

大功率鋁殼預充電阻器

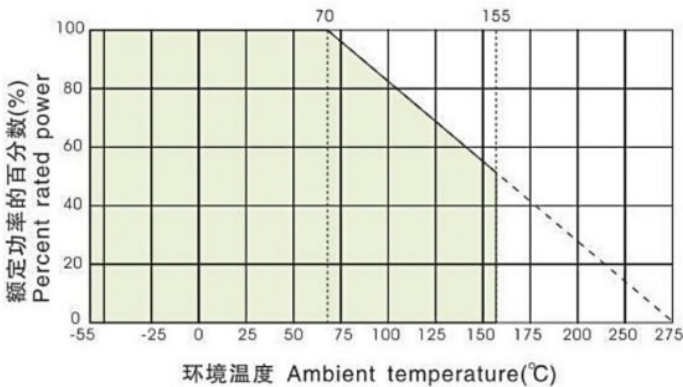
特點 Features

汽車級專用預充電阻，可滿足各個電壓等級的預充條件，具有熱容量大、體積小、安裝可靠性高等優點，常用於大巴、乘用車預充。底板中心溫度 70℃ 額定功率 100W、具有極強的脈衝負載能力，可承受較長時間短時超載短路、具有良好的預充特性

应用范围 Applications

Technical features: Automotive-grade dedicated pre-charge resistor, capable of meeting the pre-charge conditions for various voltage levels. It has the advantages of large heat capacity, small size, and high installation reliability, and is commonly used for pre-charge in buses and passenger cars. The center temperature of the base plate is 70℃. The rated power is 100W. It has extremely strong pulse load capacity and can withstand short-term overload and short-circuit for a long time. It has excellent pre-charge characteristics.

溫度上升曲線 Hot-spot Temperature 負載遞減曲線 Power Derating Curve



規格 Specifications

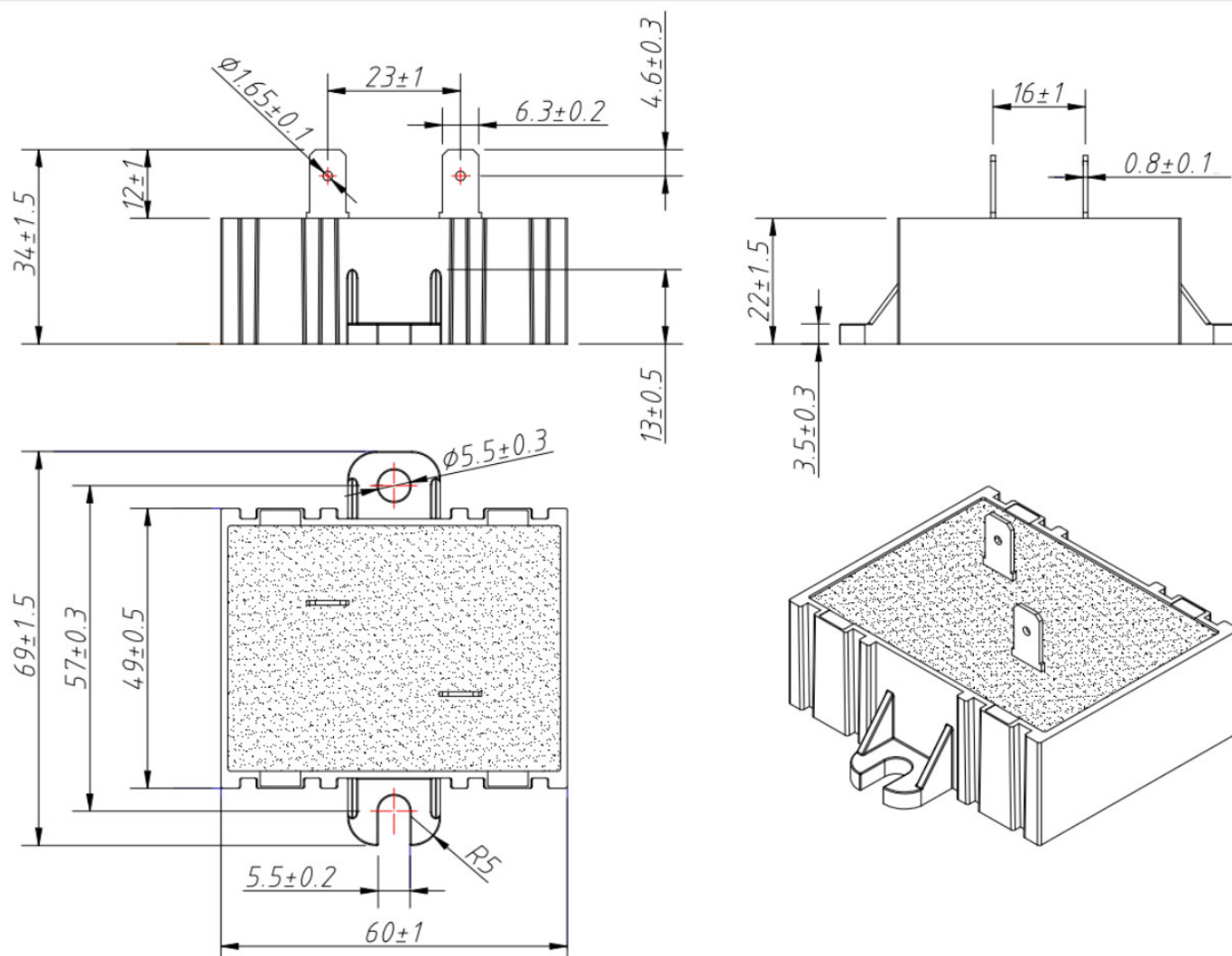
型式 Type	額定功率 Power Rating	阻值範圍 resistance range	精度 precision	介質耐電壓 Dielectric withstanding voltage
LMG	100W	1Ω ~200Ω	±5%	1000V

