### **PRODUCT SPECIFICATION**

#### 1.0 SCOPE

This product specification covers the 0.50 mm (0.0197 inch) terminal system on a 2.0mm (0.0787 inch) centerline (pitch) single row and dual row Mini 50 unsealed wire to board connection system terminated with 0.35mm² to 0.13mm² wire using crimp technology.

#### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBERS

#### 2.2 ASSOCIATED TERMINALS

Product Name	Series
24 Way Right Angle Header Assembly	34826
20 Way Right Angle Header Assembly	34826
16 Way Right Angle Header Assembly	34826
12 Way Right Angle Header Assembly	34826
8 Way Right Angle Header Assembly	34793
4 Way Right Angle Header Assembly	34793
24 Way Vertical Header Assembly	34825
20 Way Vertical Header Assembly	34825
16 Way Vertical Header Assembly	34825
12 Way Vertical Header Assembly	34825
8 Way Vertical Header Assembly	34792
4 Way Vertical Header Assembly	34792
24 Way SMT Header Assembly	34897
20 Way SMT Header Assembly	34897
16 Way SMT Header Assembly	34897
12 Way SMT Header Assembly	34897
8 Way SMT Header Assembly	34912
4 Way SMT Header Assembly	34912
4 Way Receptacle Connector Assembly	34791
8 Way Receptacle Connector Assembly	34791
12 Way Receptacle Connector Assembly	34824

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Product Description	Vendor Part Number
Molex CTX 50 Small Grip Female	560023-0421
Receptacle Terminal (.13mm²)	000020 0 12 1
Molex CTX 50 Medium Grip Female	560023-0422
Receptacle Terminal (.22mm²)	560023-0422
Molex CTX 50 Large Grip Female	560023-0448
Receptacle Terminal (.35mm²)	500023-0446

#### 2.3 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Harness Housings: unfilled PBT Header Housing: 30% glass fiber SPS

Pins: Copper alloy C26000

Tin Plating: Overall Tin with Nickel under-plate

CPA: 50% glass fiber PA66

#### **2.4 SAFETY AGENCY APPROVALS**

UL File Number	Not Applicable
CSA File Number	Not Applicable
TUV License number	Not Applicable

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#### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Description	Document Number
4 & 8 way single row receptacle assembly	SD-34791-001
sales drawing (charted)	
12 way dual row receptacle assembly sales	SD-34824-002
drawing (charted)	
4 & 8 way vertical header assembly sales	SD-34792-001
drawing (charted)	
12 way vertical header assembly sales	SD-34825-001
drawing (charted)	
4 & 8 way right angle header assembly	SD-34793-001
sales drawing (charted)	
12 way right angle header assembly sales	SD-34826-001
drawing (charted)	00.04040.004
4 & 8 way SMT header assembly sales	SD-34912-001
drawing (charted)	00.04007.004
12 way SMT header assembly sales	SD-34897-001
drawing (charted)	DUIT 44400 000
4 & 8 way harness sales drawing (charted)	DU5T-14489-CCA
12 way harness sales drawing (charted)	FU5T-14489-AA
Molex CTX 50 terminal sales drawing	SD-560023-002
(charted)	
Tray packaging specification (header only)	PK-31301-440
Tube packaging specification (header only)	PK-31301-688
Bulk packaging specification (receptacle	PK-31301-538
assembly only)	
Application specification	AS-34791-020

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#### 4.0 RATINGS

#### 4.1 VOLTAGE

500 VDC MAXIMUM; Per GMW3191, All measured isolation resistances shall be >100MΩ. 14 VDC MAXIMUM; Per NDS24012, An initial leak current of ≤ 10µA and a post endurance leak current of  $\leq 1 \text{mA}$ .

