

4

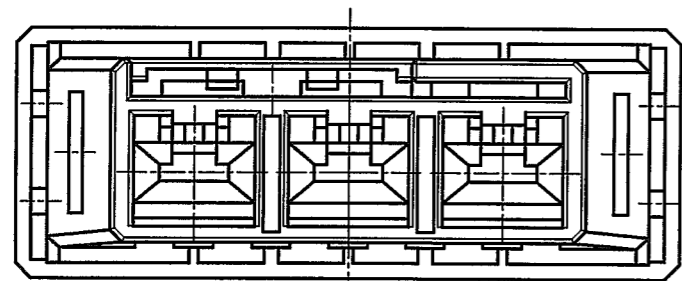
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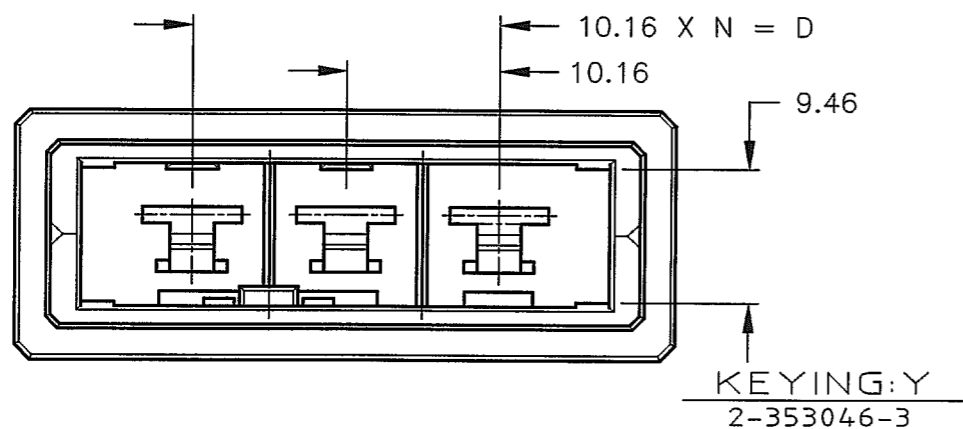
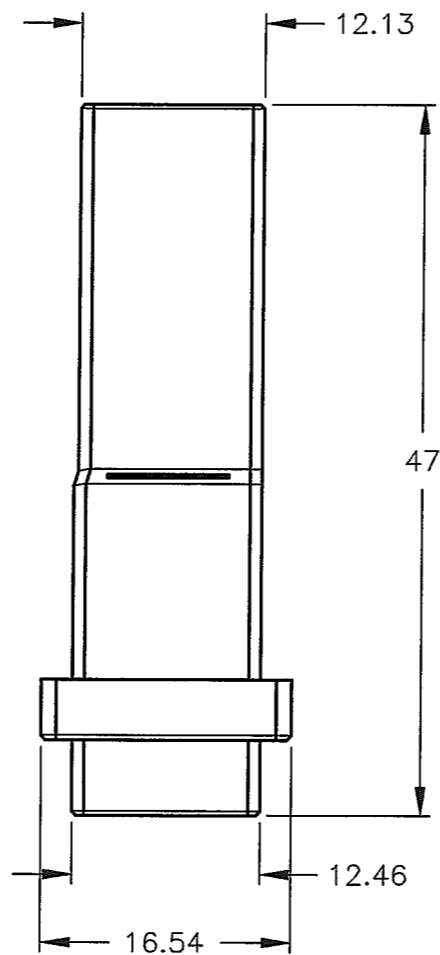
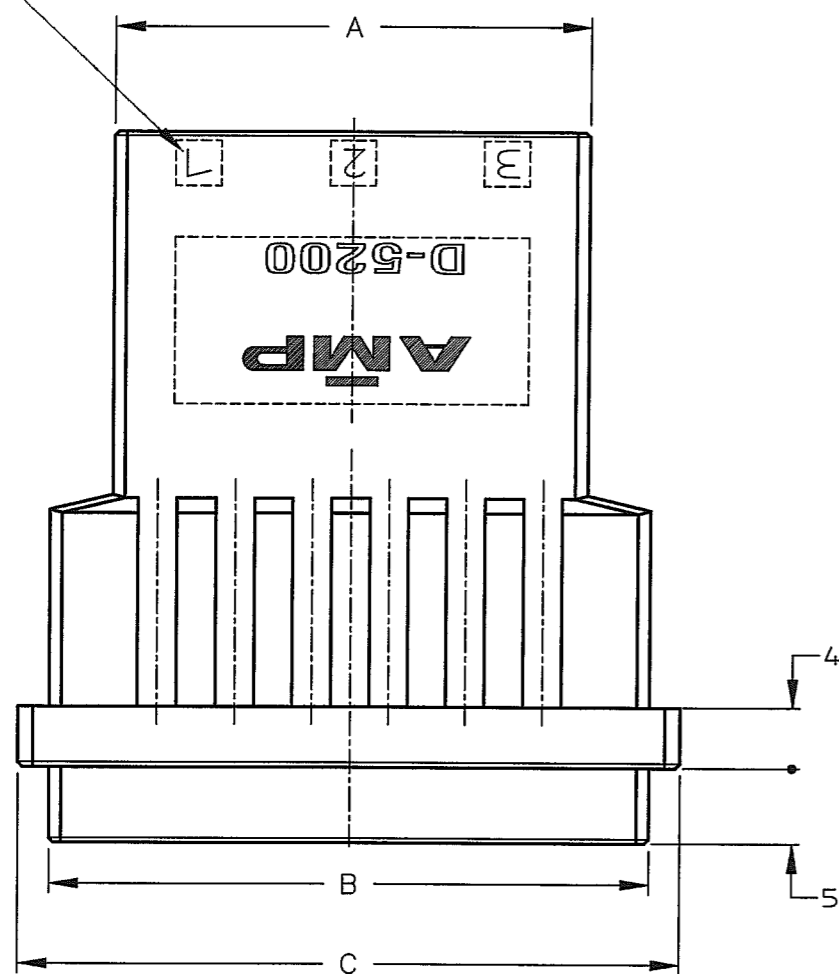
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| LOC | DIST | REVISIONS | | | | | | |
|-----|------|-----------|-----|-------------|--------------|------------|-----|------|
| J | | P | LTR | DESCRIPTION | ECN | DATE | DWN | APVD |
| | | | 0 | RELEASED | FJ00-4330-96 | 16/MAY '96 | K.I | Y.I |
| | | | A | REVISED | FJ00-5532-96 | 7/JAN '97 | K.I | Y.I |
| | | | B | REVISED | FJ00-0246-97 | 18/FEB '97 | K.I | Y.I |
| | | | C | REVISED | FJ00-1335-97 | 18/FEB '97 | K.I | I.H |
| | | | D | REVISED | FJD0-0108-04 | 29/MAR '04 | T.S | D.M |



