

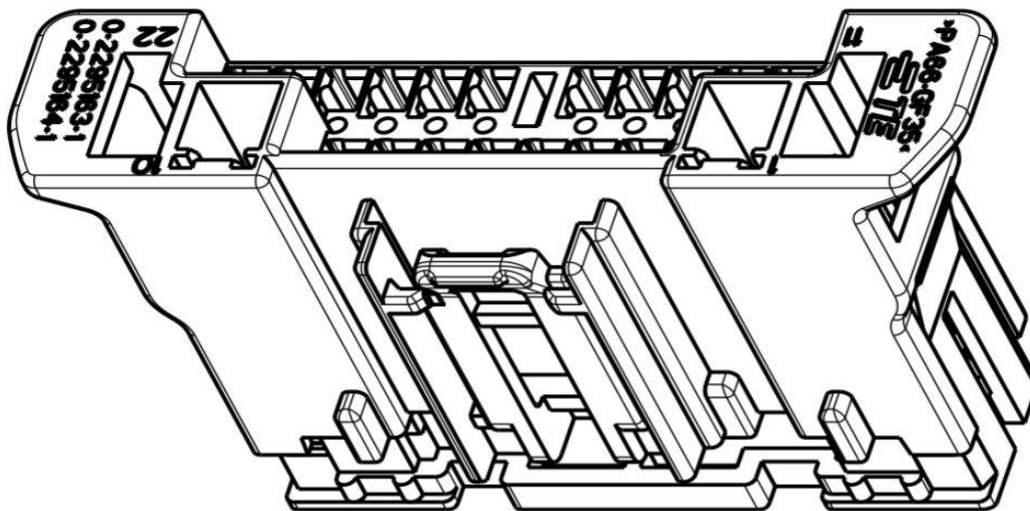
22WAY LIGHT CONTROL PLUG

0-2295163-1

0-2295163-2

0-2295163-3

0-2295163-4



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1 SCOPE

1.1 Content

This specification covers the performance, tests and quality requirements of the 22way Light Control Plug.

The current variants of 22way Light Control Plug.

0-2295163-1 Coding A / Black
0-2295163-2 Coding B / Grey
0-2295163-3 Coding C / Blue
0-2295163-4 Coding D / Green

Terminals for the 22way Light Control Plug.

GENERATION Y (0,35 – 0,75 mm²), see customer drawing 2098762 and Application Specification 114-13183

TE RECEPTACLE 2.8 (0,5 – 2,5 mm²), see customer drawing 1326030 and Application Specification 114-13013

Order-No. see drawings.

1.2 Qualification

Temperature Classification T3 : -40°C to +125°C
Sealing Classification S1: Unsealed
Vibration Classification V1: Chassis Profile

(USCAR 2 - Revision 6)

FOR APPLICATIONS USING MORE THAN 20V:

DO NOT HOT MATE / CONNECTOR
DISCONNECT CONNECTOR UNDER LOAD

When tests are performed, the following specifications and standards should be used. All inspections must be carried out according to applicable inspection plan and product drawing.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the events of conflict between the requirements of this specification and the product drawing or of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 TE Documents

109-1: General Requirements for Test Specification

Customer drawing:

2295163 / 22 way Light Control Plug
2098762 / GENERATION Y Terminal
1326030 / TE RECEPTACLE 2.8

Application Specification:

114-94484 / 22way Light Control Plug
114-13183 / GENERATION Y Terminal
114-13013 / TE RECEPTACLE 2.8

Product Specification:

108-2296 / GENERATION Y Terminal
SAE/USCAR-2 8/97 / TE RECEPTACLE 2.8

Interface Specification:

114-94384 / Interface 22way Light Control Plug

2.2 Other Documents

SAE/USCAR 2 - Revision 6

SAE/USCAR-25

3 REQUIREMENTS

3.1 Design and construction

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

3.2 Materials

Descriptions for material see customer drawings.

3.3 Ratings

For electrical and mechanical rating see chapter 3.5.

3.4 Performance and test description

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in SAE/USCAR-2 Revision 6. All tests are performed at ambient environmental conditions per USCAR-2 unless otherwise specified.

Interface was development to IEC-60664-1 / JAN2008:

Height above sea level: 5000m
 Max. voltage: 63V
 Pollution degree 2
 Isolation material group II
 CTI-Value 600

3.5 Test requirements and procedures summary

3.5.1 Characteristic tests

**Mechanical Test
 SAE/USCAR-2 R6
 Terminal to Connector Insertion/Extraction 5.4.1**

Terminal Connector Extraction Force - With Primary Lock Must use the largest gage size and insulation thickness	Terminal width 0.64 - 1.2 = 30 N Min. Terminal width 2.8 - 3.0 = 60 N Min.
Terminal Connector Extraction Force - With Primary and Secondary Locks - After Moisture	Terminal width 0.64 - 1.2 = 60 N Min. Terminal width 2.8 - 3.0 = 100 N Min.
Terminal Connector Extraction Force - With Primary and Secondary Locks - After Temp/Humidity	Terminal width 0.64 - 1.2 = 50 N Min. Terminal width 2.8 - 3.0 = 70 N Min.

