

Molex 43160-4305 PDF

深圳创唯电子有限公司

<http://www.molex-connect.com>

SABRE .125 (3.18) X .020 (0.51) FLAT BLADE SYSTEM WITH TPA

Receptacle Terminal	Male Tab Crimp Terminal
	
Series: 43375	Series: 43178

Receptacle Housing	Plug Housing
	
Series: 44441	Series: 43680

PRE-RELEASE
REFERENCE
USE ONLY

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DOCUMENT NUMBER: PS-44441-9999	CREATED / REVISED BY: MKIPPER	CHECKED BY: MKIPPER	APPROVED BY:

Right Angle Header	Vertical Header
	
Series: 43160	Series: 43160



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DOCUMENT NUMBER: PS-44441-9999	CREATED / REVISED BY: MKIPPER	CHECKED BY: MKIPPER	APPROVED BY:

1.0 SCOPE

This Product Specification covers the 7.50 mm (.295 inch) centerline connector series with 18 to 14 AWG wire using crimp technology with tin plating.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

Description	Series Number
Receptacle Terminal	43375-0001
Receptacle Terminal, Large	43375-1001
Male Tab Crimp Terminal, Small	43178-1002
Male Tab Crimp Terminal, Large	43178-2002
Male Tab Crimp Terminal, Side by Side	43178-3002
Receptacle Housing, 2 Circuit	44441-1002, -2002, -3002
Receptacle Housing, 3 Circuit	44441-1003, -2003, -3003
Receptacle Housing, 4 Circuit	44441-1004, -2004, -3004
Receptacle Housing, 5 Circuit	44441-1005, -2005, -3005
Receptacle Housing, 6 Circuit	44441-1006, -2006, -3006
Receptacle Housing, 8 Circuit	44441-1008, -2008, -3008
Plug Housing, 2 Circuit	43680-1002, -2002, -3002
Plug Housing, 3 Circuit	43680-1003, -2003, -3003
Plug Housing, 4 Circuit	43680-1004, -2004, -3004
Plug Housing, 5 Circuit	43680-1005, -2005, -3005
Plug Housing, 6 Circuit	43680-1006, -2006, -3006
Right Angle Header, 2 Circuit	(See SDA-43160-****)
Right Angle Header, 3 Circuit	(See SDA-43160-****)
Right Angle Header, 4 Circuit	(See SDA-43160-****)
Right Angle Header, 5 Circuit	(See SDA-43160-****)
Right Angle Header, 6 Circuit	(See SDA-43160-****)
Right Angle Header, 8 Circuit	(See SDA-43160-****)
Vertical Header, 2 Circuit	(See SDA-43160-****)
Vertical Header, 3 Circuit	(See SDA-43160-****)
Vertical Header, 4 Circuit	(See SDA-43160-****)

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Description	Series Number
Vertical Header, 5 Circuit	(See SDA-43160-****)
Vertical Header, 6 Circuit	(See SDA-43160-****)
Vertical Header, 8 Circuit	(See SDA-43160-****)

2.2 DIMENSIONS, MATERIALS, PLATING AND MARKINGS

Dimensions & Plating: See individual sales drawings.

Material: RoHS compliant materials*.

*Refer to the "Product Environmental Compliance" section in Molex.com to know the individual PN RoHS compliance status

2.3 SAFETY AGENCY APPROVALS

UL File #E29179

CSA File #LR19980

3.0 APPLICABLE DOCUMENTS AND SPECIFICATION

3.1 MOLEX DOCUMENTS

[Sabre Plug & Receptacle Housings – Glow Wire Test summary TS-44441-001](#)

[Molex Quality Crimping Handbook Order No. 63800-0029](#)

[Molex Solderability Specification SMES-152](#)

[Molex Heat Resistance Specification AS-40000-5013](#)

[Molex Moisture Technical Advisory AS-45499-001](#)

[Molex Package Handling Specification 454990100-PK](#)

ATS – Application Tooling Specification*

*Application Tooling Specification for terminals is not provided in this document. ATS for terminals can be available from respective terminal part number page in Molex.com

3.2 INDUSTRY DOCUMENTS

EIA-364-1000

CSA STD. C22.2 NO. 182.3-M1987



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4.0 ELECTRICAL PERFORMANCE RATINGS

4.1 SAFETY AGENCY RATINGS

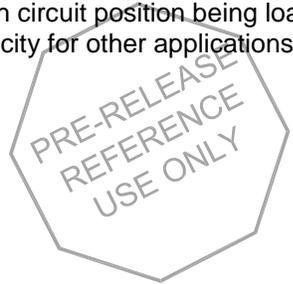
600 Volts AC (RMS)

