Product Change Notification

TE Connectivity

Product Change Notification: P-23-025203 **PCN Date:** 04-OCT-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:
D369 Shielded Panel and PCB Mount Receptacle Connectors

Description of Changes

Update the listed documents to change the shell-to-shell continuity test specification from EN2591-205 to EIA-364-83 (MIL-DTL-38999), changing the performance requirement from 12 milliohm to 200 milliohm.

108-160253_RevAA_Shell to shell requirement

Shell to shell electrical continuity	Maximum resistance: Initial: < 12 mΩ After test: < 24 mΩ	EN2591-205

108-160253_RevAB_Shell to shell requirement

Shell to shell electrical continuity	Maximum resistance: Initial: < 200 mΩ After test: < 400 mΩ	EIA-364-83 (MIL-DTL-38999)

Other attachments:

108-160253_RevAB_Draft

Reason for Changes:	
New specification.Continuity readings exceeding 12 milliohms reported during connector manufacture. The shell to shell requirement in MIL-DTL-38999 is more relevant to the product as the design does not include a sprung finger on the shell, i.e. RFI band.	
Estimated Dates:	
Last Order Date (Obsolete Parts Only):	**First Date To Ship** (Changed Parts Only):
	03-DEC-2023
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
YD369-MB33-NS10000	NO			"D369-MB33-NS1"			
YD369-MB33-NS40000	NO			"D369-MB33-NS4"			
YD369-MB66-NS10000	NO			"D369-MB66-NS1"			
YD369-MB66-NS40000	NO			"D369-MB66-NS4"			
YD369-MB99-NS10000	NO			"D369-MB99-NS1"			
YD369-MB99-NS40000	NO			"D369-MB99-NS4"			

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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
D612847-ENV	YD369-MB33-NS10000		01	
D612849-ENV	YD369-MB33-NS40000		01	

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
YD369-MB33-NS10000	NO			"D369-MB33-NS1"			

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
YD369-MB33-NS40000	NO			"D369-MB33-NS4"			
YD369-MB66-NS10000	NO			"D369-MB66-NS1"			
YD369-MB66-NS40000	NO			"D369-MB66-NS4"			
YD369-MB99-NS10000	NO			"D369-MB99-NS1"			
YD369-MB99-NS40000	NO			"D369-MB99-NS4"			

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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
D612847-ENV	YD369-MB33-NS10000		01	
D612849-ENV	YD369-MB33-NS40000		01	

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
YD369-MB33-NS10000	NO			"D369-MB33-NS1"			
YD369-MB33-NS40000	NO			"D369-MB33-NS4"			
YD369-MB66-NS10000	NO			"D369-MB66-NS1"			
YD369-MB66-NS40000	NO			"D369-MB66-NS4"			
YD369-MB99-NS10000	NO			"D369-MB99-NS1"			

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
YD369-MB99-NS40000	NO			"D369-MB99-NS4"			

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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
D612847-ENV	YD369-MB33-NS10000		01	
D612849-ENV	YD369-MB33-NS40000		01	

NOTE
The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, TE Connectivity (TE) makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, TE may change these requirements based on the results of additional testing and evaluation. Contact TE Engineering for further details.

D369 SHIELDED – PANEL, PANEL PCB & PCB MOUNT

1. SCOPE

1.1. Content

This Specification covers performance, tests and quality requirements for 369 Shielded Panel, Panel PCB and PCB Mounted receptacle connectors, consisting of 3, 6 and 9-way variants.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Section 3.5 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line has not been completed. The Qualification Test Report number will be issued upon successful qualification testing.

2. APPLICABLE DOCUMENTS AND FORMS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. 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 Documents

408-160044	Instruction Sheet
108-160151	Product Specification for 369 Cabin Environment connectors
502-160552	Qualification Test Report
D612847-ENV	369 Shielded Panel Mount Receptacle
D612848-ENV	369 Shielded PCB Mount Receptacle
D612849-ENV	369 Shielded Panel Mound PCB Receptacle
D612081-*-ENV	369 Shielded Plug Envelope drawing

2.2. Commercial Standards and Specifications

BS EN 60529	Degrees of protection provided by enclosures (IP code)
EN4165	Connectors, electrical, rectangular, modular
EN2591	Elements of electrical and optical connection – Test Methods – General
EIA-364	Electrical Connector/Socket Test Procedures Including Environmental Classifications

2.3. Reference Document

- 109-1 General Requirements for Testing
- 102-950 Qualification of Separable Interface Connectors

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction, materials and physical dimensions specified on the applicable product drawing detailed within section 2.1.

