

# molex<sup>®</sup> PRODUCT SPECIFICATION

## 1.25mm WIRE TO BOARD CONNECTOR 4P, 6P

### 1. SCOPE (적용범위)

This Product Specification covers the 1.25mm Pitch Wire to Board Connector 4P, 6P.  
(이 Spec은 1.25mm Wire to Board Connector 4P, 6P 에 대하여 규정한다)

### 2. PRODUCT DESCRIPTION (제품구성)

#### 2.1 PRODUCT NAME AND SERIES NUMBER (제품명 & 제품번호)

CKT Size (극수)	Product Name (제품명칭)	Parts Number (제품번호)
4P	Header Assembly -4P (Embossed Tape Packing )	104086-0420
	Housing -4P	104085-0400/0430
6P	Header Assembly -6P (Embossed Tape Packing )	104078-0620
	Housing -6P	104077-0600/0630
Crimp Receptacle Terminal		104505-8003

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS(치수, 재질, 도금 및 마킹)

See the appropriate Sales Drawings for information on dimensions, materials, platings, and markings. (관련도면 참조)

### 3. APPLICABLE DOCUMENTS AND SPECIFICATIONS

Sales drawing : SD-104086-005, SD-104086-006, SD-104085-001, SD-104085-005  
SD-104505-001 SD-104078-003, SD-104078-004, SD-104077-001,SD-104077-003  
Crimping specification : CS-104505-001  
Packing specification : PK-104086-001, PK-104085-001 , PK-104505-001  
PK-104078-001, PK-104077-001

### 4. RATINGS (정격)

ITEM (항목)	STANDARD (규격)	
Rated Voltage (Max.) 최대허용전압	200V [ AC(rms 실효치)/DC]	
Rated Current (Max.) and Applicable wires 최대허용전류 및 사용전선	AWG#28	1.0A
	Outside Insulation Dia. 절연피복외경 : $\Phi$ 0.97 mm Max.	
Ambient Temp. Range (Operating and Non-operating) 사용온도 범위	-25°C ~ + 130°C Include Terminal Temperature Rise 통전에 의한 온도상승 포함.	

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DOCUMENT NUMBER: <b>PS-104086-004</b>	CREATED / REVISED BY: <b>JS.SHIN</b>	CHECKED BY: <b>SH.CHU</b>	APPROVED BY: <b>YSOO.KIM</b>

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## 5. PERFORMANCE(성능)

### 5-1. ELECTRICAL REQUIREMENTS(전기적 특성)

ITEM 항 목	TEST CONDITION 시 험 조 건	REQUIREMENT 규 격
1 <b>Contact Resistance</b> 접촉저항	Mate Connectors: apply a maximum voltage of <b>20 mV</b> and a current of <b>100mA</b> . Wire resistance shall be removed from the measured value.  커넥터를 결합하여, <b>20mV</b> 이하의 전압, <b>100mA</b> 이하의 전류를 인가한다. 저항 측정 값에서 전선 저항치는 제외한다	<b>20 milliohms</b> MAXIMUM
2 <b>Contact Resistance of Wire Termination</b> 압착부 접촉저항	Terminate the applicable wire to the terminal and measure wire using a voltage of <b>20 mV</b> and a current of <b>100 mA</b> .  적용전선을 단자에 압착한 상태에서, 전압 <b>20mV</b> , 전류 <b>100mA</b> 를 인가하여 압착부 저항을 측정한다.	<b>5 milliohms</b> MAXIMUM
3 <b>Insulation Resistance</b> 절연저항	Mate connectors: apply a voltage of <b>500 VDC</b> between adjacent terminals and between terminals to ground.  커넥터를 결합하여, 인접단자 간 그리고 단자와 그라운드간에 <b>DC500V</b> 를 인가한다	<b>1,000 Megohms</b> MINIMUM
4 <b>Dielectric Withstanding Voltage</b> 내전압	Mate Connectors: apply a voltage of <b>900 VAC</b> for 1 minute between adjacent terminals and between terminals to ground.  커넥터를 결합하여, 인접단자 간 그리고 단자와 그라운드간에 <b>AC900V</b> 를 1분간 인가한다.	No breakdown 이상 없을 것  current leakage < <b>5 mA</b> 누설전류 < <b>5 mA</b>
5 <b>Temperature Rise</b> 온도상승	Mate connectors: measure the temperature rise at the rated current.  커넥터를 결합하여, 정격 전류를 인가하여 온도 상승을 측정한다.	<b>+30°C</b> MAXIMUM

