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ELECTRONICS

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Jameco Part Number 304531

**FEATURES AND SPECIFICATIONS**

**Features and Benefits**

- Flanges allow for screw-in retention to board-mounted header
- Low profile for space constraints
- Positive housing locks

**Reference Information**

Product Specification: PS-5556-0001  
 Packaging: Tray or bag  
 UL File No.: E29179  
 CSA File No.: LR19980  
 TUV License No.: R75142  
 Mates With: [5557](#) dual row receptacle  
 Designed In: Millimeters

**Electrical**

Voltage: 600V  
 Current: (Used with 16 AWG)

Circuits	2-3	4-6	7-10	12-24
Amperes-Jr.	9	8	7	6
Amperes-HCS	12	11	10	9

Contact Resistance: 10mΩ max.  
 Dielectric Withstanding Voltage: 1500V  
 Insulation Resistance: 1000 MΩ min.

**Mechanical**

Insertion Force to PCB: 5.0kg max.  
 Mating Force: 0.7kg (1.54 lb) max.  
 Unmating Force: 0.35kg (0.7 lb) min.  
 Normal Force: 200g min.  
 Durability: 30 cycles

**Physical**

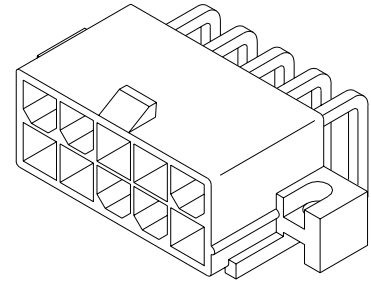
Housing: 6/6 nylon, UL 94V-2 or 94V-0  
 Contact: Brass  
 Plating: Tin, select Gold or overall Gold  
 Operating Temperature: -40 to +105°C



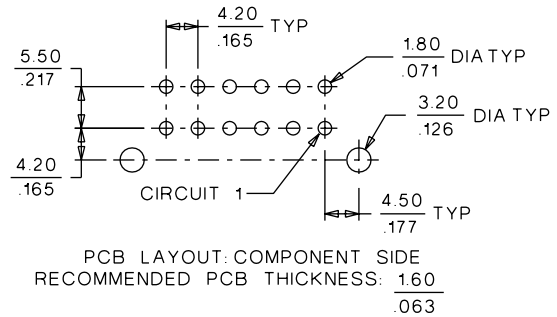
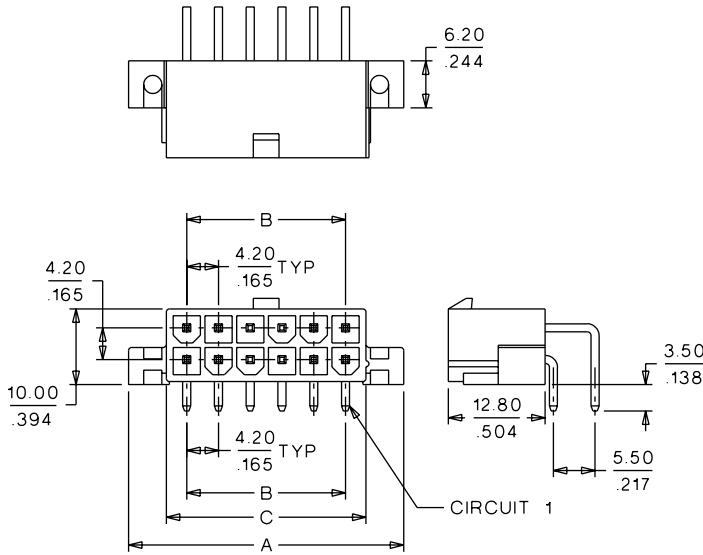
**4.20mm (.165") Pitch  
 Mini-Fit, Jr.™  
 Header**

