

TITLE ϕ 3.5 MINIATURE JACK	SPC. NO. HTJ-035-20	PAGE : 1 OF 7 DATE : 2003.06.06
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SPECIFICATION

1. Standard atmospheric condition

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows :

Ambient temperature: 5°C to 35°C

Relative humidity : 45% to 85%

Air pressure : 86kPa to 106kPa

If there is any doubt about the results, measurements shall be made within the following limits :

Ambient temperature: 20±2°C

Relative humidity : 60% to 70%

Air pressure : 86kPa to 106kPa

Operating temperature range: -20°C to 70°C

Storage temperature range : -40°C to 80°C

2. Electrical characteristics :

	Item	Condition	Specifications
△	Rated voltage		DC 12V 1A
1	Rated current		
2	Contact resistance	Measurement shall be made at with small current 1000 Hz (1A MAX.)	
		Make contacts	50mΩ MAX.
		Break contacts	30mΩ MAX.
		Slide switch contacts	50mΩ MAX.
3	Insulation resistance	A voltage of 500 V DC shall be applied for 1 minute. After which measurement shall be made.	100MΩ MIN.
4	Dielectric strength	A voltage of 500V AC (50 to 60Hz) shall be applied for 1 minute.	Without damage to parts, arcing or breakdown, etc.

ISSUE	DATE	WRN	CHKD	APVD	DESCRIPTIONS
	2003.06.06	蔡鳳琴	龔雲輝	龔雲輝	
△x1	2004.03.03	陳樹民	龔雲輝	龔雲輝	ADD
△x2	2008.03.10	陸昌妹	夏正雄	郭遠峰	Modify the item 4.2/ 4.3
△x3	2012.09.28	劉秀慧	郭素玲	郭遠峰	Modify the item 4.2 and add item 5、7

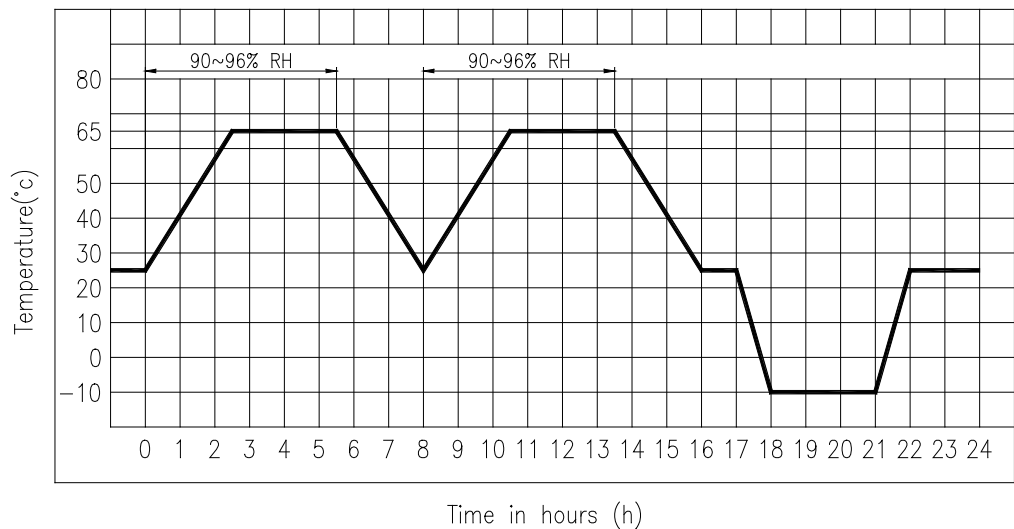
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3. Mechanical characteristics :

Item	Condition	Specifications
1 Operating force	Insertion and withdrawal force shall be measured after inserting and withdrawing 3 times by using a gauge of standard dimensions.	
	Insertion force	2.94N~29.4N (0.3kgf~3kgf)
	Withdrawal force	2.94N~29.4N (0.3kgf~3kgf)
2 Terminal strength	A static load of 4.9N (0.5Kgf) shall be applied to the tip of the terminal for 10 seconds. (x, y, z, direction)	Without cracks or excessive looseness to the terminal. Electrical and mechanical characteristics shall be satisfied. Without play in terminal etc.

