

# PRODUCT SPECIFICATION

## 22POS GENY UNSEALED INLINE CONNECTOR

### 108-101626

## 1. Scope:

### 1.1 Content

This specification covers the requirements for product performance, test methods and quality assurance provisions of 22p UNSEALED inline connector.

22P unsealed cap assy: 2300962-1/2  
 22P unsealed plug assy: 2300979-1/2  
 22P wire cover: 2317355-1, 2327044-1

## 2. Applicable Documents:


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

### 2.1 TE Connectivity Documents

C2300962 22P CAP ASSY, GENY, UNSEALED  
 C2295393 22P PLUG ASSY, GENY, UNSEALED  
 C2317355 22P WIRE COVER 90, FRONT  
 C2327044 22P WIRE COVER 90, SIDE  
 114-101110 INTERFACE DRAWING REFER TO FORD:LU5T-14489-ARA

### 2.2 Product Refer Specifications:

108-2296 GenY 0.64 CONTACT SYSTEM  
 USCAR-25 Ergonomics Specification for Electrical Connections  
 USCAR-2\_R6 Performance Specification for Automotive Electrical Connector Systems  
 USCAR-37\_2008 High Voltage Connector Performance Supplement to SAE/USCAR-2  
 IEC 60529\_2013 Degree of Protection Provided by Enclosures (IP Code)

				DR G.Z 29APR2018	 TE Connectivity Shanghai, China		
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## 2.3 Application Specifications

114-13183	GenY 0.64 Terminal Application Spec
114-101069	GenY 0.64 Terminal FFC application Spec
114-101081	22P Connector Application Spec

## 3. Requirements:

### 3.1 Design and Construction

Product shall be of the design, construction and physical dimensions specified in the Applicable product drawing.

### 3.2 Materials

- A. 22P Housing
  - Material: PA66-GF35, UL94 HB
- B. 22P TPA
  - Material: PA66-GF35, UL94 HB
- C. 22P WIRE COVER
  - Material: PA66, UL94 V-0

### 3.3 Ratings:

- A. Temperature Range: Class 2 (-40°C to + 105°C ambient temperature)  
Vibration class: Class 1 (On body or chassis)  
Sealing class: Class 1 (unsealed)
- B. Nominal operating voltage: 432V DC MAX; for application at higher voltage please contact TE Connectivity.
- C. Finger Proof: IPXXB
- D. Special applications should be tested separately.

### 3.4 Quality Assurance Provision

- A. Sample Preparation:  
The test samples to be used for the test shall be prepared by random selection from the current production. No sample shall be reused, unless otherwise specified.
- B. Test Condition:  
All the test shall be performed under any combination of the following test condition, unless otherwise specified:  
  
Room temperature: 23±5°C  
Relative humidity: 45~75%  
Atmospheric pressure: 860~1060 mbar



### 3.5 Requirements and Procedures Summary

Para.	Test items	Requirements	Procedures
3.5.1	Visual Examination	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part.	ACC to USCAR-2 5.1.8
3.5.2	Connector Cycling	Mate & Un-mate 10 times	ACC to USCAR-2 5.1.7
<b>Mechanical Test</b>			
3.5.3	Terminal Insert Force	TPA in open position: 30N max Forward stop force 50N Min or wire buckles	ACC to USCAR-2 5.4.1
3.5.4	Terminal Extraction Force	Primary lock only 30N Min Primary & Secondary, after conditioning: 60N Min	ACC to USCAR-2 5.4.1
3.5.5	Connector to Connector Mating Force	Full loaded: 75N Max	ACC to USCAR-2 5.4.2
3.5.6	Connector to Connector Unmating Force	With Latch completely disengaged 110N Max Latch completely disengaged, full loaded 75N Max	ACC to USCAR-2 5.4.2
3.5.7	Force to disengage connector lock	6~51N to full disengage position	ACC to USCAR-2 5.4.2
3.5.8	Connector Polarization	mated different Keying 150N or 3x insert force Min mated turned 180° 150N or 3x insert force Min	ACC to USCAR-2 5.4.4
3.5.9	TPA Pre-lock to Lock Force	with properly assembled terminals 60N Max without terminals 15N Min	ACC to USCAR-2 5.4.5
3.5.10	TPA Lock to Pre-Lock Force	with terminal after two cycles 18N Min.	ACC to USCAR-2 5.4.5
3.5.11	TPA Pre-lock to Separate Force	20 Min.	ACC to USCAR-2 5.4.5




Para.	Test items	Requirements	Procedures
3.5.12	Cover engage/disengage	Engage Force 60N Max. Disengage in connector un-mating direction 110N Min	ACC to USCAR-2 5.4.5
3.5.13	Locator Clip	Engage Force 60N Max. Disengage in connector un-mating direction 110N Min	ACC to USCAR-2 5.4.5
3.5.14	Mechanical Shock	35g for 5-11ms half sine shock,10 shocks per axis: No loss of electrical continuity for 1 $\mu$ s	ACC to USCAR-2 5.4.6
3.5.15	Measure Audible Click	7db above ambient for unconditioned parts 5db above ambient for moisture conditioned parts	ACC to USCAR-2 5.4.7
3.5.16	Connector Drop Test	No defects	ACC to USCAR-2 5.4.8
3.5.17	Connector Damage susceptibility	TPA must withstand 40 N higher than maximum seating force or 60 N min. when trying to seat with partially inserted contact. Terminal Extraction with Primary and Secondary lock—before moisture 60N Min.	ACC to USCAR-2 5.4.9
3.5.18	Mounting feature Mech Strength	F1~F5 50N min F6 110N min	ACC to USCAR-2 5.4.11