品名構成 Product Identification

LMG 種類 Type LMG	100W 額定功率 Power Rating 100W	40K 公稱電阻值 Nominal Resistance Value	J 電阻值容許誤差 Resistance Tolerance J ±5%
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大功率鋁殼預充電阻器

尺寸 Dimensions



特性 Characteristics

特性項目 Item	規格值 Performance	試驗方法(依據 JIS C 5201-1) Test Methods (Conform to JIS C 5201-1)
溫度係數 Temperature Coefficients	電阻線: $\pm 350\text{PPM}/^{\circ}\text{C}$ Resistor Wire: $\pm 350\text{PPM}/^{\circ}\text{C}$	4.8 項參照 Comply with 4.8 $\frac{R_1 - R_0}{R_0(T_1 - T_0)} \times 10^6 (\text{PPM}/^{\circ}\text{C})$ R_0 : 室溫(T_0)所測量之電阻值。 R_1 : 室溫+100°C(T_1)後所測量之電阻值。 R_0 : Resistance value at room temp(T_0). R_1 : Resistance value at room temp plus 100°C(T_1).
耐電壓 Dielectric Withstanding Voltage	無電弧放電、燒損及絕緣破壞等異狀。 No evidence of flashover, mechanical damage, arcing, or insulation breakdown.	4.7 項參照 Comply with 4.7 施加直流電壓 1000V 60 秒。 Resistor shall 1000VDC 60 seconds.
短時間過負荷 Short time overload	$\pm(2\%+0.1\Omega)$ 不得有機械的損傷。 No evidence of mechanical damage.	4.13 項參照 Comply with 4.13 定格電力 $\times 10$ 倍, 5 秒。 Rated power $\times 10$ times, 5s
焊錫附著性 Solder ability	導線至少 95%以上新錫覆蓋。 Covered with new solder by 95% at least.	4.17 項參照 Comply with 4.17 焊錫溫度: $235 \pm 5^{\circ}\text{C}$ 。 浸錫時間: 2 ± 0.5 秒。 Test temperature of solder: $235 \pm 5^{\circ}\text{C}$ Dipping time in solder: 2 ± 0.5 s