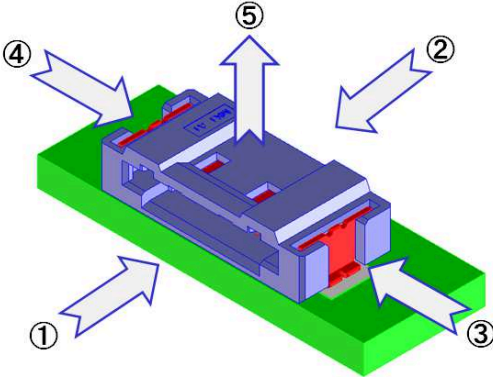
### 5-2. MECHANICAL REQUIREMENTS(기계적 특성)

ITEM 항 목	TEST CONDITION 시 험 조 건	REQUIREMENT 규 격
6 <b>Connector Mate and Unmate Forces</b> 커넥터 삽입력 및 발거력	Mate and unmate connector at a rate of <b>25 ± 6 mm</b> per minute.  Connector를 25 ± 6 mm/분의 속도로 삽, 발거를 실시한다.	제 8 항 참조 (Refer to paragraph 8)

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## 5-2. MECHANICAL REQUIREMENTS(기계적 특성)

ITEM 항 목	TEST CONDITION 시험 조건	REQUIREMENT 규 격
7 <b>PCB Retention Force</b> PCB 접합력	<p>After soldering the connector on PCB , measured the force to pull off the connector till connector solder part break away from PCB. (Testing speed : 25±6mm/min) ▶ Refer to below [Fig]</p>  <p>PCB에 납땜 된, Connector 에 25±6mm/분의 속도로, 그림 방향으로 힘을 가해 PCB와 connector의 납땜 부위가 파손 될 때의 힘을 측정한다</p>	3.0 kg.f MINIMUM
8 <b>Wire Pullout Force</b> 전선 압착강도	<p>Apply an axial pullout force on the wire at a rate of 25 ± 6 mm. 단자를 압착하여 전선을 25±6 mm/분의 속도로 축 방향으로 당긴다.</p>	AWG#28 : 1.0 kg.f MINIMUM
9 <b>Terminal Insertion Force (into Housing)</b> 단자 삽입력	<p>Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm 하우징에 압착된 단자를 25 ± 6 mm/분의 속도로 삽입한다.</p>	1.0 kg.f MAXIMUM
10 <b>Terminal Retention Force (in Housing)</b> 단자 유지력	<p>Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm per minute. 하우징과 단자를 조립한 상태에서 25 ± 6 mm/분의 속도로 축 방향으로 잡아 당긴다.</p>	0.5 kg.f MINIMUM
11 <b>Locking Strength (Housing)</b> 결합부 해체력	<p>Mate the connectors and apply the force by pulling axially the housing at a rate of 25 ± 6 mm per minute. Strength is determined when locking device disengaged locking, or is broken by the load. 커넥터를 조립하고, 하우징을 25 ± 6 mm/분의 잡아당겨 결합장치가 파손되는 힘을 측정 한다.</p>	1.5 kg.f MINIMUM

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## 5-2. MECHANICAL REQUIREMENTS(기계적 특성)

ITEM 항 목	TEST CONDITION 시험 조건	REQUIREMENT 규 격
12 <b>Durability</b> 내구성	Mate connectors up to <b>30</b> cycles at a maximum rate of <b>10</b> cycles per minute.  커넥터를 최대 <b>10</b> 회/1분의 속도로 삽, 발거를 <b>30</b> 회 실시한다.	<b>20</b> milliohms MAXIMUM
13 <b>Vibration</b> 내진동성	Mate connectors and subject to the following vibration conditions: Amplitude : <b>1.5mm</b> P-P Sweep Time : <b>10-55-10</b> Hz in 1 minute Duration : <b>2</b> Hours in each X.Y.Z axes  커넥터를 결합하여 아래 진동상태를 가한다. 진폭 : <b>1.5mm</b> P-P 진동수 : <b>10-55-10</b> Hz/분 진동시간 : X.Y.Z축 각 <b>2</b> 시간	No Damage 이상 없을 것  Contact Resistance (접촉저항) <b>20</b> milliohms MAXIMUM  Discontinuity(순간단락) < <b>1</b> microsecond
14 <b>Shock</b> (Mechanical)  내충격성	Mate connectors and shock at <b>50</b> g's with ½ sine wave ( <b>11</b> milliseconds) shocks in the ±X,±Y,±Z axes ( <b>18</b> shocks total).  커넥터를 결합하여 반정현파 <b>50G (490ms<sup>2</sup>)</b> 의 충격을 ±X,±Y,±Z축 방향에 <b>3</b> 회 가한다.(총 <b>18</b> 회)	No Damage 이상 없을 것 Contact Resistance (접촉저항) <b>20</b> milliohms MAXIMUM Discontinuity(순간단락) < <b>1</b> microsecon

