

Molex 70553-0106 PDF

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SL HEADER SERIES (TOLLER COMPOUNDER COMPARISON)

1.0 SCOPE

This Test Summary covers the 2.54 mm (.100 inch) centerline (pitch) printed circuit board (PCB) connector series with Tin and Gold plating.

Molex's resin manufacturer is adding an additional toller compounder. Global change notification 10659318 has been sent out detailing the change. The testing below verifies that there is no difference in the resin produced by either toller compounders.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT SERIES NUMBERS WITHIN SL HEADER FAMILY

Vertical Header Series:

- 70541 (Split Peg)
- 70543 (No Peg)
- 70545 (Tri-Peg) (Tested part number 70545-0024)
- 74099 (SMT No Peg)
- 74095 (Compliant Pin)
- 70563 (Large Pocket No Peg)

Right Angle Header Series

- 70551 (Split Peg)
- 70553 (No Peg)
- 70555 (Tri-Peg)
- 70634 (SMT Tri-Peg)
- 74098 (SMT Split Peg)
- 74105 (SMT No Peg)
- 70575 (Large Pocket Tri-Peg)

Vertical and Right Angle Series Combined

- 71164 (Vertical and Right Angle with Voided Circuits)

2.2 PRODUCT SPECIFICATION TITLE AND DOCUMENT NUMBER

Single Row – Stackable Linear (SL) Connector System, **PS-70400**.

Assembly Connector SL Shrouded Header .100/2.54 Grid: Family Index, **PS-70541**.

REVISION: A	ECR/ECN INFORMATION: EC No: UCP2015-2459 DATE: 2014 / 12 / 12	TITLE: Test Summary for SL Headers - Comparison of Toller Compounds that Produce Housing Resins	SHEET No. 1 of 5
DOCUMENT NUMBER: TS-70541-100	CREATED / REVISED BY: DMorgan	CHECKED BY: BBarker	APPROVED BY: SMiller

3.0 QUALIFICATION

- 3.1 Compare resin properties from both compounders
- 3.2 Conduct molding trial runs with resin from new compounder
- 3.3 Compare molded housings dimensionally from both compounders
- 3.4 Produce final assemblies with molded housings from both compounders
- 3.5 Compare housing bow on connector assemblies before and after 260°C reflow process from both compounders

4.0 DATA

4.1 Resin properties

Compounder (Toller)	Sample	Batch#	Ash content	melt viscosity @ (Single Shear)@400 s/1(Pa-S)	Melting point, °C	Tensile Modulus, Mpa	Tensile Stress @ Break, Mpa	Tensile Strain @ Break, %	Flexural Modulus, Mpa	Flexural Stress, Mpa	DTUL @ 1.8 Mpa	Notched Charpy Impact, kJ/m2
Old	1	733280	33.7	242	286.8	11006	106.9	1.3	10638	155.1	244.7	6.4
Old	2	716692	34.4	201		annual skip						
Old	3	716690	34.1	218		annual skip						
Old	4	712130	33.4	201		annual skip						
Old	5	669459	33.6	215		annual skip						
Old	6	635740	34.6	183		11166	104.4	1.42	10851	151	241.0	6.11
New	1	724833	33.3	192	285.7	10828	111.2	1.5	10621	165	247.2	6.4
New	2	723050	33.8	210	285.0	11002	111.5	1.4	10741	162.9	247.0	6.3
New	3	723049	33	163	285.3	10897	112.9	1.4	10647	157.2	248.6	6.4
New	4	708334	35.2	286	285.6	11314	107.8	1.3	10787	159.4	250.5	5.9
New	5	697897	32.6	216	285.6	10727	113.8	1.5	10304	168.6	250.2	6.2
			ISO 3451	ISO 11433	ISO 11357	ISO 527	ISO 527	ISO 527	ISO 178	ISO 178	ISO 75	ISO 179/1eA

4.2 Molding trial runs

A 25 circuit Tri-Peg housing was selected to evaluate. The evaluation consisted of a comparison of the following parameters:

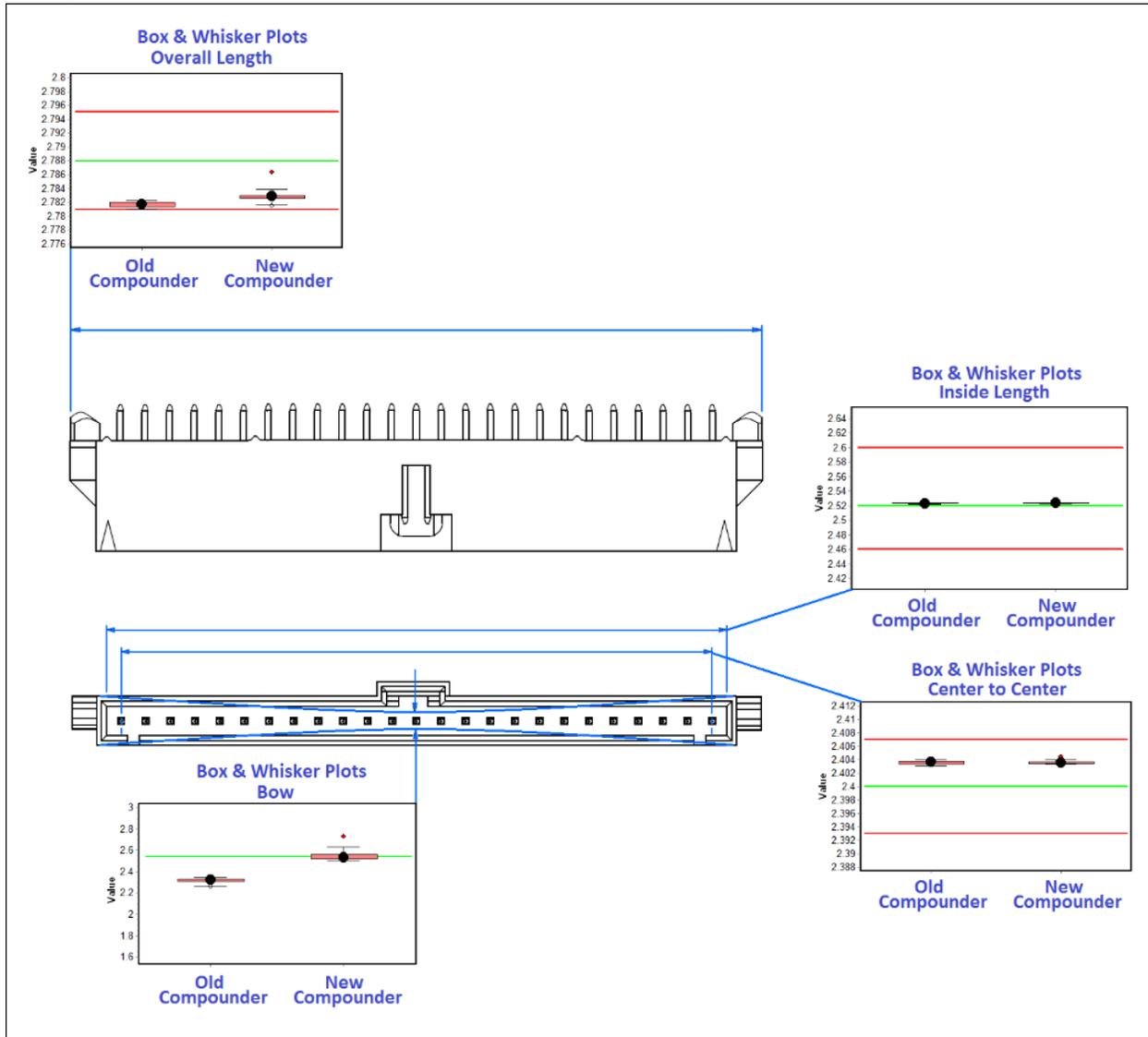
- Injection psi
- Screw Recovery
- Cool Time
- Cycle Time
- Part Weight
- Hold psi
- Hold Time
- Barrel Temperature

The Molding Process Engineer determined there was no difference between the resins produced by either toller compounder.

REVISION: A	ECR/ECN INFORMATION: EC No: UCP2015-2459 DATE: 2014 / 12 / 12	TITLE: Test Summary for SL Headers - Comparison of Toller Compounders that Produce Housing Resins	SHEET No. 2 of 5
DOCUMENT NUMBER: TS-70541-100	CREATED / REVISED BY: DMorgan	CHECKED BY: BBarker	APPROVED BY: SMiller

4.3 Dimensional study from both compounders:

Dimensional checks were performed to insure there was no difference to parts produced with resin from both compounders. The dimensions selected for evaluation are the ones that have the most potential for being impacted by the compounder change, if there was a difference between the plastic resins.