**5569**

**Right Angle, Dual Row  
 With Flanges**



**CATALOG DRAWING (FOR REFERENCE ONLY)**



**ORDERING INFORMATION AND DIMENSIONS**

Circuits	Order No.						Dimension		
	Tin Plated		Gold Plated (30μ")		Select Gold Plated (30μ")		A	B	C
	94V-2	94V-0	94V-2	94V-0	94V-0	94V-2			
2	• 39-29-1028	• 39-29-1027	• 39-29-5023	• 39-29-4029	• 39-34-7020	• 39-34-7021	15.40 (.606)		5.40 (.213)
4	• 39-29-1048	• 39-29-1047	• 39-29-5043	• 39-29-4049	• 39-34-7040	• 39-34-7041	19.60 (.772)	4.20 (.165)	9.60 (.378)
6	• 39-29-1068	• 39-29-1067	• 39-29-5063	• 39-29-4069			23.80 (.937)	8.40 (.331)	13.80 (.543)
8	• 39-29-1088	• 39-29-1087	• 39-29-5083	• 39-29-4089			28.00 (1.102)	12.60 (.496)	18.00 (1.709)
10	• 39-29-1108	• 39-29-1107	• 39-29-5103	• 39-29-4109			32.20 (1.268)	16.80 (.661)	22.20 (.874)
12	• 39-29-1128	• 39-29-1127	• 39-29-5123	• 39-29-4129			36.40 (1.433)	21.00 (.827)	26.40 (1.039)
14	• 39-29-1148	• 39-29-1147	• 39-29-5143	• 39-29-4149			40.60 (1.598)	25.20 (.992)	30.60 (1.205)
16	• 39-29-1168	• 39-29-1167	• 39-29-5163	• 39-29-4169			44.80 (1.764)	29.40 (1.158)	34.80 (1.370)
18	• 39-29-1188	• 39-29-1187	• 39-29-5183	• 39-29-4189			49.00 (1.929)	33.60 (1.323)	39.00 (1.535)
20	• 39-29-1208	• 39-29-1207	• 39-29-5203	• 39-29-4209			53.20 (2.094)	37.80 (1.488)	43.20 (1.701)
22	• 39-29-1228	• 39-29-1227	• 39-29-5223	• 39-29-4229			57.40 (2.260)	42.00 (1.654)	47.40 (1.866)
24	• 39-29-1248	• 39-29-1247	• 39-29-5243	• 39-29-4249			61.60 (2.425)	46.20 (1.819)	51.60 (2.031)

• US Standard Product, available through Molex franchised distributors



# PRODUCT SPECIFICATION

## MINI-FIT JR.

### 1.0 SCOPE

This Product Specification covers performance requirements for the MINI-FIT JR. 4.20 mm (.165 inch) centerline (pitch) printed circuit board (PCB) connector series with Tin or Gold plating, and The MINI-FIT JR. connector series terminated with 16 to 28 AWG wire using Crimp technology with Tin or Gold plating.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBER (S)

<u>PRODUCT NAME</u>	<u>PART NUMBER</u>
Female Crimp Terminal	5556-****
Male Crimp Terminal	5558-****
Receptacle Housing	5557-****
Plug Housing	5559-****
Vertical Header Assembly	5566-****
Right Angle Header Assembly	5569-****

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings for the information on dimensions, materials, platings and markings.

#### 2.3 SAFETY AGENCY APPROVALS

UL File #E29179  
CSA Certificate #LR 19980  
TUV Certificate #R75142-8

### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See sales drawings and the other sections of this specification for the necessary referenced documents and specifications

### 4.0 RATINGS

#### 4.1 VOLTAGE

600 Volts AC (RMS) (or 600 Volts DC)

#### 4.2 CURRENT AND APPLICABLE WIRES

<b>Maximum Insulation Diameter and Applicable Wire Gauges</b>	16 AWG: 3.10/. 122 MAXIMUM
	18-24 AWG: 3.10/. 122 MAXIMUM
	22-28 AWG: 1.80/. 071 MAXIMUM