3.2. Materials

Component	Material (Finish: Clean in all cases)	Finish
Seals	Silicone / Fluorosilicone Blend Rubber	N/A
Insert Parts, Board Mounts and Panel Clips	Thermoplastic	N/A
Shell Bodies (Housings)	Thermoplastic	Electroless Nickel Plated
Panel Gasket	Silver-Aluminium charged Fluorosilicone	N/A
Solder Bridge	Phosphor Bronze	Nickel Plated
Contact body Socket contact sleeve See Figure 2	Copper Alloy Stainless Steel	Gold Plated N/A

Figure 1 - Materials

Config.	Contact Description	Contact PN (or Equivalent)		Wire	Current Rating
		Pin	Socket		
0	No Contacts Supplied				
1	Crimp, Copper Wire	38941-22L	38946-22L	22-28 AWG	5A (22 AWG) 3A (24 AWG) 2A (26 AWG)
2	Crimp, Aluminium Wire	200-1042-22	200-1142-22	22 AWG	5A
3	Crimp, Enlarged Copper Wire	182-0860-22	182-0862-22	20-24 AWG	5A (20 AWG)
4	90° PCB Tail	(N/A - non-removeable contacts)		N/A	5A
5	90° PCB Tail, Tin Dipped	(N/A - non-removeable contacts)		N/A	5A

Figure 2 – Contact Types

3.3. Ratings

A. Voltage Rating: See Figure 3

Operating Voltage (Sea level)		Test Voltage (VRMS)		
AC (RMS)	DC	Pressure	Mated	Unmated
400	500	Sea-level	1,300	1,300
		57.18kPa (4,600m or 15,000ft)	1,000	600

Figure 3 – Voltage Rating

B. Current Rating: See Figure 2

C. Temperature Rating: –55°C to +175°C

3.4. Performance Requirements and Test Description

The product should meet the electrical, mechanical and environmental performance requirements specified in Figure 5. All tests shall be performed at ambient environmental conditions otherwise specified.

The qualification test samples shall use the following wire types and sizes specified where applicable, or an approved equivalent wire.

Wire Size	Wire Type: BS 3G210-B-22		
	Type	Minimum Outside Diameter (mm [in])	Maximum Outside Diameter (mm [in])
22	30	1.15 [0.045]	1.35 [0.053]

Figure 4 – Wire sizes for test samples.

3.5. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

C	Requirement	Procedure
Visual examination	Initial examination; examination of connectors, housing, module loose parts (contacts, etc.) Details to be examined: – identification; – appearance; – marking; – surface finish. Final examination: no loosening of parts, crack, excessive wear or detached part shall be observed.	EN 2591-101
Examination of dimensions and mass	According to envelope drawings. The checking of inaccessible dimensions on the finished product shall be carried out on part pieces or given by the quality organization of the manufacturer concerned.	EN 2591-102
Electrical		
Contact resistance -Low level	Test applicable to contact defined by the standards for contacts specified in EN 4165-002. - Initial value: ≤8mΩ - After tests: ≤11mΩ	EN 2591-201

