





## PRODUCT SPECIFICATION



LANGUAGE

JAPANESE  
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## 【 4. 性 能 PERFORMANCE 】

## 4-1. 電氣的性能 Electrical Performance

項目 Item		条件 Test Condition	規格 Requirement
4-1-1	接触抵抗 Contact Resistance	ダミーカード <sup>*2</sup> を嵌合させ、開放電圧20mV以下、 短絡電流10mAにて測定する。 (JIS C5402 5.4)  Mate dummy card <sup>*2</sup> , measure by dry circuit, 20mV maximum, 10mA maximum. (JIS C5402 5.4)	200 milliohm/2 contact maximum
4-1-2	絶縁抵抗 Insulation Resistance	隣接するピン間及びピン、アース間にDC 500Vを印加し 測定する。 (JIS C5402 5.2 / MIL-STD-202 試験法 302)  Apply 500V DC between adjacent pins or pin and ground. (JIS C5402 5.2 / MIL-STD-202 Method 302)	1000 megohm minimum
4-1-3	耐電圧 Dielectric Strength	隣接するピン間及びピン、アース間にAC (rms) 500V (実効値) を1分間印加する。 (JIS C5402 5.1 / MIL-STD-202 試験法 301)  Apply 500V AC (rms) for 1 minute between adjacent pins or pin and ground. (JIS C5402 5.1 / MIL-STD-202 Method 301)	異常なきこと No Breakdown

\*2 : ダミーカードとは、弊社製評価用カードを示す。

The dummy card shows the card for the evaluation made of our company.

## 4-2. 機械的性能 Mechanical Performance

項目 Item		条件 Test Condition	規格 Requirement
4-2-1	端子保持力 Terminal Retention Force	毎分25±3mmの速さで端子、金具を軸方向に引っ張る。  Apply axial pullout force at the speed rate of 25±3 mm/minute.	0.98 N (0.1kgf) minimum / pin

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項目 Item		条件 Test Condition	規格 Requirement	
4-2-2	挿入力及び抜去力 Insertion / Extraction Force	実物カード*3をアダプタに毎分25±3mmの速さで、挿入・抜去を行う  Insert and extraction the actual card*3 on adapter at the speed rate of 25±3mm/minute.	挿入力 Insertion Force	11N(1.12kgf) maximum
			抜去力 Extraction Force	1.5N(0.15kgf) minimum / 11N(1.12kgf) maximum
4-2-3	アダプタ挿入力 及び抜去力 ADAPTER Insertion / Extraction Force	実物カードを挿入したアダプタをコネクタに毎分25±3mmの速さで、挿入・抜去を行う  Insert and extraction the actual card inserted adapter on connector at the speed rate of 25±3mm/minute.	挿入力 Insertion Force	40N(4.08kgf) maximum
			抜去力 Extraction Force	1.0N(0.102kgf) minimum / 40N(4.08kgf) maximum
4-2-4	カード押込み強度 Push in Strength	実物カードを正、逆方向にて挿入し、19.6N { 2kgf } の荷重を加える。  The actual card is inserted in positive and the opposite direction and the load of 19.6N {2kgf} is added.	外 観 Appearance	異常無きこと No Damage
4-2-5	ライトプロテクト スイッチ 繰り返し操作 W/P Switch repeated operation	ライトプロテクトスイッチを毎分25±3mmの速さでロック・アンロックを1,000回繰り返す。  Lock and unlock are repeated 1,000 cycles at the speed 25 ± 3 mm/min with W/P switch	操作力 Slide force	0.5N to 5N (0.05kgf to 0.51kgf)
			外 観 Appearance	異常無きこと No Damage
4-2-6	ライトプロテクト スイッチ操作 W/P Switch operation	ライトプロテクトスイッチに0.5Nの力を動作方向に加える。  0.5N force added with W/P switch.	動作距離 movement distance	0.3mm maximum

\*3 : 実物カードとは、最終ユーザーが使用するminiSD MEMORY CARDを示す。  
Actual card is miniSD MEMORY CARD, which used is end customer.

