

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

## .070 WTW CONNECTOR SERIES

### 1. SCOPE(적용범위)

THIS PRODUCT SPECIFICATION COVERS THE .070 MULTI W/W CONNECTOR SERIES.  
(이 SPEC.은 .070 MULTI W/W CONNECTOR SERIES에 대하여 규정한다.)

### 2 PRODUCT DESCRIPTION(제품구성)

#### 2.1 PRODUCT NAME AND PART NUMBER(제품명 & 제품 번호)

PRODUCT NAME	PART NAME	REMARK
.070 Multi W/W Male Housing-4P	35180-040*	* Color 0 : Natural 2 : Red 3 : Yellow 4 : Blue  Housing : Natural Blue
.070 Multi W/W Male Housing-6P	35180-060*	
.070 Multi W/W Female Housing-2P (A-Type)	35965-020/920*	
.070 Multi W/W Female Housing-2P (B-Type)	35965-021/921*	
.070 Multi W/W Female Housing-2P (C-Type)	35965-022/922*	
.070 Multi W/W Female Housing-2P (D-Type)	35965-923*	
.070 Multi W/W Male Housing TPA-2P	35182-029*	
.070 Multi W/W Male Housing TPA-3P	35182-039*	
.070 Multi W/W Female Housing TPA-2P	35965-029*	
.070 Multi W/W Common TPA-2P	104081-028*	
.070 Male Terminal (A-Type)	35745-0*10	* Barrel Size 1 : Small 2 : Medium
.070 Male Terminal (B-Type)	35747-0*10	
.070 Female Terminal (A-Type)	35746-0*10	
.070 Female Terminal (B-Type)	35748-0*10	

#### 2.2 MATERIALS, PLATING & DIMENSION(원재료,도금사양&치수)

SEE THE APPROPRIATE DRAWINGS FOR INFORMATION ON MATERIALS, PLATINGS AND DIMENSIONS.

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DOCUMENT NUMBER: <b>PS-35180-002</b>	CREATED / REVISED BY: <b>HTSONG / SCHONG</b>	CHECKED BY: <b>SHCHU</b>	APPROVED BY: <b>YSOOKIM</b>

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### 3. RATINGS(정격)

Item(구분)	Standard(규격)		
Rated Voltage(MAX.) (최대 허용 전압)	300V AC(RMS)/DC [300V AC(실효치 rms)/ DC]		
Rated Current(MAX) and Applicable wires (최대허용전류 적용전선)	AWG	CURRENT	INSULATION DIA
	#14	15A	ø3.8 MAX.
	#16	10A	ø3.4 MAX.
	#18	7A	ø3.0 MAX.
	#20	5A	ø2.7 MAX.
	#22	4A	ø2.5 MAX.
AMBIENT TEMPERATURE RANGE (PBT MATERIAL) (사용온도 조건)			-40 °C~+120 °C
AMBIENT TEMPERATURE RANGE (PET/PC MATERIAL) (사용온도 조건)			-40 °C~+110 °C

### 4. APPLICABLE PRODUCT (적용 제품)

Name & Part Number	Applicable Terminal			Terminal Wire Size
	Male TM'L	Female TM'L	Applicable Number of Circuit	
Male HSG-4P (35180-040*)	35745-0*10	-	1	* : 1 (AWG #22~#20) 2 (AWG #18~#14)
	-	35746-0*10	3	
	35747-0*10	-	2	
	-	35748-0*10	4	
Male HSG-6P (35180-060*)	35745-0*10	-	3, 4	
	-	35746-0*10	2, 5	
	35747-0*10	-	1, 6	
Female HSG-2P(A) (35965-020*)	-	35746-0*10	1, 2	
Female HSG-2P(B) (35965-021*)	35745-0*10	-	1, 2	
Female HSG-2P(C) (35965-022*)	-	35748-0*10	1, 2	
Female HSG-2P(D) (35965-023*)	35745-0*10	-	1, 2	

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## 4. APPLICABLE PRODUCT(Continued)

\* T.P.A

Part Number	Applicable Housing	Quantity
35182-029*	35180-040*	2
35182-039*	35180-060*	2
35965-029*	35965-020*	1
	35965-021*	1
	35965-022*	1
104081-028*	35965-020*	2*2
	35965-023*	
	35965-022*	