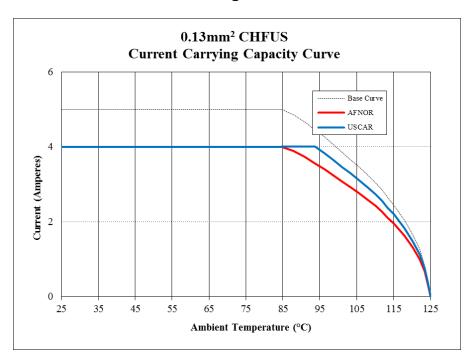
#### 4.2 CURRENT AND APPLICABLE WIRES

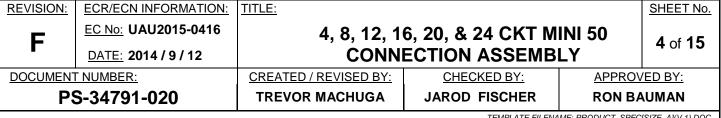
Current is dependent on connector size, ambient temperature, blade size and related factors. Actual maximum current rating is application dependent and should be evaluated for each use.

The current listed below is expected to cause a temperature rise in the terminal only, outside plastic.

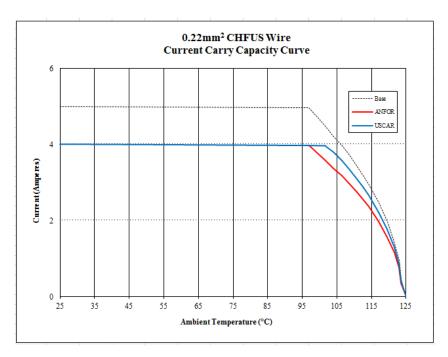
Wire section	Current	Wire range Insulation Diameter
.35 mm <sup>2</sup>	see derating curve	1.4 mm MAX (0.055 inch)
.22 mm <sup>2</sup>	see derating curve	1.2 mm MAX (0.047 inch)
.13 mm <sup>2</sup>	see derating curve	1.05 mm MAX (0.041 inch)

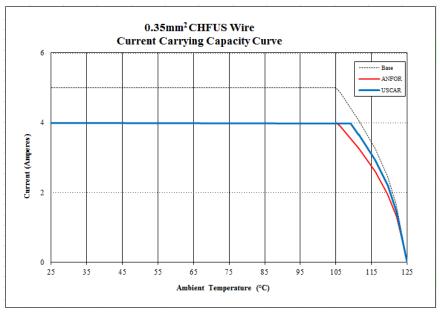
#### **Derating Curves**





## **PRODUCT SPECIFICATION**





TEMPERATURE

Operating:  $-40 \, \text{C}^{\circ} \text{ to} + 105 \, \text{C}^{\circ}$ Non-operating:  $-40 \, \text{C}^{\circ} \text{ to} + 105 \, \text{C}^{\circ}$ 

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## PRODUCT SPECIFICATION

#### **5.0 PERFORMANCE**

#### 5.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance (Low Level)	Mate teminal: apply maximum voltage of <b>20</b> mV and a max current of <b>100</b> mA.	<b>20</b> milliohms MAXIMUM
2	Contact Resistance @ Rated Current (Voltage Drop)	Mate terminal: apply <b>3</b> A of current with a 0.35mm <sup>2</sup> wire	<b>20</b> milliohms MAXIMUM
3	Isolation Resistance	Apply a voltage of <b>500</b> VDC between adjacent terminals and between terminals to ground.	100 Meg ohms MINIMUM
4	Dielectric Strength	Apply an AC rms voltage of 1000V at 60 Hz across each adjacent cavity and between the terminals to ground	No dielectric breakdown or flash-over shall occur between cavities or between the cavities and the outside of a connector at any time during the test.
5	Current Carrying Capability	Mate terminal: Determine the heating curve by measuring the temperature after 1008 cycles (45 minutes ON and 15 minutes OFF per cycle).	Temperature not to exceed 55° over ambient
6	Connector - Connector Overcurrent Loading	Pass the following current for the specified time below through only one circuit that is arbitrarily selected: (20awg)  Current (Amps)  11.0  60 Minutes  13.5  200 Seconds  15.0  5 Seconds  20.0  1 Second	Housing shall not start burning
7		Apply 1000V AC with frequencies 50 to 60Hz, having wave-form close to a sinusoidal, between terminals and between housing and terminals. Conditioning	Initial Leak Current 10 microAmp MAXIMUM
,	Leak Current	consists of exposure to 60±5°C and 90- 95% humidity for one hour in a thermo- static and humido-static tank.	Post Conditioning 1 milliAmp MAXIMUM

