

<b>TITLE</b> DC POWER JACK	<b>SPC. NO.</b> KM02027	<b>PAGE :</b> 1 OF 7 <b>DATE :</b> 2013.05.16
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## SPECIFICATION

## 1. Scope

This specification applies to unified polarity type DC jack used in electronic equipment.  
For DC input use.

## 2. 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 : 85kPa to 106kPa

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

Ambient temperature : 20±1°C

Relative humidity : 60% to 70%

Air pressure : 86kPa to 106kPa

Operating temperature range : -10°C ~ 65°C

Storage temperature range : -25°C ~ 75°C

Humidity range : 85% RH MAX.

ISSUE	DATE	WR TN	CHKD	APVD	DESCRIPTIONS
	2013.05.16	劉秀慧	郭素玲	郭遠峰	New release

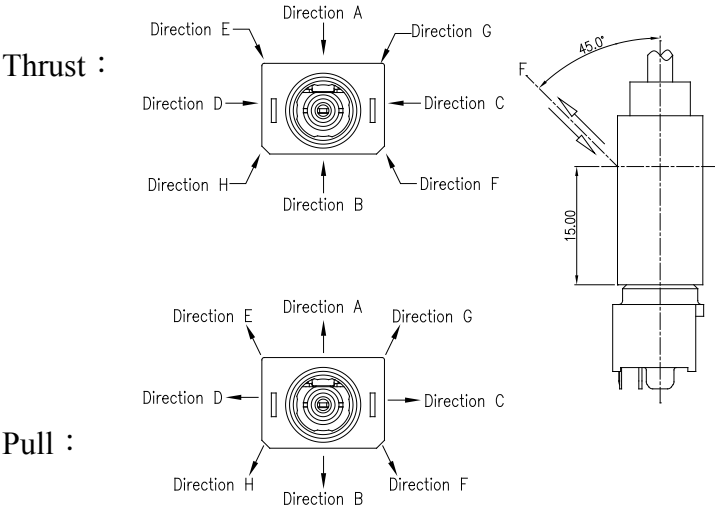
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3. Electrical characteristics			
	Item	Condition	Specifications
1	Rated voltage/ Rated current		DC 19.5V 8A
2	Insulation resistance	A voltage of 500V DC shall be applied for a minute. Between conductors which should not make contact under normal conditions after which measurement shall be made.	100 M $\Omega$ MIN.
3	Contact resistance	Measurement shall be made at with small current 1000 Hz ( 100mA MAX. )	30 m $\Omega$ MAX.
4	Dielectric strength	Between conductors which should not make contact under normal conditions. 500V AC ( 50 to 60Hz ) for 1 minute. (Trip current 2mA)	Without distinct damage.
4. Mechanical characteristics			
	Item	Condition	Specifications
1	Operating force	Measurement shall be made after insertion and withdrawal using standard plug gauge 3 times.	
		Insertion force	2.94N~29.4N ( 0.3~3kgf )
		Withdrawal force	2.94N~29.4N ( 0.3~3kgf )

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5. Endurance characteristics

Item	Condition	Specifications
	Reflow Temperature Profile	
	Profile Feature	Pb-Free Assembly
	Average Ramp-up Rate (T <sub>Smax</sub> to T <sub>p</sub> )	3 °C/second max
	Preheat -Temperature Min(T <sub>Smin</sub> ) -Temperature Max(T <sub>Smax</sub> ) -Time (T <sub>s</sub> min to max)	150 °C 200 °C 60-180 seconds
	Time maintained above -Temperature (T <sub>L</sub> ) -Time (T <sub>L</sub> )	217 °C 60-150 seconds
	Peak/Classification Temperature(T <sub>p</sub> )	250 °C
	Time within 5°C of actual Temperature (t <sub>p</sub> )	20-40 seconds
	Ramp-Down Rate	6 °C/second max
	Time 25°C to Peak Temperature	8 minutes max
		Electrical and mechanical characteristics shall be satisfied, and not show remarkable failure.
1 Resistance to Soldering Heat Test	Reflow Temp Profile Temperature Profile are as below	
	About the plastic properties, Please refer to the data sheet of plastic.	
	Soldering Iron Test Temperature of soldering Iron : 380±10°C Soldering time : 3±1 seconds	Same as Wave soldering Process
	Insertion force	2.94~29.4N (0.3~3kgf)
	Withdrawal force	2.94~29.4N (0.3~3kgf)

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Item	Condition	Specifications	
2 Solderability	Temperature of solder : $250^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Time of dip : $3 \pm 0.5$ 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.	
3 Cold	The jack shall be stored at a temperature of $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 96 hours. And then it shall be subjected to the controlled recovery conditions for 0.5 hours after which measurement shall be made.	Electrical and mechanical characteristics shall be satisfied, and not show remarkable failure.	
4 Dry heat	The jack shall be stored at a temperature of $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 96 hours. And then it shall be subjected to the controlled recovery conditions for 1 hour after which measurement shall be made.	Electrical and mechanical characteristics shall be satisfied, and not show remarkable failure.	
5 Composite temperature/humidity cyclic test	<p>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.</p> <p>Humidity uncontrolled at a temperature less than <math>25^{\circ}\text{C}</math>.</p>	Electrical and mechanical Characteristics shall be satisfied.	