<u>REVISION:</u> <b>A</b>	<u>ECR/ECN INFORMATION:</u> <u>EC No:</u> <b>UCR2000-0382</b> <u>DATE:</u> <b>2001 / 09 / 12</b>	<u>TITLE:</u> <b>PRODUCT SPECIFICATION FOR MINI-FIT JR. CONNECTOR SYSTEM</b>	<u>SHEET No.</u> <b>1 of 5</b>
<u>DOCUMENT NUMBER:</u> <b>PS-5556-001</b>	<u>CREATED / REVISED BY:</u> <b>BANDURA</b>	<u>CHECKED BY:</u> <b>BANDURA</b>	<u>APPROVED BY:</u> <b>MARGULIS</b>



# PRODUCT SPECIFICATION

## 4.2 CURRENT AND APPLICABLE WIRES (continued)

MAXIMUM CURRENT RATING (Amperes)									
Brass					Phosphor Bronze				
Wire \ Ckt. Size	2 & 3	4 - 6	7 - 10	12 - 24	Wire \ Ckt. Size	2 & 3	4 - 6	7 - 10	12 - 24
AWG #16	9	8	7	6	AWG #16	8	7	6	5
AWG #18	9	8	7	6	AWG #18	8	7	6	5
AWG #20	7	6	5	5	AWG #20	6	5	4	4
AWG #22	5	4	4	4	AWG #22	4	3	3	3
AWG #24	4	3	3	3	AWG #24	3	2	2	2
AWG #26	3	2	2	2	AWG #26	2	1	1	1
AWG #28	2	1	1	1	AWG #28	1	1	1	1

## 4.3 TEMPERATURE

Operating: \* - 40°C to + 105°C

Nonoperating: - 40°C to + 105°C

\*Including 30°C terminal temperature at rated current

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance (Low Level)	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. Wire resistance shall be removed from the measured value.	10 milliohms MAXIMUM [initial]
2	Contact Resistance @ Rated Current	Mate connectors: apply a maximum voltage of 20 mV at rated current.	10 milliohms MAXIMUM [initial]
3	Contact Resistance of Wire Termination (Low Level)	Terminate the applicable wire to the terminal and measure wire using a voltage of 20 mV and a current of 100 mA.	5 milliohms MAXIMUM [initial]
4	Insulation Resistance	Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM

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DOCUMENT NUMBER: <b>PS-5556-001</b>	CREATED / REVISED BY: <b>BANDURA</b>	CHECKED BY: <b>BANDURA</b>	APPROVED BY: <b>MARGULIS</b>



# PRODUCT SPECIFICATION

## 5.1 ELECTRICAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Dielectric Withstanding Voltage	Mate connectors: apply a voltage of 1500 VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown. Current leakage < 5 mA
6	Temperature Rise (via Current Cycling)	Mate connectors. Measure the temperature rise at the rated current after 96 hours, during current cycling (45 minutes ON and 15 minutes OFF per hour) for 240 hours, and after final 96-hour steady state.	Temperature rise: +30°C MAXIMUM

## 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Terminal Insertion and Withdrawal Forces	Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	14.7 N (3.30 lbf) MAXIMUM insertion force & 1.0 N (0.02 lbf) MINIMUM withdrawal force
2	Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	30 N (6.74 lbf) MINIMUM retention force
3	Durability	Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	20 milliohms MAXIMUM
4	Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
5	Shock (Mechanical)	Mate connectors and shock at 50 g's with ½ sine wave (11 milliseconds) shocks in the ±X, ±Y, ±Z axes, (18 shocks total).	20 milliohms MAXIMUM & Discontinuity < 1 microsecond
6	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch).	16 Awg = 88.0 N (19.8 lbf) Min. 18 Awg = 88.0 N (19.8 lbf) Min. 20 Awg = 59.0 N (13.3 lbf) Min. 22 Awg = 39.0 N (8.78 lbf) Min. 24 Awg = 29.0 N (6.52 lbf) Min. 26 Awg = 19.0 N (4.27 lbf) Min. 28 Awg = 9.80 N (2.20 lbf) Min.

