



# SPECIFICATION FOR APPROVAL

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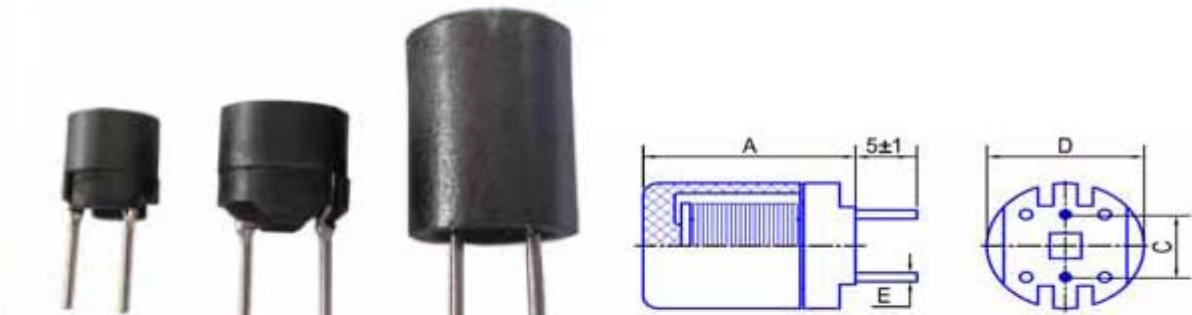


## PRODUCT DETAIL

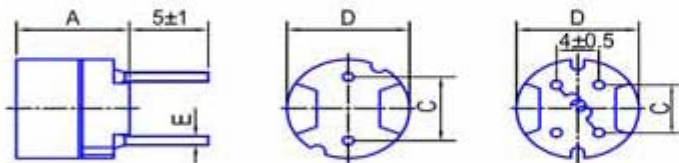
Electrical Characteristics			Test Instruments
<b>L</b>	See P. 3~6	<b>TEST FREQ:</b> See P. 3~6	<ul style="list-style-type: none"> <li>•L&amp;Q : HP4285A or HP4284A precision LCR meter.</li> <li>•DCR : Milli-ohm meter.</li> </ul>
<b>DCR</b>	See P. 3~6	<b>Opε Temp.:</b> -20~80°C	
<b>I<sub>sat</sub></b>	See P. 3~6		
<b>I<sub>rms</sub></b>	See P. 3~6		

## SHAPES AND DIMENSIONS :

Dimensions are in mm



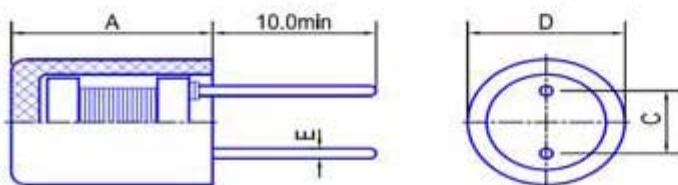
DFSB1014 TYPE



DFS0606 / 0807 TYPE

DFS4W1008 / 1010

P/N	A max	D max	C ±0.5	E typ
DFS0606	6.5	6.5	4.0	0.55
DFS0807	7.5	8.3	5.0	0.65
DFS4W1008	8.5	10.5	5.0	0.65
DFS4W1010	10.5	10.5	5.0	0.65



DFS1012 / 1215 / 1618 TYPE

P/N	A max	D max	C	E typ
DFS1012	13.5	11.0	5.0±1.0	0.80
DFS1215	17.0	13.4	5.0±1.0	0.80
DFS1618	19.2	17.0	7.5±1.0	0.80
DFSB1014	14.0	11.0	5.0±0.5	0.70



## PART NUMBER CODE

DFS   1215 - 150   L   A  
1   2   3   4   5

1. Series Name
2. Size Code
3. Inductance (R=Decimal Point)   Unit :  $\mu\text{H}$
4. Inductance tolerance : “K” $\pm 10\%$  ; “L”  $\pm 15\%$ ; “M” $\pm 20\%$  .
5. Soldering : A=Lead free