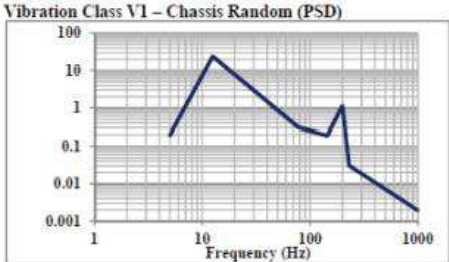
### ELECTRICAL Test

3.5.19	Voltage Drop	50mV max	ACC to USCAR-37 5.3.2
3.5.20	Isolation Resistance	at 1000VDC: >100M $\Omega$	ACC to USCAR-37 5.5.1
3.5.21	Dielectric Strength	3000VDC: No Breakdown or Flashover	ACC to USCAR-37 5.5.2

### ENVIRONMENTAL Test

3.5.22	Thermal Aging	1008 Hr. @ 85°C	ACC to USCAR-2 5.6.3
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Para.	Test items	Requirements	Procedures										
3.5.23	Thermal Shock	100 Cycles: -40 to 100°C	ACC to USCAR-2 5.6.1										
3.5.24	Temperature Humidity Cycling	40 Cycles Per Table & Fig. (-10 to 65°C) <table border="1" data-bbox="496 367 932 575"> <thead> <tr> <th>Description</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>High Temperature</td> <td>+ 100 °C</td> </tr> <tr> <td>Middle Temperature</td> <td>+ 85 °C</td> </tr> <tr> <td>Low Temperature</td> <td>- 40 °C</td> </tr> <tr> <td>Duration</td> <td>10 days</td> </tr> </tbody> </table>	Description	Value	High Temperature	+ 100 °C	Middle Temperature	+ 85 °C	Low Temperature	- 40 °C	Duration	10 days	ACC to USCAR-2 5.6.2
Description	Value												
High Temperature	+ 100 °C												
Middle Temperature	+ 85 °C												
Low Temperature	- 40 °C												
Duration	10 days												
3.5.25	Vibration with Thermal Cycling	Temperature Class 2, Vibration Class 1, 8Hr/axes 	ACC to USCAR-2 5.4.6										
<b>FINGER-PROOF Test</b>													
3.5.26	Protection against contact	No contact between Terminal and finger probe@10+/-10%N	ACC to IEC60529 IPXXB										

### 3.6.1 Product Qualification Test and Sequences

Notes: Sample size for each separate test.

Test or examination	TEST GROUP												
	1	2	3	4	5	6	7	8	9	10	11	12	13
3.5.1 Visual Examination	1,4	1,7	1,3	1,5	1,3	1,3	1,3	1,3	1,7	1,7	1,7	1,7	1,3
3.5.2 Connector Cycling									2	2	2	2	
3.5.3 Terminal Insert Force	2												
3.5.4 Terminal Extraction Force	3												
3.5.5 Connector to Connector Mating Force				2									
3.5.6 Connector to Connector Unmating Force				3									
3.5.7 Force to disengage connector lock				4									
3.5.8 Connector Polarization					2								
3.5.9 TPA Pre-lock to Lock Force		2											
3.5.10 TPA Lock to Pre-Lock Force		3											
3.5.11 TPA Pre-lock to Separate Force		4											
3.5.12 Cover engage/disengage		5											
3.5.13 Locator Clip		6											
3.5.14 Mechanical Shock									3				
3.5.15 Measure Audible Click			2										
3.5.16 Connector Drop Test						2							
3.5.17 Connector Damage susceptibility							2						
3.5.18 Mounting feature Mech Strength								2					
3.5.19 Voltage Drop									6	4	4	4	
3.5.20 Isolation Resistance									5	5	5	5	
3.5.21 Dielectric Strength										6	6	6	
3.5.22 Thermal Aging												3	
3.5.23 Thermal Shock										3			
3.5.24 Temperature Humidity Cycling											3		
3.5.25 Vibration with Thermal Cycling									4				
3.5.26 Protection against contact													2
<b>Sample Size</b>	10	10	8	15	6	3	5	20	10	10	10	10	3

## 4. QUALIFICATION TEST

### 4.1 Sample selection

Samples shall be prepared in accordance with applicable specification.

### 4.2 Test sequence

Qualification test shall be conducted as sequence specified.

### 4.3 Requalification test

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

### 4.4 Acceptance

Acceptance is based on verification that the product meets the requirements of paragraph 3.5. Failures attributed to equipment, test setup, 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.

### 4.5 Quality Conformance Inspection

The applicable 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.

