

DESIGN OBJECTIVES

108-101338

Restricted to Bosch

The product described in this document has not been fully tested to ensure conformance to the requirements outlined herein. TE Connectivity makes no representation or warranty, express or implied that the product will comply with these requirements. Further, TE Connectivity reserves the right these requirements based on the results of additional testing and evaluation. Contact TE Connectivity Engineering for further information. If necessary, This document will become the Product Specification at successful completion of testing.

1. Scope:

1.1 Content

This specification covers the requirements for product performance, test methods of MQS 32Pos.

32P Header TE Connectivity drawing: 2278423

32P Plug TE Connectivity drawing.: Cover Ass'y 2278196
Socket 1719059


Female MQS contact drawing.: 928999/ 963715

1.2 Qualification

When tests are performed on the subject product line, the procedures specified in TE Connectivity 109 series specifications shall be used. All inspections shall be performed using the 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 event of conflict between the requirements of this Specification and 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.

				DR T.DONG 09NOV15	 TE Connectivity Shanghai, China		
				CHK H. YE 09NOV15			
				APP S.WANG 11NOV15	NO. 108-101338	REV A	LOC ES
				PAGE	TITLE		
A	RELEASED	T.D	11NOV15	1 of 8	AB12CL MQS 32P Airbag connector		
LTR	REVISION RECORD	DR	DATE				

2.1 TE Connectivity Specifications:

- A. 109 SERIES: Test Specification, Requirements for Test Methods.

2.2 Other Specifications:

- A. CHONG QIN CHANG AN MOTOR SPEC. NO. : Q/JD 1920-2012
 B. CHERY MOTOR SPEC. NO.: Q/SQR. 04. 935-2011
 C. USCAR-2 Revision6 2013

By fulfillment of vibration test class V1 defined in chapter 5.4.6 of SAE_USCAR_2(Version 6 February 2013), Tyco can guarantee the connector system meet the criteria in item 3.5.16 of this document within operating lifetime in vehicle application defined in chapter 4.10 of SAE_USCAR_2

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. Contact
 -Material: CuZn30
 -Finish: Contact area matte Tin over Ni
 Solder area matte Tin over Ni
- B. Header Housing
 -Material: PBT –GF30
- C. Plug Cover
 -Material: PBT-GF20
- D. Socket
 -Material: PBT-GF20


3.3 Ratings:

Operating temperature Range : -40 °C to + 85 °C


3.4 Performance and Test Descriptions

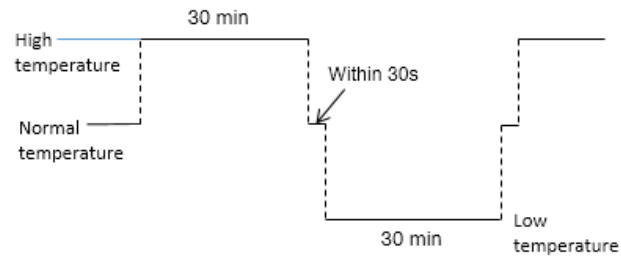
The product is designed to meet the electrical, mechanical and environmental performance requirements specified in bellow table. All tests are performed at test condition of the TE Connectivity test specification 109-1 unless otherwise specified.


	TE Connectivity Shanghai, China	PAGE	NO.	REV	LOC
		2 of 8	108-101338	A	ES

Para.	Test items	Requirements	Procedures			
MECHANICAL TEST						
3.5.1	Confirmation of Product	Product shall be conforming to the requirements of applicable product drawing and Application Specification	Visually, Dimensionally and Functionally inspected per applicable inspection plan.			
3.5.2	Terminal to terminal insertion force	Record the value for reference	Insert the single pin to the terminal contact in axial direction at speed 50 mm/min., measure the insertion force			
3.5.3	Terminal to housing insertion force	15N max.	Insert the crimped terminal with cable to the plug housing in axial direction at speed 50 mm/min., measure the insertion force			
3.5.4	Retention force of terminal (Primary lock only)	40N min.	Insert the crimped terminal to the female connector with primary lock only, and pull the cable in axial direction at speed 50 mm/min. Measure load when terminal comes off from the connector housing.			
3.5.5	Retention force of terminal	110N min.	Insert the crimped terminal to the female connector with primary lock and secondary lock, and pull the cable in axial direction at speed 50mm/min., Measure load when terminal comes off from the connector housing.			
3.5.6	Retention force of Header pin	25N min.	Apply an axial pull-off load to Pin direction Operation speed 50 mm/min			
3.5.7	Connector Insertion Force (with lever)	70N max.	Insert male and female connector housing with terminals assembled at constant speed of 50 mm/min., and then measure the operation force of lever.			
3.5.8	Connector Extraction Force (with lever)	70N max.	Extract male and female connector housing with terminals assembled at constant speed of 50 mm/min., and then measure the operation force of lever.			
 TE Connectivity Shanghai, China			PAGE	NO.	REV	LOC
			3 of 8	108-101338	A	ES