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## PRODUCT SPECIFICATION

#### 5.2 MECHANICAL REQUIREMENTS

ITE	M DESCRIPTION	TEST CONDI	TION	REQUIRE	MENT
					ng: IAXIMUM ctor: Engaged IMUM (4 ckt) IMUM (8 ckt) AX (12 ckt) AX (16ckt) AX (20ckt) AX (24ckt) Disengaged IAXIMUM ally Installed:
1	Connector Mate/ Unmate Forces	Mate and Unmate connector (male to female) at a rate of 50 ± 5 mm (2 ± 1/4 inch) per minute.		3.Terminal Partially Installe 7 Newtons MINIMUM  Unmate Force 1.Housing a. Primary Lock Disengaged 5 Newtons MAXIMUM b. Primary Lock engaged 110 Newtons MINIMUM 2.Connector a. Primary Lock Disengaged (4 & 8 Ckt): 20 Newtons MAX Initial 25 Newtons MAX Post 10cycles (12 Ckt): 25 Newtons MAX Initial (16 Ckt): 34 Newtons MAX Initial (20 Ckt): 43 Newtons MAX Initial (24 Ckt): 55 Newtons MAX Initial	
2	Locking Device Strength (Primary Lock Engaged)	After the 11 <sup>th</sup> mating apply a sample with the locking device constant for 10+2 seconds.	I ha farca chauld ha		
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3	Primary Lock Disengage Force (CPA Disengaged)	Apply a force to push on the lock mechanism and attempt to unmate the connection	30 Newtons MAXIMUM	
4	Terminal Retention Force (in Housing-Dry as Molded)	Axial pullout force on the terminal in the housing at a rate of <b>50 ± 5</b> mm ( <b>2 ± ½</b> inch) per minute.	ISL in Pre-Lock 10 Newtons MINIMUM 5 Newtons MINIMUM Post Cycles	
	worded)		ISL in Final-Lock <b>40</b> Newtons MINIMUM	
5	Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of $50 \pm 5$ mm ( $2 \pm \frac{1}{4}$ inch) per minute.	5 Newtons MAXIMUM	
6	Forward Stop Force	Apply an axial insertion force on the terminal at a rate of $50 \pm 5$ mm ( $2 \pm \frac{1}{4}$ inch) per minute.	50 Newtons Min.	
7	Terminal - Engagement Force with ISL in Final-Lock	Apply an axial insertion force on the terminal at a rate of $50 \pm 10$ mm ( $2 \pm \frac{1}{4}$ inch) per minute.	30 Newtons Minimum	
8	Connector Audible	The connector lock must provide audible feedback during connector mating by hand Ambient noise must be between 30 and 50 dB	4&8ckt: <b>45</b> dB over Ambient scale) 12ckt: <b>36</b> dB over Ambier	
9	Terminal/Cavity Polarization 180° Misoriented	Connector and terminal must be polarized to prevent mating in improper direction	10 Newtons MINIMUM	
	Independent Secondary Lock (ISL) Engage Force	condary Lock (ISL)   position to the linar-lock position at a rate of 50 ±		
10				
			ISL Insertion with termina partially installed: 40 Newtons MINIMUM	
11	Independent Secondary Lock (ISL) Disengage Force	The force to completely disengage the ISL from final-lock position at a rate of <b>50 ± 5</b> mm ( <b>2 ± </b> ½ inch) per minute.	60 Newtons MAXIMUM	
12	Header Pin Retention Force (in Vertical, Right Angle, &SMT Housing)	Axial pushout force on the terminal in the housing at a rate of $50 \pm 10$ mm ( $2 \pm \frac{1}{4}$ inch) per minute.	15 Newtons MINIMUM	