\* Mating Circuit Number

		35180-040* (Male HSG-4P)	35180-060* (Male HSG-6P)
35965-020* (A-Type)	1 CKT	2 CKT	4 CKT
	2 CKT	1 CKT	3 CKT
35965-021* (B-Type)	1 CKT	3 CKT	5 CKT
	2 CKT	4 CKT	2 CKT
35965-022* (C-Type)	1 CKT	-	6 CKT
	2 CKT	-	1 CKT
35965-023* (D-Type)	1 CKT	3 CKT	5 CKT
	2 CKT	4 CKT	2 CKT

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## 5. PERFORMANCE

### 5.1 ELECTRICAL PERFORMANCE(전기적 특성)

ITEM(항목)		TEST CONDITION(시험조건)	REQUIREMENT(규격)
1	Insulation Resistance	Mate applicable connector and Apply a voltage of 500V DC between adjacent terminals and between terminals to ground	100 megohms Minimum (100 MΩ Min.)
	절연저항	Connector를 결합한 상태에서 연결하는 단자와 단자, 단자와 접지간에 DC 500V를 가하고 측정한다	
2	Dielectric Strength	Mate connectors, Apply a voltage of 1,500V AC(rms) for 1 minute between adjacent terminals and between terminals to ground.	No breakdown
	내 전 압	Connector를 결합한 상태에서 연결하는 단자와 단자, 단자와 접지간 AC 1,500V를 1분간 가한다	절연파괴 없을것
3	Contact Resistance	Mate connectors, measure by dry circuit apply a maximum voltage of 20mV and a current of 10mA	10 milliohms Maximum (10 mΩ Max.)
	접촉저항	Connector를 결합한 상태에서 개방전압 20mV이하 단락전류 10mA에서 측정한다	
4	Temperature Rise	Mate connectors: measure the temperature rise at the rated current.	+30°C Maximum
	온도상승	커넥터를 결합하여, 정격 전류를 인가하여 온도 상승을 측정한다.	

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## 5.2 MECHANICAL PERFORMANCE(기계적 특성)

ITEM(항목)		TEST CONDITION(시험조건)	REQUIREMENT(규격)	
5	Connector Insertion And Withdrawal Force	Insert and withdrawal with connector At a rate of 25±6mm per minute.	Insertion Force(Max.)	Withdrawal Force(Max.)
	커넥터 삽탈거력	매분 25 ± 3mm/min의 속도로 삽탈거를 한다.	3.5 kgf	0.8 kgf
6	Terminal Retention Force	Apply axial pull out force at the speed rate of 25 ± 3mm/min. on terminal assembled in the housing	4.0 Kgf Min.	
	Terminal 유지력	하우징과 Terminal을 조립한 상태에서 매분 25 ± 3mm/min의 속도로 축 방향으로 잡아당겨 측정한다.		
7	Durability	Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute.	Contact resistance : 20 mΩ Max. (change from initial)	
	내구성	커넥터를 최대 10회/1분의 속도로 삽,탈거를 30회 실시한다.		
8	Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm	3.0 kgf Max.	
	단자 삽입력	하우징에 압착된 단자를 25 ± 6 mm/분의 속도로 삽입한다.		
9	VIBRATION	Mate connectors and subject to the following * vibration conditions: Amplitude : 1.5mm Peak to Peak Sweep Time : 10-55-10 Hz/minute Duration : 2 Hours in each X.Y.Z axes	* Appearance: No Damage * Contact Resistance :20 mΩ Max. (change from initial) * Discontinuity < 1 microsecond	
	내진동성	커넥터를 결합하여 아래 진동상태를 가한다. 진 폭 : 1.5mm P-P 진동수 : 10-55-10 Hz/분 진동시간 : X.Y.Z축 각 2시간	* 외관: 이상 없을 것 * 접촉저항 : 20 mΩ Max. (change from initial) * 순간단락 < 1 microsecond	

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## 5.2 MECHANICAL PERFORMANCE(Continued)

ITEM(항목)		TEST CONDITION(시험조건)	REQUIREMENT(규격)	
10	Mechanical Shock	50G's with three shock in each X-Y-Z axis.	* Appearance: No Damage * Contact Resistance :20 mΩ Max. (change from initial) * Discontinuity < 1 microsecond	
	내충격성	50G 의 충격을 X, Y, Z축 각 방향에 3회 가한다.	* 외관: 이상 없을 것 * 접촉저항 : 20 mΩ Max. (change from initial) * 순간단락 < 1 microsecond	
11	Wire Pullout Force	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm.	Applicable Wore(AWG)	Pullout Force
			#14	15kgf Min.
			#16	13kgf Min.
			#18	10kgf Min.
	전선 압착강도	단자를 압착하여 전선을 25±6 mm/분의 속도로 축 방향으로 당긴다.	#20	6kgf Min.
		#22	4kgf Min.	
12	TPA Retention Force	Pull out axially the TPA from the housing at a rate of 25±6mm per minute.	2.0kgf Min.	
	TPA 유지력	HOUSING으로부터 TPA를 25±6 mm/분의 속도로 축 방향으로 당긴다.		

