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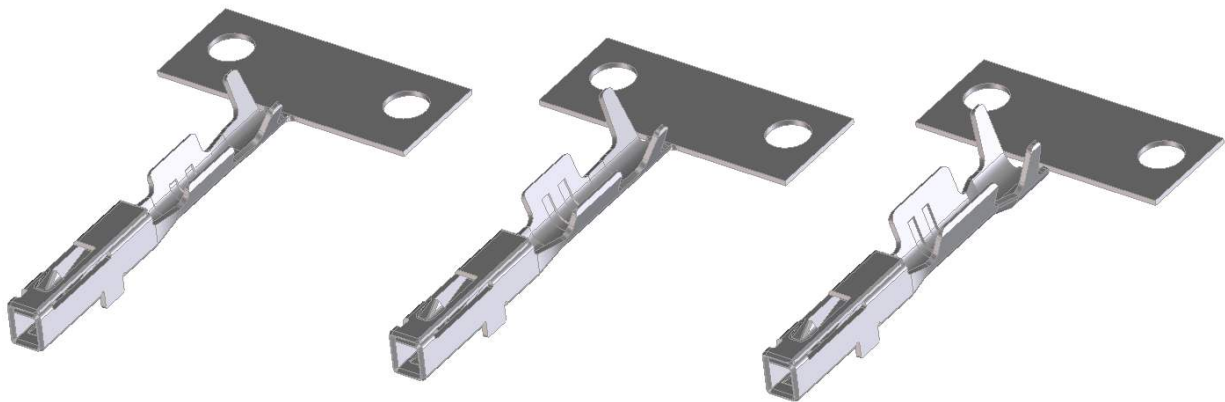
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DOCUMENT NUMBER: PS-560023-001	CREATED / REVISED BY: J. Burgio	CHECKED BY: T. SMITH	APPROVED BY: B. MOSER

CTX50 UNSEALED RECEPTACLE TERMINAL

1.0 SCOPE

This Product Specification covers the Tin plated CTX50 Unsealed Receptacle Terminal crimped to an array of wires utilizing crimp technology.

2.0 PRODUCT DESCRIPTION



2.1 PRODUCT NAME AND ATTRIBUTES

Terminal Family	Gender	Sealing	Plating	Grip Size	Payoff Direction	Special Characteristics	Current Rating
CTX50	Receptacle	Unsealed	Sn	S	Left (D)	Standard Performance Tin	4.0A
CTX50	Receptacle	Unsealed	Sn	S	Right (B)	Standard Performance Tin	4.0A
CTX50	Receptacle	Unsealed	Sn	M	Left (D)	Standard Performance Tin	4.0A
CTX50	Receptacle	Unsealed	Sn	M	Right (B)	Standard Performance Tin	4.0A
CTX50	Receptacle	Unsealed	Sn	L	Left (D)	Standard Performance Tin	4.0A
CTX50	Receptacle	Unsealed	Sn	L	Right (B)	Standard Performance Tin	4.0A

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2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

All dimensions, terminal materials, plating descriptions and ID locations can be found on the applicable sales drawing.

2.3 FEATURES AND BENEFITS

- High performance copper alloy
- One piece terminal design
- Accepts 0.50 x 0.40mm blade
- Molex cavity compatible

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Description	Document Number
Sales Drawing	SD-560023-002
Application Specification (Crimp)	AS-560023-001
Packaging Specification	PK-31301-319

4.0 SAFETY AGENCY APPROVALS

Agency	Approval Status
CSA File Number	Not Applicable
TUV License number	Not Applicable
UL File Number	Not Applicable
IMDS	Available upon request
Environmental Compliance	Available on molex.com

5.0 RATINGS / PERFORMANCE / VALIDATION

5.1 ELECTRICAL

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.1.1	Contact Resistance (Low Level)	Mate terminals : apply a maximum voltage of 20 mV and a current of 100 mA	Terminal 0.50: 20 mΩ max.
5.1.2	Contact Resistance at Rated Current (Voltage Drop)	Mate terminals: apply 4 A of current with 0.35mm ² wire	Terminal 0.50: 20 mΩ max.