Series	Agency Voltage Rating (AC RMS or DC)			Agency Current Rating (Amps)		
	UL	CSA	IEC	UL	CSA	IEC
44441	600	600	N/A	32(2 poles)	34(2 poles)	N/A
43680	600	600	N/A	32(2 poles)	34(2 poles)	N/A
43160	N/A	600	N/A	N/A	16 (fully loaded)	N/A

4.2 CURRENT AND APPLICABLE WIRES

Circuit Size	Wire Gauge	Configuration	Current Rating (Amps)			
2	14	Wire To Wire	18			
	16		13			
	18		12			
4	14		Wire To Board	16		
	16			14		
	18			11		
6	14			Wire To Board	16	
	16				13	
	18				10	
2	14				Wire To Board	18
	16					15
	18					13
6	14	Wire To Board				16
	16					14
	18					11
8	14		Wire To Board			14
	16					13
	18					11

NOTE: The current capacity is based on each circuit position being loaded with the given wire size, and the rated current applied. The capacity for other applications may be higher.

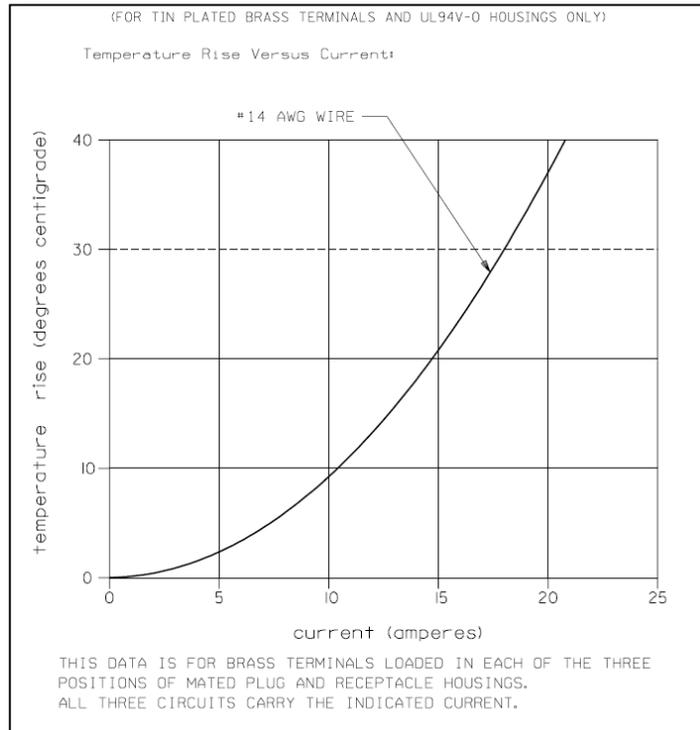


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4.3 TEMPERATURE

Max. operating temperature range (including T-rise from applied current): - 40°C to + 105°C, based on EIA 364-1000 test sequence Group 1, thermal aging at 105°C for 240 hours.
 Field temperatures and field life: Tested per EIA 364-1000 to meet field temperature of 65°C for 10 years life per table 8 in EIA-364-1000.

Nonoperating: - 40°C to + 105°C

4.4 DURABILITY

Tin plated: 25 mating cycles
 As tested in accordance with EIA-364-1000 test method (see sec 6.2 of this specification). Durability per EIA-364-09

5.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with EIA-364-1000

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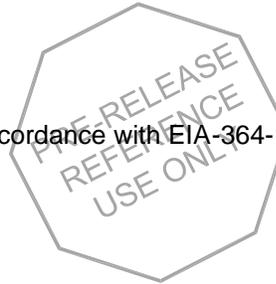


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6.0 PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

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 . (Measurement locations in Section 7.0)	30 milliohms MAXIMUM [initial]
2	Insulation Resistance	Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megaohms MINIMUM
3	Dielectric Withstanding Voltage	Mate connectors: apply a voltage of 5000 VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < 5 mA
4	Temperature Rise (via Current Cycling)	Mate connectors: measure the temperature rise at the rated current after 96 hours , Followed by 500 hours of current cycling (45 minutes ON and 15 minutes OFF per hour).	Temperature rise: +30°C MAXIMUM



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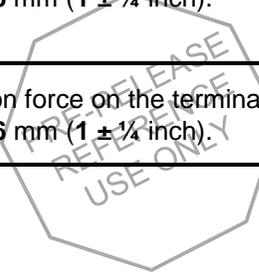