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## 4-3. その他 Environmental Performance and Others

項目 Item		条件 Test Condition	規格 Requirement	
4-3-1	繰り返し挿抜 Repeated Mate / Un-mate	実物カードで、アダプタに1時間に400～600回の速さで挿入・抜去を10,000回繰り返す。  Insertion and extraction are repeated 10,000 cycles with the actually card on adapter at the speed rate of 400-600 cycles/hour.	接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum) ダミーカードで測定 With the dummy card
			外 観 Appearance	異常なきこと No Damage
4-3-2	アダプタ繰り返し挿抜 ADAPTER Repeated Mate / Un-mate	実物カードを挿入したアダプタで、コネクタに1時間に400～600回の速さで挿入・抜去を10,000回繰り返す。  Insertion and extraction are repeated 10,000 cycles with the actual card inserted ADAPTER on connector at the speed rate of 400-600 cycles/hour.	接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)
			外 観 Appearance	異常なきこと No Damage
4-3-3	温度上昇 Temperature Rise	電流を通電し、コネクタの温度上昇分を測定する。 (UL 498)  Carrying rated current load (UL 498)	温度上昇 Temperatur e Rise	30 °C maximum
4-3-4	耐振動性 Vibration	ダミーカードを嵌合させ、通電状態にて、嵌合軸を含む互いに垂直な3方向に、周波数10～2000Hz、 $19.6\text{m/s}^2$ {2G} の振動を、5分1サイクルとし、各方向10サイクル計30サイクル加える。 (IEC 512-4-6d)  Mate dummy card and subject to the following vibration conditions, 5minutes per 1cycle, 10cycle per 1 axis total 30 cycles per 3 axis Amplitude: $19.6\text{m/s}^2$ {2G} Frequency: 10-2000 Hz (IEC 512-4-6d)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)
			瞬 断 Discontinuity	0.1 microsecond maximum

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-5	耐衝撃性 Shock	ダミーカードを嵌合させ、DC 1mA 通電状態にて、嵌合軸を含む互いに垂直な 6 方向 に、 $490 \text{ m/s}^2$ {50G} の衝撃を 各3 回 加える。 (IEC 512-4-6c)  Mate dummy card and subject to the following shock conditions. 3 shocks shall be applied along 3 mutually perpendicular axis, passing DC 1 mA current during the test. (Total of 18 shocks) Test pulse: Half Sine Peak value: $490 \text{ m/s}^2$ {50 G} Duration: 11 ms (IEC 512-4-6c)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)
			瞬 断 Discontinuity	0.1 microsecond maximum
4-3-6	温湿度サイクル Damp Heat cyclling	コネクタを嵌合させ第6項に示す条件にて9サイクル行い、10サイクル目は段階6迄の試験を行う。但し、段階7aは初めの9サイクルのうち、5サイクルについて行う。試験後、室温に 24時間放置する。 ( MIL-STD-202 試験法 106 ) Mate connectors together and repeat the specified in paragraph 6 up to 10 cycles. But at 10th cycle. Step 7 is omitted. And step 7a should be added Temperature -10°C~65°C Relative Humidity 80~98% Duration 10 cycles (1cycle 24 hours) (MIL-STD-202 Method 106)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-7	温度サイクル Temperature Cycling	ダミーカードを嵌合させ、-55±3℃に30分、+85±2℃に30分、これを1サイクルとし5サイクル繰り返す。但し、温度移行時間は3分以内とする。試験後、1～2時間室温に放置する。 (JIS C0025)  Mate dummy card and subjected to the following conditions for 5 cycles. Upon completion of the exposure period, the test specimens shall be conditions at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. 1cycle a) -55±3℃ 30 min. b) +85±2℃ 30 min. Transit time shall be within 3 min. (JIS C0025)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)
4-3-8	耐熱性 Heat Resistance	ダミーカードを嵌合させ85±2℃の雰囲気、96時間放置後取り出し、1～2時間室温に放置する。 (JIS C0021/MIL-STD-202 試験法 108)  Mate dummy card and expose to 85±2℃ for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (JIS C0021/MIL-STD-202 Method 108)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-9	耐寒性 Cold Resistance	ダミーカードを嵌合させ、 $-40\pm 3^{\circ}\text{C}$ の 雰囲気中に 96時間 放置後取り出し、1 ～2時間室温に放置する。 (JIS C0020)  Mate dummy card and expose to $-40\pm 3^{\circ}\text{C}$ for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (JIS C0020)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)
4-3-10	耐 湿 性 Humidity	コネクタを嵌合させ、 $60\pm 2^{\circ}\text{C}$ 、相対湿 度 90～95% の雰囲気中に 96時間 放 置後取り出し、 1～2時間 室温に放置する。 ( JIS C0022/MIL-STD-202 試験法 103 )  Mate connectors and expose to $60\pm$ $2^{\circ}\text{C}$ , relative humidity 90 to 95% for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. (JIS C0022/MIL-STD-202 Method 103)	外観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)
			耐電圧 Dielectric Strength	4-1-3項 満足のこと Must meet 4-1-3
			絶縁抵抗 Insulation Resistance	100 megohm minimum