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5.1.3	Current Carrying Capability	Mate terminals: determine the heating curve by measuring the temperature after cycling the terminal 1008 cycles (45 minutes on, 15 minutes off per cycle)	Temperature not to exceed 55°C over ambient.
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5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.2.1	Terminal to Terminal Insertion/Extraction Forces	Insert the male tab (0.50mm wide X 0.40mm thick) 4.0 mm into the female terminal at a rate of 50 mm per minute	Terminal 0.50: 2 N max.
5.2.2	Conduct Crimp Pull-out Force	Apply an axial pullout force on the wire without insulation wings	Refer to DVP 1236 for all validated wire
5.2.3	Terminal Bend Resistance	Apply a force of 4 N on the insulation grip	No tears or cracks $R_{ci} \leq 1m\Omega$ $R_{cf} \leq 2m\Omega$
5.2.4	Terminal Crush Resistance	Apply a force of 10 N on the terminal box	Dimensions stay within print tolerance
5.2.5	Crimp Insulation Bend Behavior	Bend wire up 45° and down 45°, 5 cycles	No damage or movement to insulation of wire

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5.3.1	0.22mm² Wire: Wire to crimp – Accelerated Environmental Test	PSA STE 96341150 99: Thermal shock condition 100 cycles	Contact resistance: $R_{ci} \leq 1m\Omega$ ΔR_{ci} (R final-R initial) $\leq 1m\Omega$
	0.35mm² Wire: Wire to crimp – Accelerated Environmental Test	USCAR-21: Thermal Shock – 72 cycles (1 hr/cycle) Temp Humidity – 4 cycles (24 hrs/cycle)	Contact resistance: $R_{cf} \leq 0.55m\Omega$ ΔR_{ci} (R final-R initial) $\leq 0.40m\Omega$
	0.13mm² Wire: Wire to crimp – Accelerated Environmental Test	USCAR-21: Thermal Shock – 72 cycles (1 hr/cycle) Temp Humidity – 4 cycles (24 hrs/cycle)	Contact resistance: $R_{cf} \leq 0.71m\Omega$ ΔR_{ci} (R final-R initial) $\leq 0.64m\Omega$
5.3.2	Slow Flexion ^①	Thermal shock condition 100 cycles then flex the wire 500 cycles	Contact resistance: $R_{ci} \leq 1m\Omega$ ΔR_{ci} (R tshock-R initial) $\leq 1m\Omega$ ΔR_{cf} (R final-R tshock) $\leq 1m\Omega$