## RADIAL LEADED SHIELDED INDUCTORS

### DFS0606/0807 & DFS4W1008/1010 TYPE

Part No.	L (uH)	L Test Freq.	DC Resistance (ohm) max				Rated Current (mA) max			
			DFS0606	DFS0807	DFS4W1008	DFS4W1010	DFS0606	DFS0807	DFS4W1008	DFS4W1010
100L	10	2.52MHz			0.05	0.023			2800	3510
120L	12	2.52MHz			0.06	0.024			2500	3240
150L	15	2.52MHz			0.07	0.036			2300	2880
180L	18	2.52MHz			0.08	0.039			2100	2610
220L	22	2.52MHz	0.13	0.08	0.09	0.042	960	1600	2000	2340
270L	27	2.52MHz	0.18	0.10	0.10	0.045	870	1400	1760	2160
330L	33	2.52MHz	0.21	0.14	0.11	0.057	780	1300	1600	1890
390L	39	2.52MHz	0.26	0.15	0.12	0.076	720	1200	1380	1800
470L	47	2.52MHz	0.29	0.17	0.14	0.100	660	1100	1280	1620
560K	56	2.52MHz	0.33	0.19	0.15	0.110	600	990	1200	1440
680K	68	2.52MHz	0.36	0.21	0.16	0.150	550	890	1000	1350
820K	82	2.52MHz	0.39	0.27	0.18	0.160	500	810	960	1260
101K	100	1KHz	0.54	0.32	0.20	0.190	450	740	920	1080
121K	120	1KHz	0.62	0.36	0.24	0.210	410	670	800	990
151K	150	1KHz	0.72	0.51	0.35	0.230	370	600	730	900
181K	180	1KHz	0.88	0.57	0.40	0.260	340	550	640	820
221K	220	1KHz	0.99	0.76	0.54	0.290	300	500	610	740
271K	270	1KHz	1.52	0.86	0.76	0.360	270	450	560	670
331K	330	1KHz	1.69	0.97	0.86	0.510	250	410	500	610
391K	390	1KHz	1.85	1.28	0.93	0.690	230	370	440	550
471K	470	1KHz	2.85	1.44	1.23	0.980	210	340	410	510
561K	560	1KHz	3.21	1.61	1.34	1.100	190	310	380	460
681K	680	1KHz	3.60	2.07	1.53	1.200	170	280	340	420
821K	820	1KHz	4.87	2.33	2.10	1.300	160	260	320	380
102K	1000	1KHz	5.65	2.72	2.30	1.500	140	230	280	350
122K	1200	1KHz		3.98				210		
152K	1500	1KHz		4.50				190		
182K	1800	1KHz		6.81				170		
222K	2200	1KHz		7.56				160		
272K	2700	1KHz		8.54				140		
332K	3300	1KHz		9.74				130		
392K	3900	1KHz		12.9				120		
472K	4700	1KHz		14.7				110		
562K	5600	1KHz		20.4				99		
682K	6800	1KHz		23.0				89		
822K	8200	1KHz		30.6				81		
103K	10000	1KHz		35.0				74		



## RADIAL LEADED SHIELDED INDUCTORS

### DFS1012 TYPE

Part No.	L (mH) @1kHz	Q min	Q Test Freq.	DCR (ohm) max	Rated Current (mA) max
DFS1012 -122K	1.2	50	252 kHz	1.2	200
DFS1012 -152K	1.5	50	252 kHz	1.5	200
DFS1012 -182K	1.8	50	252 kHz	1.6	200
DFS1012 -222K	2.2	50	252 kHz	1.8	200
DFS1012 -272K	2.7	40	252 kHz	1.9	200
DFS1012 -332K	3.3	40	252 kHz	2.3	200
DFS1012 -392K	3.9	40	252 kHz	2.5	200
DFS1012 -472K	4.7	40	252 kHz	3.7	140
DFS1012 -502K	5.0	40	252 kHz	3.8	140
DFS1012 -562K	5.6	40	252 kHz	4.0	140
DFS1012 -682K	6.8	40	252 kHz	4.2	140
DFS1012 -822K	8.2	40	252 kHz	5.3	140
DFS1012 -103K	10	100	79.6 kHz	7.3	100
DFS1012 -123K	12	100	79.6 kHz	8.3	100
DFS1012 -153K	15	100	79.6 kHz	11.0	90
DFS1012 -183K	18	100	79.6 kHz	13.6	75
DFS1012 -223K	22	100	79.6 kHz	15.4	75
DFS1012 -273K	27	100	79.6 kHz	17.9	75
DFS1012 -333K	33	100	79.6 kHz	23.3	60
DFS1012 -393K	39	100	79.6 kHz	25.9	60
DFS1012 -473K	47	80	79.6 kHz	30.4	60
DFS1012 -503K	50	80	79.6 kHz	37.8	50
DFS1012 -563K	56	80	79.6 kHz	39.1	50
DFS1012 -683K	68	50	79.6 kHz	40	50
DFS1012 -823K	82	50	79.6 kHz	47	40
DFS1012 -104K	100	120	25.2 kHz	50	40
DFS1012 -124K	120	100	25.2 kHz	91	30
DFS1012 -154K	150	90	25.2 kHz	140	20
DFS1012 -184K	180	90	25.2 kHz	164	20
DFS1012 -224K	220	90	25.2 kHz	182	20
DFS1012 -274K	270	90	25.2 kHz	200	20
DFS1012 -334K	330	80	25.2 kHz	275	15
DFS1012 -394K	390	80	25.2 kHz	300	15
DFS1012 -474K	470	80	25.2 kHz	345	15
DFS1012 -564K	560	60	25.2 kHz	520	8.4
DFS1012 -684K	680	60	25.2 kHz	590	8.4
DFS1012 -824K	820	50	25.2 kHz	675	8.4
DFS1012 -105K	1000	50	25.2 kHz	770	8.4
DFS1012 -125K	1200	50	25.2 kHz	845	8.4