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DOCUMENT NUMBER: <b>PS-5556-001</b>	CREATED / REVISED BY: <b>BANDURA</b>	CHECKED BY: <b>BANDURA</b>	APPROVED BY: <b>MARGULIS</b>



# PRODUCT SPECIFICATION

## 5.2 MECHANICAL REQUIREMENTS (continued)

7	<b>Terminal Insertion Force (into Housing)</b>	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch).	15.0 N (3.37 lbf) MAXIMUM insertion force
8	<b>Normal Force</b>	Apply a perpendicular force.	0.49 N (50 grams) MINIMUM [Gold (noble) plating] OR 1.47 N (150 grams) MINIMUM [Tin (non-noble) plating]
9	<b>PCB Engagement and Separation Forces</b>	Engage and separate a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force
10	<b>Panel Insertion and Withdrawal Forces</b>	Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force

## 5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Thermal Shock</b>	Mate connectors: expose for 5 cycles between temperatures -55 and 105°C; dwell 0.5 hours at each temperature.	20 milliohms MAXIMUM Visual: No Damage Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4
2	<b>Thermal Aging</b>	Mate connectors; expose to: 96 hours at 105 ± 2°C	20 milliohms MAXIMUM & Visual: No Damage
3	<b>Humidity (Steady State)</b>	Mate connectors: expose to a temperature of 60 ± 2°C with a relative humidity of 90-95% for 96 hours.	20 milliohms MAXIMUM Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 Visual: No Damage
4	<b>Solderability</b>	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)
5	<b>Solder Resistance</b>	Dip connector terminal tails in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 260 ± 5°C	Visual: No Damage to insulator material

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# PRODUCT SPECIFICATION

## 5.3 ENVIRONMENTAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6	<b>Cold Resistance</b>	Mate connectors: Duration: 96 hours; Temperature: $-40 \pm 3^{\circ}\text{C}$	20 milliohms MAXIMUM Visual: No Damage
7	<b>Corrosive Atmosphere: Sulfur Dioxide Gas (SO<sub>2</sub>)</b>	Mate connectors: Duration: 24 hours exposure. Atmosphere: 50 parts per million (ppm) SO <sub>2</sub> Gas. Temperature: $40 \pm 3^{\circ}\text{C}$	20 milliohms MAXIMUM Visual: No damage

## 6.0 PACKAGING

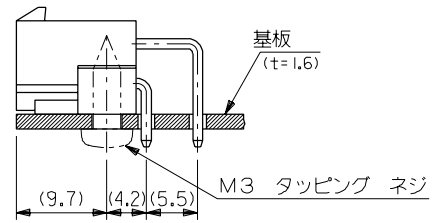
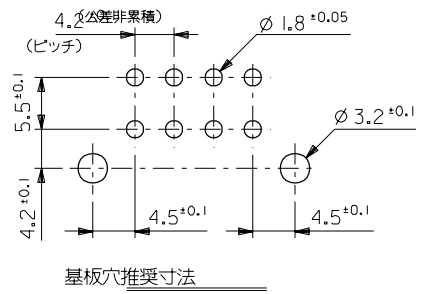
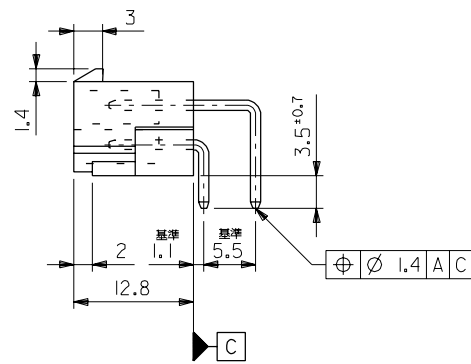
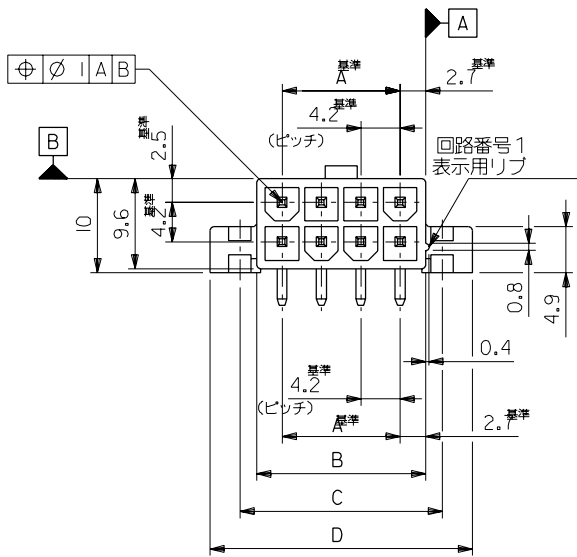
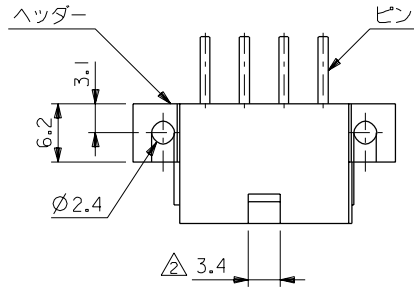
Parts shall be packaged to protect against damage during handling, transit and storage.