<table>
<tr><td>Contact resistance at rated current</td><td>Test applicable to contact defined by the standards for contacts specified in EN 4165-002.
- Initial value: ≤8mΩ
- After tests: ≤11mΩ</td><td>EN 2591-202</td></tr>
<tr><td>Discontinuity of contacts in the microsecond range</td><td>Duration of micro-discontinuity: Standard contact: : 1 µs
Test time: throughout the duration of tests EN 2591-402, EN 2591-403 and EN 2591-301, method B.</td><td>EN 2591-204</td></tr>
<tr><td>Measurement of insulation resistance</td><td>Method A minimum insulation resistance:
– at ambient temperature: 5 000 MΩ (unmated connectors);
– at maximum operating temperature: 1 000 MΩ (unmated connectors);
– after Altitude test to RTCA DO-160E Category A4: 1 000 MΩ (mated connectors);
– after tests EN 2591-315: 100 MΩ (unmated connectors) except conductive fluids;
– during tests EN 2591-301: 100 MΩ (mated connectors).
– after Humidity test to RTCA DO-160E Category A
Within 5 hours of the final test cycle: 100 MΩ (mated connectors). 24 hours after test: 5 000 MΩ (mated connectors).
– after IPX7 test: 500 MΩ (mated connectors).</td><td>EN 2591-206</td></tr>
<tr><td>Voltage proof test</td><td>Method A, connectors mated and unmated except after test RTCA DO-160E, where they shall be mated. For tests at low pressure, voltage is applied after 30 min at the pressure indicated.
Note: Test articles which have been subjected to conductive fluids during fluid resistance testing are exempt.</td><td>EN 2591-207</td></tr>
<tr><td>Electrical Overload</td><td><table><tr><th>Contact size</th><th>Current (A)</th><th>Duration (s)</th></tr><tr><td rowspan="2">22</td><td>10</td><td>40</td></tr><tr><td>50</td><td>0.6</td></tr></table></td><td>EN 2591-210</td></tr>
<tr><td>Shell to shell electrical continuity</td><td>Maximum resistance:
Initial: < ~~12 mΩ~~ 200mΩ J. BROWN 21/9/23
After test: < ~~24 mΩ~~ 400mΩ</td><td>~~EN2591-205~~
EIA-364-83
(MIL-DTL-38999) J. BROWN 21/9/23</td></tr>
<tr><td colspan="3">Mechanical</td></tr>
<tr><td>Engagement of contacts</td><td>Applicable.
Ø0.86mm minimum (standard contact)</td><td>EN 2591-216</td></tr>
<tr><td>Shock</td><td>Method A.
In-line receptacle to be mounted via zip tie feature.
Severity 100
Number of shocks: 1 each way in each axis.</td><td>EN 2591-402</td></tr>
<tr><td>Random vibration</td><td>Same mounting configuration as EN 2591-402
Connectors mated
Method B
Figure 3 and Table 2, level E
Duration: 8 h/axis</td><td>EN 2591-403</td></tr>
<tr><td>Transverse load (external bending moment)</td><td>Bending moment: 0.5Nm applied at clipped rear body extremity.
Connector tested in worse case position.
Force applied along y axis of the connector and then x axis of connector.</td><td>EN 2591-404</td></tr>
<tr><td>Mechanical endurance</td><td>Number of mating and unmating operations: 500
The rate shall not exceed five cycles/min.</td><td>EN 2591-406</td></tr>
</table>