CIRCUIT NO.
回路番号



注記

△ 材料:ハウジング:ガラス入り熱可塑性
ポリエステル樹脂 (94V-0),色:黒

NOTES

△ MATERIAL:HOUSING:GLASS FILED THERMO PLASTIC
,POLYESTER(94-V-0),COLOR:BLACK

| | |
|----------|--|
| | |
| | |
| AS SHOWN | |

勝特力電材超市-龍山店 886-3-5773766
 勝特力電材超市-光復店 886-3-5729570
 勝特力電子(上海) 86-21-34970699
 勝特力電子(深圳) 86-755-83298787
<http://www.100y.com.tw>

| | | | | | | | |
|-------|-------|-------|-------|---|-----|--|------------|
| | | | | | | | 2-353046-3 |
| 31.27 | 39.52 | 43.6 | 20.32 | 2 | 3 | | 1-353046-3 |
| | | | | | | | 2-353046-2 |
| 21.11 | 29.36 | 33.44 | 10.16 | 1 | 2 | | 1-353046-2 |
| A | B | C | D | N | POS | | P/N |

| | |
|-----------------------|------------------------|
| WIRE RANGE 適合電線断面積 | INSULATION DIA 線径外径 |
| T1 | T1 |

| | | | | |
|---|--|------------------------------|--|------------------------------|
| THIS DRAWING IS A CONTROLLED DOCUMENT FOR AMP INCORPORATED. IT IS SUBJECT TO CHANGE AND THE CONTROLLING ENGINEERING ORGANIZATION SHOULD BE CONTACTED FOR THE LATEST REVISION. | | DWN K.IKEDA 16/MAY/'96 | Tyco Electronics AMP K.K. Kawasaki, Japan | |
| DIMENSIONS: 単位 番 mm | | CHK Y.Ishikawa 16/MAY/'96 | NAME 名称 1列 タブ ハウジング フリーハンギング タイプ | |
| TOLERANCES UNLESS OTHERWISE SPECIFIED 一般公差 1φ : ±0.2 3φ : ±0.25 10φ : ±0.3 ANGLE : ±0.3° | | APVD S.Manabe 17/MAY/'96 | PRODUCT SPEC 製品規格 108-5453 | |
| MATERIAL 材料 △ | | FINISH 仕上 | APPLICATION SPEC 取付適用規格 114-5206 | |
| | | WEIGHT T1 | SIZE A3 | CAGE CODE 00779 |
| | | CUSTOMER DRAWING | | DRAWING NO 番号 C-353046 |
| | | | | SCALE 尺度 2-1 |
| | | | | SHEET 1 OF 1 |
| | | | | REV D |



DYNAMIC CONNECTOR D-5000 SERIES

1. SCOPE

1.1. Content

This specification covers the requirements for product performance, test methods and quality assurance provisions of Dynamic connector D-5000 series.

2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

2.1. TE Documents

- 114-5206: Application Specification
- 501-5188: Qualification Test Report

2.2. Industry Documents

- MIL-STD-202: Test methods for Electronics And Electrical Component Parts
- EIA364: Electrical Connector / Socket Test Procedures Including Environmental Classifications

2.3. Reference Document

- [109-197](#) Test Specification (TE Test Specification vs EIA and IEC Test Methods)

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction, materials and physical dimensions specified on the applicable product drawing.

3.2. Materials

- Contact
 - (1) Material: Copper Alloy
 - (2) Finish: Receptacle: Nickel plating all over
Gold plating (Contact area) or Silver plating (all over)
Tab (Header): Nickel plating all over
Gold plating (Contact area) and Tin plating (tine area)
Or Silver plating (all over)
Tab (wire): Nickel plating all over
Gold plating (Contact area) or Silver plating (all over)
- Housing
 - (1) Material: G.F. Thermoplastic
 - (2) Flammability: UL94 V-0
- Accessories and hardware (retention leg)
 - (1) Material: Copper alloy
 - (2) Finish: Tin plating

3.3. Ratings

| Voltage | Current | Temperature |
|------------|---|--|
| 630V AC/DC | Figure 1,2,3 Derating curve is paragraph 6 | -55°C to 105°C Included temperature rising by energized current |

- Ambient temperature: 75°C, Temperature rising: 30°C

| Series Plating: Au | Position | Current Rating | | | | | | |
|-----------------------|----------|----------------|--------|--------|--------|--------|--------|--------|
| | | AWG 8 | AWG 10 | AWG 12 | AWG 14 | AWG 16 | AWG 18 | AWG 20 |
| D5200 | 2 | 39 | 33 | 27 | 21 | 17 | 13 | 11 |
| | 3 | 38 | 32 | 26 | 20 | 17 | 12 | 10 |
| | 4 | 36 | 32 | 25 | 19 | 16 | 11 | 10 |
| | 6 | 35 | 30 | 25 | 19 | 16 | 10 | 9 |
| | 8 | 33 | 28 | 23 | 17 | 14 | 10 | 9 |
| D5300 | 3 | 35 | 30 | 25 | 20 | 16 | 11 | 9 |
| | 4 | 35 | 30 | 25 | 19 | 16 | 10 | 9 |
| D5200alpha | 3 | - | - | - | - | - | - | - |
| | 4 | 35 | 31 | 25 | 20 | 17 | 14 | 12 |

| Series Plating: Ag | Type | Position | Current Rating | | | | | | |
|-----------------------|------|----------|----------------|--------|--------|--------|--------|--------|--------|
| | | | AWG 8 | AWG 10 | AWG 12 | AWG 14 | AWG 16 | AWG 18 | AWG 20 |
| D5200 | WTB | 4 | 42 | 34 | 27 | 22 | 18 | 14 | 11 |
| | WTW | 2 | 46 | 36 | 29 | 26 | 21 | 17 | 12 |
| | | 3 | 44 | 35 | 29 | 24 | 20 | 15 | 11 |
| | | 4 | 43 | 34 | 28 | 24 | 17 | 15 | 11 |
| | | 6 | 39 | 30 | 22 | 20 | 16 | 12 | 10 |
| D5300 | WTW | 3 | 38 | 31 | 26 | 20 | 16 | 12 | 10 |
| | | 4 | 36 | 30 | 25 | 19 | 16 | 12 | 10 |
| D5200alpha | WTB | 3 | 45 | 38 | 33 | 25 | 20 | 16 | 12 |
| | | 4 | 43 | 35 | 31 | 23 | 18 | 15 | 12 |

Figure 1

- Ambient temperature: 40°C, Temperature rising: 65°C

| Series Plating: Au | Position | Current Rating | | | | | | |
|-----------------------|----------|----------------|--------|--------|--------|--------|--------|--------|
| | | AWG 8 | AWG 10 | AWG 12 | AWG 14 | AWG 16 | AWG 18 | AWG 20 |
| D5200 | 2 | 53 | 44 | 36 | 29 | 23 | 20 | 15 |
| | 3 | 52 | 43 | 34 | 27 | 22 | 17 | 14 |
| | 4 | 48 | 43 | 32 | 25 | 21 | 17 | 14 |
| | 6 | 45 | 37 | 32 | 24 | 20 | 16 | 13 |
| | 8 | 43 | 35 | 30 | 23 | 19 | 15 | 12 |
| D5300 | 3 | 46 | 38 | 34 | 27 | 22 | 16 | 13 |
| | 4 | 44 | 39 | 32 | 27 | 21 | 16 | 13 |
| D5200alpha | 3 | - | - | - | - | - | - | - |
| | 4 | 46 | 41 | 37 | 30 | 26 | 20 | 19 |

| Series Plating: Ag | Type | Position | Current Rating | | | | | | |
|-----------------------|------|----------|----------------|--------|--------|--------|--------|--------|--------|
| | | | AWG 8 | AWG 10 | AWG 12 | AWG 14 | AWG 16 | AWG 18 | AWG 20 |
| D5200 | WTB | 4 | 56 | 49 | 38 | 30 | 26 | 21 | 16 |
| | WTW | 2 | 66 | 51 | 42 | 35 | 28 | 24 | 18 |
| | | 3 | 62 | 49 | 41 | 33 | 28 | 20 | 16 |
| | | 4 | 60 | 49 | 40 | 33 | 24 | 20 | 16 |
| | | 6 | 52 | 41 | 31 | 28 | 23 | 17 | 14 |
| D5300 | WTW | 3 | 53 | 42 | 37 | 27 | 22 | 17 | 14 |
| | | 4 | 50 | 42 | 33 | 27 | 22 | 17 | 14 |
| D5200alpha | WTB | 3 | - | - | - | - | - | - | - |
| | | 4 | 57 | 45 | 36 | 31 | 25 | 20 | 17 |