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項目 Item		条件 Test Condition	規格 Requirement	
4-3-11	硫化水素ガス H <sub>2</sub> S Gas	ダミーカードを嵌合させ、40℃、相対湿度80%にて、3ppmの水素ガス中に96時間放置する。  Mate dummy card and expose to 3ppm. H <sub>2</sub> S gas, ambient temperature 40℃, relative humidity 80% for 96 hours.	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)
4-3-12	塩水噴霧 Salt Spray	ダミーカードを嵌合させ、35±2℃にて5±1%重量比の塩水を48時間噴霧し試験後常温で水洗いした後、室温で乾燥させる。 (MIL-STD-1344)  Mate dummy card and exposed to the following salt mist conditions. Upon completion of the exposure period, salt deposits shall be removed by a gentle wash or dip in running water, after which the specified measurements shall be performed. NaCl solution concentration: 5±1% Spray time: 48 hours Ambient temperature: 35±2 °C (MIL-STD-1344)	外 観 Appearance	異常なきこと No Damage
			接触抵抗 Contact Resistance	変化量 change 80 milliohm/2 contact maximum (40 milliohm/1contact maximum)

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## 【 5. 外観形状、寸法及び材質 PRODUCT SHAPE, DIMENSIONS AND MATERIALS 】

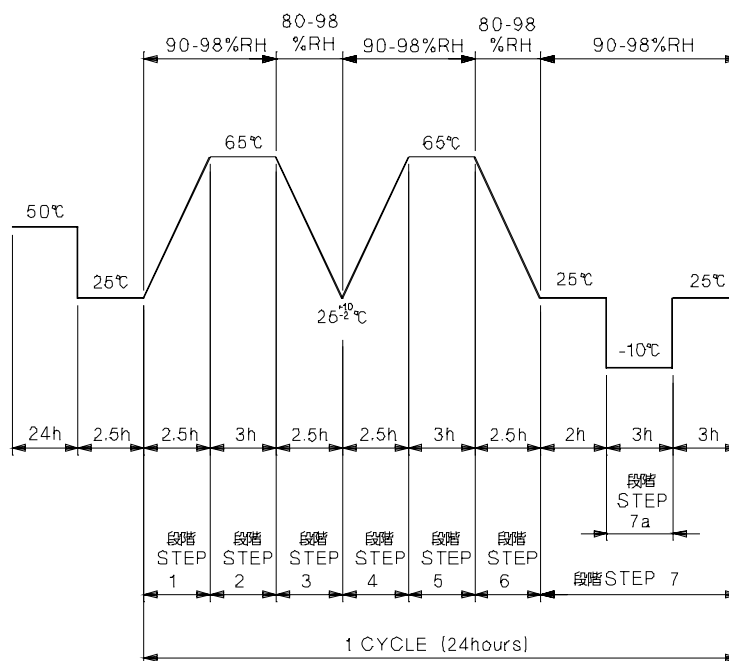
図面参照

Refer to the drawing.

## 【 6. 温湿度サイクル試験条件 Damp Heat cycle condition】

MIL-STD-202 試験法 106

MIL-STD-202 METHOD 106



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## 【 7. 使用上の注意 APPLICATION NOTES 】

- 7-1 本品はminiSDカードを嵌合した状態で落下させたり、衝撃を加えたりするとminiSDカードが抜けてきます。従って、筐体アダプタ・miniSDカード抜け防止用の蓋などを設置して下さい。その場合、miniSDカード嵌合状態での蓋などとの隙間は0.3mm以下にして下さい。

When miniSD card is dropped while having engaged or the impact is added, the miniSD card comes off from this item. Therefore, please set up the lid for the adaptor & miniSD card omission prevention etc. In the enclosure. In that case, please adjust the spaces such as miniSD cards and lids in the state of the card engage to 0.3mm or less.

- 7-2 miniSDカードアダプタにminiSDカードを装着してSDカード対応機器で使用する際は、起動中のSDカード対応機器からminiSDカードのみを抜き出したり、miniSDカードを差し換えたりしないで下さい。データの破損、SDカード対応機器のフリーズ、故障の原因となります。

miniSD card alone is not pulled out while using it with the equipment for the SD card, and please do not open and do not change the miniSD card. The act causes the frieze of the equipment for the damage of data and the SD card and the breakdown.

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