測定	1.5G Min	

## 5. 可靠性 Reliability

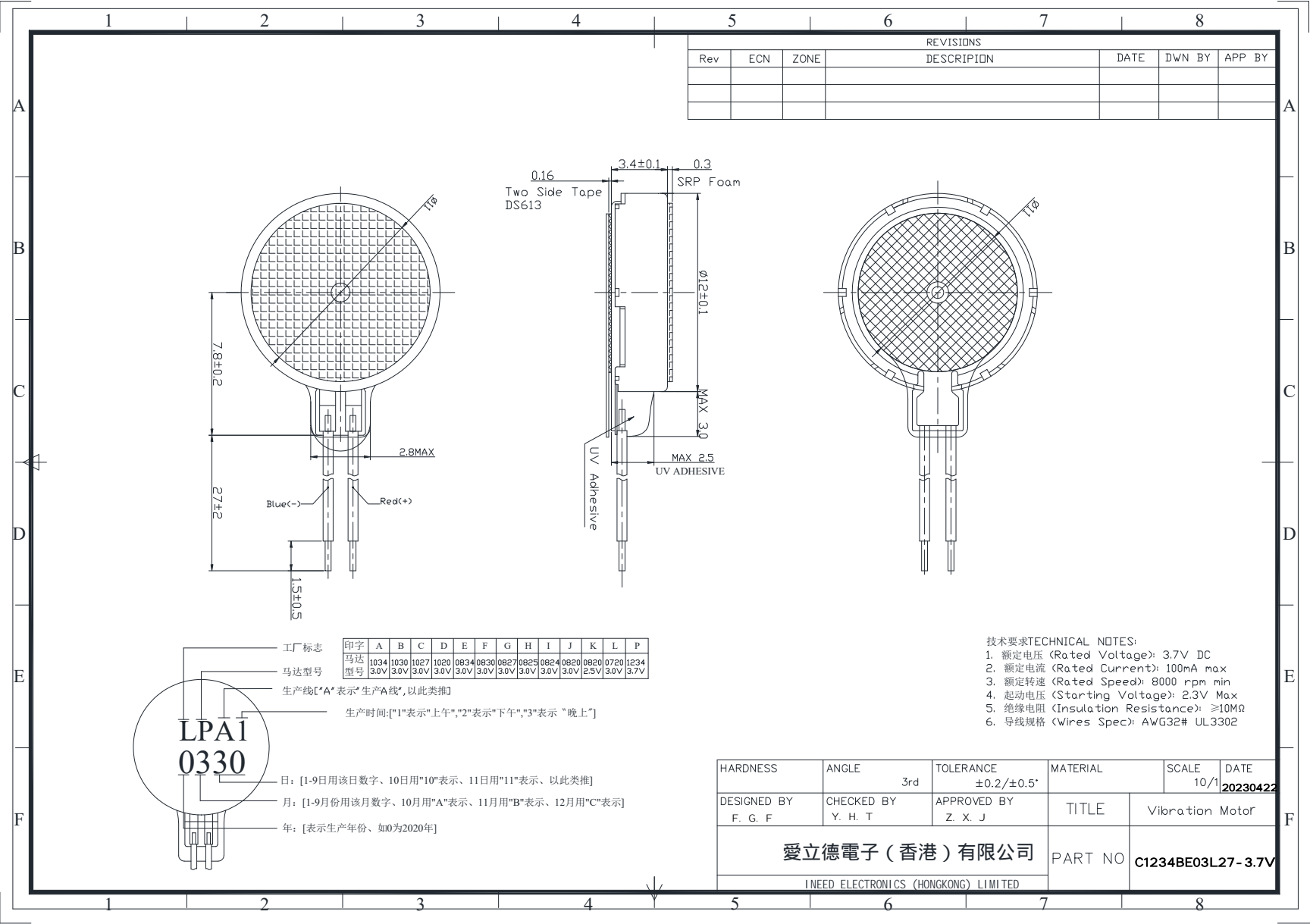
序號 No.	專案 Items	規格 Specifications	判定標準 Judgments
5-1	壽命 Lifetime	試驗迴圈 Test cycle: 360H 	1) 額定轉速：初始值 $\pm 50\%$ 。 2) 額定電流：初始值 $\pm 50\%$ 。 3) 啟動電壓：2.3V DC Max。 4) 正常启动 5) 无异常噪音 1) Rated speed: Initial Data $\pm 50\%$ . 2) Rated current: Initial Data $\pm 50\%$ . 3) Starting voltage: 2.3V DC Max. 4) Should not fail in starting. 5) Should not be unusual mechanical noise.
5-2	低溫放置 Low Temperature Exposure	溫度/ Temperature: $-30\pm 2^{\circ}\text{C}$ 時間/ Time: 96h	在常溫常濕下放置 4h 後，電機性能應符合以下要求。 1) 額定轉速：指標在初始值 $\pm 30\%$ 以內。 2) 額定電流：指標在初始值 $\pm 30\%$ 以內。 3) 啟動電壓：2.3V DC Max。 After 4h exposure in the ordinary temperature and humidity, change rates of the motor's performance should accord with below requirements: 1) Rated speed: within $\pm 30\%$ of initial value. 2) Rated current: within $\pm 30\%$ of initial value. 3) Starting voltage: 2.3V DC Max.
5-3	高溫放置 High Temperature Exposure	溫度/ Temperature: $+80\pm 2^{\circ}\text{C}$ 時間/ Time: 96h	
5-4	濕度放置 Humidity Exposure	溫度/ Temperature : $+65\pm 2^{\circ}\text{C}$ 濕度/ Humidity: 90 ~ 95%RH 放置時間/ Exposure time: 96h 無水氣凝結/ No condensation of moisture	
5-5	自然跌落 Free Fall	試驗狀態：將馬達固定在約 150 克（包括馬達本身）的物體上，落向水泥地面。 Test state: Set the motor to a block of approx. 150g weight (including the motor) and drop it onto the concrete floor. Height: 1.5m Direction : $\pm x$ , $\pm y$ , $\pm z$ Number of times: 3 times in each direction.	