Figure 2

- Ambient temperature: 25°C, Temperature rising: 80°C

| Series Plating: Au | Position | Current Rating | | | | | | |
|-----------------------|----------|----------------|--------|--------|--------|--------|--------|--------|
| | | AWG 8 | AWG 10 | AWG 12 | AWG 14 | AWG 16 | AWG 18 | AWG 20 |
| D5200 | 2 | 60 | 48 | 40 | 32 | 25 | 22 | 17 |
| | 3 | 58 | 48 | 38 | 30 | 25 | 19 | 15 |
| | 4 | 53 | 48 | 36 | 28 | 24 | 19 | 15 |
| | 6 | 50 | 41 | 35 | 27 | 22 | 17 | 14 |
| | 8 | 48 | 39 | 33 | 25 | 21 | 16 | 14 |
| D5300 | 3 | 51 | 43 | 38 | 30 | 24 | 17 | 14 |
| | 4 | 49 | 43 | 36 | 30 | 24 | 18 | 14 |
| D5200alpha | 3 | - | - | - | - | - | - | - |
| | 4 | 51 | 46 | 41 | 34 | 29 | 23 | 21 |

| Series Plating: Ag | Type | Position | Current Rating | | | | | | |
|-----------------------|------|----------|----------------|--------|--------|--------|--------|--------|--------|
| | | | AWG 8 | AWG 10 | AWG 12 | AWG 14 | AWG 16 | AWG 18 | AWG 20 |
| D5200 | WTB | 4 | 63 | 56 | 43 | 34 | 29 | 23 | 18 |
| | WTW | 2 | 74 | 57 | 48 | 39 | 32 | 26 | 20 |
| | | 3 | 69 | 56 | 46 | 36 | 32 | 22 | 18 |
| | | 4 | 67 | 55 | 44 | 37 | 27 | 23 | 18 |
| | | 6 | 57 | 46 | 35 | 31 | 26 | 19 | 16 |
| D5300 | WTW | 3 | 59 | 47 | 41 | 30 | 24 | 19 | 15 |
| | | 4 | 56 | 47 | 36 | 30 | 25 | 19 | 15 |
| D5200alpha | WTB | 3 | - | - | - | - | - | - | - |
| | | 4 | 63 | 50 | 41 | 34 | 28 | 22 | 19 |

Figure 3

3.4. Performance Requirements and Test Descriptions

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 4. All tests shall be performed in the room temperature, unless otherwise specified.

3.5. Test Requirements and Procedures Summary

| Para | TEST DESCRIPTION | REQUIREMENT | PROCEDURE | | |
|-------------------|---------------------------------|---|---|--|------|
| 3.5.1 | Examination of product | Meets requirements of product drawing. | Visual inspection No physical damage. | | |
| ELECTRICAL | | | | | |
| 3.5.2 | Contact Resistance (Low Level) | 2mΩMax | Subject mated contacts assembled in housing to 50mV Max open circuit at 50mA. Refer to Figure 6 EIA364-23 | | |
| 3.5.3 | Dielectric withstanding Voltage | No creeping discharge or flashover shall occur. Current leakage: 0.5 mA Max. | 3kVAC for 1 minute. Test between adjacent circuits of mated/unmated connectors. MIL-STD-202 Method 301 | | |
| 3.5.4 | Insulation Resistance | 1000MΩ Min | Impressed voltage 500 V DC. Test between adjacent circuits of mated/unmated connectors. MIL-STD-202 Method 302 condition B | | |
| 3.5.5 | Temperature Rising | Temperature rising: specified value Max. Under loaded specified current. Refer Figure 1,2,3 | Measure temperature rising by energized current. Refer to Figure 7 EIA364-70 | | |
| MECHANICAL | | | | | |
| 3.5.6 | Contact Retention Force | 49N Min. | Apply an axial pull-off load to crimped wire. Operation Speed: 100mm/min. EIA364-29 | | |
| 3.5.7 | Crimp Tensile Strength | Wire Size | | Crimp Tensile (Min.) N Apply an axial pull-off load to crimped wire of contact secured on the tester. Operation Speed: 25 mm/min. EIA364-8 | |
| | | mm ² | (AWG) | | |
| | | 0.50 | #20 | | 73.5 |
| | | 0.85 | #18 | | 117 |
| | | 1.309 | #16 | | 186 |
| | | 2.081 | #14 | | 245 |
| | | 3.309 | #12 | | 313 |
| | | 5.262 | #10 | | 401 |
| 8 | #8 | 401 | | | |
| 3.5.8 | Physical Shock | No electrical discontinuity greater than 1μsec. Shall occur. Meet requirement of Contact resistance (2mΩ Max.) | Accelerated Velocity :490m/s ² Waveform: sine wave Duration: 11ms Velocity Change: 3.4m/s Number of Drops:3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops MIL-STD-202 Method 213, condition A | | |
| 3.5.9 | Connector Mating Force | 9.8N Max per 1 contact (Initial) Silver plated product: 19.6N Max per 1 contact (Initial) | Operation Speed: 100mm/min. Measure the force required to mate connector. EIA364-13 | | |

| | | | |
|--------|-------------------------------------|--|---|
| 3.5.10 | Connector Unmating Force | 1.96N – 19.6N per 1 contact (Initial) | Operation Speed: 100mm/min. Measure the force required to unmate connector. EIA364-13 |
| 3.5.11 | Contact Insertion Force | 9.8N Max per 1 contact | Measure the force required to insert contact into housing. |
| 3.5.12 | Vibration (High Frequency) | No electrical discontinuity greater than 1µsec. Shall occur. | Vibration Frequency: 10-500 / 15min. Accelerated Velocity: 98 m/s ² Vibration Direction: X, Y, Z Duration: 2 hours each MIL-STD-202 Method 204 condition A |
| 3.5.13 | Durability (Repeated Mate/Unmating) | Meet requirement of Contact resistance (2mΩ Max.). | Operation Speed: 100mm/min No. of cycles: Gold(0.38µm):25 Gold(0.76µm):50 Silver(2.54µm):25 EIA364-9 |
| 3.5.14 | Housing Locking Strength | 98N Min. | Measure housing locking strength. Operation Speed: 50 mm/min. EIA364-98 |
| 3.5.15 | Solderability | Wet Solder Coverage: 95% Min. | Solder Temperature: 235 ± 5°C Immersion Duration: 5 ± 0.5seconds Flux: Alpha 100 MIL-STD-202 Method 208 |