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DOCUMENT NUMBER: <b>PS-5556-001</b>	CREATED / REVISED BY: <b>BANDURA</b>	CHECKED BY: <b>BANDURA</b>	APPROVED BY: <b>MARGULIS</b>

**注記**

1. 嵌合相手：5557シリーズ
- △ 2極の場合のみ本寸法は4.2
3. 材料及びメッキ

ENG. NO.	ヘッダー材料	ピン材料	ピンのメッキ
5569-NA1	ナイロン66, UL94V-2	黄銅 (R1.07)	銅下地メッキ 金 : 0.76μm MIN. ニッケル下地 : 1.27μm MIN.
↑ -NA1-210	ナイロン66, UL94V-0		
↓ -NAG1	ナイロン66, UL94V-2		
5569-NAG1-210	ナイロン66, UL94V-0		



61.6	55.2	51.6	46.2	24
57.4	51	47.4	42	22
53.2	46.8	43.2	37.8	20
49	42.6	39	33.6	18
44.8	38.4	34.8	29.4	16
40.6	34.2	30.6	25.2	14
36.4	30	26.4	21	12
32.2	25.8	22.2	16.8	10
28	21.6	18	12.6	8
23.8	17.4	13.8	8.4	6
19.6	13.2	9.6	4.2	4
15.4	9	5.4	—	2
D	C	B	A	極数

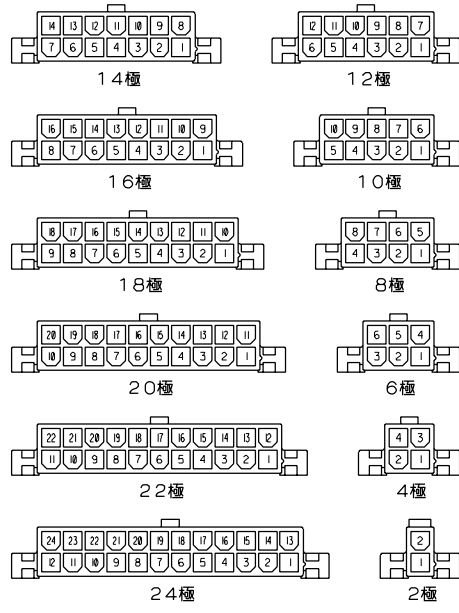
角度 ANGLE		±3°			材料 MATERIAL		注記3 参照	molex MOLEX-JAPAN CO.,LTD. 日本モレックス株式会社
30以上 OVER		+0.4 ±0.2	H 変更 (J00638)		仕上げ FINISH			
10以上 OVER 30未滿 UNDER		+0.3 ±0.2	G 変更&再作図 (J00472)		適用電線範囲 WIRE RANGE		EDP. NO. SHEET 2 OF 2 参照	
10未滿 UNDER		+0.2	記号 LTR 変更内容 REVISION RECORD		被覆外径 INS. RANGE			ENG. NO. SHEET 1 OF 2 REV H
一般公差 GENERAL TOLERANCES			REVISION RECORD		DRAWN BY '90/4/23 H.HIRAMOTO		TITLE 名称 NEW MINI. FIT CONN. RIGHT ANGLE HEADER ASS'Y WITH FLANGE	
			REVISION RECORD		CHK'D BY '91/07/04 M.FUKUSHIMA			
			REVISION RECORD		APP'D BY '91/07/04 M.ENOMOTO		尺度 SCALE 2 - 1	
			REVISION RECORD		DATE			



