Product Change Notification

TE Connectivity

Product Change Notification: P-23-024297 **PCN Date:** 21-MAR-23

TE would like to inform you of the following change(s) to the listed TE Connectivity Product. In case of any further questions about this change(s), please contact your TE Connectivity Sales Engineer. Affected part, drawing and/or specification numbers are listed on the attached sheet(s).

General Product Description:
NanoMQS Product Specification 108-94099

Description of Changes
Change revision G to H: 4.2: limitation of max. current carrying capability in dependency of wire and base material of mating part instead of general limitation; 4.4 - PG11: mating/unmating forces defined with average values and 95% confidence interval instead of maximum values / PG 12 and PG14: info to non-specified curves added / PG15: limitation of max. current removed, info in regards of test performance added; 4.5: limitation of max. current removed **Other attachments:** NanoMQS Product Specification Attachment Rev G to Rev H

Reason for Changes:	
Document clarification.Limitation of max. current carrying capability is dependent on a lot of factors, therefore a general limitation is not needed. Mating/unmating forces always occur with a certain spread, therefore a definition with maximum value is not constructive in regards of calculation the mating/unmating forces for housings with certain numbers of positions. An average value provides more realistic expected values.	
Estimated Dates:	
Last Order Date (Obsolete Parts Only):	**First Date To Ship** (Changed Parts Only):
Last Ship Date (Obsolete Parts Only):	**Last Date for Mixed Shipments:** (Changed Parts Only):
	No Mixed Shipments

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Customer Part Number	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-1703930-1	NO						
1-2236905-1	NO						
2-1703930-1	NO						
2-1703930-2	NO						
2-1703930-4	NO						

The documents listed below are being modified. Related parts that are not explicitly listed on this PCN are not being modified or discontinued as per the PCN. The Last Order Date, Last Ship Date, First Date to Ship Changed Parts and last date for Mixed Shipments apply only to parts explicitly listed on this PCN.

Document(s) Being Modified:

Documents Number	Related Part Number	Customer Part Number	Current Revision	New Revision
108-94099	9-2304372-9, 1-1703930-1		G	

The documents listed below are being modified. Related parts that are not explicitly listed on this PCN are not being modified or discontinued as per the PCN. The Last Order Date, Last Ship Date, First Date to Ship Changed Parts and last date for Mixed Shipments apply only to parts explicitly listed on this PCN.

Document(s) Being Modified:

Documents Number	Related Part Number	Customer Part Number	Current Revision	New Revision
108-94099	9-2304372-9		G	

The documents listed below are being modified. Related parts that are not explicitly listed on this PCN are not being modified or discontinued as per the PCN. The Last Order Date, Last Ship Date, First Date to Ship Changed Parts and last date for Mixed Shipments apply only to parts explicitly listed on this PCN.

Document(s) Being Modified:

Documents Number	Related Part Number	Customer Part Number	Current Revision	New Revision
108-94099	9-2304372-9		G	

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Customer Part Number	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-1703930-1	NO						
1-2236905-1	NO						
2-1703930-1	NO						
2-1703930-2	NO						
2-1703930-4	NO						

The documents listed below are being modified. Related parts that are not explicitly listed on this PCN are not being modified or discontinued as per the PCN. The Last Order Date, Last Ship Date, First Date to Ship Changed Parts and last date for Mixed Shipments apply only to parts explicitly listed on this PCN.

Document(s) Being Modified:

Documents Number	Related Part Number	Customer Part Number	Current Revision	New Revision
108-94099	1-1703930-1		G	

NanoMQS

Product Specification

Revision Change G → H

EVERY CONNECTION COUNTS

1. Changes Rev. G → H

Rev. G

Limitation of max. current carrying capability:

4.2 Technische Daten - Leistungseckwerte	4.2 Technical Data - Performance Data
Strombelastbarkeit **Current carrying capability**	max. 1A 0.13mm² und / and 0.17mm² max. 3A 0.22mm² und / and 0.35mm²