ENVIRONMENTAL

| | | | |
|--------|-----------------------------------|---|---|
| 3.5.16 | Resistance to soldering Heat | No physical damage shall occur. | Test connector on PCB. Solder Temperature:260 ± 5°C Immersion Duration: 10 ± 1sec MIL-STD-202 Method 210A, condition B |
| 3.5.17 | Thermal Shock | Meet requirement of Contact resistance (2mΩ Max). | Mated connector –55°C / 30min., 85°C / 30min. Making this a cycle, repeat 25 cycles. MIL-STD-202 Method 107, condition A-1 |
| 3.5.18 | Humidity-Temperature Cycling | Meet requirement of Contact resistance (2mΩ Max). | Mated/Unmated connector, 25~65°C, 90~95% R.H. 10 cycles Cold shock –10°C not performed MIL-STD-202 Method 106 |
| 3.5.19 | Industrial Gas (SO ₂) | Meet requirement of Contact resistance (2mΩ Max). | Gold Plating only Mated connector SO ₂ Gas: 10ppm, 95% R.H. 25 °C, 96 hours |
| 3.5.20 | Temperature Life (Heat Aging) | Meet requirement of Contact resistance (2mΩ Max). | Mated connector 105 °C, Duration: 250hours MIL-STD-202 Method 108 |
| 3.5.21 | Industrial gas (H ₂ S) | Meet requirement of Contact resistance (2mΩ Max). | Silver Plating only Mated connector H ₂ S Gas: 10ppm, 95% R.H. 25 °C, 504 hours JIS spec C 0092 |



NOTE

Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 5.

Figure 4

4. PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE

| TEST OR EXAMINATION | TEST GROUP | | | | | | | | | | | |
|-------------------------------------|-------------------|-----|---------------|------|---|-----|---|---|---|----|----|-------|
| | 1 | 2 | 3 | 4(b) | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12(c) |
| | TEST SEQUENCE (a) | | | | | | | | | | | |
| Examination of product | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Contact Resistance (Low Level) | | 2,5 | 2,4,6 8,10 | 2,5 | | | | | | | | 2,5 |
| Dielectric Withstanding Voltage | | | | | | 3,6 | | | | | | |
| Insulation Resistance | | | | | | 2,5 | | | | | | |
| Temperature Rising | | | | | 2 | | | | | | | |
| Vibration | | 3 | | | | | | | | | | |
| Physical Shock | | 4 | | | | | | | | | | |
| Conn. Mating Force | 2,5 | | | | | | | | | | | |
| Conn. Unmating Force | 3,6 | | | | | | | | | | | |
| Conn. Locking Strength | | | | | | | 2 | | | | | |
| Cont. Insertion Force | | | | | | | | 2 | | | | |
| Cont. Retention Force | | | | | | | | 3 | | | | |
| Crimp Tensile Strength | | | | | | | | | 2 | | | |
| Durability (Repeated Mate/Unmating) | 4 | | 3 | 3 | | | | | | | | 3 |
| Solderability | | | | | | | | | | 2 | | |
| Resistance to Soldering heat | | | | | | | | | | | 2 | |
| Thermal Shock | | | 7 | | | | | | | | | |
| Humidity-Temperature Cycling | | | 9 | | | 4 | | | | | | |
| Industrial SO ₂ gas | | | | 4 | | | | | | | | |
| Temperature Life | | | 5 | | | | | | | | | |
| Industrial H ₂ S gas | | | | | | | | | | | | 4 |


NOTE

- (a) Numbers indicate sequence in which tests are performed.
- (b) Gold plating only
- (c) Silver plating only

Figure 5

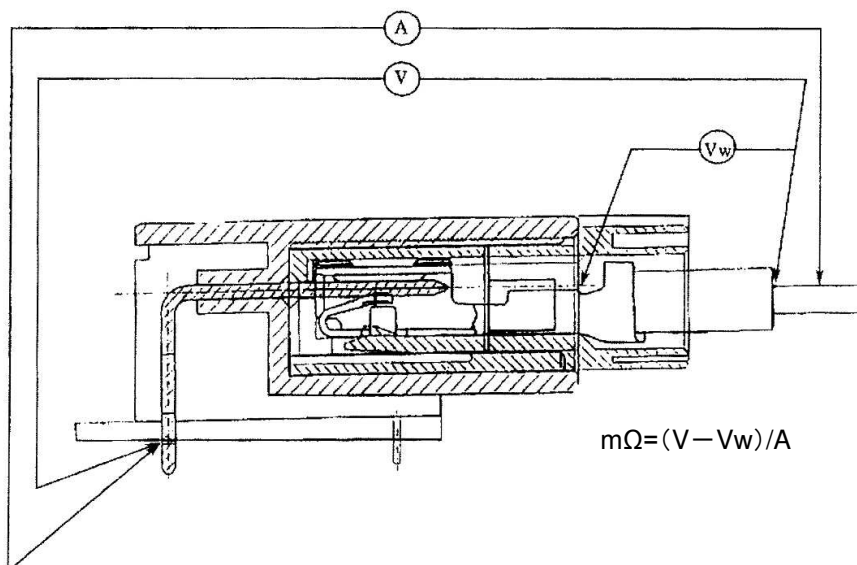
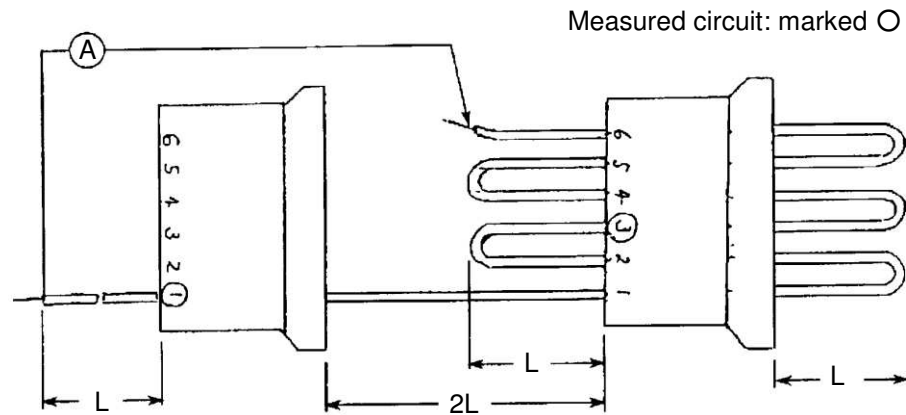


Figure 6: Measurement of contact resistance



| WIRE | L |
|--------|------|
| AWG#8 | 57cm |
| AWG#10 | 50cm |
| AWG#12 | 42cm |
| AWG#14 | 36cm |
| AWG#16 | 29cm |
| AWG#18 | 25cm |
| AWG#20 | 20cm |

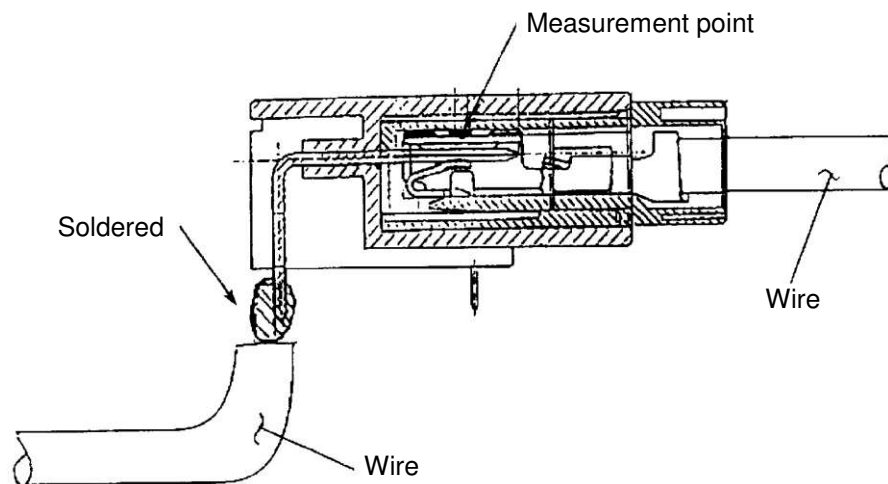


Figure 7: Measurement of Temperature rising

5. REQUIREMENTS:

5.1. Qualification Testing

- Sample Selection

Connector housings and contacts shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production.

