



# PRODUCT SPECIFICATION

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### 32 WAY CMC WIRE TO WIRE CONNECTORS, 64319 SERIES

#### 1.0 SCOPE

This Product Specification covers the hybrid 2.54 mm / 3.7 mm and 4.2 mm centerlines 64319 sealed Connectors Series terminated with CP 0.6 terminal with 0.35mm<sup>2</sup> to 0.75mm<sup>2</sup> wire and CP 1.5 terminal with 0.5 mm<sup>2</sup> to 2.0 mm<sup>2</sup> wire using crimp technology.

#### 2.0 PRODUCT DESCRIPTION

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

- **64319:** CMC Connector 32 circuits.
- **64322:** CP 0.6 Female Terminal.
- **64323:** CP 1.5 Female Terminal.
- **64325:** Blind Plug.
- **501820:** Male Connector. Plug.
- **501827:** 0.64 Male Terminal.
- **501828:** 1.5 Male Terminal.

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

All dimensions, housing materials, terminal materials and plating can be found on sales drawings.

##### 2.3 SAFETY AGENCY APPROVALS

All molded components are flammability rated UL94 HB and are also compliant with FMVSS 302.

#### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Description	Document Number
Application specification CMC Female 32way	AS-64319-002
Sales drawing CMC Female 32way	SD-64319-001
Sales drawing CP 0.6 Female terminal	SD-64322-001
Sales drawing CP 1.5 Female terminal	SD-64323-001
Application specification CMC W/W Male 32way	AS-501820-001
Sales drawing CMC W/W Male 32way	SD-501820-001
Sales drawing 0.64 Male terminal	SD-501827-001
Sales drawing 1.5 Male terminal	SD-501828-001

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DOCUMENT NUMBER: <b>PS-64319-002</b>	CREATED / REVISED BY: <b>Y.TAMAKI</b>	CHECKED BY: <b>H.KOMATSU</b>	APPROVED BY: <b>MA.YAMAMOTO</b>



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## 4.0 RATINGS

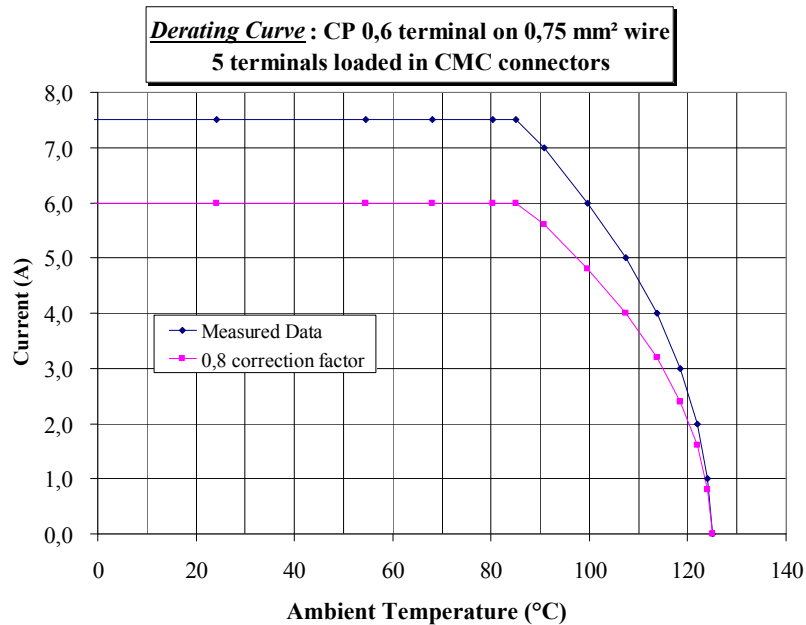
### 4.1 VOLTAGE

250 Volts AC according IEC 60664, pollution class 1.  
32 Volts AC according IEC 60664, pollution class 2.

### 4.2 CURRENT AND APPLICABLE WIRES

Terminal size	ISO	Amps	Outside Insulation Diameter
0.63	0.75 mm <sup>2</sup>	6	1.90 mm Max.
1.5	2.0 mm <sup>2</sup>	12	2.80 mm Max.