4. Endurance characteristics :

Item	Condition	Specifications
1 Composite temperature / humidity cyclic test	The jack shall be subjected to 10 continuous cycles. Then the jack shall be stored at standard atmospheric conditions for 24 hours for recovery, after which measurement shall be made. Temperature shall be reduced from 25°C - 10°C within 30 min. Humidity uncontrolled at a temperature less than 25°C .	Electrical and mechanical characteristics shall be satisfied.

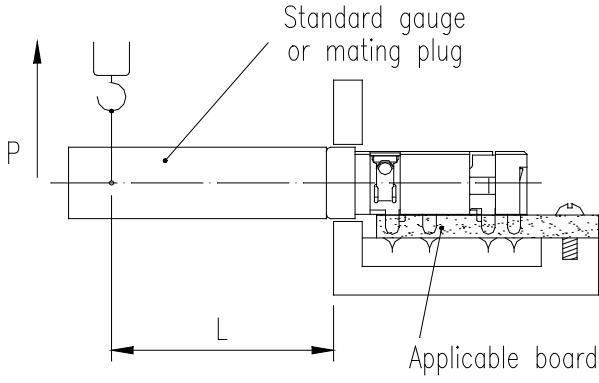


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Item	Condition	Specifications	
2 Resistance to Soldering Heat Test	Wave soldering Process		
	Profile Feature	Pb-Free Assembly	
		Topside PCB	Padside PCB
	Preheat -Temperature min -Temperature max -Time (t _s min to max)	120°C (T _{sl} max)	110°C (T _s min) 150°C (T _s max) 75 sec
	Peak/Classification Temperature	165°C (T _{pl} max)	260°C ±5°C (T _p)
	Time within 5°C of actual Temperature (t _p)		10 sec (within 2 times every time 2-3 sec)
	Time 25°C to Peak temperature		3 minutes max
	Wave Soldering Temperature Profile are as below △ About the plastic properties , Please refer to the data sheet of plastic.		
	<p style="text-align: center;"> ----- Topside PCB ————— Padside PCB </p>		
	Soldering Iron Test		Same as Wave soldering Process
Temperature of soldering Iron : 380±10°C			
Soldering time : 3±1 seconds			
Insertion force			
Withdrawal force		2.94N~29.4N (0.3kgf~3kgf)	

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Item	Condition		Specifications			
3	Solderability	Temperature of solder : $\triangle 250^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Time of dip : 3 ± 0.5 seconds Length of dip : $2 \pm 0.5\text{mm}$ (from top of terminal)		The soldered area shall be covered a minimum of 90% of the surface being immersed.		
4	Humidity test	The jack shall be stored at a temperature of $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and a humidity of 90%~95% for 500 hours. Then the jack shall be maintained at standard atmospheric conditions for 1~2 hours. After which measurement shall be made.		Electrical and mechanical characteristics shall be satisfied.		
		Insulation resistance		50M Ω MIN.		
5	Cold	The jack shall be stored for 500 hours at a temperature of $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ immediately after which measurement shall be made.		Electrical and mechanical characteristics shall be satisfied.		
6	Dry heat	The jack shall be stored for 500 hours at a temperature of $90 \pm 2^{\circ}\text{C}$ immediately after which measurement shall be made.		Electrical and mechanical characteristics shall be satisfied.		
7	Operating endurance	Inserting and withdrawing shall be made by the following mating plug or standard dimension gauge, (Refer to Clause 5. grease applied) at a speed of 20 to 30 times/min. Without load : 5000 times.		Dimensional requirements shall be satisfied. Electrical and mechanical characteristics shall be satisfied.		
		Insertion force		1.96N~29.4N (0.2kgf~3kgf)		
		Withdrawal force		1.96N~29.4N (0.2kgf~3kgf)		
		Contact resistance	Make contacts		100m Ω MAX.	
			Break contacts		60m Ω MAX.	
Slide switch contacts			100m Ω MAX.			
8	Sulfuration	The terminals of miniature jack shall be dipped into a dilute solution of 3% potassium sulfide for 1 minute.		Electrical and mechanical characteristics shall be satisfied.		
9	Salt spray test	Salt water shall be adjusted at 5% weight ratio. Testing time : 16 hour. But, admit of removing drop of water. Appearance shall not be extremely deformed and rust.		Electrical and mechanical characteristics shall be satisfied.		
		Contact resistance		1 Ω MAX.		