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焊錫耐熱性 Resistance to soldering heat	$\pm(1\%+0.05\Omega)$ 不得有機械的損傷。 No evidence of mechanical damage.	4.18 項參照 Comply with 4.18 350±5°C, 3.5±1.0 秒, 試驗後放置半小時。 350±5°C, 3.5±1.0s After test leave for 0.5h.
溫度循環 Temperature cycle	$\pm(2\%+0.05\Omega)$ 不得有機械的損傷。 No evidence of mechanical damage.	4.19 項參照 Comply with 4.19 低溫側: - 55°C/30 分, 室溫: 10 ~ 15 分鐘 高溫側: +155°C/30 分, 室溫: 10 ~ 15 分鐘 5 回 Low side: - 55°C/30min, Room temp.: 10 to 15min High side: 155°C/30min, Room temp.: 10 to 15min 5 cycles
絕緣電阻 Insulation Resistance	20MΩ 以上。 20MΩ or more.	4.6 項參照 Comply with 4.6. 置於 V 型槽方法。 施加直流電壓 500V 60 秒。 V-block method Resistor shall be tested at DC 500V for 60 seconds.
端子強度 Terminal strength	端子不得斷裂及鬆弛。 No evidence of mechanical damage.	4.16 項參照 Comply with 4.16 引張強度: 拉力:80N, 保持 10s。 Tensile strength: Pull force: 80N, hold for 10 seconds
耐振動 Vibration	$\pm(2\%+0.1\Omega)$ 不得有機械的損傷。 No evidence of mechanical damage.	6.3 項參照 Comply with 6.3 振動頻率範圍:10~500Hz 振幅:0.75mm 或加速度 98m/s ² (取較小者), 持續時間:6h Vibration frequency range: 10 - 500 Hz. Amplitude: 0.75 mm or acceleration 98 m/s ² (take the smaller value), duration: 6 hours.
衝擊 Impact	$\pm(1\%+0.1\Omega)$ 不得有機械的損傷。 No evidence of mechanical damage.	加速度 490m/s ² 脈沖波形:半正弦波脈沖持續時間:11ms 三個相互垂直的每個方向上各沖擊次, 共 18 次。 Acceleration: 490 m/s ² . Pulse waveform: Half-sine wave. Pulse duration: 11 ms. Three mutually perpendicular impacts in each direction: 18 in total.
耐濕負荷壽命 Load life in humidity	$\pm(5\%+0.1\Omega)$	4.24 項參照 Comply with 4.24 40±2°C, 濕度 90 ~ 95%, 1000 小時 定格電壓(90 分鐘 ON, 30 分鐘 OFF) 40±2°C, 90 to 95%RH, 1000h Rated voltage (90 min ON, 30 min OFF)
負荷壽命 Load life	$\pm(5\%+0.1\Omega)$	4.25 項參照 Comply with 4.25 70±3°C, 1000 小時 定格電壓(90 分鐘 ON, 30 分鐘 OFF) 70±3°C, 1000h Rated voltage (90 min ON, 30 min OFF)

■阻值可根據客戶要求製作; 阻值在 $\leq 1\Omega$ 以下時不考核溫度係數, 如客戶有指定溫度係數需特別注明

■Resistance values can be customized according to customer requirements; temperature coefficient is not evaluated for resistance Values $\leq 1\Omega$. If the customer specifies a particular temperature coefficient, it must be clearly noted.

PS: 適用規格書內容周圍溫度範圍以下的場合, 如周圍溫度超過時請按照負荷功率輕減曲線減小, 另外, 考慮到所需脈沖極限功率的重複次數以及使用時間和環境因素, 建議設計或使用以 50% 的安全係數考慮。

PS: For applications where the ambient temperature is below the range specified in the specification. If the ambient temperature exceeds this range, please reduce the load power in accordance with the load derating curve. In addition, considering the repetition times of the required pulse limit power, as well as the usage time and environmental factors, it is recommended to design or use with a 50% safety factor.