Rev. H

Limitation of max. current carrying capability in dependency of wire and base material of mating part:

4.2 Technische Daten - Leistungseckwerte	4.2 Technical Data - Performance Data
Strombelastbarkeit [1] **Current carrying capability** [1]	Abhängig von max. Strombelastbarkeit der verwendeten Leitung und vom Basismaterial des verwendeten Gegensteckers / Depending on max. current carrying capability of used wire and on base material of the used mating part

1) Leitungsisolation muss so gewählt werden, dass sie der Grenztemperatur der jeweiligen Anwendung entspricht / Wire insulation must be chosen in accordance to limit temperature of particular application
2) Grenztemperaturbereich von Buchsenoberfläche und Basismaterial abhängig/ Temperature range depending on socket surface and base material

Notes added for PG12, PG14 and PG15 for more detailed information on current carrying capability:

PG12 **Stromerwärmung, Derating / Current heating, derating**	Siehe Diagramme in Abschnitt 4.5 (für nicht angegebene Kombinationen bzgl. Basismaterial, sind die Stromerwärmungskurven separat zu ermitteln) / See diagrams in chapter 4.5 (for non-specified combinations of base material, the current heating curves must be determined separately)
B 15.2 Temperatur-/Stromwechseldauertest / Temperature/ current cycle endurance test	Grenztemperatur siehe Tabelle 1/ Limit temperature see table 1 Klimaschranktemperatur und Prüfstrom müssen so gewählt werden, dass die Kontakttemperatur nach Einstellung des thermischen Gleichgewichts der Grenztemperatur entspricht / Climate chamber temperature and test current must be selected in such a way that the contact temperature after setting up the thermal balance corresponds to the limit temperature

PG14 **Thermische Zeitkonstante / Thermal time constant**	Siehe Diagramme Thermische Zeitkonstante Abschnitt 4.6 (für nicht angegebene Kombinationen bzgl. Basismaterial, Leitungstyp und Stromstärke sind die Stromerwärmungskurven separat zu ermitteln) / See diagrams thermal time constant chapter 4.6 (for non-specified combinations of base material, wire type and current, the current heating curves must be determined separately)

1. Changes Rev. G → H

Rev. G

Mating/unmating forces defined with maximum values:

PG 11 **Kontakte: Steck- und Ziehkräfte, Steckhäufigkeit / Contacts: Insertion and removal forces, mating cycle frequency**		
E 0.1 Sichtprüfung / Visual inspection	Zeichnungskonformität / Drawing conformity	DIN EN 60512-1-1
E 11.1 Aufsteck- und Abzugskraft / Plugging and removal force	Steckkraft 1. Zyklus / Mating force 1. cycle: Sn: $F_{mate} \leq 2.5N$ Ag: $F_{mate} \leq 4.0N$ Au: $F_{mate} \leq 2.5N$ Ziehkraft 1. Zyklus / Unmating force 1. cycle: Sn: $F_{unmate} \leq 4.2N$ Ag: $F_{unmate} \leq 4.2N$ Au: $F_{unmate} \leq 4.2N$	Mit Realtab nach 114-94201 für Tab 0.5 x 0.4 / with real tab according 114-94201 for tab 0.5 x 0.4

Rev. H

Mating/unmating forces defined with average values and 95% confidence intervals:

PG 11 **Kontakte: Steck- und Ziehkräfte, Steckhäufigkeit / Contacts: Insertion and removal forces, mating cycle frequency**		
E 0.1 Sichtprüfung / Visual inspection	Zeichnungskonformität / Drawing conformity	DIN EN 60512-1-1
E 11.1 Aufsteck- und Abzugskraft / Plugging and removal force	Steckkraft 1. Zyklus / Mating force 1. cycle: **Material** | **95% confidence level [3)]** | **Average** Sn | 2.8N | 2.1N Ag | 3.0N | 2.1N Au | 1.8N | 1.5N Ziehkraft 1. Zyklus / Unmating force 1. cycle: **Material** | **95% confidence level [3)]** | **Average** Sn | 2.8N | 2.0N Ag | 2.7N | 1.6N Au | 2.0N | 0.9N	Mit Realtab nach 114-94201 für Tab 0.5 x 0.4 / with real tab according 114-94201 for tab 0.5 x 0.4

Mating/unmating forces always occur with a certain spread, therefore a definition with maximum value is not constructive in regards of calculation the mating/unmating forces for housings with certain numbers of positions. An average value provides more realistic expected values.