- Test Sequence

Qualification inspection shall be verified by Testing samples as specified in Figure 5.

- Test conditions

Unless otherwise specified, all the tests shall be performed in any combination of the test condition

| | |
|----------------------|-----------------|
| Temperature | 15-35°C |
| Relative humidity | 45-75% |
| Atmospheric Pressure | 866.6-1066.6hPa |

5.2. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or to the manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by envelopment product, quality and reliability engineering.

5.3. Acceptance

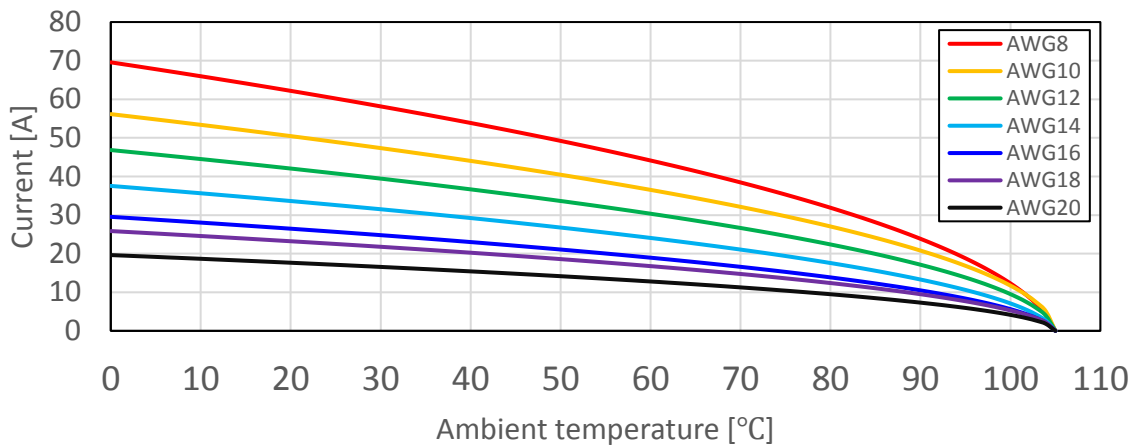
Acceptance is based on verification that the product meets the requirements of Figure.4. Failures attributed to equipment, test get up, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

5.4. Quality Conformance Inspection

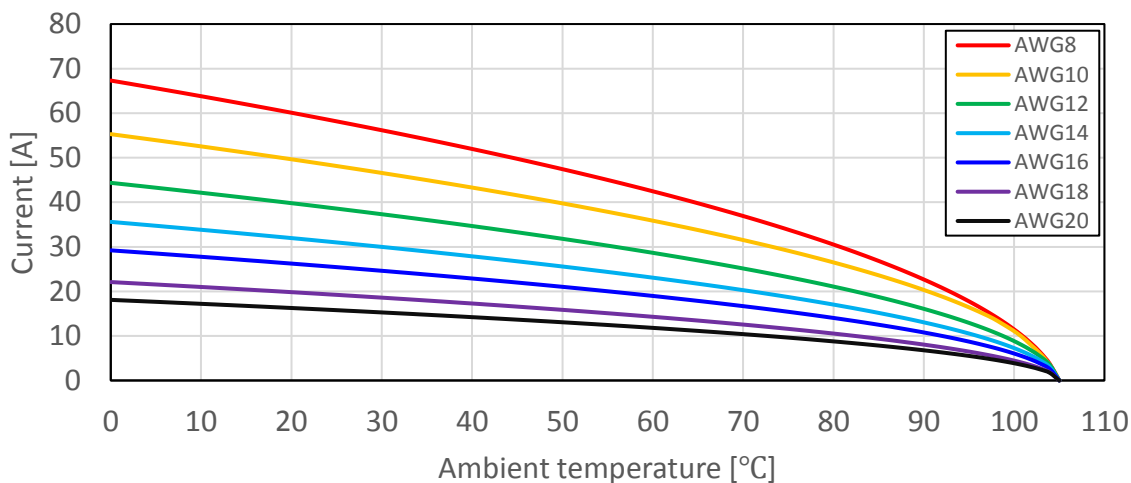
The applicable TE quality inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