**Note:** The below curves were developed using partially loaded connectors mated on headers and are presented as a guideline. The end user must evaluate the performance of the connector pair in actual application to determine the suitability and actual performance.

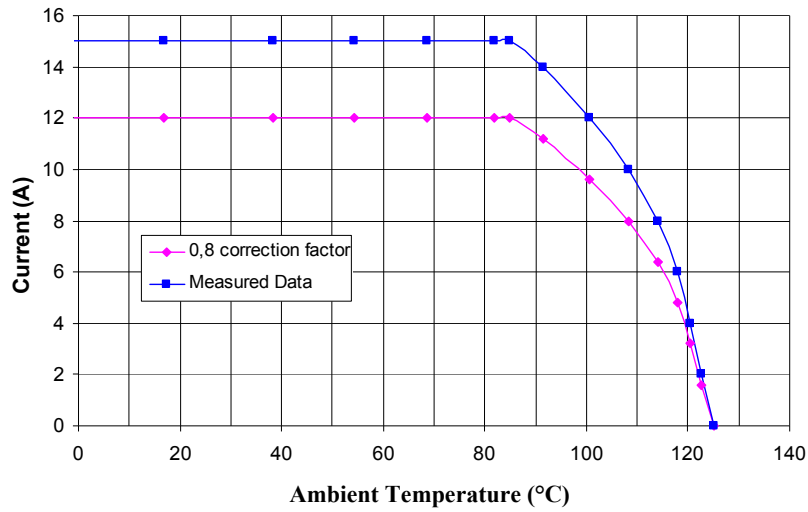


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**Derating curve : CP 1,5 terminal on 2,00 mm<sup>2</sup> wire  
5 terminals loaded in CMC connector**



## 4.3 TEMPERATURE

Operating temperature: - 40°C to +125°C.  
 Non operating temperature: -40°C to +125°C.

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL PERFORMANCE

ITEM	DESCRIPTION	TEST CONDITION	ISO 8092-2 STANDARD	REQUIREMENT
1	<b>Contact Resistance (Low Level)</b>	Mate connectors : apply a maximum voltage of 20 mV and a current of 100 mA	§ 4.8.1	Terminal 0.63: 8 mΩ max. Terminal 1.5: 4 mΩ max.
2	<b>Insulation Resistance</b>	Unmated connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	§ 4.12	100 MΩ min.
3	<b>Dielectric Withstanding Voltage</b>	Unmated connectors: apply a voltage of 1000 volts 50 Hz VAC for 1 minute between adjacent terminals and between terminals to ground.	§ 4.13	No Breakdown

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## 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	ISO 8092-2 STANDARD	REQUIREMENT
4	<b>Terminal Insertion Forces</b>	Insert terminal into the housing at a rate of 25 mm per minute	§ 4.6	Terminal 0.63 : 12 N max. Terminal 1.5 : 25 N max.
5	<b>Terminal Retention Force (in housing with TPA)</b>	Axial pullout force on the terminal in the housing at a rate of 25 mm per minute	§ 4.7	Female Terminal 0.63 : 60 N min. 1.5 : 100 N min.
				Male Terminal 0.63 : 40 N min. 1.5 : 80 N min.
6	<b>Connector Mate and Unmate Forces</b>	Mate and unmate connector (male to female) at a rate of 25 mm per minute	§ 4.3	70 N max.
7	<b>Durability</b>	Mate connectors up to 20 cycles	§ 4.3	No mechanical damage and no sealing leakage.
8-1	<b>Vibration (Sine) <u>Tin plated Terminals</u></b>	- Mate connectors and vibrate from 10 to 2000Hz : Vibration profile : - 10 Hz - 0.3g - 25 Hz – 3g - 200 Hz – 3g - 200 Hz – 1 g - 2000 Hz – 1g Duration 48 hours in each of three mutually perpendicular axes (X, Y, Z) coupled with a temperature cycling from -40°C to 95°C.	N/A	No mechanical damage and no micro-break Contact resistance: $\Delta R_c (R_{final} - R_{initial}) \leq 5m\Omega$
		- Mate connectors and vibrate from 10 to 2000Hz : Vibration profile : - 10 Hz - 0.3g - 60 Hz – 10g - 2000 Hz – 10g Duration : 8 hours in each of three mutually perpendicular axes (X, Y, Z) coupled with a temperature cycling from -40°C to 125°C.	N/A	