<table>
<tr><td>Durability of contact retention system and seals (Maintenance ageing) 1/</td><td>Applicable</td><td>EN 2591-407</td></tr>
<tr><td>Mating and Unmating forces</td><td>Method A.
Button push 2.3N min to 80N max.
Engagement/separation forces:
Size 3, 3 way = engagement 20N max; separation 13N max./0.6N min
Size 6, 6 way = engagement 40N max; separation 26N max./0.6N min
Size 9, 9 way = engagement 60N max; separation 39.5N max./0.6N min</td><td>EN 2591-408</td></tr>
<tr><td>Contact retention in insert 1/</td><td>Carefully lower probe or contact and apply load at a rate not exceeding 5N/s. The loads to be applied are as follows:
- Size 22: 44N
For planforms with less than 6 contacts, 100% shall be tested
For planforms with 6 or more contacts, 50% shall be tested on a minimum of 6 specimens. The load shall be maintained for 10 secs. The tines shall not break under load as demonstrated by continuous contact retention.</td><td>EN 2591-409</td></tr>
<tr><td>Insert retention in housing (axial) 1/</td><td>Connector not fitted with contacts.
The force applied shall be per the table and distributed over the front surface of the insert. Displacement <0.3 mm after application of the load. Tested on receptacle side only.
<table>
<tr><th>Connector style</th><th>Force (N)</th></tr>
<tr><td>Size 3, 3 way</td><td>20.2</td></tr>
<tr><td>Size 6, 6 way</td><td>44.9</td></tr>
<tr><td>Size 9, 9 way</td><td>69.7</td></tr>
</table></td><td>EN 2591-410</td></tr>
<tr><td>Contact insertion and extraction forces 1/</td><td>
<table>
<tr><th rowspan="2">Contact size</th><th colspan="2">Maximum force (N)</th></tr>
<tr><th>Insertion</th><th>Extraction</th></tr>
<tr><td>22</td><td>10</td><td>10</td></tr>
</table>
50% of contacts to be tested.</td><td>EN 2591-412</td></tr>
<tr><td>Pin contact stability 1/</td><td>Gauges for test: refer to EN4165-001:2010 Section 10.2
<table>
<tr><th>Contact size</th><th>Permitted deflection (mm)</th><th>Force (N)</th></tr>
<tr><td>22</td><td>0.76</td><td>1.2</td></tr>
</table></td><td>EN 2591-419</td></tr>
<tr><td>Contact retention system effectiveness 1/</td><td>
<table>
<tr><th>Contact size</th><th>Force (N)</th></tr>
<tr><td>22</td><td>13</td></tr>
</table></td><td>EN 2591-426</td></tr>
<tr><td>Contact protection effectiveness (scoop-proof)</td><td>Applicable (Only phase A testing applies)</td><td>EN 2591-505</td></tr>
<tr><td>Use of tools 1/</td><td>Force to be applied on tool: 13N</td><td>EN 2591-506</td></tr>
<tr><td colspan="3">Environmental</td></tr>
<tr><td>Endurance at temperature 1/</td><td>Method B, test under load.
Temperature: 175 °C
Duration: 1 000 h
Monitor for discontinuities during test & record displacement of contact.
NOTE: Applicable to 'Panel Mount' (non-PCB) variant only</td><td>EN 2591-301</td></tr>
</table>

Rapid change of temperature	Connectors mated. T_A = (+175 +5/-0)°C T_B = (-55 +0/-5)°C	EN 2591-305
Ingress Protection (IP6X)	Category: 1 No ingress of dust allowed within any sealed area of the connector	IEC 60529
Ingress Protection (IPX7) 1/	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed at 1m water depth for 30 minutes.	IEC 60529
Altitude 1/	Category A4. Absolute pressure – 57.18kPa.	RTCA DO-160E
Fluid resistance	For types of fluids, number of cycles, temperature and duration of immersion and temperature for the third phase: see section 3.6	EN 2591-315
Flammability	Test applicable. Connectors mated. Method A.	EN 2591-317
Humidity 1/	Wired, mated connectors. Category A.	RTCA DO-160E
Salt mist	The connectors shall be subjected to 25 cycles of mating and un-mating at a rate of 5 cycles/min – exposed to the salt mist: mated for 96h – subjected to 25 mating and un-mating cycles at the rate ≤ 5 cycles/min.	EN 2591-307

Figure 5 – Test Requirements

Remarks: 1/ Applicable to 'Panel Mount' (non-PCB) variants only

NOTE
Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 7.

3.6. List of Fluids

		References (See EN 3909)	Duration (Minutes)	Temp. (°C)	Temp. (°C)	No. of Cycles	Fluid	
1	Fuel	2	5 +2/-0	25	85	7	N	
2	Mineral hydraulic fluid	5	15 +5/-0	85	100	5	N	
3	Synthetic hydraulic fluid	3	15 +5/-0	85	100	5	N	e.g. Skydrol LD-4
4	Mineral lubricant	7	15 +5/-0	120	125	5	N	
5	Synthetic lubricant	9	15 +5/-0	150	125	5	N	
6	Cleaning products	11	15 +5/-0	25	25	5	Y	
7		12				5	Y	
8		13	5 +2/-0			2	Y	e.g. Turco 6871
9	De-icing fluid	15	15 +5/-0	50	100	5	Y	
10	Solvent for cleaning purposes	-	5 +2/-0	23	N/A	5	N	e.g. 3M Novec 71DE (contains 50% Trans-1,2 dichloroethylene)
11	Insecticide	-	5 +2/-0	25	N/A	7	Y	e.g. 1% Permethrin solution (ref. IPCS: EHC 243
12	Sullage	N/A	See Note 2	25	N/A	1	Y	16 fluid ounces: 33% coffee, 33% orange juice & 33% cola

Notes:

6. If connectors fail initial mating and unmating forces testing post fluid immersion it shall be acceptable to clean connectors with appropriate cleaning solution, stove connectors at 65±2°C for 8hrs and then repeat mating and unmating forces test (EN2591-408).