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13	Insertion / Removal Feeling	Insert and remove the terminal or the connector, while checking the correctness of the insertion/removal feeling	Connector shall be free of detrimental cracking, rust, pla flaw, deformation, and othe defects. Terminal shall be fr of catching and / or other abnormality.
14	Connector Repetitive Mating/Unmating (Single Row)	Mate and Unmate connector (male to female) at a rate of about <b>100mm/min</b>	After 5cycles Mating force 20 Newtons M (primary lock engaged) Unmating force 8 Newtons M (primary lock disengaged) After 50cycles Voltage Drop 30 milliohms MAXIMUM Mating force 40 Newtons M (primary lock engaged) Unmating force 10 Newton Min (primary lock engaged)
	Connector Polarization Feature Effectiveness	Connector must be polarized to prevent mating with similar connectors - 0° Misorientation for all possible header and receptacle configurations	240 Newton Minimum PolA_recp - PolB_hdr 12Cl PolB_recp - PolA_hdr 12Cl  220 Newton Minimum PolA_recp - PolB_hdr 4Ck PolB_recp - PolA_hdr 4Ck PolC_recp - PolD_hdr 4Ck PolD_recp - PolC_hdr 4Ck PolA_recp - PolB_hdr 8Ck PolB_recp - PolA_hdr 8Ck
15			200 Newton Minimum 16-20Ckt PolA_recp - PolB_hdr  190 Newton Minimum 16-20Ckt PolB_recp - PolA_hdr
			115 Newton Minimum PolA_recp - PolC_hdr 12Cl PolA_recp - PolC_hdr 12Cl 110 Newton Minimum PolA_recp - PolC_hdr 4Ck PolA_recp - PolD_hdr 4Ck

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	I		
			100 Newton Minimum PolC_recp - PolA_hdr 4Ckt PolD_recp - PolB_hdr 4Ckt PolB_recp - PolC_hdr 12Ckt
			95 Newton Minimum PolA_recp - PolC_hdr 8Ckt
			90 Newton Minimum PolB_recp - PolD_hdr 4Ckt PolB_recp - PolC_hdr 8Ckt
			80 Newton Minimum PolB_recp - PolC_hdr 4Ckt PolD_recp - PolA_hdr 4Ckt
	Pry Resistance	A pair of connectors shall have one of them secured and the other inserted. Under these conditions, they shall be pried axially, rectangularity, front and rear and right and left	While being tested, the connectors shall not have an problem in being made electrically alive
16		around the top with a force of 78N After prying the connectors to two stages of fitting, pull them out. This is one cycle.	Voltage Drop 30 milliohms MAXIMUM
		Subject connectors to 10 cycles and Perform Contact Resistance @ Rated Current (Voltage Drop) and Connector Mate/Unmate Forces (Primary Lock Engaged),the mate/unmate speed shall be about 100 mm/min.	Mate <b>20</b> Newtons MAXIMUM
			Unmate Primary Lock Engaged <b>20</b> Newtons MINIMUM
17	Pry Resistance II	Pull the female connector wire at a 45° angle in the direction which minimizes the male and female terminal contact at a speed of 5mm/min to 100N. Then decrease the pulling load at the same speed to 0N (No Force)	The waveform slope remaine positive when increasing load during pulling and negative when decreasing load
18	Connector Drop Test	System Assembly (Mated & Fully populated) – Subject the assembly to a fall of 1 meter on each face, except for electrical wire side, onto a concrete floor	No damage or incipient ruptu shall be observed.
	Connector Drop Test	Connector Assembly (Unmated & Fully Populated) - Subject the assembly to a fall of 1 meter on each face, except for electrical wire side, onto a concrete floor	No damage or incipient ruptu shall be observed.