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Item	Condition	Specifications	
6	Humidity test	Temperature : 40°C±2°C Relative humidity : 90% ~95% for 96 hours. The testing jack shall be left alone for 30 minutes in a room ambient, before measurement shall be made.	Electrical and mechanical characteristics shall be satisfied.
		Insulation resistance	30MΩ MIN.
		Contact resistance	50mΩ MAX.
7	Temperature rise test	Referring to the standard plug, insert mating connector connected to a power supply of DC 19.5V 8A ; measure the temperature of contacts when temperature rise becomes constant.	Temperature of contacts less than Δ 30°C and no obvious physical damages to part.
8	Operating endurance	Insertion and withdrawal shall be made with the mating plugs and jacks for 5000 cycles at a speed of 10~30 cycles/minute.	Electrical and mechanical Characteristics shall be satisfied. However, contact resistance shall be 60mΩ or less.
9	Twist test	<p>Connector fixed into PCB and then insert mating plug. Static load of 70N shall be applied to 45° for 5 seconds and also in three direction, A to C, for three times as shown below.</p>  <p>Thrust :</p> <p>Pull :</p>	<p>No any defects as cracks or deformation found. Electrical and mechanical characteristics shall be satisfied.</p>

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- 6. Soldering condition shelf life about 6 months depend on storage condition of humidity, temperature and others factors.
- 7. Mating Plug :

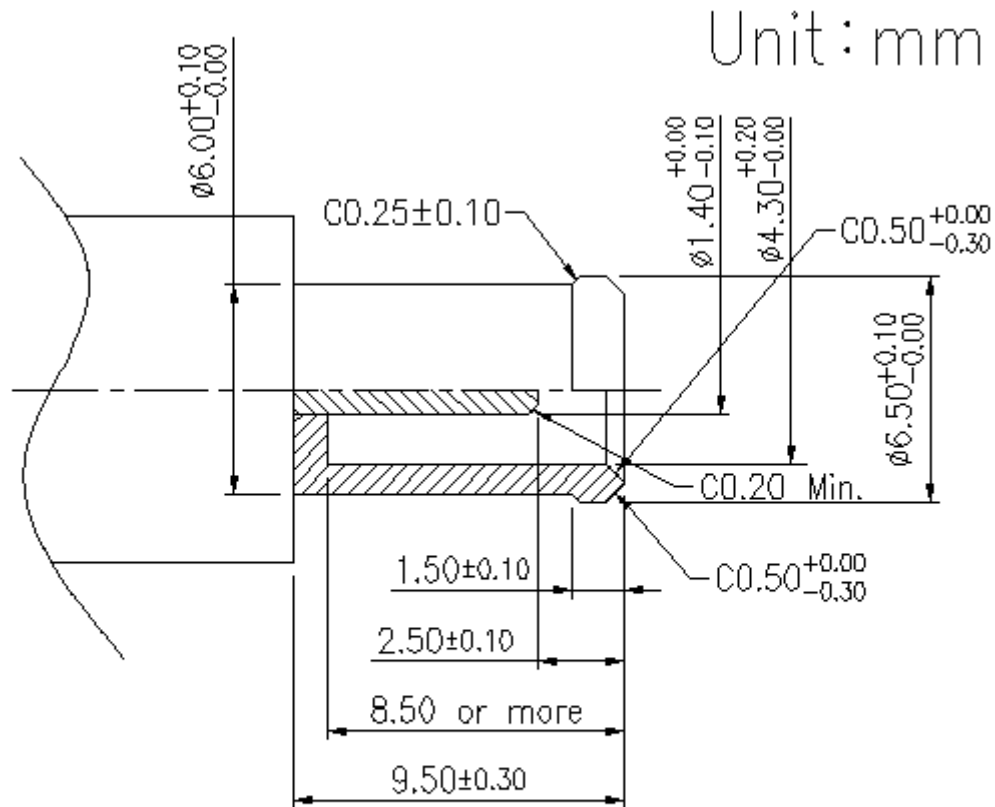


Figure Mating Plug

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8. Endurance test sequence :

Test Item		Test Group								
		A	B	C	D	E	F	G	H	I
		Test sequence								
3.2	Insulation resistance	1,6		1,6	1,6	1,6	1	1,6	1,6	1,6
3.3	Contact resistance	3,8		3,8	3,8	3,8	3	3,8	3	3,8
3.4	Dielectric strength	2,7		2,7	2,7	2,7	2,6	2,7	2,7	2,7
4.1	Operating force	4		4,9	4,9	4,9	4,7	4,9	4,8	4,9
5.1	Resistance to soldering heat test	5								
5.2	Solderability		1							
5.3	Cold			5						
5.4	Dry heat				5					
5.5	Composite temperature humidity cyclic test					5				
5.6	Humidity test						5			
5.7	Temperature rise test							5		
5.8	Operating endurance								5	
5.9	Twist test									5

Test sample quality : 2 pcs min. / group