5-6	振動 Vibration	<p>全振幅/ Displacement(P-P): 1.5m</p> <p>頻率/ Frequency: 10~55~10Hz/min</p> <p>條件/Condition: This motion shall be applied for a period of 30 minutes in direction of X, Y, Z.</p>	<p>在常溫常濕下放置 4h 後，電機性能應符合以下要求。</p> <p>1) 額定轉速：指標在初始值±30%以內。</p> <p>2) 額定電流：指標在初始值±30%以內。</p> <p>3) 啟動電壓：2.3V DC Max。</p> <p>After 4h exposure in the ordinary temperature and humidity, change rates of the motor's performance should accord with below requirements:</p> <p>1) Rated speed: within ±30% of initial value.</p> <p>2) Rated current: within ±30% of initial value.</p> <p>3) Starting voltage: 2.3V DC Max.</p>
5-7	熱衝擊 Heat Shock Test	<p>試驗迴圈 Test Cycle: 10 cycles</p> 	<p>1) Rated speed: within ±30% of initial value.</p> <p>2) Rated current: within ±30% of initial value.</p> <p>3) Starting voltage: 2.3V DC Max.</p>

## 6. 使用時注意事項 Precautions in Use

序號 No.	使用時注意事項 Precautions in Use
6-1	<p>必須按照此產品規格說明書使用，否則性能和壽命都將受到相當地減少。尤其注意電壓的使用範圍。</p> <p>Please operate the motors in accordance with this specification, especially be careful with the operating voltage ranges, otherwise the performance and lifetime of the motors would be considerably reduced.</p>
6-2	<p>建議馬達收貨後六個月內必須使用。不可以在以下環境中使用及保存馬達：</p> <ul style="list-style-type: none"> <li>✧ 高溫高濕區域；</li> <li>✧ 腐蝕性氣體環境，如：H<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub>、Cl<sub>2</sub>，等等；</li> <li>✧ 易導致金屬物生銹場所。</li> </ul> <p>It is suggested to use the motors within 6 months after delivery. It is not allowed to use or store the motors at such environments:</p> <ul style="list-style-type: none"> <li>✧ High damp and high temperature areas.</li> <li>✧ Places full of corrosive gas, such as H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, Cl<sub>2</sub>, etc.</li> <li>✧ Areas that easily cause metals rusty.</li> </ul>
6-3	<p>注意清潔工作環境，避免含鐵質雜物被馬達吸進，否則馬達將會產生雜訊，性能會受影響，從而降低產品可靠性。</p> <p>Please pay much attention to clean the working environment, to avoid iron sundries from being sucked into the motors; otherwise, the motors would make noise, the performance would be affected, and reliability would be reduced.</p>
6-4	<p>拿馬達時，要輕拿輕放。不允許隨意丟置。</p> <p>Please place the motors gently and carefully in use. It is not allowed to throw it at random.</p>
6-5	<p>機殼鋼板面或邊緣有少許鏽斑是允許的。</p> <p>It is allowed to have a little rust on the brim of steel plate of the housing.</p>
6-6	<p>因為測試設備可能有誤差，所以±5%的轉動頻率偏差是允許的。</p> <p>It is allowed to have a tolerance of ±5% rotation frequency due to discrepancies between different testing equipments.</p>
6-7	<p>用戶自身應確信使用本產品不會與相關標準、法律、政令相背。</p> <p>Users shall assure themselves that they do not violate related standards, laws or any political policies when they use this product.</p>