#### 5.3 ENVIROMENTAL REQUIREMENTS

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ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Durability	Mate connectors up to <b>10</b> cycles prior to environmental tests.	10 milliohms MAXIMUM
2	Thermal Shock (Electrical)	Mate connectors per durability; expose to 300 cycles of:  Temperature C <sup>0</sup> Duration (Minutes)  -40 +0/-3 30  +105 +3/-0 30  Perform Contact Resistance (Low Level)	Dry Circuit Resistance 20 milliohms MAXIMUM & Discontinuity < 1 microsecond
3	Thermal Shock (Physical)	Mate connectors per durability; expose to 300 cycles of:  Temperature C <sup>0</sup> Duration (Minutes)  -40 +0/-3 30  +105 +3/-0 30  Apply a voltage of 500 VDC per Isolation Resistance	<b>100</b> Meg ohms MINIMUM
		Apply an AC rms voltage of 1000V at 60 Hz per Dielectric Strength	No dielectric breakdown or flash-over shall occur between cavities or between the cavities and the outside of a connector at any time during the test.
	Thermal Shock (Mechanical)	Mate connectors per durability; expose to 1000 cycles of:  Temperature C <sup>0</sup> Duration (Minutes)  -40 +0/-3 30  +105 +3/-0 30  Unmate connector per Connector Mate/ Unmate Forces	Unmate w/latch 100 Newtons MINIMUM w/o terminals
4		Mate connectors per durability; expose to 1000 cycles of:  Temperature C <sup>0</sup> Duration (Minutes)  -40 +0/-3 30  +105 +3/-0 30  Extract terminal from housing per Terminal Retention Force (in Housing)	TPA in Final-Lock 30 Newtons MINIMUM
5	Temperature/ Humidity Cycling (Electrical)	Mate connectors per durability. Subject connector system to 10 cycles of: 60% RH 4 hours @ 23 C°; 97% RH 10 hours @ 55 C°, 2 hour @ -40 C°; 2 hours @ 105 C° Perform Contact Resistance (Low Level) Perform Contact Resistance @ Rated Current (Voltage Drop)	Dry Circuit Resistance 20 milliohms MAXIMUM Voltage Drop 20 milliohms MAXIMUM

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6	Mate connectors per durability. Subject connector system to 10 cycles of: 60% RH 4 hours @ 23 C°; 97% RH 10 hours @ 55 C°, 2 hour @ -40 C°; 2 hours @ 105 C°  Apply a voltage of 500VDC per Isolation Resistance		<b>100</b> Meg ohms MINIMUM
	(Physical)	Apply an AC rms voltage of 1000V at 60 Hz per Dielectric Strength	No dielectric breakdown or flash-over shall occur between cavities or between the cavities and the outside of a connector at any time during the test.
	Temperature/	Mate connectors per durability. Subject connector system to 10 cycles of: 60% RH 4 hours @ 23 C°; 97% RH 10 hours @ 55 C°, 2 hour @ -40 C°; 2 hours @ 105 C° Unmate connector per Connector Mate/Unmate Forces (Connector Holding)	Unmate w/latch 100 Newtons MINIMUM w/o terminals
7	Humidity Cycling (Mechanical)	Mate connectors per durability. Subject connector system to 10 cycles of: 60% RH 4 hours @ 23 C°; 97% RH 10 hours @ 55 C°, 2 hour @ -40 C°; 2 hours @ 105 C° Extract terminal from housing per Terminal Retention Force (in Housing)	TPA in Final-Lock <b>30</b> Newtons MINIMUM
8	High Temperature Exposure (Electrical)	Mate connectors per durability. Subject connector system to 105 Co for 1008 hours. Perform Contact Resistance (Low Level) Perform Contact Resistance @ Rated Current (Voltage Drop)	Dry Circuit Resistance 20 milliohms MAXIMUM Voltage Drop 20 milliohms MAXIMUM
	High Temperature Exposure (Physical)	Mate connectors per durability. Subject connector system to <b>105</b> Co for <b>1008</b> hours. Apply a voltage of <b>500DC</b> per Isolation Resistance post 1008 hours	100 Meg ohms MINIMUM
9		Apply an AC rms voltage of 1000V at 60 Hz per Dielectric Strength	No dielectric breakdown or flash-over shall occur between cavities or between the cavities and the outside of a connector at any time during the test.

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10	High Temperature Exposure (Mechanical)	Mate connectors p connector system of Apply a force to with bundle in the follow +45° Vertical, -45° Horizontal, & -45°	to 105 C <sup>o</sup> for re bundle and ving direction Vertical, +4	No breakage or electrical discontinuities at <b>60N or less</b>	
		Mate connectors per durability. Subject connector system to <b>105</b> Co for <b>1008</b> hours. Extract terminal from housing per Terminal Retention Force (in Housing)			TPA in Final-Lock 30 Newtons MINIMUM
10b	High Temperature Exposure (Mechanical) GM	Subject connector system to <b>105</b> C <sup>o</sup> for <b>1008</b> hours. Extract Terminal from housing post test			TPA in Final-Lock 40 Newtons MINIMUM
	Chemical	Perform Contact F  Expose connectors the specified durate Resistance To Fluids:  Automatic	s to the follow	ving fluids for nd dry time: Time / Temp. Drying	
		Transmission Oil: Zinc Chloride:	Seconds @ 23°C 15 Seconds	24 Hours @ 105°C	No deformation or cracks shal be observed in connector  Delta Dry Circuit Resistance
11	Resistance (Electrical)	Fuel:	@ 23°C 7 Days @ 23°C	@ 23°C 7 Days @ 23°C	20 milliohms MAXIMUM  Voltage Drop  20 milliohms MAXIMUM
		Engine Coolant:	5 Minutes @ 23°C	48 Hours @ 50°C	
		Windshield Washer Fluid:	5 Minutes @ 23°C	48 Hours @ 50°C	
		Perform Contact F and Contact Resis (Voltage Drop).	Resistance (I	Low Level)	