Para.	Test items	Requirements	Procedures
3.5.9	Connector Lock Strength	110N min.	Fit the male and female connector (all with terminal) housing, fix the lever at the end locked position and pull the male and female connector at constant speed of 50 mm/min. Measure the load when lock mechanism is removed or broken down.
3.5.10	Mating and unmating durability	No base material should be exposed	Mating and unmating the connectors 20cycles. Check current resistance each 10 cycle
ELECTRICAL TEST			
3.5.11	Insulation Resistant	100M Ω min.	On connected condition, measure insulation resistance for 5 sec by DC500V insulation resistance tester between neighboring terminals and between terminal and housing surface.
3.5.12	Low-voltage Current Resistant	Initial: $\leq 5\text{m}\Omega$; After test: $\leq 10\text{m}\Omega$	Measured by applying $20\pm 0.1\text{mV}$ and 10mA to male and female connectors or male and female terminal in fitted state by probing at 75mm apart from wire crimp after temperature becomes stabilized. Test method see Fig. 1
ENVIRONMENT TEST			
3.5.13	High Temperature Resistance	Appearance accepts: no deterioration, cracks deformities, etc.	On connected condition, place the connectors in the heat control oven at 120°C for 300hr. And then take it out and leave it to be at normal temp.

	TE Connectivity Shanghai, China	PAGE	NO.	REV	LOC
		4 of 8	108-101338	A	ES

Para.	Test items	Requirements	Procedures
3.5.14	Thermal Shock	Appearance accepts: no deterioration, cracks deformities, etc. Connector to be examined by Bosch after test.	Put the connectors in a thermostatic oven. Apply the following thermal pattern as one cycle, repeat 1000cycles. Remove and leave the connectors at normal temperature for 2h or longer. The temperature range is -40°C~+85°C. Check resistance each 200 cycles.  Fig. 2
3.5.15	Temperature/ Humidity Cycle	Appearance accepts: no deterioration, cracks deformities, etc. Measurement of insulation resistance Dielectric strength Plug holder force Connector to be examined by Bosch after test	100cycles thermal shock (Detail condition refer to Fig. 2) before humidity test. Cyclic humidity-heat as per DIN EN 60068-2-38Z/AD, Duration: 10 cycles -5 cycles with cold (see Fig. 3), 5 cycles without cold (see Fig. 4)
3.5.16	Vibration/ Mechanical shock	No loss of electrical continuity(resistance exceeds 7.0 Ω for more than 1 microsecond) of any terminal pair Resistance of any terminal pair <20mΩ	Test sequence follow USCAR-2 Rev.6, 2013. 5.4.6, class V1.
3.5.17	Low Temperature Resistance	Appearance accepts: no deterioration, cracks deformities, etc.	On connected condition, place the connectors in the heat control oven at -40°C for 300hr. And then take it out and leave it to be at normal temp.
3.5.18	High Temperature Operation	Appearance accepts: no deterioration, cracks deformities, etc.	On connected condition, place the connectors in the heat control oven at 80°C for 60s And then take it out and leave it to be at normal temperature for 60s, then mating and unmating for 5cycles