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Item	Condition	Specifications																	
10	Ammonia test Refer to sharp technical standards E-012 resistance to ammonia test, after the test, there must not be any cracks of fissures.	Electrical and mechanical characteristics shall be satisfied.																	
11	Drop test The lauan material with 30 mm thickness drips naturally from 75 cm height against ground and its six sides, four corners will be thrown for each one time, total 10 times.	Electrical and mechanical characteristics shall be satisfied. But, the terminal bent is acceptable.																	
12	<p>Torsion strength</p> <p>The standard dimension gauge (refer item5)shell be fixed to the set in the actual used condition. Following plug shall be inserted. A load specified in condition below shall be applied to horizontal and vertical directions to the jack for 5 times in 5 second, after which measurement shall be made.</p>  <p style="text-align: center;">$M (N.m) = P (N) \times L (m)$</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Size</th> <th>L (cm)</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td>Mini (φ 3.5)</td> <td>2.5</td> <td>20N (2.04kgf)</td> </tr> </tbody> </table>	Size	L (cm)	Condition	Mini (φ 3.5)	2.5	20N (2.04kgf)	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">Insertion force</td> <td>1.96N~29.4N (0.2kgf~3kgf)</td> </tr> <tr> <td style="text-align: center;">Withdrawal force</td> <td>1.96N~29.4N (0.2kgf~3kgf)</td> </tr> <tr> <td rowspan="3" style="text-align: center;">Contact resistance</td> <td style="text-align: center;">Make contacts</td> <td>100mΩ MAX.</td> </tr> <tr> <td style="text-align: center;">Break contacts</td> <td>60mΩ MAX.</td> </tr> <tr> <td style="text-align: center;">Slide switch contacts</td> <td>100mΩ MAX.</td> </tr> </table>	Insertion force	1.96N~29.4N (0.2kgf~3kgf)	Withdrawal force	1.96N~29.4N (0.2kgf~3kgf)	Contact resistance	Make contacts	100mΩ MAX.	Break contacts	60mΩ MAX.	Slide switch contacts	100mΩ MAX.
Size	L (cm)	Condition																	
Mini (φ 3.5)	2.5	20N (2.04kgf)																	
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Contact resistance	Make contacts	100mΩ MAX.																	
	Break contacts	60mΩ MAX.																	
	Slide switch contacts	100mΩ MAX.																	

5. ⚠ Soldering condition shelf life about 6 months depend on storage condition of humidity, temperature and others factors.

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7. **△ Endurance test sequence :**

Test Item		Test group												
		A	B	C	D	E	F	G	H	I	J	K	L	M
2.2	Contact resistance	1,6	1,6	1,6		1,6	1,6	1,6	1	1,6	1	1,6	1,6	1
2.3	Insulation resistance	2,7	2,7	2,7		2	2,7	2,7	2,6	2,7	2,6	2,7	2,7	2,6
2.4	Dielectric strength	3,8	3,8	3,8		3,7	3,8	3,8	3,7	3,8	3,7	3,8	3,8	3,7
3.1	Operating force	4,9	4,9	4		4,8	4,9	4,9	4	4,9	4,8	4,9	4,9	4
3.2	Terminal strength	5												
4.1	Composite temperature / humidity cyclic test		5											
4.2	Resistance to Soldering Heat Test			5										
4.3	Solderability				1									
4.4	Humidity test					5								
4.5	Cold						5							
4.6	Dry heat							5						
4.7	Operating endurance								5					
4.8	Sulfuration									5				
4.9	Salt spray test										5			
4.10	Ammonia test											5		
4.11	Drop test												5	
4.12	Torsion strength													5

Test sample quality : 2 pcs min. / group