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6.2 MECHANICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Connector Mate and Unmate Forces	Mate and unmate connector (male to female) at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	15.6 N (3.5 lbf) per circuit MAXIMUM insertion force & 2.2 N (.5 lbf) per circuit MINIMUM withdrawal force
6	Terminal Retention Force from Housing (Receptacle Terminal)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	67 N (15 lbf) MINIMUM retention force w/ TPA not activated; 125 N (25 lbf) MINIMUM retention force w/ TPA activated
7	Terminal Retention Force from Housing (Male Tab Terminal)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute.	67 N (15 lbf) MINIMUM retention force w/ TPA not activated; 100 N (22.5 lbf) MINIMUM retention force w/ TPA activated
8	Durability	Mate connectors up to 25 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	3 milliohms MAXIMUM (change from initial)
9	Vibration (Random)	Subject mated connectors to vibration with an amplitude of 1.52 mm (.060 inch) peak to peak; a sweep of 10-55-10 hertz in 1.0 min.; and a duration of 2.0 hours in the $\pm X, \pm Y, \pm Z$ axes.	5 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
10	Shock (Mechanical)	Mate connectors and shock at 50 g's with $\frac{1}{2}$ sine wave (11 milliseconds) shocks in the $\pm X, \pm Y, \pm Z$ axes (18 shocks total).	5 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
11	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch).	14 AWG: 222 N (50 lbf) 16 AWG: 200 N (45 lbf) 18 AWG: 133 N (30 lbf) MINIMUM pullout force
12	Wire Pullout Force (Right Angle)	Apply a right angle pullout force on the wire at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch).	*** N (***) lbf) MINIMUM pullout force {Recommended minimum value: 75% of tensile strength of the wire}
13	Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch).	4.4 N (1.0 lbf) MAXIMUM insertion force



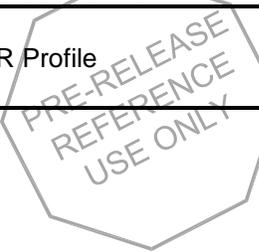
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6.3 ENVIRONMENTAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
14	Shock (Thermal)	Mate connectors; expose to 10 cycles of: <u>Temperature °C</u> <u>Duration (Minutes)</u> -40+0/-3 30 +105 +3/-0 30	3 milliohms MAXIMUM (change from initial); Visual: No Damage
15	Thermal Aging	Mate connectors; expose to: 240 hours at 105 ± 2°	5 milliohms MAXIMUM (change from initial); Visual: No Damage
16	Humidity (Steady State)	Mate connectors: expose to a temperature of 40 ± 2°C with a relative humidity of 90-95% for 96 hours.	5 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megaohms MINIMUM & Visual: No Damage
17	Humidity (Cyclic)	Mate connectors: cycle per EIA-364-31: 24 cycles at temperature between 25 ± 3°C and 65 ± 3°C at 95 ± 5% relative humidity and 25 ± 3°C and -10 ± 3°C with humidity not controlled. Dwell time of 1.0 hour; ramp time of 0.5 hours.	5 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megaohms MINIMUM & Visual: No Damage
18	Solderability	Solder time 3±0.5 seconds @ 230±5°C (A-43160-**** only)	Solder coverage: 95% MINIMUM (per SMES-152)
19	Salt Spray	Mate connectors: Duration: 48 hours exposure; Atmosphere: salt spray from a 5% solution; Temperature: 35 +1/-2°C	10 milliohms MAXIMUM (change from initial) & Visual: No Damage
20	IR Process Soldering	Molex IR Profile	Dimensional: Conformance to Sales Drawing requirements; Visual: No Damage