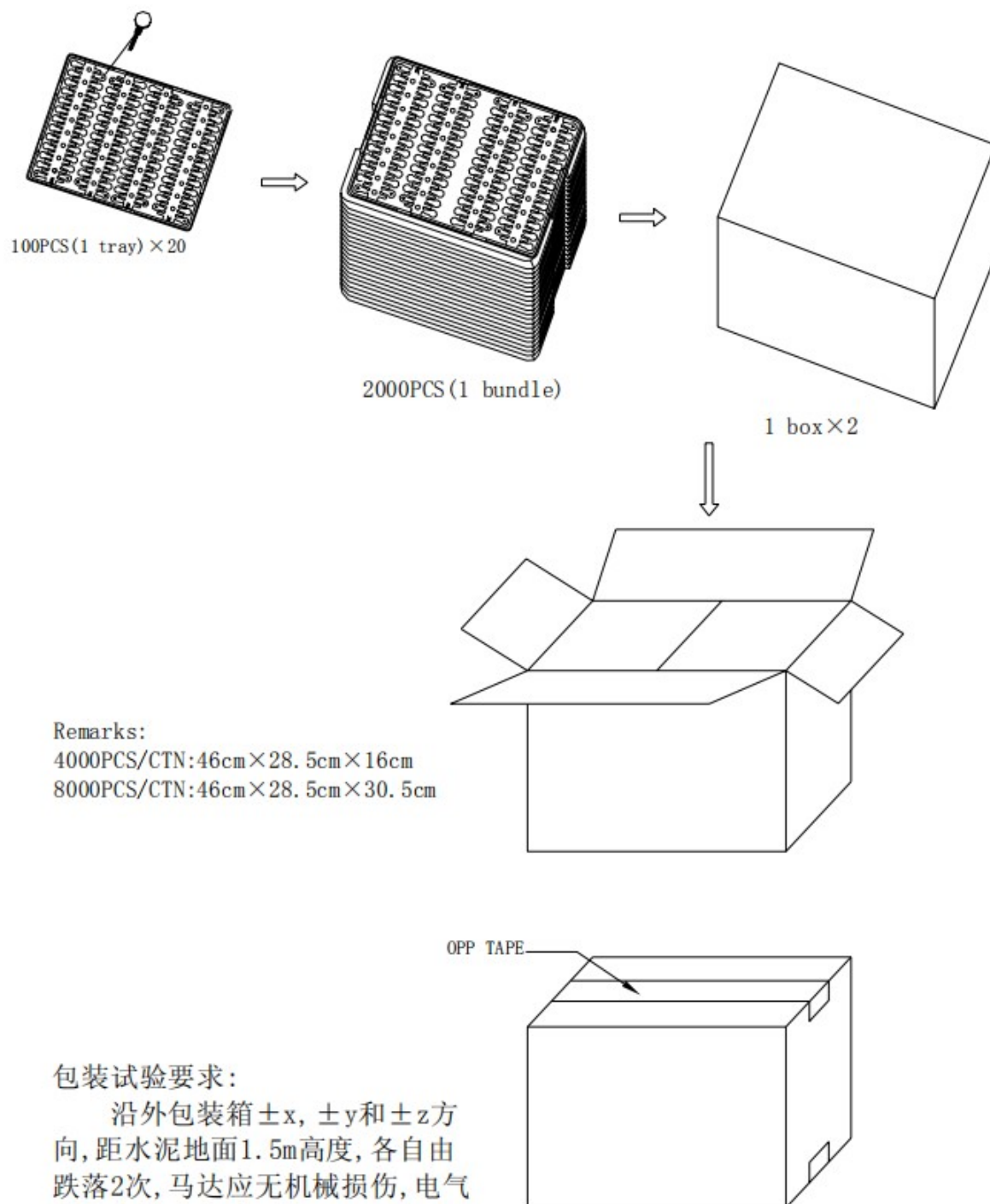
7. 外形圖 Outline Drawing





## 8. 包裝說明 Packaging

### 扁平系列马达包装 Pack drawing of coin type



#### 包装试验要求:

沿外包装箱±x, ±y和±z方向, 距水泥地面1.5m高度, 各自由跌落2次, 马达应无机械损伤, 电气性能仍符合标准要求。

## 9. 變更記錄表Record of Changes

序號 No.	日期 Date	變更前 Before Change	版本 Version	變更後 After Change	版本 Version	備註 Remark
1	2023-04-22	/	A	/	A	初版發行 Initial Release
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