公司名稱 Company Name	彩源企業股份有限公司 彩智電子科技（江 西）有限公司 TZAI YUAN ENTERPRISE CO., LTD.				
品 名 Product Name	大功率鋁殼預充電阻器 High-power aluminum-shell pre-charging resistor				
版 本 Version	A4 版	制定日期 Enactment Date	2026 年 06 月 06 日 Jun.06,2026	頁數 Page	5-1

1. 一般事項 **General**

1.1 適用 Scope

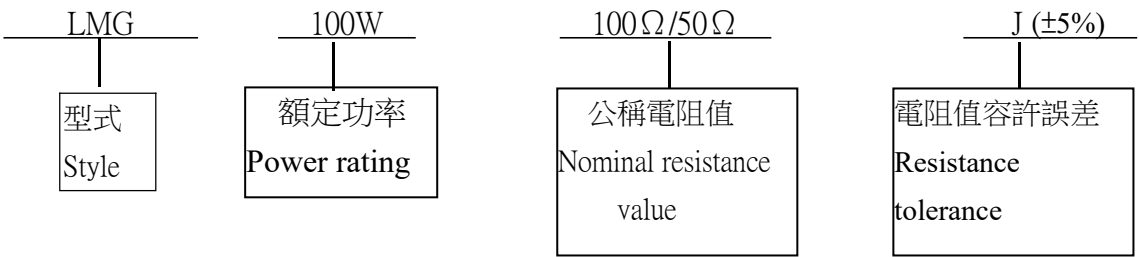
本承認書適用於 彩源企業股份有限公司 製造之[大功率鋁殼預充電阻器]。

This specification is available for **High-power aluminum-shell pre-charging resistor** manufactured by TZAI YUAN ENTERPRISE CO., LTD.

1.2 形名(例) Type designation (example)

依使用型式、公稱電阻值、容許誤差而區別,其構造如下。

The type designation shall be in the following form and as specified.



1.3 額定電力 Rated power

額定電力係應在周圍溫度 70℃ 可以連續負載的最大電力，如表-1;但周圍溫度如超過 70℃ 時之額定電力則依圖一的電力遞減曲線實施。

Rated power is maximum power which can be continuously loaded at specified ambient temperature 70℃,as Table-1;however when the ambient temperature exceeds 70℃,rated power should be determined from the derating curve of Fig.1.

表-1 Table-1

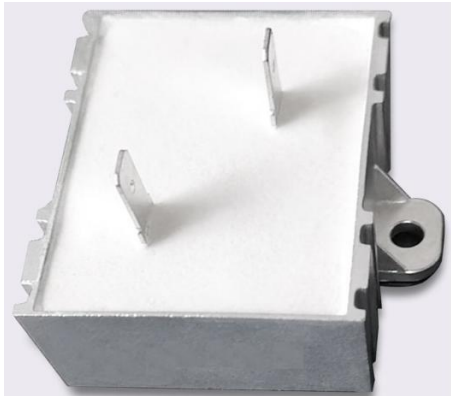
定格電力 Rated power	最高使用電壓 Maximum working voltage	阻值範圍 resistance range	精度 precision	介質耐電壓 Dielectric withstanding voltage
100W	√PR	1Ω ~200Ω	±5%	1000V

技術特點：汽車級專用預充電阻，可滿足各個電壓等級的預充條件，具有熱容量大、體積小、安裝可靠性高等優點，常用于大巴、乘用車預充。底板中心溫度 70C 額定功率 100W、具有極強的脈衝負載能力，可承受較長時間短時超載短路、具有良好的預充特性

Technical features: Automotive-grade dedicated pre-charge resistor, capable of meeting the pre-charge conditions for various voltage levels. It has the advantages of large heat capacity, small size, and high installation reliability, and is commonly used for pre-charge in buses and passenger cars. The center temperature of the base plate is 70℃. The rated power is 100W. It has extremely strong pulse load capacity and can withstand short-term overload and short-circuit for a long time. It has excellent pre-charge characteristics.

