22 POS. GENERATION Y INLINE CONNECTOR

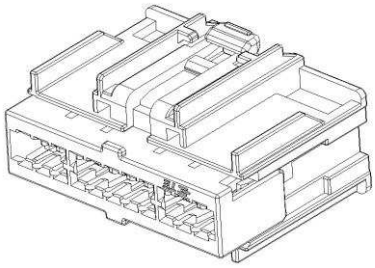
22 pos Female Connector:

x-2208021-1 – KEYING A / BLACK

x-2208021-2 – KEYING B / NATURAL

x-2208021-3 – KEYING C / GREY

x-2208021-4 – KEYING D / GREEN



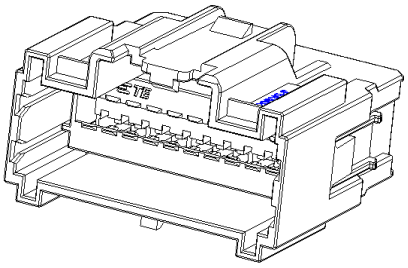
22 pos Male Connector:

x-2208018-1 – KEYING A / BLACK

x-2208018-2 – KEYING B / NATURAL

x-2208018-3 – KEYING C / GREY

x-2208018-4 – KEYING D / GREEN



1 SCOPE

1.1 Content

This specification covers the performance, tests and quality requirements of the 22 pos Inline Connector.

Terminals for the Female connector:
GENERATION Y terminals (0,35 – 0,75 mm²), see customer drawing 2035334 / 1924955 and Application Specification 114-13183

Terminals for the Male connector:
GENERATION Y terminals (0,35 – 0,75 mm²), see customer drawing 1924968 and Application Specification 114-13183

Terminal-Order-No. see drawings.

1.2 Qualification

CONNECTOR DESIGNED FOR 12V APPLICATIONS

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

Customer drawing number:
2208021 22 pos Female connector
2208018 22 pos Male connector

TE Application Specification:
114-13183 GENERATION Y Terminal
114-94258 22 pos Generation Y Connector

Product Specification:
108-2296 Generation Y Terminals

Interface Specification:

114-94181 22 POS Generation Y CONNECTOR

2.2 Other Documents

SAE/USCAR-2

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 Ratings

Voltage: 14V DC

Current capacity: see terminal product spec 108-2296

Temperature range: -40° to 100°C

3.3 Performance and test description

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in SAE/USCAR-2 Revision 5. All tests are performed at ambient environmental conditions per USCAR-2 unless otherwise specified PVP&R approved by Ford available.

3.4 Test requirements and procedures summary

Mechanical Test SAE/USCAR-2 R5 Terminal to Connector Insertion/Extraction 5.4.1	
Terminal - Connector Insertion force	30N max.
Terminal - Connector Extraction Force - With Primary Lock	30N min.
Terminal - Connector Extraction Force - With Primary and Secondary Locks - After Moisture	60N min.
Terminal - Connector Extraction Force - With Primary and Secondary Locks – After Temp/Humidity	50N min.

Mechanical Test SAE/USCAR-2 R5 Misc. Component Engage/Disengage 5.4.5	
TPA Engage (Pre-set to Lock)	60N max. (w/terminals installed) 15N min. (w/out terminals)
TPA Disengage (Lock to preset)	60N max. 18N min. after initial removal

Mechanical Test SAE/USCAR-2 R5 Audible Click 5.4.7

Connector to Connector Audible Click	(Acceptance Criteria USCAR-2, R4) 7 dB above Ambient un-conditioned
Connector to Connector Audible Click	(Acceptance Criteria USCAR-2, R4) 5 dB above Ambient conditioned

Mechanical Test SAE/USCAR-2 R5 Connector to Connector Mating / Unmating 5.4.2 & 5.4.3

Connector-to Connector Mating Force	Mating (engage) force must meet 75N max.
Connector-to Connector Unmating Force	Unmating force must be less than equal to 75N with the primary lock disengaged. Unmating force must be greater than equal to 110 N with the primary lock fully engaged. The force to disengage the lock must be less than 70N

Mechanical Test SAE/USCAR-2 R5 Polarization Feature Effectiveness 5.4.4

Polarization Feature Effectiveness	150N min.

Mechanical Test SAE/USCAR-2 R5 Connector Drop Test 5.4.8

Connector Drop Test – Connector conditioning only	No damage.

Mechanical Test SAE/USCAR-2 R5 Cavity damage 5.4.9

Cavity Damage – Force fully applied to TPA	60N min. or 40N over max.
Extraction Force – With Primary and Secondary Locks – Before Moisture	60N max. 18N min. after initial removal

Mechanical Test SAE/USCAR-2 R5 Mounting Feature Mech Strength 5.7.2

Mounting Feature Mech Strength – Male Connector only	50N min.

Connector System Electricals SAE/USCAR-2 -R5 Temperature / Humidity Cycle 5.6.2 (V1 : not coupled to engine) 5.9.8

Vibration (w/Circuit Continuity Monitoring) max. permitted voltage drop: 50 mV GENERATION Y: Resistance max.: R ≤ 20 mΩ	Vibration Classification V1: pass

Thermal Shock T2 (w/Circuit Continuity Monitoring) max. permitted voltage drop: 50 mV GENERATION Y: Resistance max: R ≤ 20 mΩ	pass

Temperature Humidity Cycling max. permitted voltage drop: 50 mV GENERATION Y: Resistance max.: R ≤ 20 mΩ	Temperature Classification T2 pass

High Temp Exposure max. permitted voltage drop: 50 mV GENERATION Y: Resistance max.: R ≤ 20 mΩ	Temperature Classification T2 pass

3.5 Qualification and requalification tests

Test sequence for electrical, mechanical and environmental tests the GENERATION Y connector Initial tested for Ford.

4 QUALITY ASSURANCE PROVISIONS

4.1 Qualification Testing

Sample Selection

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

Test Groups shall consist of:

See Requirements mentioned in SAE/USCAR 2 - Revision 5 for the relevant test groups.

Test Sequence

Qualification inspection must be verify by testing samples as specified in USCAR 2 - Revision 5

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 5. 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 use. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

TE Documents	REVISION RECORD	DWN	APP	DATE