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## 5.3 ENVIRONMENTAL PERFORMANCE(환경적 특성)

ITEM(항목)		TEST CONDITION(시험조건)		REQUIREMENT(규격)
13	Thermal Shock	<b>Mate connectors and then expose below condition. Cycles: 5 Times</b>		* Appearance: No Damage * Contact Resistance : 20 mΩ Max. (change from initial)
		Temperature (°C)	Duration (Minutes)	
	-55 +0/-3°C +25 ± 10°C +120 +3/-0°C +25 ± 10°C	30 Minutes 5 Minutes Max. 30 Minutes 5 Minutes Max.		
	열충격	커넥터를 결합하여 아래 조건과 같이 5회 노출 시킨다..		
온도 (°C)		시간 (분)	* 외관: 이상 없을 것 * 접촉저항 : 20 mΩ Max. (change from initial)	
-55 +0/-3°C +25 ± 10°C +120 +3/-0°C +25 ± 10°C		30분 최대 5분 30분 최대 5분		
커넥터를 결합하여 주위온도 120 ± 2°C 에서 96시간 방치 후 꺼내어 측정한다.				
14	Heat Resistance	<b>Mate connectors; expose to: 96 hours at 120 ± 2°C</b>		* Appearance: No Damage * Contact Resistance : 20 mΩ Max. (change from initial)
	내열성	커넥터를 결합하여 주위온도 120 ± 2°C 에서 96시간 방치 후 꺼내어 측정한다.		* 외관: 이상 없을 것 * 접촉저항 : 20 mΩ Max. (change from initial)
15	Humidity (Steady State)	<b>Mate connectors: expose to a temperature of 80 ± 2°C with a relative humidity of 90-95% for 96 hours.</b>		* Appearance: No Damage * Contact Resistance : 20 mΩ Max. (change from initial) * Dielectric Strength : No Breakdown * Insulation Resistance : 100 MΩ Min.
	내습성	커넥터를 결합하여 상대습도 90-95% , 온도 80 ± 2°C 상태에서 96 시간 방치한다.		* 외관: 이상 없을 것 * 접촉저항 : 20 mΩ Max. (change from initial) * 내전압 : 절연파괴 없을 것 * 절연저항 : 100 MΩ Min.

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## 5.3 ENVIRONMENTAL PERFORMANCE(Continued)

ITEM(항목)		TEST CONDITION(시험조건)	REQUIREMENT(규격)
16	Salt Spray	<b>Mate connectors:</b> <b>Duration: 48 hours exposure;</b> <b>Atmosphere:</b> <b>salt spray from a 5% solution</b> <b>Temperature: 35 ±2°C</b>	* Appearance: No Damage * Contact Resistance : 20 mΩ Max. (change from initial)
		주위온도 35 ±2°C 에서 5% 중량비의 염수를 48시간 분무하고 시험후 상온에서 물로 씻은 후 실온에서 건조시킨다.	* 외관: 이상 없을 것 * 접촉저항 : 20 mΩ Max. (change from initial)
17	Sulfur Dioxide Gas (SO2)	<b>Duration: 24 hours exposure;</b> <b>Atmosphere: 50ppm SO2 gas;</b> <b>Temperature: 40 ± 2°C</b>	* Appearance: No Damage * Contact Resistance : 20 mΩ Max. (change from initial)
	내 아황산성	주위온도 : 40 ± 2°C 환경 : 50ppm SO2 gas 시간 : 24시간 방치	* 외관: 이상 없을 것 * 접촉저항 : 20 mΩ Max. (change from initial)
18	Ammonia Gas (NH3)	<b>Duration: 40 minutes exposure;</b> <b>Atmosphere: NH3 gas evaporating from 28% Ammonia solution</b>	* Appearance: No Damage * Contact Resistance : 20 mΩ Max. (change from initial)
	내 암모니아성	주위온도 : 40 ± 2°C 환경 : 28% NH3 gas 시간 : 40분 방치	* 외관: 이상 없을 것 * 접촉저항 : 20 mΩ Max. (change from initial)

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