	TE Connectivity	PAGE	NO.	REV	LOC
	Shanghai, China	5 of 8	108-101338	A	ES

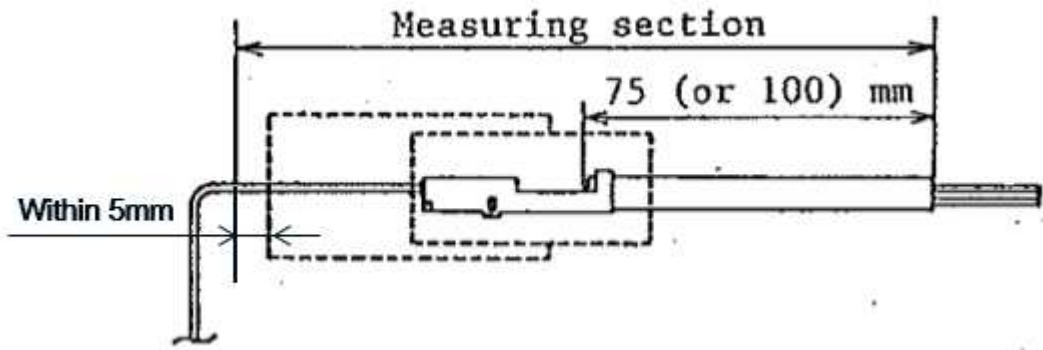


Fig. 1 Measure Point

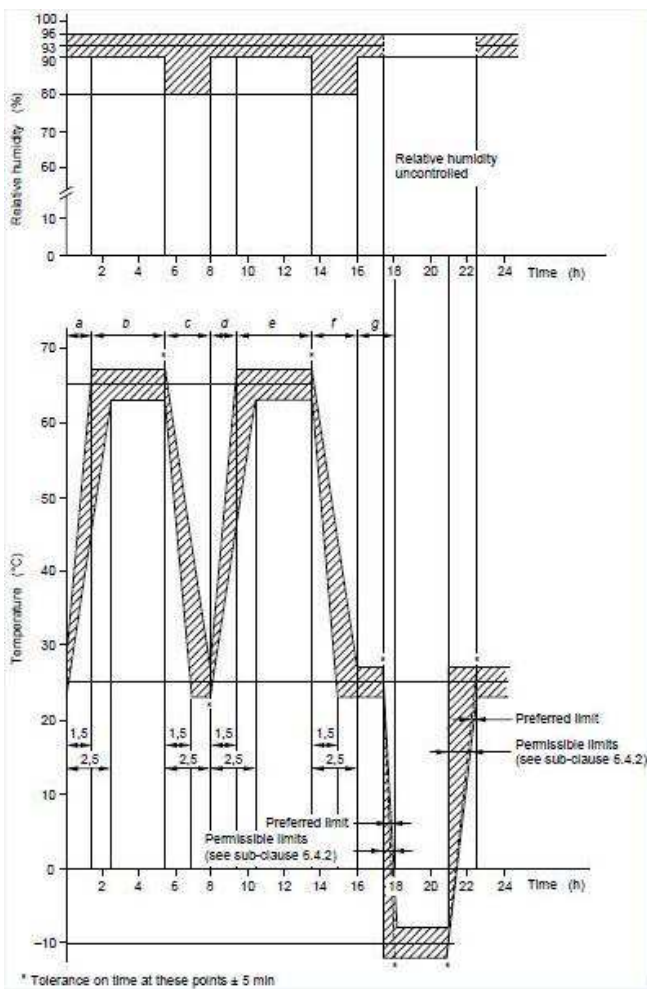


Fig. 3

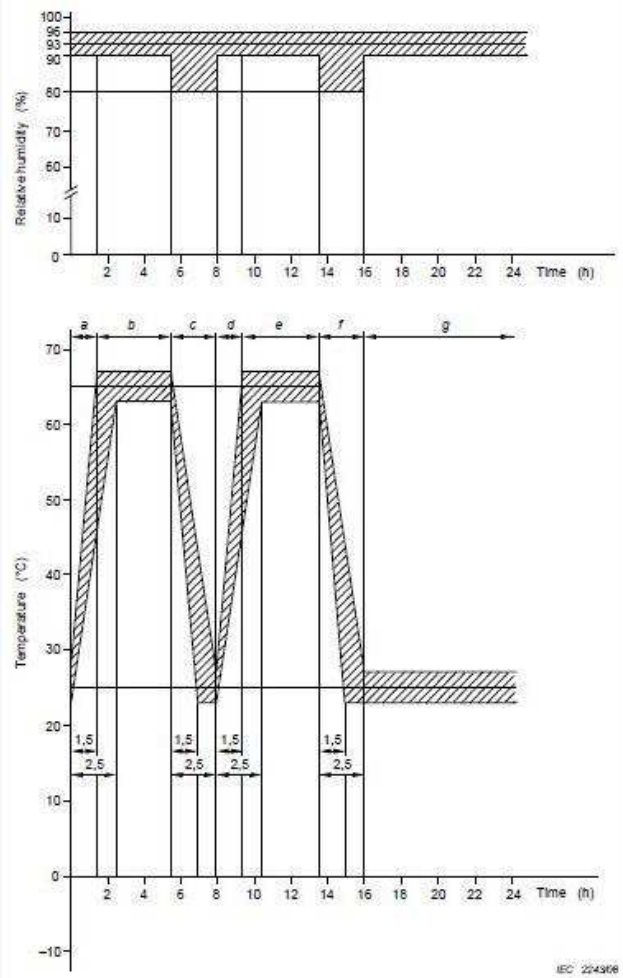



Fig. 4

	<p>TE Connectivity Shanghai, China</p>	<p>PAGE</p>	<p>NO.</p>	<p>REV</p>	<p>LOC</p>
		<p>6 of 8</p>	<p>108-101338</p>	<p>A</p>	<p>ES</p>

3.6 Product Qualification Test and Sequences

SAMPLE QUANTITIES												
Test or examination	TEST GROUP											
	A	B	C	D	E	F	G	H	I	J	K	L
Confirmation of Product	1,3	1,4	1,3	1,3	1,4	1,6	1,5	1,5	1,6	1,6	1,5	1,5
Insulation Resistance						5			5	5		
Low-voltage Current Resistance						2,4	2,4	2,4	2,4	2,4	2,4	2,4
Terminal to terminal insertion force	2											
Terminal to housing insertion force		2										
Retention force of terminal (Primary lock only)			2									
Retention force of terminal		3										
Retention force of Header pin				2								
Connector Insertion Force (with lever)					2							
Connector Extraction Force (with lever)					3							
Connector Lock Strength					5				7			
Mating and unmating durability						3						
High Temperature Resistance							3					
Thermal Shock								3				
Temperature/Humidity Cycle									3			
Vibration/Mechanical shock										3		
Low Temperature Resistance											3	
High Temperature Operation												3
Sample size	10	10	10	10	10	10	10	10	10	6	10	10

Table 1

	TE Connectivity Shanghai, China	PAGE	NO.	REV	LOC
		7 of 8	108-101338	A	ES

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 in Table 1.

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.

	TE Connectivity Shanghai, China	PAGE	NO.	REV	LOC
		8 of 8	108-101338	A	ES