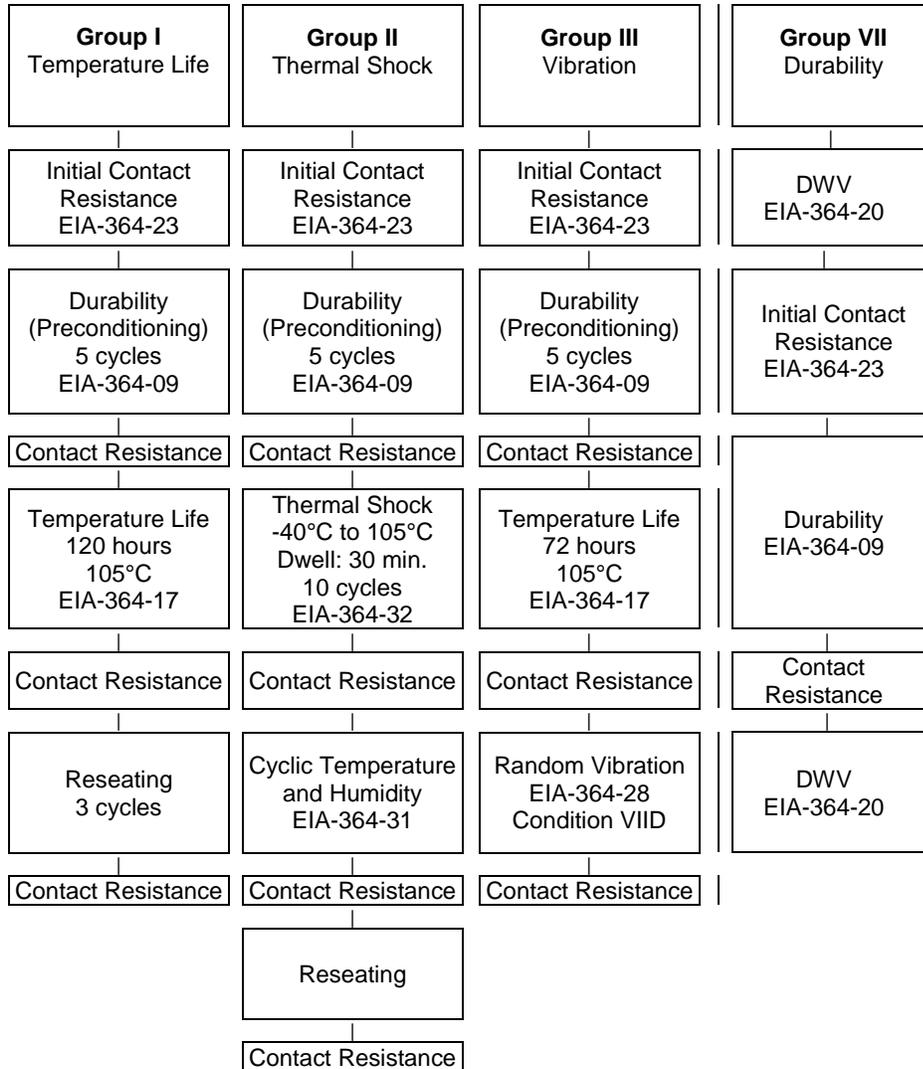
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7.0 TEST SEQUENCE GROUPS

Reliability Test Sequences Per EIA-364-1000



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Individual Tests

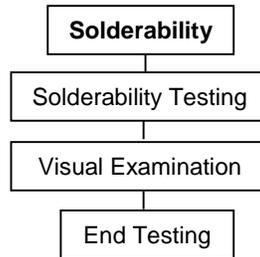
Connector
Mating / Unmating Force

Terminal Insertion force

Terminal Retention force

Wire Pullout force (Axial)

Wire Pullout force
(Right Angle)



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8.0 SOLDER INFORMATION

8.1 SOLDER PROCESS TEMPERATURES

Wave Solder: 235°C MAX

[Molex Solderability Specification SMES-152](#)

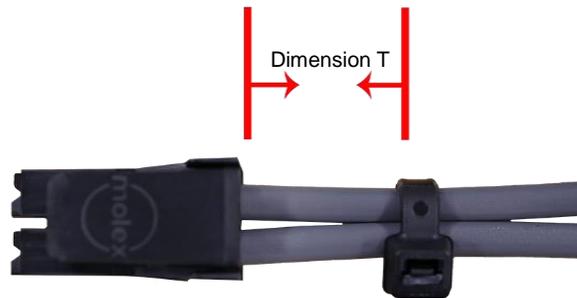
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9.0 PACKAGING

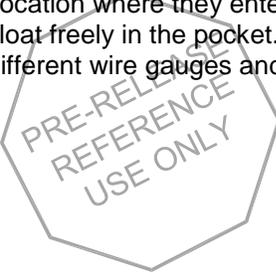
Parts shall be packaged to protect against damage during normal handling, transit and storage. Refer Molex.com specific part number webpage to get the exact packaging document for that item.