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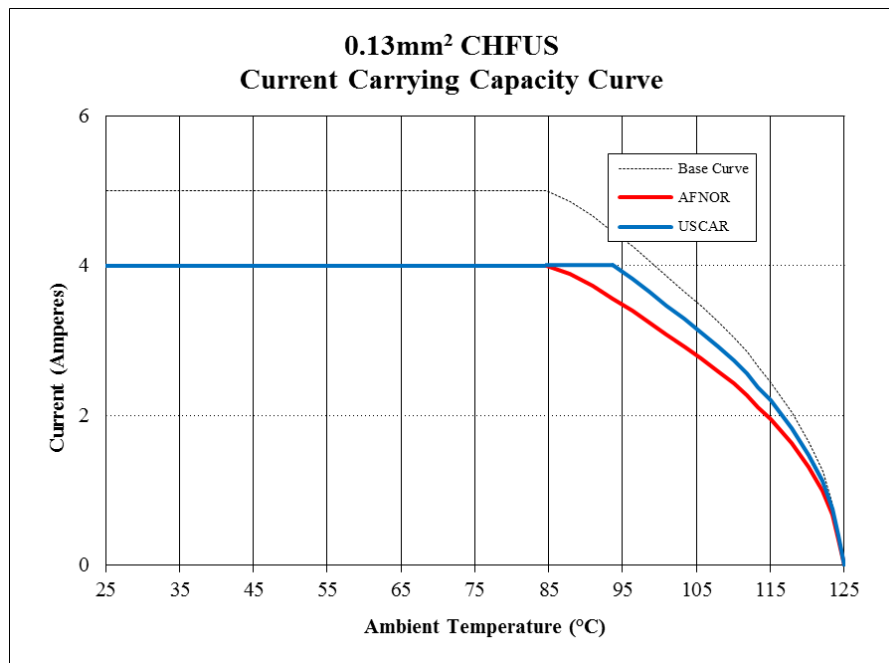
5.3.3	Mechanical Shock and Vibration at Temperature	Shock 25G, No discontinuities > 7Ω for more than 1μS. Vibration 2.13G at 105° C at 22 hrs per axis	"Total Connection Resistance" shall be ≤ 20 mΩ
5.3.4	Thermal Shock	Conditioning 100 cycles, No discontinuities > 7Ω for more than 1μS	"Total Connection Resistance" shall be ≤ 20 mΩ
5.3.5	Temperature/Humidity Cycling	Conditioned 240 hours at 85% R.H.	"Total Connection Resistance" shall be ≤ 20 mΩ
5.3.6	High Temperature Exposure	Conditioned 1008 hours	"Total Connection Resistance" shall be ≤ 20 mΩ

① Validated with wire gauge 0.22mm² only.

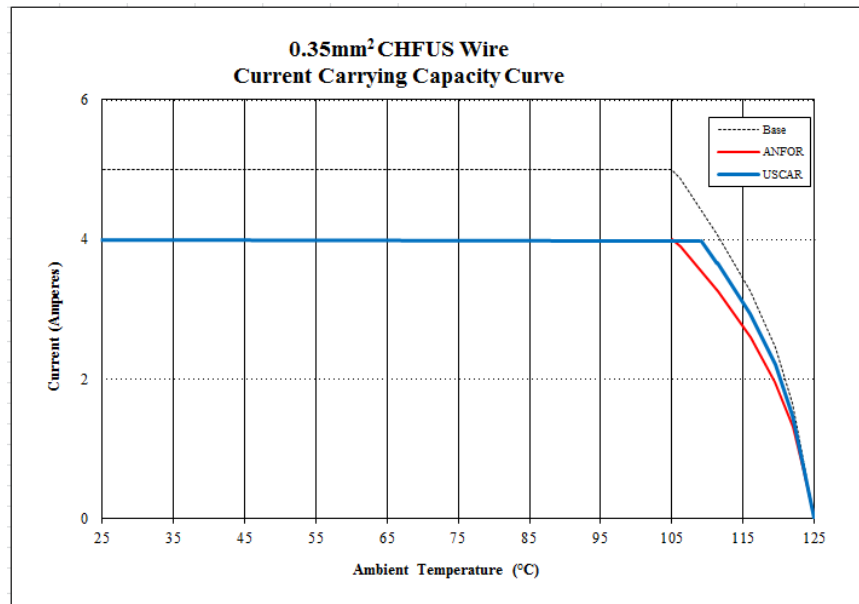
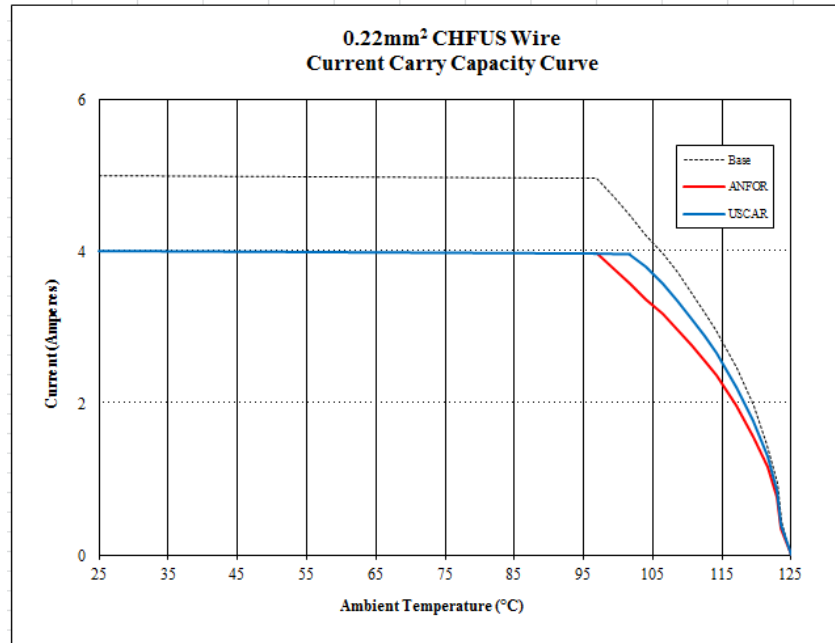
5.4 TERMINAL CURRENT DERATING CURVES