## RADIAL LEADED SHIELDED INDUCTORS

### DFSB1014 TYPE

Part No.	L (mH) @1kHz	Q min	Q Test Freq.	DCR (ohm) max	Rated Current (mA) max
DFSB1014 - 102K	1.0	15	252 KHz	2.0	270
DFSB1014 - 122K	1.2	15	252 KHz	2.3	250
DFSB1014 - 152K	1.5	15	252 KHz	2.7	220
DFSB1014 - 182K	1.8	15	252 KHz	3.0	220
DFSB1014 - 222K	2.2	15	252 KHz	3.8	200
DFSB1014 - 272K	2.7	15	252 KHz	4.5	180
DFSB1014 - 332K	3.3	20	252 KHz	6.0	160
DFSB1014 - 392K	3.9	20	252 KHz	7.8	120
DFSB1014 - 472K	4.7	20	252 KHz	10.5	120
DFSB1014 - 562K	5.6	20	252 KHz	11.0	100
DFSB1014 - 682K	6.8	20	252 KHz	11.8	100
DFSB1014 - 822K	8.2	20	252 KHz	13.2	100
DFSB1014 - 103K	10	60	79.6 KHz	17.6	90
DFSB1014 - 123K	12	60	79.6 KHz	22.5	75
DFSB1014 - 153K	15	60	79.6 KHz	25	75
DFSB1014 - 183K	18	60	79.6 KHz	32	60
DFSB1014 - 223K	22	60	79.6 KHz	36	60
DFSB1014 - 273K	27	60	79.6 KHz	46	50
DFSB1014 - 333K	33	60	79.6 KHz	54	50
DFSB1014 - 393K	39	45	79.6 KHz	72	40
DFSB1014 - 473K	47	45	79.6 KHz	76	40
DFSB1014 - 563K	56	45	79.6 KHz	89	40
DFSB1014 - 683K	68	30	79.6 KHz	123	30
DFSB1014 - 823K	82	30	79.6 KHz	135	30
DFSB1014 - 104K	100	45	25.2 KHz	205	20
DFSB1014 - 124K	120	45	25.2 KHz	228	20