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2. 外观及结构 Appearance and Structure：



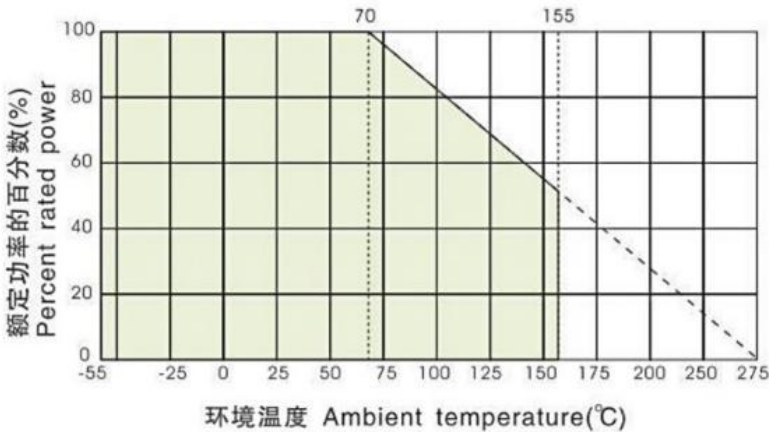
2.1.外观 appearance:

- a.电阻器本体表面应光洁，无脏污、裂纹和脱落等现象;
a.The surface of the resistor body should be smooth and clean, free from dirt, cracks and peeling.
- b.封料填充部分应平整、结实，无松动、脱落等现象;
b.The sealing material filling part should be flat and firm, without any loose or falling off phenomena.
- c.本体标识应清晰、易识别，且标注准确。
c.The identification of the entity should be clear, easily recognizable, and accurately labeled.

2.2 構造 Construction：

材料名称 name of the material	电阻丝 resistance wire	封装料 Packaging material	外壳 outer shell	引出线 outgoing line
规格型号 specifications	合金丝 Alloy wire	石英砂 silica sand	阳极氧化铝外壳 Anodized aluminum casing	导片型 Cone-shaped film