## 5-3. ENVIRONMENTAL REQUIREMENTS(환경적 특성)

ITEM 항 목	TEST CONDITION 시험 조건	REQUIREMENT 규 격
15 <b>Thermal Aging</b> 내열성	Mate connectors; expose to: <b>96</b> hours at <b>105 ± 2°C</b>  커넥터를 결합하여 주위온도 105 ± 2°C에서 96시간 방치 후 꺼내어 측정한다.	No Damage 이상 없을 것  Contact Resistance (접촉저항) <b>20</b> milliohms MAXIMUM
16 <b>Cold Resistance</b> 내한성	Mate connectors: Duration: <b>96</b> hours; Temperature: <b>-40 ± 3°C</b>  주위온도 -40 ± 3°C에서 96시간 방치 후 꺼내어 측정한다.	No Damage 이상 없을 것  Contact Resistance (접촉저항) <b>20</b> milliohms MAXIMUM

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## 5-4. ENVIRONMENTAL REQUIREMENTS(환경적 특성)

ITEM 항 목		TEST CONDITION 시험 조건	REQUIREMENT 규 격										
17	Humidity (Steady State) 내 습 성	<p>Mate connectors: expose to a temperature of <b>60 ± 2°C</b> with a relative humidity of <b>90-95%</b> for <b>96</b> hours.</p> <p>Note: Remove surface moisture and air dry for <b>1</b> hour prior to measurements.</p> <p>커넥터를 결합하여 상대습도 <b>90-95%</b>, 온도 <b>60 ± 2°C</b> 상태에서 <b>96</b> 시간 방치한다. 측정 전 수분을 제거하고 대기 에서 1시간 건조한다</p>	<p>No Damage 이상 없을 것</p> <p>Contact Resistance (접촉저항): <b>40</b> milliohms MAXIMUM</p> <p>Insulation Resistance (절연저항): <b>100</b> Megohms MINIMUM</p> <p>Dielectric Withstanding Voltage (내전압): No breakdown at 900 VAC</p>										
18	Shock (Thermal) 열 충격	<p>Mate connectors; expose to <b>5</b> cycles of: 커넥터를 결합하여 아래 상태에서 5회 방치.</p> <table border="1"> <thead> <tr> <th>Temperature °C 온도</th> <th>Duration (Minutes) 시간(분)</th> </tr> </thead> <tbody> <tr> <td><b>-40 +0/-3</b></td> <td><b>30</b></td> </tr> <tr> <td><b>+25 ±10</b></td> <td><b>5</b> MAXIMUM</td> </tr> <tr> <td><b>+105 +3/-0</b></td> <td><b>30</b></td> </tr> <tr> <td><b>+25 ±10</b></td> <td><b>5</b> MAXIMUM</td> </tr> </tbody> </table>	Temperature °C 온도	Duration (Minutes) 시간(분)	<b>-40 +0/-3</b>	<b>30</b>	<b>+25 ±10</b>	<b>5</b> MAXIMUM	<b>+105 +3/-0</b>	<b>30</b>	<b>+25 ±10</b>	<b>5</b> MAXIMUM	<p>No Damage 이상 없을 것</p> <p>Contact Resistance (접촉저항) <b>20</b> milliohms MAXIMUM</p>
Temperature °C 온도	Duration (Minutes) 시간(분)												
<b>-40 +0/-3</b>	<b>30</b>												
<b>+25 ±10</b>	<b>5</b> MAXIMUM												
<b>+105 +3/-0</b>	<b>30</b>												
<b>+25 ±10</b>	<b>5</b> MAXIMUM												
19	Salt Spray 염수분무	<p>Mate connectors: Duration: <b>48</b> hours exposure; Atmosphere: salt spray from a <b>5%</b> solution; Temperature: <b>35 +1/-2°C</b></p> <p>주위온도 : <b>35 +1/-2°C</b> 에서 <b>5%</b> 중량비의 염수를 <b>48</b>시간 분무하고 시험후 상온에서 물로 씻은후 실온에서 건조시킨다.</p>	<p>No Damage 이상 없을 것</p> <p>Contact Resistance (접촉저항) <b>20</b> milliohms MAXIMUM</p>										
20	Solderability 납땀성	<p>SOLDER(Sn3Ag0.5Cu) Solder Duration : <b>3 ± 0.5</b> seconds Solder Temperature : <b>245 ± 5°C</b></p> <p>SOLDER(Sn3Ah0.5Cu) 납땀시간 : <b>3 ± 0.5</b> seconds 납땀온도: <b>245 ± 5°C</b></p>	<p>Solder coverage: <b>90%</b> MINIMUM</p> <p><b>90%</b> MINIMUM 침적</p>										
21	Solder Resistance 납땀내열성	<p>Reflow Soldering Method (See para.7) Solder Duration: <b>3 ± 0.5</b> seconds; Solder Temperature: <b>260 ± 5°C</b></p> <p>Reflow Soldering 방식 (제 5항 참조) 납땀시간 : <b>3 ± 0.5</b> seconds 납땀온도: <b>260 ± 5°C</b></p>	<p>Visual: No Damage to insulator material</p> <p>외관 변형 없을 것</p>										