This test is used to determine the maximum test current at which a terminal system can operate in a room temperature environment before excessive thermal degradation and/or resistance begins to occur. Temperature Rise (Y axis) vs. Current (X axis) shall be plotted for each applicable conductor size.

CAUTION: These graphs are NOT to be used for actual terminal application in a vehicle. This test is conducted on terminals alone, thus eliminating the variation that may be introduced by variations in the heat dissipating characteristics of differing connector housing designs and sizes. This test cannot establish the Maximum Current Capability of a specific terminal application. For specific applications, several factors other than current load must be considered (see SAE/USCAR-2 appendix F for more information).



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5.5 RATINGS

5.5.1 TEMPERATURE

Non-operating temperature: - 40°C to +105°C

Operating temperature: - 40°C to +105°C

5.5.2 VOLTAGE

14 Volts DC

****For terminal validation information contact your Molex Sales Engineer**

****For connector system level performance see related product specification**

6.0 PACKAGING

Parts are packaged to protect against damage during handling, transit and storage. Please refer to PK-31301-319 for reel wind direction. Terminals on reels should be stored in original packaging until ready for use. Storage temperature is recommended between 65 and 95°F (18 and 35°C) and storage humidity at less than 85% relative humidity. Under these conditions Molex recommended shelf life is 12 months from manufacturing date on terminal reel.

7.0 GAGES AND FIXTURES

Gages and Fixtures are referenced in the appropriate control plans of the receptacle terminals. For terminal electrical checking, please refer to the related connector application specification.

8.0 OTHER INFORMATION / MISCELLANEOUS

MOLEX REPRESENTS AND WARRANTS TO BUYER FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF DELIVERY OF THE PRODUCTS THAT:

- 1) THE PRODUCTS SHALL CONFORM TO THE MOLEX SPECIFICATIONS FOR THE PRODUCTS IN FORCE AT THE DATE OF DELIVERY OF THE PRODUCTS TO BUYER, AND
- 2) THE PRODUCTS SHALL BE FREE FROM DEFECTS IN MATERIALS AND MANUFACTURING.

EXCEPT AS EXPRESSLY PROVIDED ABOVE, MOLEX MAKES NO WARRANTY, EXPRESS OR IMPLIED, REGARDING THE PRODUCTS. ALL IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED. IN ADDITION, MOLEX EXPRESSLY DISCLAIMS ANY WARRANTY OBLIGATIONS IN THOSE INSTANCES WHERE THE FAILURES RESULTED FROM THE MODIFICATION OF THE PRODUCTS BY BUYER OR ITS CUSTOMERS, IMPROPER HANDLING, USE OR INSTALLATION OF THE PRODUCTS BY BUYER OR ITS CUSTOMERS, OR ANY OTHER CAUSE BEYOND THE CONTROL OF MOLEX.

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