3. 電力遞減曲線 Figure 1 Power derating curve

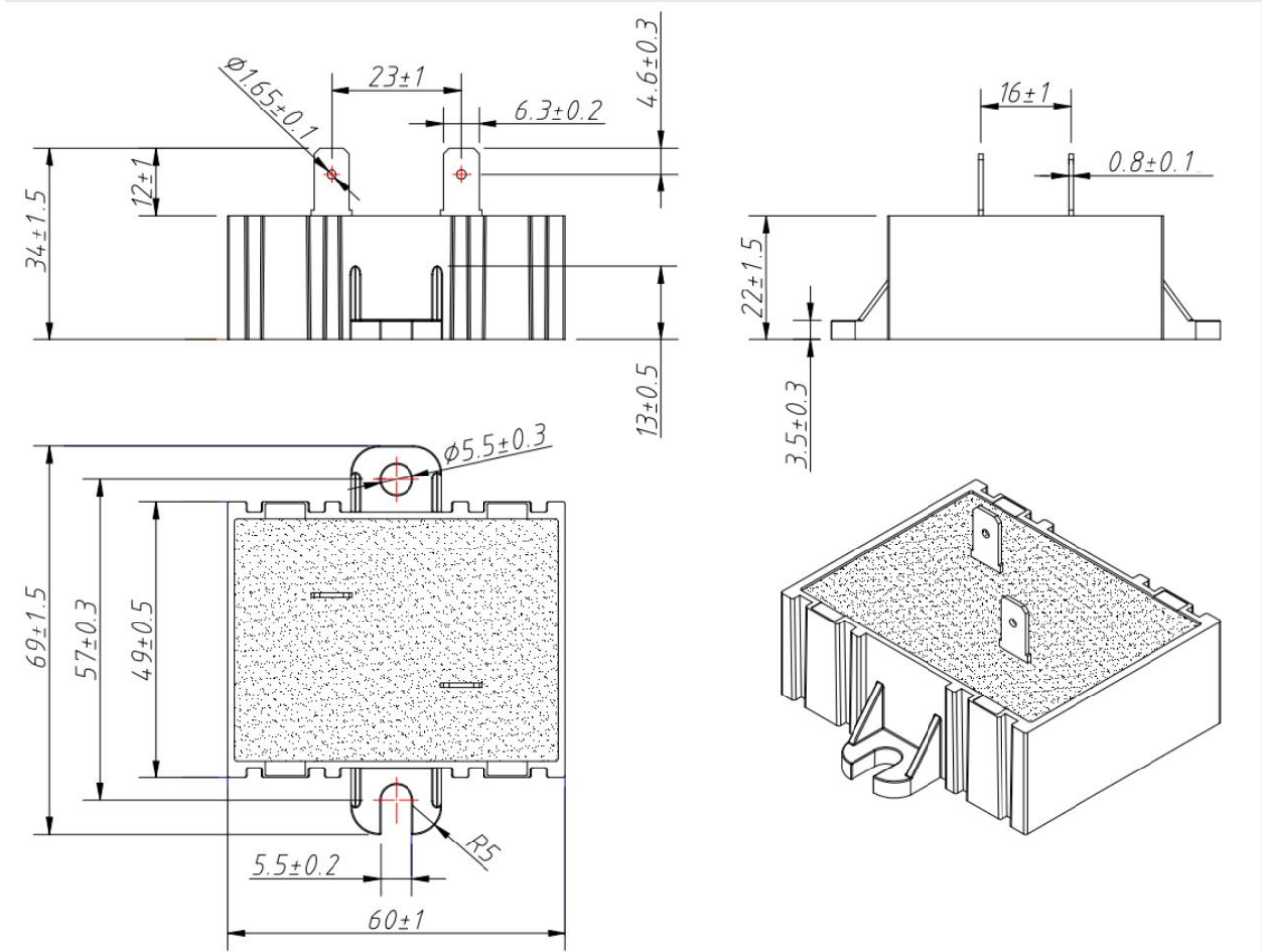


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4. 特性 Characteristics					
表-1 Table-1					
項 目 Item	規格值 Performance		試驗方法(依據 JIS C 5201-1) Test methods(Conform to JIS C 5201-1)		
溫度係數 Temperature Coefficient	电阻线: ±350PPM/°C Resistor Wire:±350PPM/°C		4.8 項參照 Comply with 4.8 $\frac{R_1-R_0}{R_0(T_1-T_0)} \times 10^6(\text{PPM}/^\circ\text{C})$ R ₀ :室溫(T ₀)所測量之電阻值。 R ₁ :室溫+100°C(T ₁)後所測量之電阻值。 R ₀ :Resistance value at room temp.(T ₀). R ₁ :Resistance value at room temp.plus 100°C (T ₁)		
耐電壓 Dielectric Withstanding Voltage	無電弧放電、燒損及絕緣破壞等異狀。 No evidence of flashover mechanical damage,arcing or insulation breakdown.		4.7 項參照 Comply with 4.7 施加直流電壓 1000V 60 秒。 Resistor shall 1000VDC 60 seconds.		
短時間過負荷 Short time overload	±(2%+0.1Ω) 不得有機械的損傷。 No evidence of mechanical damage.		4.13 項參照 Comply with 4.13 定格電力×10 倍,5 秒。 Rated power×10 times,5s		
負荷壽命 Load life	±(5%+0.1 Ω)		4.25 項參照 Comply with 4.25 70±3°C, 1000 小時 70±3°C, 1000h 定格電壓(90 分鐘 ON, 30 分鐘 OFF) Rated voltage (90 min ON, 30 min OFF)		
焊錫耐熱性 Resistance to soldering heat	±(1%+0.05 Ω) 不得有機械的損傷。 No evidence of mechanical damage.		4.18 項參照 Comply with 4.18 350±5°C, 3.5±1.0 秒, 試驗後放置半小時。 350±5°C, 3.5±1.0s After test leave for 0.5h.		
溫度循環 Temperature cycle	±(2%+0.05 Ω)以內。 不得有機械的損傷。 No evidence of mechanical damage.		4.19 項參照 Comply with 4.19 低溫側：- 55°C/30 分, 室溫：10~15 分鐘 高溫側：+155°C/30 分, 室溫：10~15 分鐘 5 回 Low side :- 55°C/30min, Room temp. :10 to 15min High side : 155 °C /30min, Room temp. : 10 to 15min 5 cycles		
■ 阻值可根据客户要求制作; 阻值在≤1 Ω 以下时不考核温度系数, 如客户有指定温度系数需特别注明 ■ Resistance values can be customized according to customer requirements; temperature coefficient is not evaluated for resistance values ≤1 Ω . If the customer specifies a particular temperature coefficient, it must be clearly noted.					

