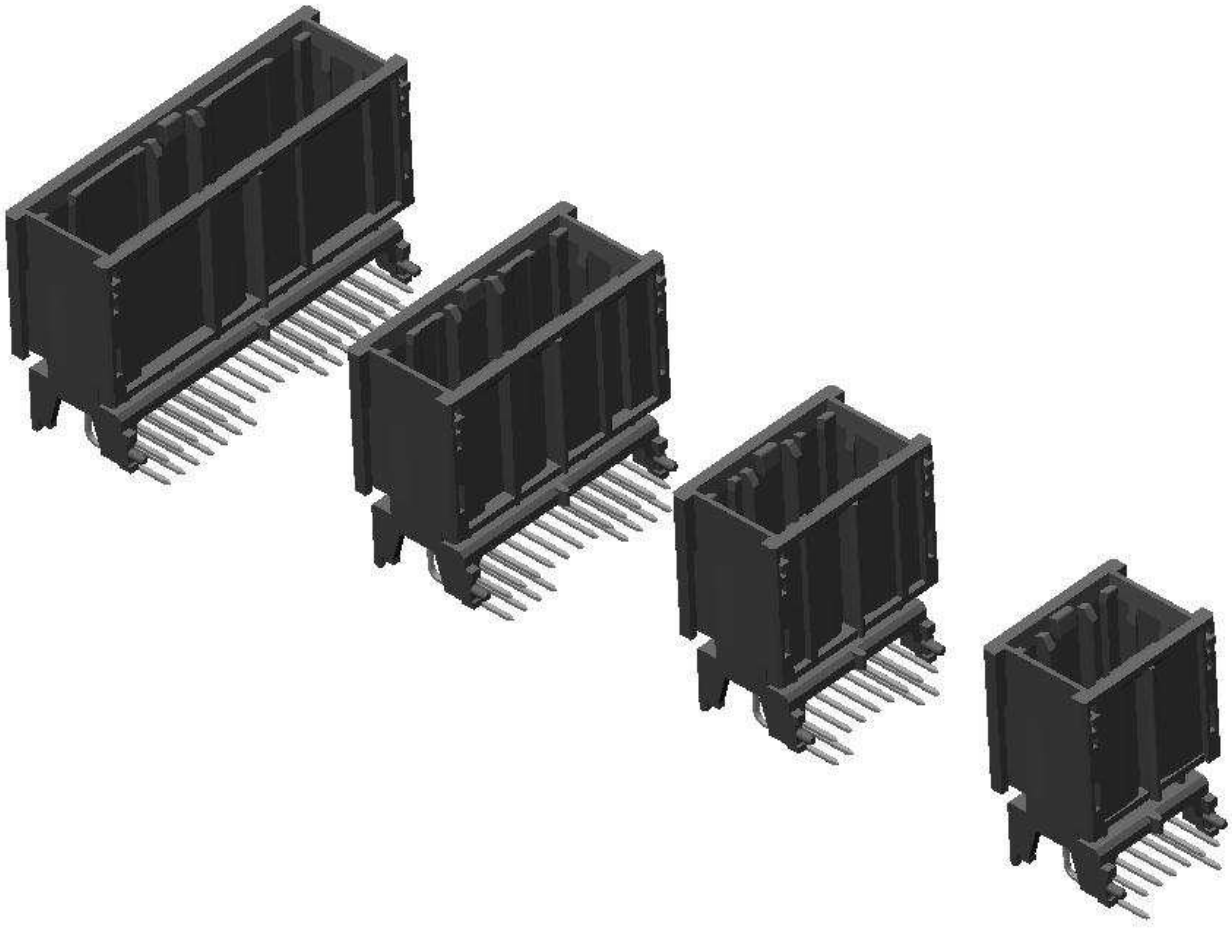
Description: NANO MQS MARKET SERIES HEADER

Class 1

NANO MQS LS TOP LATCH SERIES,

Header



A	**DOCUMENTATION REWORKED**	**O. Frank**	**10/09/2014**	**MCS**	**10/09/2014**
1	**FIRST EDITION**	**O. Frank**	**01/05/2014**	**MCS**	**01/06/2014**
rev letter	rev. record	DR	Date	CHK	Date

DR.	DATE	APVD	DATE
O. Frank	01/05/2014	M. Schall	01/06/2014

*Trademark
| Indicates change

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NANO MQS LS TOP LATCH SERIES HEADER

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1. SCOPE

1.1 Content

This specification covers the performance, tests and quality requirements for the products of the following table. These products are for use in passenger compartment applications.

1.2 Qualification

When tests are performed the following specified specifications and standards shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

TE Part Number	Description	INTERFACE
x-2177372-y	8 POS Header 90°THT TOP LATCH	C114-20160
x-2177768-y	8 POS Header 180°THT TOP LATCH	
x-2177370-y	12 POS Header 90°THT TOP LATCH	
x-2177767-y	12 POS Header 180°THT TOP LATCH	
x-2177367-y	20 POS Header 90°THT TOP LATCH	
x-2177766-y	20 POS Header 180°THT TOP LATCH	
x-2177419-y	32 POS Header 90°THT TOP LATCH	
x-2177748-y	32 POS Header 180°THT TOP LATCH	

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 General Documents

A DIN IEC 60512
Electromechanical components for electronic equipment; basic testing procedures and measuring methods - edition May 1994