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ITEM	DESCRIPTION	TEST CONDITION	ISO 8092-2 STANDARD	REQUIREMENT
8-2	<b>Vibration (Random)</b> <u>Tin plated</u> <u>Terminals</u>	- Mate connectors and vibrate from 10 to 2000Hz, Vibration profile : 2.7 Grms for 16 hours in each of three mutually perpendicular axes (X, Y, Z) coupled with a temperature cycling from -40°C to 95°C.  - Mate connectors and vibrate from 10 to 2000Hz, Vibration profile : 7.7 Grms for 8 hours in each of three mutually perpendicular axes (X, Y, Z) coupled with a temperature cycling from -40°C to 125°C.	N/A  N/A	No mechanical damage and no micro-break Contact resistance: $\Delta R_c (R_{final} - R_{initial}) \leq 5m\Omega$
9	<b>Vibration (Sine)</b> <u>Gold plated</u> <u>Terminals</u>	- Mate connectors and vibrate from 10 to 2000Hz : Vibration profile : <ul style="list-style-type: none"> <li>- 30 to 40 Hz – displ 620 <math>\mu m</math></li> <li>- 40 Hz – 4g</li> <li>- 66 Hz – 4g</li> <li>- 66 to 165 Hz – displ 233 <math>\mu m</math></li> <li>- 165 Hz – 25g</li> <li>- 250 Hz – 25g</li> <li>- 350 Hz – 23 g</li> <li>- 350 Hz – 21 g</li> <li>- 450 Hz – 21 g</li> <li>- 450 Hz – 19 g</li> <li>- 550 Hz – 19 g</li> <li>- 550 Hz – 17 g</li> <li>- 650 Hz – 17 g</li> <li>- 650 Hz – 15 g</li> <li>- 2500 Hz – 15g</li> </ul> Duration 48 hours in each of three mutually perpendicular axes (X, Y, Z) coupled with a temperature cycling from -40°C to 125°C. <u>Nota:</u> Use of the CP 0.6 HP version is mandatory.	N/A	No mechanical damage and no micro-break Contact resistance: $\Delta R_c (R_{final} - R_{initial}) \leq 5m\Omega$
10	<b>Wire Pullout Force (axial)</b>	Apply an axial pullout force on the wire bundle	N/A	No damage under $F \leq 100N$
11	<b>Mechanical Shocks</b>	Assembled female connector shall be dropped onto concrete from a height of 1m	N/A	No damage on connectors

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## 5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	ISO 8092-2 STANDARD	REQUIREMENT
12	Thermal Shocks	Mated connectors exposed to 100 cycles of: <u>Temperature C°</u> <u>Duration</u> <u>(minutes)</u> - 40° ±2                      60 +100° ±2                      60	N/A	No mechanical damages  Contact resistance in accordance with §1
13	Endurance to temperature and humidity	Mated connectors exposed to 5 cycles of 24 hours as defined below: - 4 Hrs @23°C with 75% of relative humidity. - 0.5 Hr of heat up to +55°C. - 10 Hrs @55°C with 99% of relative humidity. - 1.5 hrs of cool down to -40°C. - 2 hrs @ -40°C. - 2.5 Hrs of heat up to +125°C. - 2 Hrs @ +125°C. - 1.5 Hrs of cool down to 23°C.	§ 4.10	No mechanical damages  Contact resistance in accordance with §1
14	Fluid resistance	Submerge mated connectors in each of the following automotive fluids : - engine oil - manual gear box oil - automatic gear box oil - engine coolant - battery liquid - brake fluid - power steering fluid - diesel fuel - window washing liquid (methanol)	N/A	Insulation resistance in accordance with §2  Dielectric strength in accordance with §3
15	Watertightness	Submerge mated connector under water 100 mm minimum for 30 seconds minimum duration under 500 mbars air pressure.	ISO 20653	IP67 & IP69K

## 6.0 PACKAGING

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

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