## RADIAL LEADED SHIELDED INDUCTORS

### DFS1215/1618 TYPE

Part No.	L (uH) @1kHz	DCR (ohm) max		I sat (A)		I rms (A)	
		DFS1215	DFS1618	DFS1215	DFS1618	DFS1215	DFS1618
100L	10	0.015	0.020	5.0	7.0	3.61	5.20
150L	15	0.017	0.022	4.0	6.0	3.16	4.90
180L	18	0.020	0.025	3.7	5.2	2.81	4.70
220L	22	0.021	0.028	3.3	4.9	2.44	4.50
270L	27	0.023	0.032	3.0	4.3	2.12	4.30
330L	33	0.024	0.033	2.7	3.9	1.80	4.10
390L	39	0.027	0.036	2.5	3.7	1.64	3.90
470L	47	0.032	0.038	2.3	3.4	1.57	3.60
560L	56	0.045	0.042	2.1	3.1	1.39	3.50
680L	68	0.060	0.046	1.9	2.9	1.26	3.40
820L	82	0.070	0.049	1.7	2.8	1.18	3.10
101L	100	0.09	0.053	1.5	2.5	1.14	2.90
151L	150	0.11	0.077	1.0	2.0	0.82	2.30
181L	180	0.12	0.10	0.90	1.8	0.73	2.10
221L	220	0.14	0.14	0.82	1.6	0.61	1.70
271L	270	0.16	0.20	0.74	1.4	0.54	1.50
331L	330	0.17	0.27	0.68	1.3	0.52	1.40
391L	390	0.32	0.41	0.62	1.2	0.48	1.10
471L	470	0.35	0.46	0.56	1.1	0.44	1.00
561L	560	0.39	0.51	0.52	1.0	0.40	0.98
681L	680	0.44	0.56	0.46	0.90	0.38	0.94
821L	820	0.56	0.63	0.42	0.83	0.28	0.90
102L	1000	0.68	0.69	0.38	0.75	0.27	0.86
122L	1200	0.78		0.35		0.26	
152L	1500	1.10		0.31		0.23	
182L	1800	1.20		0.28		0.21	
222L	2200	1.30		0.25		0.18	



## PACKAGING QUANTITY

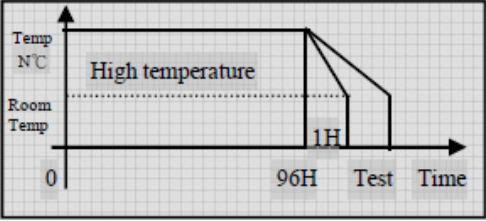
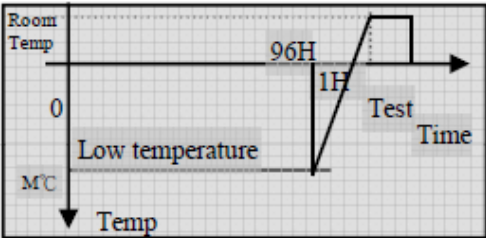
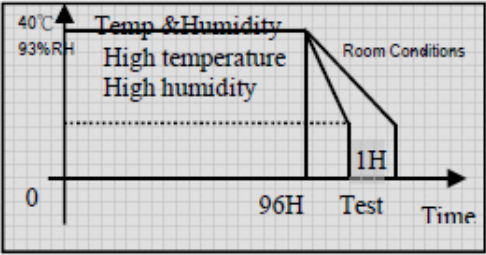
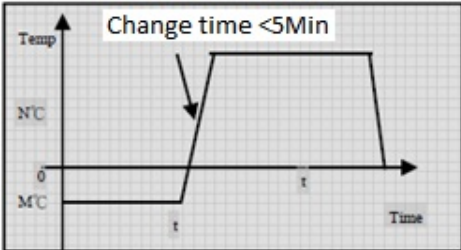
Bag Packaging Quantity	
PART Series	Qty.(pcs/box)
DFS0606	10000
DFS0807	2000
DFS4W1010	2000
DFS1012	1200
DFS1215	800
DFS1618	600
DFS1014	1200





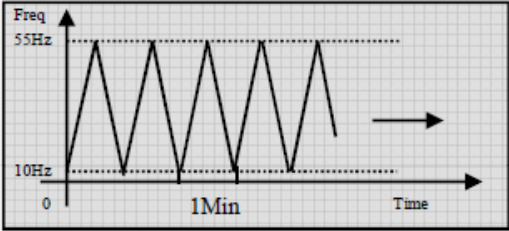
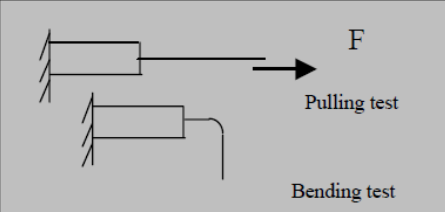
## RELIABILITY AND TEST CONDITION