B IEC 60512-2-1
Electrical continuity and contact resistance tests; Test 2a: contact resistance; millivolt level method, edition 2002

C DIN IEC 60512-8
Connectors for electronics equipment – tests and measurements, part 8-1: static load tests, edition 2002

D DIN IEC 68-2-20
Test method for solderability and resistance to soldering heat, edition 2006

E LV 214 Test Guideline for Motor Vehicle Connectors, Edition March 2010

F VDA Band 19 / ISO 16232: Restschmutzanalyse

2.2 TE Documents

A Customer Drawing: C-114-94160

B Platform Product Drawing Header Nano MQS Market Series 115-18367

C 114-94201: Nano MQS contact and contact tip

D 108-94099: AMP Nano MQS contact system

E 114-20160: interface specification, 8-32 pos shrouded connection

F 108-20315: Nano MQS, Socket- and Pin housing

G TEC 109-201: Component Heat Resistance to Lead-Free Reflow Soldering

3. REQUIREMENTS

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

3.2 Materials
Descriptions of material are shown in the drawings.

3.3 Ratings
Information about can be found in the specifications.

4. QUALIFICATION DESCRIPTION AND PERFORMANCE SUMMARY

The product is designed to fulfill the electrical, mechanical and environmental performance requirements specified in paragraph 3.5 according LV214 03/2010. All tests are performed at ambient environmental conditions per DIN IEC 60512 unless otherwise specified.

4.1 Qualification Test according LV214 (03/2010)

PG 0	Inspection of as-received condition	passed
PG 1	Dimensions	passed
PG 2	Material and surface analysis, contacts	n/a
PG 3	Material and surface analysis, housings and single-wire seals	passed
PG 4	Contact engagement length	passed
PG 5	Mechanical and thermal relaxation behavior	n/a
PG 6	Interaction between contact and housing	n/a
PG 7	Handling and functional reliability of the housing	passed
PG 8	Insertion and retention forces of the contact parts in the housing	n/a
PG 9	Pin insertion inclination/misuse safe (scoop-proofing)	passed
PG 10	Contacts: conductor pull-out strength	n/a
PG 11	Contacts: Insertion and removal forces, mating cycle frequency	n/a
PG 12	Current heating, derating	n/a
PG 13	Housing influence on the derating	passed
PG 14	Thermal time constant (current excess temperature at n times rated current)	n/a
PG 15	Electrical stress test	n/a
PG 16	Friction corrosion	n/a
PG 17	Dynamic load	n/a
PG 18 A	Coastal climate load	n/a
PG 18 C	Deicing salt load	n/a
PG 19	Environmental simulation	n/a
PG 20	Climate load of the housing	passed
PG 21	Long-term temperature aging	passed
PG 22 A	Chemical resistance	passed
PG 22 B	Chemical resistance, extended test	n/a
PG 23	Water leak tightness	n/a
PG 24	Impenetrability to paint	n/a
PG 25	Test group omitted	n/a
PG 26	Test group omitted	n/a
PG 27	Test group omitted	n/a
PG 28	Locking noise	passed
PG 29	Retention force of the blind plugs	n/a

Additional tests

Pin contact retention force	passed
Solderable	passed
Blistertest SMD	passed
Cleanliness	passed

4.2 Performance Summary

PG 1: Dimensions
Dimensions are controlled by computer tomographic scan (CT)

PG 3: Material and surface analysis, housings and single-wire seals
Material Certification of all parts available

PG 4: Contact engagement length
Theoretical Evaluation with CAD Model => Test passed

PG 7: Handling and functional reliability of the housing
Insertion and withdrawal forces, housing fully loaded => max 75N => Test passed
Retention forces of the housing latch is locked => Min 50N => Test passed
Error-proof design of housings, keying => Min 50N => Test passed
Error-proof design of housings, polarization => min 80N => Test passed

PG 9: Pin insertion inclination/misuse safe (Scoop-proofing, Kojiri)
Theoretical Evaluation with CAD Model => Test passed

PG 13: Housing influence on the derating
Housing influence on the derating acc. to LV 214, Temperature limit 105℃ => Test passed

PG 20: Climate load of the housing
Climate load of the housing, Temperature limit 105°C => Test passed

PG 21: Long-term temperature aging
Long–term temperature aging, Temperature limit 105°C => Test passed

PG 22 A: Chemical resistance
Functional test and insulation resistance => Test passed

PG 28: Locking noise
$L_{A, peak} \geq 70$ dB(A) => Test passed

Additional tests

Pin contact retention force
Retention Force ≥ 20N => Test passed

Solderability
Tested with solder balance => Test passed

Component Heat Resistance to Lead Free Reflow Soldering (SMD)
Test according TEC 109-201, condition B (260℃), no blistering => Test passed

Cleanliness (VDA Band 19 / ISO 16232)
Max. Metallic Flitter Size: 500µm => Test passed

4.3 Qualification Testing

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

B Amount of samples
The test samples shall be chosen according LV214.

C Test Sequence
Qualification test sequence according LV214

4.4 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.

4.5 Acceptance

Acceptance is based on verification that the product meets the requirements. 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 re-submittal.

4.6 Quality Conformance Inspection

The conformity test is corresponding with the applicable quality inspection plan, which specifies the acceptable quality level for the sample size. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

5. APPENDIX