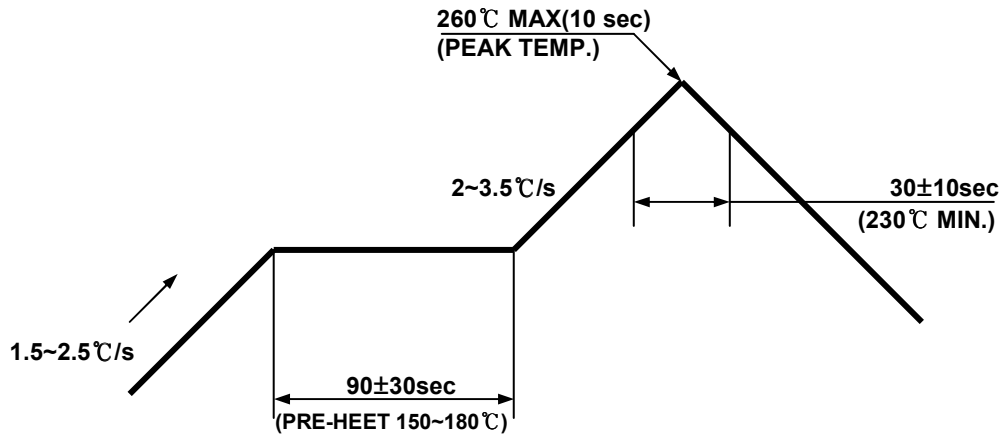
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## 6. PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.  
See Packaging drawing PK-104086-001 for more information.

## 7. REFLOW CONDITION (REFLOW 조건)



Temperature Condition Graph(온도조건 그래프)

(Temperature on board pattern side)

Reflow possibility : 2 times

(Reflow 횟수 : 2회 이하 가능)

**Note : Please check the reflow soldering condition by your own devices beforehand.**

**Because the condition changes by the soldering devices, P.C.Board, and so on.**

(본 Reflow조건은 Reflow 장치 및 기판 조건 등에 의해서 다를 수가 있으므로,  
사전에 Reflow조건을 확인하여 주십시오)

## 8. 삽입력 및 발거력(INsertion/WITHDRAWAL FORCE)

극 수 (CKT Size)	Unit	삽입력(최대) {INSERTION(MAX.)}			발거력(최소) {WITHDRAWAL(MIN.)}		
		1 회 (Initial)	6 회 (6th)	30 회 (30th)	1 회 (Initial)	6 회 (6th)	30 회 (30th)
4	N {kgf}	19.6 {2.0}	19.6 {2.0}	19.6 {2.0}	0.78 {0.08}	0.78 {0.08}	0.78 {0.08}
6	N {kgf}	24.5 {2.5}	24.5 {2.5}	24.5 {2.5}	1.18 {0.12}	1.18 {0.12}	1.18 {0.12}

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