10.0 CABLE TIE AND/ OR TWIST LOCATION

Circuit Sizes	Dimension T Minimum
2	0.50" (12.7mm)
4-6	0.75" (19.1mm)
8	1.00" (25.4mm)



The "T" dimension defines a "free" length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. Wires are to be dressed in such a manner to allow the terminals to float freely in the pocket. This dimension is general recommendation and may need to be adjusted for different wire gauges and wire type and insulation thickness and insulation material.



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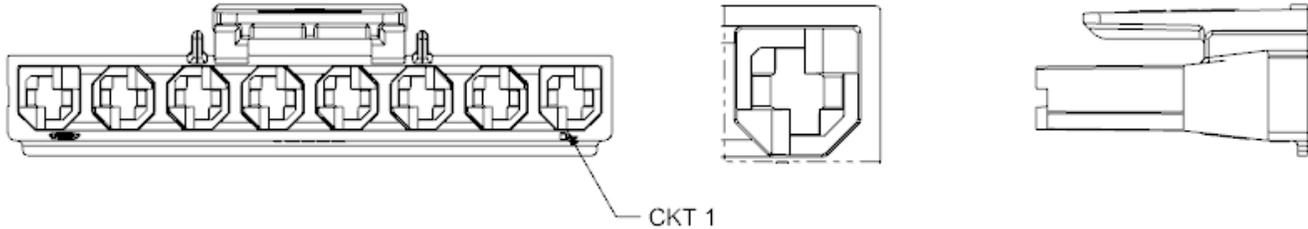


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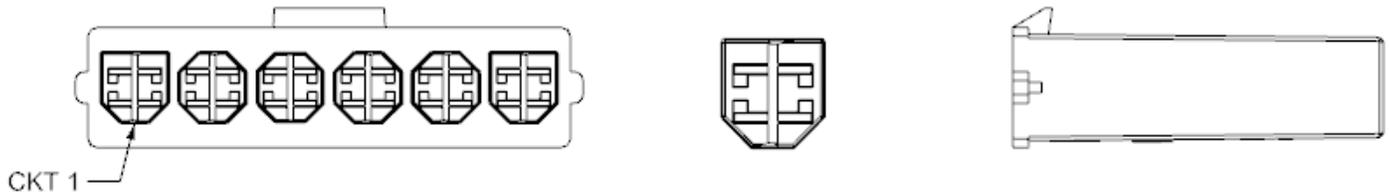
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11.0 POLARIZATION AND KEYING OPTIONS

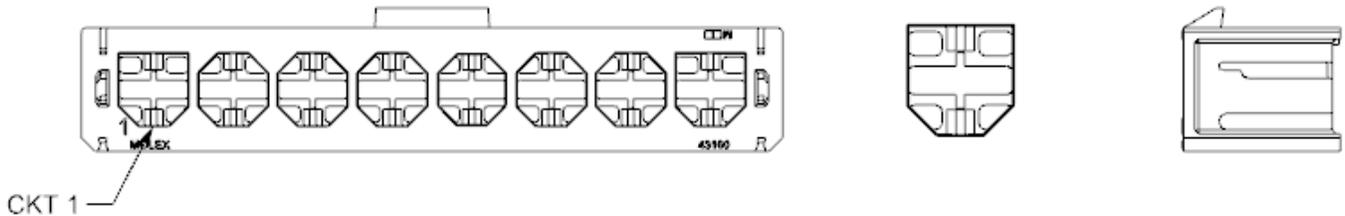
11.1 Receptacle Housing (Series: [44441](#))



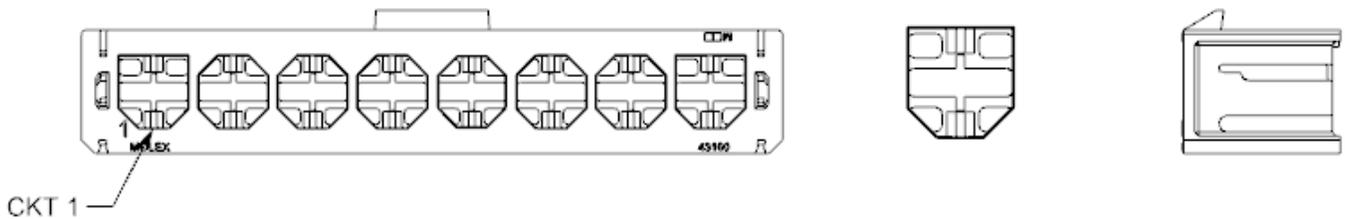
11.2 Plug Housing (Series: [43680](#))



11.3 Right Angle Header (Series: [43160](#))



11.4 Vertical Header (Series: [43160](#))



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