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		Expose connectors to the following fluids for			
12		the specified durati			
		Resistance To	Time /	Time /	
	Chemical Resistance (Mechanical)	Fluids:	Temp. in	Temp.	
			Fluid	Drying	
		Automatic Transmission Oil:	15 Seconds @ 23°C	24 Hours @ 105°C	No deformation or cracks shall be observed in connector
		Zinc Chloride:	15 Seconds @ 23°C	24 Hours @ 23°C	Unmate w/latch (hand evaluation) shall show
'-		Fuel:	7 Days @ 23°C	7 Days @ 23°C	no signs of functional degradation.
		Engine	5 Minutes	48 Hours	
		Coolant:	@ 23°C	@ 50°C	TPA in Final-Lock
		Windshield	5 Minutes	48 Hours	30 Newtons MINIMUM
		Washer Fluid:	@ 23°C	@ 50°C	
		Un-mate connector per Connector Mate/ Un-mate Forces. (Hand Evaluation) Extract terminal from housing per Terminal Retention Force (in Housing)			
	Chemical Resistance (Physical)	the specified durati	Expose connectors to the following fluids for the specified duration of soak and dry time:		
		Resistance To	_Time /	Time /	
		Fluids:	Temp. in Fluid	Temp. Drying	No deformation or cracks shall
		Automatic Transmission Oil:	15 Seconds @ 23°C	24 Hours @ 105°C	be observed in connector
13		Zinc Chloride 50%:	15 Seconds @ 23°C	24 Hours @ 23°C	100 Meg ohms MINIMUM
		Engine Coolant:	5 Minutes @ 23°C	48 Hours @ 50°C	
		Apply a voltage of <b>500</b> VDC per Isolation Resistance post 1008 hours			
		Apply an AC RMS voltage of 1000V at 60 Hz per Dielectric Strength		No dielectric breakdown or flash-over shall occur between cavities or between the cavities and the outside of a connector at any time during the test.	

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TEMPLATE FUENAME, PRODUCT SPECIOLE AVAILADOS					



14	Solderability	Steam-age samples for 8 hours (Category 3), set at ambient for at least one hour, and its pins were dipped in ROL0 flux and lead-free solder per <b>SMES-152</b> (Paragraph 5.3.4 Dip Coated) with an agitation of 10mm forward and backward. The solder temperature was <b>255°C</b> per Molex BP5155. Criteria: SMES-152 Rev E Paragraph 5.4.1.	Solder coverage: 95% MINIMUM (per SMES-152)	
15	IR Process Soldering	Molex IR Profile: <b>ES-40000-5013</b> Maximum Temperature: <b>260°C</b>	Dimensional: Conformance to Sales Drawing requirements & Visual: No Damage	

#### 6.0 PACKAGING

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

#### 7.0 GAGES AND FIXTURES

All applicable gages and fixtures are referenced in the appropriate control plans.

#### 8.0 OTHER INFORMATION

Products conform to the following environmental ratings:

Temperature: 105°C

**Vibration:** On-Body (not coupled to engine)

Sealing: Un-Sealed

To ensure compliance with our product validation, it is imperative that our product meet the print dimensions. Any non-conformance with the true position of the PCB pins or mating interface will create performance failures that include; PCB installation, increased mate/unmate forces and electrical discontinuities.

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### 单击下面可查看定价,库存,交付和生命周期等信息

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