### Environmental tests conditions (DIP wire wound Inductor)

Item (項目)	Required Characteristics (要求)	Test Method/Condition (測試方法)
<p>High temperature Storage test</p> <p>Reference documents: MIL-STD-202G Method 108A</p> <p>高溫儲存試驗</p>	<p>1.No case deformation or change in appearance. 2.<math>\Delta L/L \leq 10\%</math> 3.<math>\Delta DCR/DCR \leq 10\%</math></p> <p>N : The High temperature, depend on the spec. N : 高溫設定，依據產品規格設定</p> <p>1.無明顯的外觀缺陷 2.感值變化不超過 10% 3.直流電阻變化不超過 10%</p>	<p>Temperature: <math>N \pm 2^\circ\text{C}</math> Time : <math>96 \pm 2</math> hours Tested not less than 1 hour, nor more than 2 hours at room temperature.</p>  <p>溫度: <math>N \pm 2^\circ\text{C}</math>, 時間: <math>96 \pm 2</math>, 小時 樣品在室溫下放置 1 小時, 不超過 2 小時必須測試.</p>
<p>Low temperature Storage test</p> <p>Reference documents: IEC 68-2-1A 6.1 6.2</p> <p>低溫儲存試驗</p>	<p>1.No case deformation or change in appearance. 2.<math>\Delta L/L \leq 10\%</math> 3.<math>\Delta DCR/DCR \leq 10\%</math></p> <p>M : The Low temperature, depend on the spec. M : 低溫設定，依據產品規格設定</p> <p>1.無明顯的外觀缺陷 2.感值變化不超過 10% 3.直流電阻變化不超過 10%</p>	<p>Temperature: <math>M \pm 2^\circ\text{C}</math> Time : <math>96 \pm 2</math> hours Tested not less than 1 hour, nor more than 2 hours at room temperature.</p>  <p>溫度: <math>M \pm 2^\circ\text{C}</math>, 時間: <math>96 \pm 2</math>, 小時 樣品在室溫下放置 1 小時, 不超過 2 小時必須測試.</p>
<p>Humidity test</p> <p>Reference documents: MIL-STD-202G Method 103B</p> <p>濕度測試</p>	<p>1.No case deformation or change in appearance. 2.<math>\Delta L/L \leq 10\%</math> 3.<math>\Delta DCR/DCR \leq 10\%</math></p> <p>1.無明顯的外觀缺陷 2.感值變化不超過 10% 3.直流電阻變化不超過 10%</p>	<p>Temperature: <math>40 \pm 2^\circ\text{C}</math> , Humidity: <math>93 \pm 3\% \text{RH}</math> Time : <math>96 \pm 2</math> hours Tested not less than 1 hour, nor more than 2 hours at room temperature.</p>  <p>溫度: <math>40 \pm 2^\circ\text{C}</math> , 濕度: <math>93 \pm 3\% \text{RH}</math> 時間 : <math>96 \pm 2</math> hours 樣品在室溫下放置 1 小時, 不超過 2 小時必須測試.</p>
<p>Thermal shock test</p> <p>Reference documents: MIL-STD-202G Method 107G</p> <p>熱衝擊測試</p>	<p>1.No case deformation or change in appearance. 2.<math>\Delta L/L \leq 10\%</math> 3.<math>\Delta DCR/DCR \leq 10\%</math></p> <p>N : The High temperature, depend on the spec. M : The Low temperature, depend on the spec. For T: weight <math>\leq 28\text{g}</math> : 15Min; 28g <math>\leq</math> weight <math>\leq 136\text{g}</math> : 30Min</p> <p>1.無明顯的外觀缺陷 2.感值變化小於 10% 3.直流電阻變化小於 10%</p>	<p>First <math>M^\circ\text{C}</math> for T time, next <math>N^\circ\text{C}</math> for T time as 1 cycle. Go through 20 cycles.</p>  <p>從 <math>M^\circ\text{C}</math> 作用 T 分鐘, 然後溫度衝擊到 <math>N^\circ\text{C}</math> 作用 T 分鐘, 作為一個循環, 共作用 20 次.</p>



Physical characteristic tests conditions (DIP wire wound Inductor)