1. Changes Rev. G → H

(Example derating curve)

Rev. G

Derating curve with limitation of current to 3A:

PN NanoMQS:	2-1703930-4 / 4-1703930-4		
Werkstoff / Material	CuNiSi	Oberfläche / Surface:	Sn
PN TAB 0.5 x 0.4:	2177008		
Werkstoff / Material	CuMg0.1	Oberfläche / Surface:	Sn
Messaufbau / Measurement set up:		Frei in Luft / Free in air	

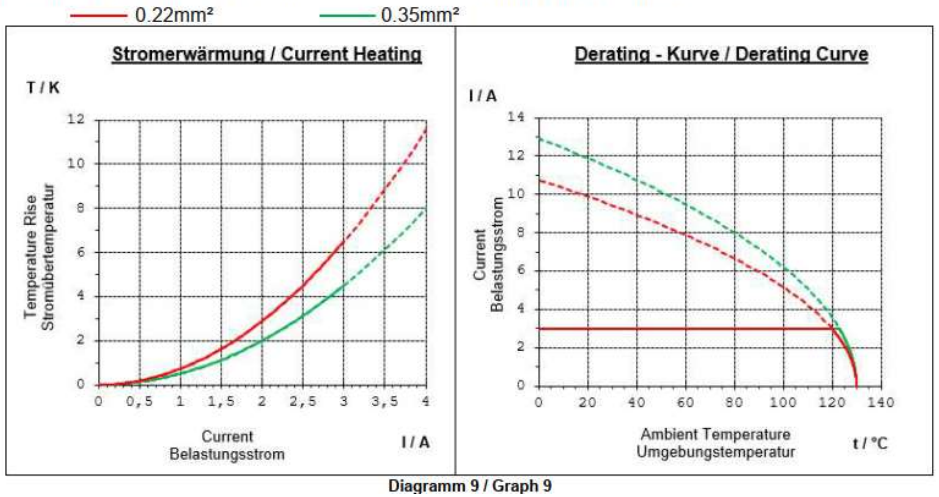

Diagramm 9 / Graph 9

Rev. H

Derating curve without limitation of current:

PN NanoMQS:	2-1703930-4 / 4-1703930-4		
Werkstoff / Material	CuNiSi	Oberfläche / Surface:	Sn
PN TAB 0.5 x 0.4:	2177008		
Werkstoff / Material	CuMg0.1	Oberfläche / Surface:	Sn
Messaufbau / Measurement set up:		Frei in Luft / Free in air	