6. DERATING CURVE (REFERENCE, DERATING FACTOR: 0.8)

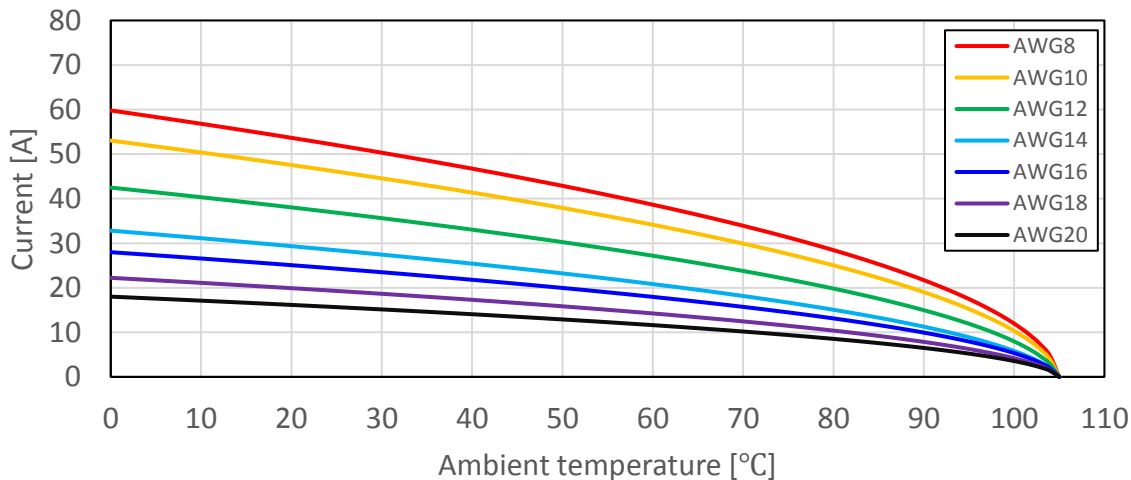
D5200 2P GOLD



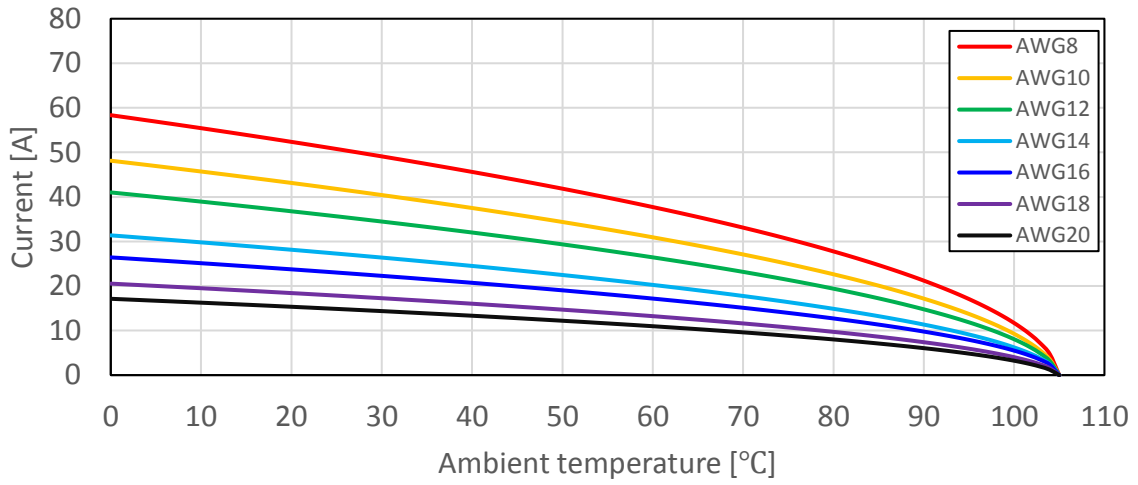
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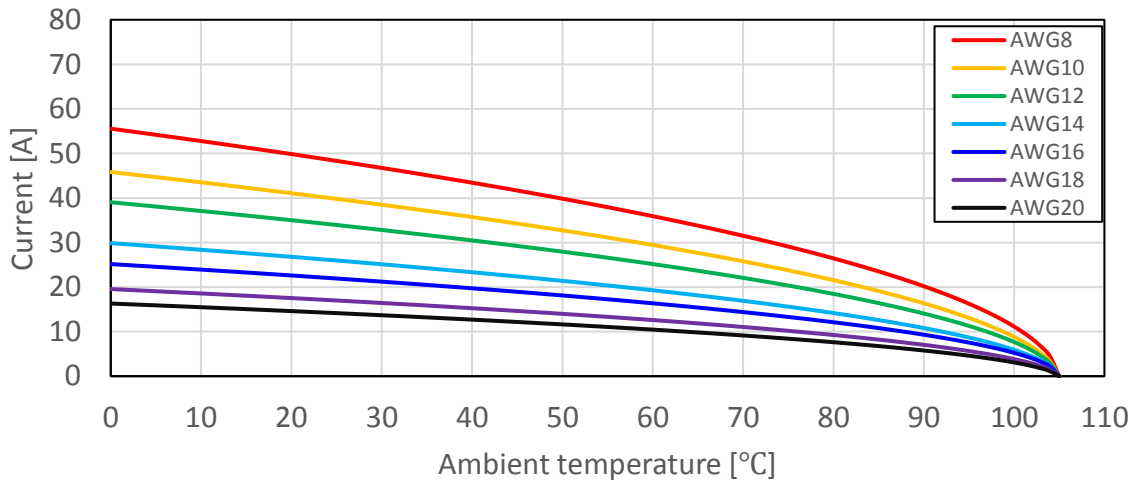
D5200 4P GOLD



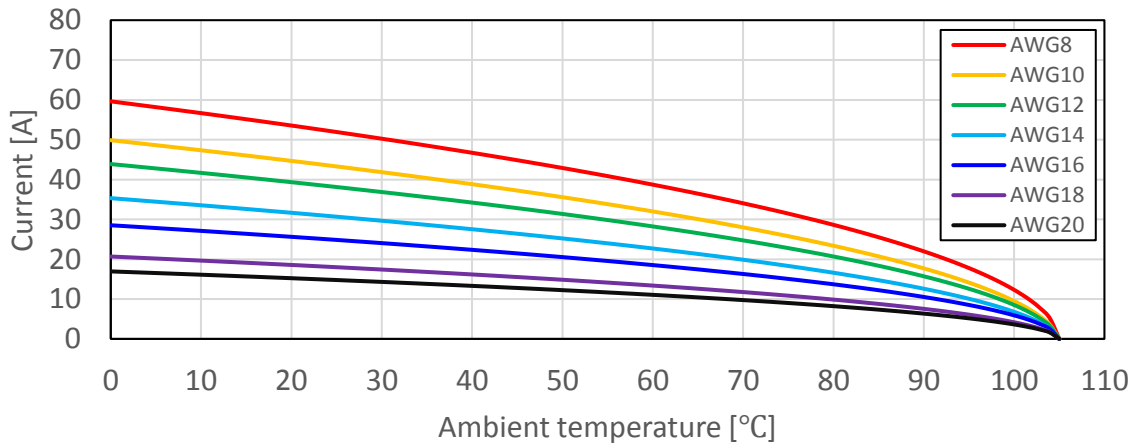
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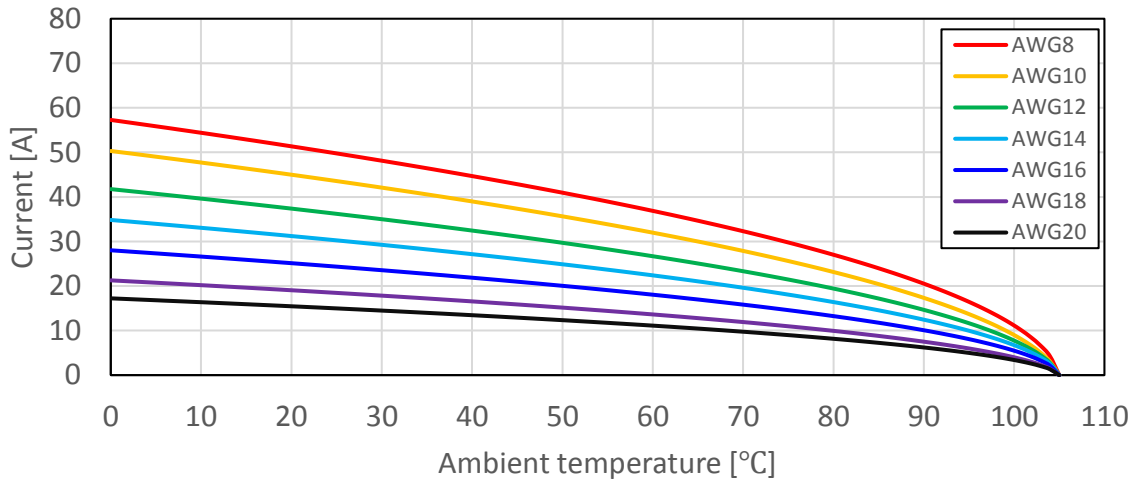
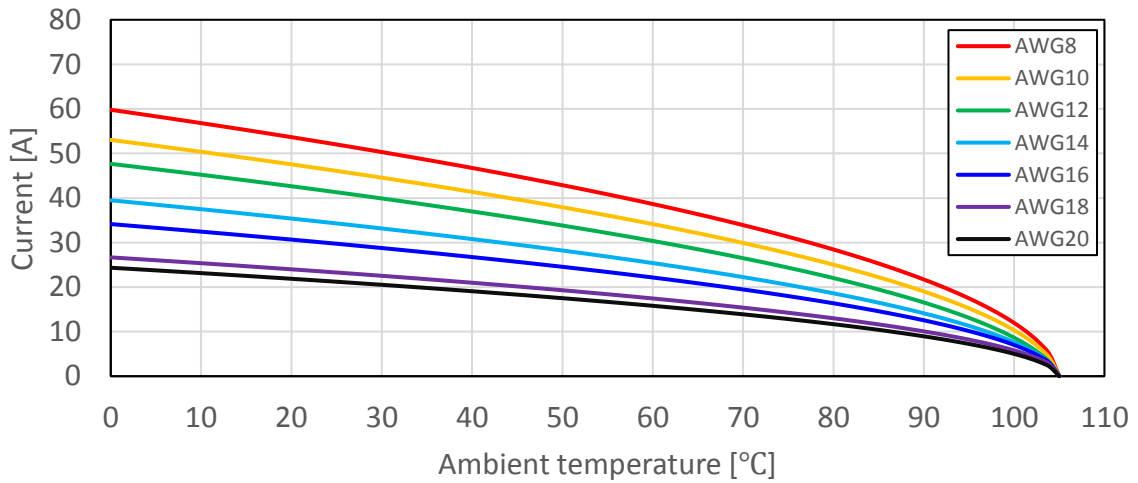
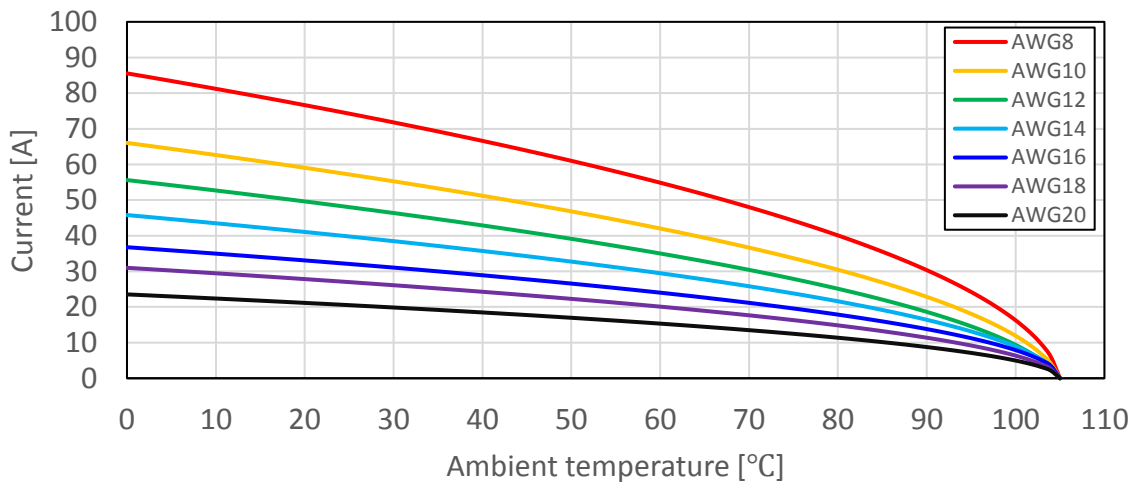