**Mechanical Test
SAE/USCAR-2 R6
Misc. Component Engage/Disengage 5.4.5**

TPA/PLR Engage (Pre-set to Lock)	60 N Max. (w/terminals installed) 15 N Min. (w/out terminals)
TPA/PLR Disengage (Lock to preset)	60 N Max. 18 N Min after initial removal

**Mechanical Test
SAE/USCAR-2 R6
Connector to Connector Mating / Unmating 5.4.2 & 5.4.3**

Connector-to Connector Mating Force	Mating (engage) force must meet 75 N max.
Connector-to Connector Unmating Force	Unmating force must be less than equal to 75 N with the primary lock disengaged. Unmating force must be greater than equal to 110 N with the primary lock fully engaged.

**Connector System Electricals
SAE/USCAR-2 Temperature / Humidity Cycle 5.6.2
(V1 : not coupled to engine) 5.9.8**

<p style="text-align: center;">Vibration (w/Circuit Continuity Monitoring)</p> <p>max. permitted voltage drop: 50 mV</p> <p style="text-align: center;">GENERATION Y: Resistance max.: $R \leq 20 \text{ m}\Omega$</p> <p style="text-align: center;">TE RECEPTACLE 2.8: Resistance max.: $R \leq 5 \text{ m}\Omega$</p>	<p style="text-align: center;">Vibration Classification V1: Chassis Profile</p> <p style="text-align: center;">Shocks per axis: 10 Wave shape: Half sine wave Direction (+/-): Positive Duration: 5 ~ 10 ms (performed 8 ms) Acceleration: 350 m/s²</p>
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<p>Thermal Shock (w/Circuit Continuity Monitoring)</p> <p>max. permitted voltage drop: 50 mV</p> <p>GENERATION Y: Resistance max.: $R \leq 20 \text{ m}\Omega$</p> <p>TE RECEPTACLE 2.8: Resistance max.: $R \leq 5 \text{ m}\Omega$</p>	<p>100 cycles (100h) – 30 min. (-40°C) and 30 min. (+125°C) transfer in less than 5 min.</p>
<p>Temperature Humidity Cycling</p> <p>max. permitted voltage drop: 50 mV</p> <p>GENERATION Y: Resistance max.: $R \leq 20 \text{ m}\Omega$</p> <p>TE RECEPTACLE 2.8: Resistance max.: $R \leq 5 \text{ m}\Omega$</p>	<p>Temperature Classification T3</p> <p>40 cycles (320h) between -40°C and +125°C</p>
<p>High Temp Exposure</p> <p>max. permitted voltage drop: 50 mV</p> <p>GENERATION Y: Resistance max.: $R \leq 20 \text{ m}\Omega$</p> <p>TE RECEPTACLE 2.8: Resistance max.: $R \leq 5 \text{ m}\Omega$</p>	<p>Temperature Classification T3</p> <p>1008 hours by 125°C</p>

3.6 Qualification and requalification tests

Test sequence for electrical, mechanical and environmental tests the GENERATION Y contacts are described in specification 501-657

Test sequence for electrical, mechanical and environmental tests the TE RECEPTACLE 2.8 contacts must conform to the electrical connection system design specification (SDS) Ver.5 Dated 18-DEC-98

Requirements EL-0001 Tested per DVP&R
 Requirements EL-0039 Terminal bend strength for 1F1T-14474-LA to be 10N
 Terminal bend strength for 1F1T-14474-BA to be 10N

and

ES-F8DB-14A46-AA (USCAR) Dated 29-NOV-95

4 QUALITY ASSURANCE PROVISIONS

4.1 Qualification Testing

Sample Selection

The samples shall be prepared in accordance with product drawings. They are to be selected at random from current production.

Test Groups shall consist of:

See Requirements mentioned in SAE/USCAR 2 - Revision 6 for the relevant test groups.

Test Sequence

Qualification inspection must be verified by testing samples as specified in USCAR 2 - Revision 6

4.2 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 development/product, quality and reliability engineering.

4.3 Acceptance

Acceptance is based on verification that the product meets the requirements of USCAR 2 - Revision 6. Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be undertaken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4 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.

TE Documents	<u>REVISION RECORD</u>	<u>DWN</u>	<u>APP</u>	<u>DATE</u>