Item (項目)	Required Characteristics (要求)	Test Method/Condition (測試方法)
Solderability test Reference documents: MIL-STD-202G Method 208H IPC J-STD-002B 可焊性測試	Terminals area must have 95% min. Solder coverage 端子必須有 95% 以上著錫	<ul style="list-style-type: none"> <li>● Dip pads in flux then dip in solder pot at 245±5°C for 5 second.</li> <li>● Solder: lead free</li> <li>● Flux: rosin flux</li> <li>● 端子侵入著焊劑，然後侵入 245±5°C 錫爐中 5 秒</li> <li>● 焊料：無鉛焊料</li> <li>● 助焊劑：松香助焊劑</li> </ul>
Heat endurance of flow soldering Reference documents: MIL-STD-202G Method 210F 波峰焊耐熱試驗	<ul style="list-style-type: none"> <li>● No case deformation or change in appearance.</li> <li>● <math>\Delta L/L \leq 10\%</math></li> <li>● <math>\Delta DCR/DCR \leq 10\%</math></li> <li>● 無明顯的外觀缺陷</li> <li>● 感值變化不超過 10%</li> <li>● 直流電阻變化不超過 10%</li> </ul>	<ul style="list-style-type: none"> <li>● Dip pads in flux then dip in solder pot at 260±5°C for 10 second.</li> <li>● Solder: lead free</li> <li>● Flux: rosin flux</li> <li>● 端子侵入著焊劑，然後侵入 260±5°C 錫爐中 10 秒</li> <li>● 焊料：無鉛焊料</li> <li>● 助焊劑：松香助焊劑</li> </ul>
Vibration test Reference documents: MIL-STD-202G Method 201A 振動測試	<ul style="list-style-type: none"> <li>● No case deformation or change in appearance.</li> <li>● <math>\Delta L/L \leq 10\%</math></li> <li>● <math>\Delta DCR/DCR \leq 10\%</math></li> <li>● 無明顯的外觀缺陷</li> <li>● 感值變化不超過 10%</li> <li>● 直流電阻變化不超過 10%</li> </ul>	Apply frequency 10~55Hz. 1.5mm amplitude in each of perpendicular direction for 2 hours.(total 6 hours)  用 10~55Hz 振動頻率 1.5mm 振幅沿 X,Y,Z 方向各振動 2 小時.(共 6 小時)
Drop test Reference documents: MIL-STD-202G Method 203C 落下試驗	<ul style="list-style-type: none"> <li>● No case deformation or change in appearance.</li> <li>● <math>\Delta L/L \leq 10\%</math></li> <li>● <math>\Delta DCR/DCR \leq 10\%</math></li> <li>● 無明顯的外觀缺陷</li> <li>● 感值變化不超過 10%</li> <li>● 直流電阻變化不超過 10%</li> </ul>	Packaged & Drop down from 1m with 981m/s <sup>2</sup> (100G) attitude In 1 angle 1 ridges & 2 surfaces orientations. 將產品包裝後從 1 米高度自然落下至試驗板上 1 角 1 稜 2 面
Terminal strength Reference documents: IEC 68-2-21:1992 Test A & C 端子強度試驗	1. Terminal should not come out 2. Meet require test condition A&C For: Wire-leaded components-Test A&C For: Others leaded components-Test A 1. 端子不會松脫 2. 滿足要求的測試條件 A&C	A Pull Force:0.45kg;the force shall be applied gradually to the terminal and then maintained for 10 seconds. C. Wire-lead bend:0.23kg,The rate of bending shall be approximately 3 seconds per bend in each direction. The load shall be suspended at a point within 1/4 inch from the free end of the terminal.  A. 拉力:0.45 公斤力,拉力逐漸到最大值維持 10 秒。 C. 線腳彎曲:0.23 公斤力,每個方向彎曲 3 次.負載應該加在離端子末端 1/4 英寸處
Resistance to solvent test Reference documents: IEC 68-2-45:1993 耐溶劑性試驗	No case deformation or change in appearance, or obliteration of marking 無外觀破壞及標記破損	To dip parts into IPA solvent for 5±0.5Min, then drying them at room temp for 5Min,at last ,to brushing making 10 times. 在 IPA 溶劑中浸泡 5±0.5 分鐘,室溫下乾燥 5 分鐘,然後擦拭 10 次.



Electrical Characteristic test (DIP wire wound Inductor)

Item (項目)	Required Characteristics(要求)	Test Method / Condition (測試方法)
Electronic characteristic test of major products 主要產品電特性測試	Refer to catalogue of specific products 參照具體產品目錄頁	Refer to catalogue of specific products 參照具體產品目錄頁書
Overload test Reference documents: JIS C5311-6.13 過負荷試驗	1. During the test no smoke, no peculiar, smell, no fire 2. The characteristic is normal after test  1. 試驗過程中無冒煙,異味,著火等, 2. 試驗後產品特性正常	Apply twice as rated current for 5 minutes.  通兩倍額定電流 5 分鐘
Voltage resistance test Reference documents: MIL-STD-202G method 301 絕緣耐壓測試	1. During the test no breakdown 2. The characteristic is normal after test  1. 試驗過程中無擊穿, 2. 試驗後產品特性正常	Refer to product's specification  參照產品的具體規格