D5200 8P GOLD

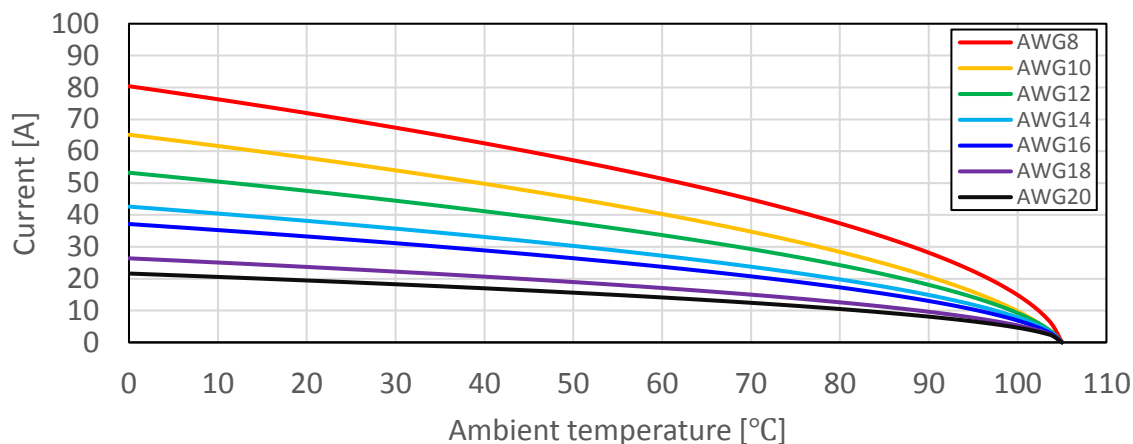


D5300 3P GOLD

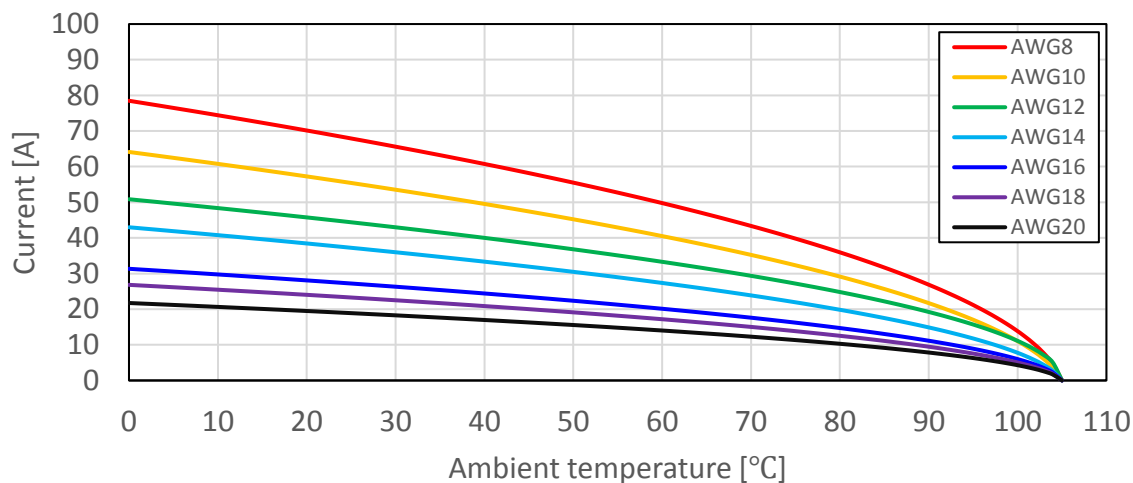


D5300 4P GOLD

D5200alpha 4P GOLD

D5200 2P SILVER (WTW)