:MM DIMENSIONS IN METRIC DO NOT SCALE DRAWING

EDP NO. 表 参照 ENG. NO. SD-5569-NA\*-\*

8 7 6 5 4 3 2 1



極数別レイアウト図  
(SCALE : 1-1)

39-29-4249	5569-24AGI-210	39-29-1247	5569-24AI-210	24
▲ -4229	▲ -22AGI-210	▲ -1227	▲ -22AI-210	22
-4209	-20AGI-210	-1207	-20AI-210	20
-4189	-18AGI-210	-1187	-18AI-210	18
-4169	-16AGI-210	-1167	-16AI-210	16
-4149	-14AGI-210	-1147	-14AI-210	14
-4129	-12AGI-210	-1127	-12AI-210	12
-4109	-10AGI-210	-1107	-10AI-210	10
-4089	-08AGI-210	-1087	-08AI-210	8
-4069	-06AGI-210	-1067	-06AI-210	6
▼ -4049	▼ -04AGI-210	▼ -1047	▼ -04AI-210	4
39-29-4029	5569-02AGI-210	39-29-1027	5569-02AI-210	2
EDP NO.	ENG. NO.	EDP NO.	ENG. NO.	極数
5569-NAGI-210		5569-NAI-210		
39-29-5243	5569-24AGI	39-29-1248	5569-24AI	24
▲ -5223	▲ -22AGI	▲ -1228	▲ -22AI	22
-5203	-20AGI	-1208	-20AI	20
-5183	-18AGI	-1188	-18AI	18
-5163	-16AGI	-1168	-16AI	16
-5143	-14AGI	-1148	-14AI	14
-5123	-12AGI	-1128	-12AI	12
-5103	-10AGI	-1108	-10AI	10
-5083	-08AGI	-1088	-08AI	8
-5063	-06AGI	-1068	-06AI	6
▼ -5043	▼ -04AGI	▼ -1048	▼ -04AI	4
39-29-5023	5569-02AGI	39-29-1028	5569-02AI	2
EDP NO.	ENG. NO.	EDP NO.	ENG. NO.	極数
5569-NAGI		5569-NAI		

材料 MATERIAL	注記3 参照	MOLEX-JAPAN CO.,LTD. 日本モレックス株式会社	
仕上げ FINISH	注記3 参照	EDP. NO. 表 参照	
適用電線範囲 WIRE RANGE	—H—	ENG. NO. SHEET 2 OF 2	REV H
被覆外径 INS. RANGE	—H—	SD-5569-NA*-*	
DRAWN BY '90/4/23 H.HIRAMOTO	CHK'D BY '91/07/04 M.FUKUSHIMA	TITLE 名称 NEW MINI. FIT CONN. RIGHT ANGLE HEADER ASS'Y WITH FLANGE	
APP'D BY '91/07/04 M.ENOMOTO	尺 度 SCALE —H—		

角度 ANGLE	±30		
30 以上 OVER	+0.3	H	SEE SHEET 1 OF 2
10 以上 30 未満 OVER	+0.25	G	SEE SHEET 1 OF 2
10 未満 UNDER	+0.2		
一般公差 GENERAL TOLERANCES			

REVISION RECORD

記号	変更内容	DR. CHK.	日付 DATE