4.4 Conducted trial assembly runs with housings run with resin from both compounders

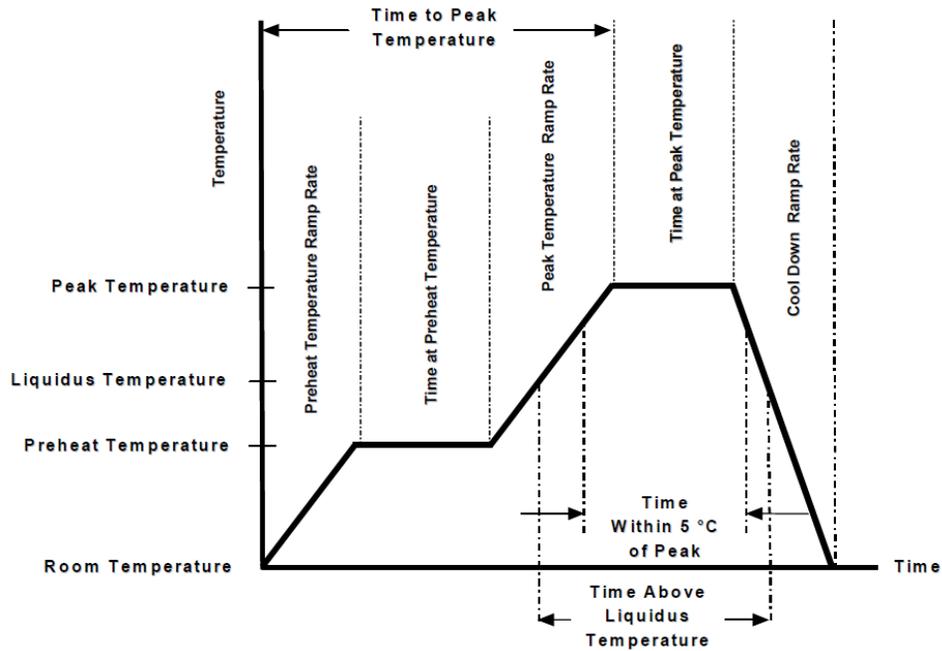
Parts from both resin compounders were run through the assembly process with no issues. Attribute checks were performed on all samples. No defects were observed.

REVISION: A	ECR/ECN INFORMATION: EC No: UCP2015-2459 DATE: 2014 / 12 / 12	TITLE: Test Summary for SL Headers - Comparison of Toller Compounders that Produce Housing Resins	SHEET No. 3 of 5
DOCUMENT NUMBER: TS-70541-100	CREATED / REVISED BY: DMorgan	CHECKED BY: BBarker	APPROVED BY: SMiller

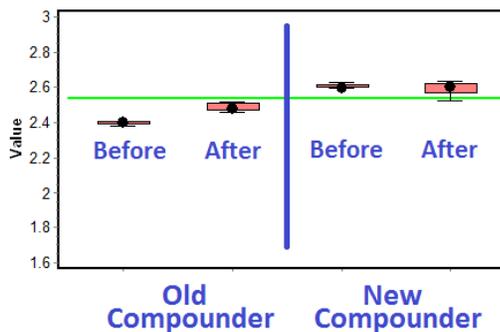
4.5 Heat resistance on final assemblies from both compounders:

To ensure there were no issues with the assemblies reacting to heat, the parts were subjected to three (3) reflow passes per the profile shown below. The peak temperature was 260°C and peak time was 40 seconds.

Molex does not recommend exceeding 245°C.



Box & Whisker Plots
Bow Before & After Reflow



REVISION: A	ECR/ECN INFORMATION: EC No: UCP2015-2459 DATE: 2014 / 12 / 12	TITLE: Test Summary for SL Headers - Comparison of Toller Compounders that Produce Housing Resins	SHEET No. 4 of 5
DOCUMENT NUMBER: TS-70541-100	CREATED / REVISED BY: DMorgan	CHECKED BY: BBarker	APPROVED BY: SMiller

5.0 SUMMARY AND CONCLUSION:

The overall properties of the resin produced by both compounders are well within the manufacturers specifications.

There were no differences in the molding process with resin from either toller compounder.

The assembly process showed no differences using housings molded with resin from either toller compounder.

The dimensional checks were within specification and similar between both compounders

From the results of this evaluation Molex approves the use of resin from either toller compounder.

REVISION: A	ECR/ECN INFORMATION: EC No: UCP2015-2459 DATE: 2014 / 12 / 12	TITLE: Test Summary for SL Headers - Comparison of Toller Compounders that Produce Housing Resins	SHEET No. 5 of 5
DOCUMENT NUMBER: TS-70541-100	CREATED / REVISED BY: DMorgan	CHECKED BY: BBarker	APPROVED BY: SMiller