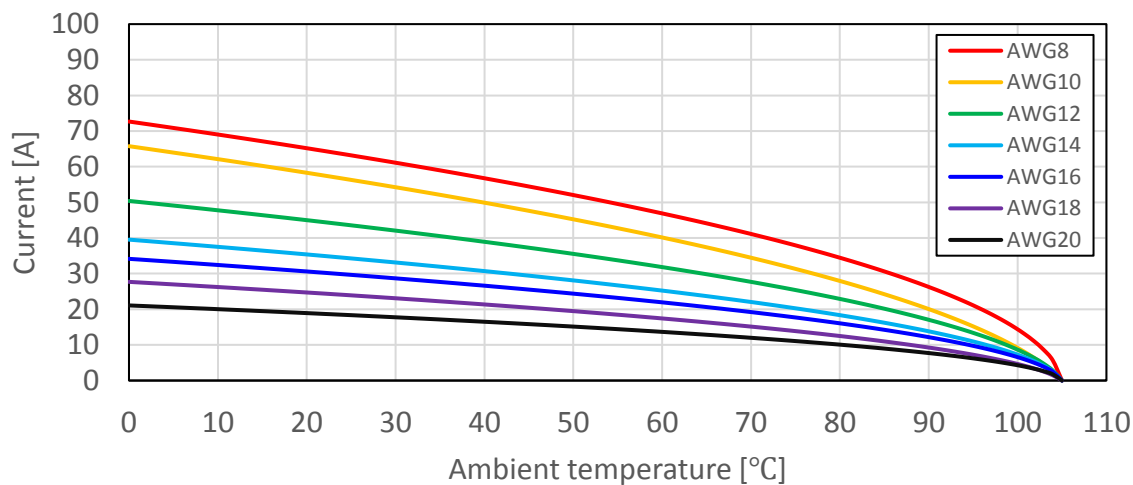
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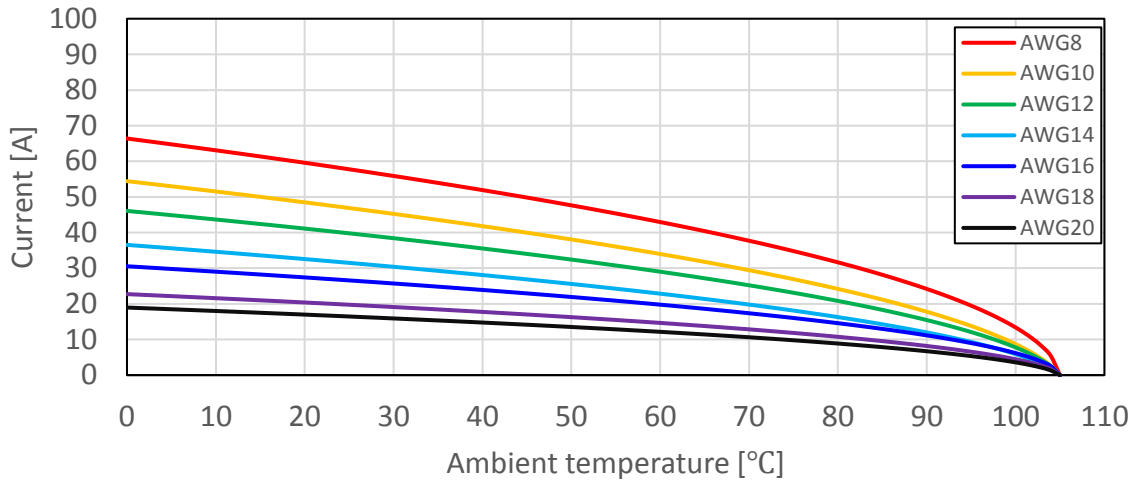
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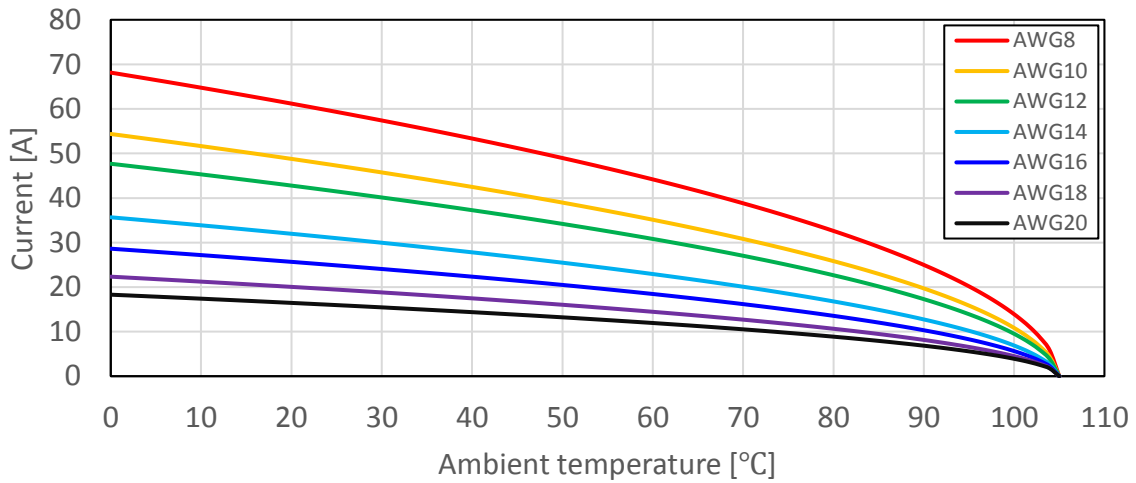
D5200 4P SILVER (WTB)



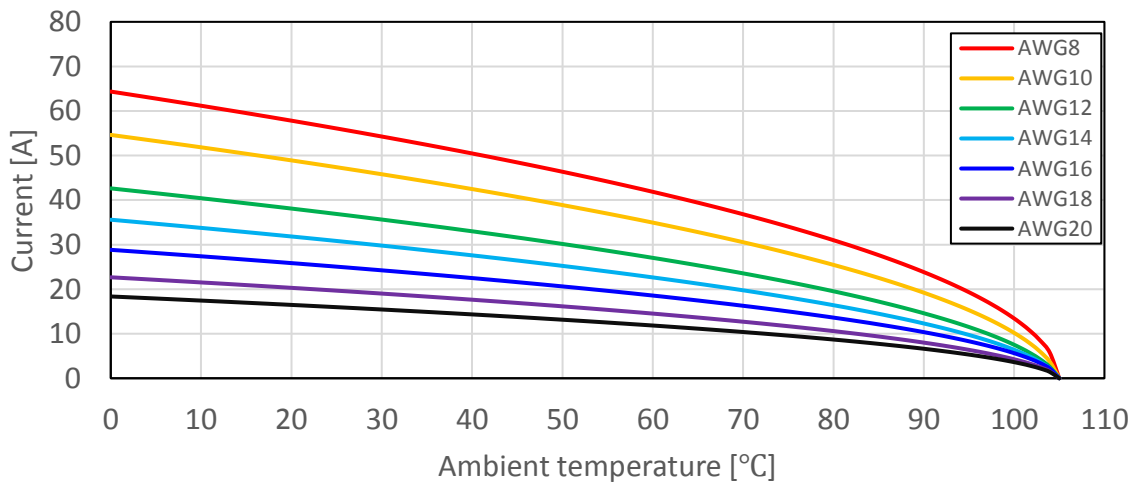
D5200 6P SILVER (WTW)



D5300 3P SILVER (WTW)



D5300 4P SILVER (WTW)



D5200alpha 4P SILVER (WTB)