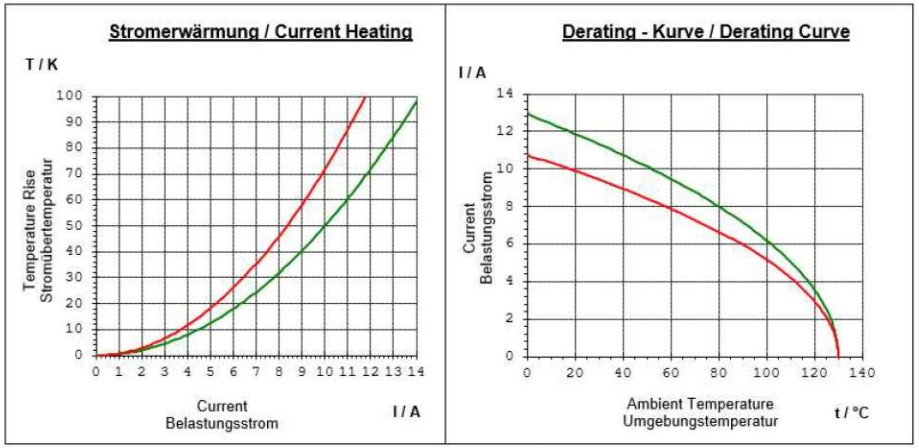

Diagramm 9 / Graph 9

2. Technical Explanation

- Max. current capability is depending on the ambient temperature of the application, the limit temperature of the terminal and the current capability of the wire and limit temperature of the wire insulation
- Example: limit temperature of the wire 150°C / limit temperature of the terminal 130°C

MAXIMUM CURRENTS CARRYING CAPACITIES (A) ON ZERO HALOGEN 150° C CLASS D WIRES*

Cr. Sect. (mm²)	Wire diameter (mm)	Ambient temperature (° C)													
		20	30	40	50	60	70	80	90	100	110	120	130	140	150
0.22	1.20	10	10	9.4	8.9	8.5	8.0	7.5	6.9	6.3	5.7	4.9	4.0	2.8	0
0.35	1.40	14	13	13.0	12.0	11.0	11.0	10.0	9.3	8.5	7.6	6.5	5.3	3.8	0

- In combination with the derating curve of the terminal:
  - @100°C ambient temperature: 6A
  - @80°C ambient temperature: 8A

PN NanoMQS: 2-1703930-4 / 4-1703930-4
Werkstoff / Material: CuNiSi — Oberfläche / Surface: Sn
PN TAB 0.5 x 0.4: 2177008
Werkstoff / Material: CuMg0.1 — Oberfläche / Surface: Sn
Messaufbau / Measurement set up: Frei in Luft / Free in air

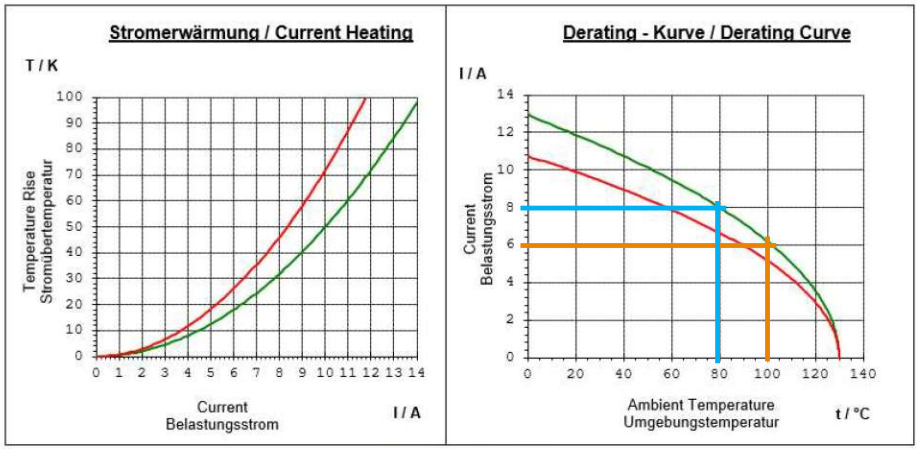

Diagramm 9 / Graph 9

2. Technical Explanation

- The application must be designed in a way that the operating temperature is not exceeding the permissible component temperature when constant current is applied
- For inrush currents the allowed load time is limited to the reach of stabilization or until max. permissible component temperature is reached
- Permissible component temperature of the terminal is validated with PG15 once by using nominal current @80°C ambient temperature and set up of the temperature of the climate chamber in such way that the permissible component temperature is not exceeded (when using a different current: temperature of the climate chamber must be adjusted accordingly)

3. Product Management Statement

The NanoMQS terminal was tested according the customer requirements in the past, therefore the max. current carrying capability was set to 3A accordingly.

Within the scope of miniaturization strategy the possibilites of using the NanoMQS terminal with higher than formerly released 3A were checked again. The existing validation results show additional options for using the NanoMQS terminal in the field.