2. One mated pair of connectors to be mated, then brought to temperature specified above along with the fluid. Once fluid and specimen are both at specified temperature, pour 16 fluid ounces of the fluid over the test sample (not immersing the connector).

The test articles shall be allowed to drain, not wiped, in still air at ambient condition, and submitted to electrical testing (insulation resistance to EN2591-206 and voltage proof testing to EN2591-207) within a maximum of 1 hour from being exposed to the fluid.

The specimens shall then be placed in a pre-heated oven at 65±5°C for 16±0.5 hours prior to submitting to further electrical testing.

Figure 6 – List of Fluids

3.7. Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)								
	1	2	3	4	5	6	7	8	9
	TEST SEQUENCE (b)								
Visual Examination	1, 10	1, 3	1, 9, 20	1, 5, 10	1, 3	1, 7, 20, 24	1, 3	1, 8, 12	1, 5
Examination of dimensions and mass		2							
Mating and unmating forces	3		2, 13	2, 7		19		7	
Insert retention in housing (axial)	9		19	9					
Measurement of insulation resistance	4		3, 10, 15, 16	3, 6		2, 5, 16, 22		5, 10	
Voltage proof test	5		4, 11, 17			3, 6, 17, 23		6, 11	
Humidity			14						
Contact insertion and extraction forces			18			11, 13			
Contact retention in insert				8		14			
Rapid change of temperature						4			
Altitude						21			
Durability of contact retention system and seals (Maintenance ageing)						12			
Engagement of contacts			6						
Sinusoidal and random vibration			7						
Shock			8						
Contact resistance at rated current	6							4	
External bending moment		3							

Mechanical Endurance						15			
Fluid resistance				4					
Contact retention system effectiveness								13	
Use of tools	8								
Contact protection effectiveness (scoop-proof)								2	
Electrical overload								3	
Contact resistance -Low level			5, 12			10, 18			
Pin contact stability	7								
Endurance at temperature					2				
Insulation Resistance (elevated temp.)						8			
Voltage proof test (at altitude)						9			
Ingress Protection (IP6x)							2		
Ingress Protection (IPx7)								9	
Flammability								14	
Shell to shell electrical continuity									4

Figure 7 – Test Sequence

NOTE

(a) See paragraph 4.2

(b) Numbers indicate sequence in which tests are performed.

4. QUALITY ASSURANCE PROVISIONS

4.1. Test Conditions

Unless otherwise specified, all the tests shall be performed in any combination of the following test conditions shown in Figure 8.

Temperature	15°C – 35°C
Relative Humidity	45% – 75%
Atmospheric Pressure	86.6 – 106.6 kPa

Figure 8

4.2. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production. Each test group shall consist of a minimum of 3 specimens, except for Group 4 which requires one specimen per fluid type.

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 5.

C. Qualification by similarity

Parts may be qualified by similarity for the following test requirements if such data exists for 369 inline 'Cabin Environment' connectors to specification 108-160151.

- Contact Insertion and Extraction Forces - EN 2591-412
- Contact Retention in Insert - EN 2591-409
- Durability of Contact Retention System Effectiveness (Maintenance Ageing) - EN 2591-407
- Contact Resistance at Rated Current - EN 2591-202
- Fluid Resistance - EN 2591-315
- Contact Retention System Effectiveness - EN 2591-426
- Contact Protection Effectiveness - EN 2591-505
- Endurance at Temperature - EN 2591-301
- Use of Tools – EN 2591-506

4.3. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or 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.

4.4. Acceptance

Acceptance is based on verification that the product meets the requirements in Figure 3. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken, and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.5. Quality Conformance Inspection

The applicable quality inspection plan shall 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.