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項 目 Item	規格值 Performance	試驗方法(依據 JIS C 5201-1) Test methods(Conform to JIS C 5201-1)			
絕緣電阻 Insulation Resistance	20MΩ 以上。 20MΩ or more.	4.6.項參照 Comply with 4.6. 置於 V 型槽方法。 施加直流電壓 500V 60 秒。 V-block method Resistor shall be tested at DC 500V for 60 seconds.			
端子強度 Terminal strength	端子不得斷裂及鬆弛。 No evidence of mechanical damage.	4.16 項參照 Comply with 4.16 引張強度：拉力:80N，保持 10s。 Tensile strength: Pull force: 80N, hold for 10 seconds			
耐振動 Vibration	±(2%+0.1Ω)以內。 不得有機械的損傷。 No evidence of mechanical damage.	6.3 項參照 Comply with 6.3 振動頻率範圍:10~500Hz 振幅:0.75mm 或加速度 98m/s ² (取較小者)，持續時間:6h Vibration frequency range: 10 - 500 Hz. Amplitude: 0.75 mm or acceleration 98 m/s ² (take the smaller value), duration: 6 hours.			
衝擊	±(1%+0.1Ω)以內。 不得有機械的損傷。 No evidence of mechanical damage.	加速度 490m/s ² 脈衝波形:半正弦波脈衝持續間:11ms 三個相互垂直的每個方向上各衝擊:次,共 18 次。 Acceleration: 490 m/s ² . Pulse waveform: Half-sine wave. Pulse duration: 11 ms. Three mutually perpendicular impacts in each direction: 18 in total.			
耐濕負荷壽命 Load life in humidity	±(5%+0.1Ω)	4.24 項參照 Comply with 4.24 40±2℃，濕度 90~95%，1000 小時 定格電壓(90 分鐘 ON, 30 分鐘 OFF) 40±2℃, 90 to 95%RH, 1000h Rated voltage (90 min ON, 30 min OFF)			
焊錫附著性 Solder ability	導線至少 95%以上新錫覆蓋。 Covered with new solder by 95% at least.	4.17 項參照 Comply with 4.17 焊錫溫度：235±5℃。 浸錫時間：2±0.5 秒。 Test temperature of solder: 235±5℃ Dipping time in solder: 2±0.5 s			
電烙鐵試驗 Electric iron Test	加熱溫度：350℃±5℃,電烙鐵加熱時間 3+1/-0 秒,取電烙鐵加熱於電極兩端后,取出靜置 60 分鐘以上,再量測其阻值變化率。 Preheating temperature: 350℃±5℃ Electric iron preheating time: 3+1/-0 sec Preheat the electric iron on one electrode termination, as after that step place the iron over 60 mins and measure its resistance rate.	6.10 項參照 Comply with 6.10 & 依据 SONY (SS-00254-5) 焊接外觀無異常，無脫落 There are no abnormalities or detachment in the welding appearance			

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5. 外形寸法 External dimensions: (LMG100W)



PS: PS: 适用规格书内容周围温度范围以下的场合.如周围温度超过时请按照负荷功率轻减曲线减小.,另外,考虑到所需脉冲极限功率的重复次数以及使用时间和环境因素, 建议设计或使用以 50%的安全系数考虑.。使用工况:在没有辅助散热的情况下, 不能作为长时间满负荷工况使用!

PS: For applications where the ambient temperature is below the range specified in the specification. If the ambient temperature exceeds this range, please reduce the load power in accordance with the load derating curve. In addition, considering the repetition times of the required pulse limit power, as well as the usage time and environmental factors, it is recommended to design or use with a 50% safety factor. Operating conditions: It cannot be used for long periods at full load without auxiliary cooling!