



Product Change Notification

Current Date: 12-Nov-2019

TE Connectivity

Product Change Notification: E-19-016792

PCN Date: 11-NOV-19

Customer: TTI Inc(0000139702)

Location: WORLDWIDE

Agreement: Agreement Unknown

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:
6-21 pos. AMP MCP 2,8 mm tab header series

Description of Changes
Change the raw material / resin from HS PBT-GF15 to PA66-GF13. Related TE production and customer drawings and all the 6-21 pos. AMP MCP 2,8 mm tab header part numbers' revisions will be updated.
Other attachments:
PCN presentation
ECR form

Reason for Changes:
Product Improvement. Supply chain for PA66 is no longer constrained with availability and has been used for life of product line After additional production runs with the PBT, we have gathered and analysed all process related information and have come to the conclusion that the PA66 material is more favorable for processing on existing tooling
Estimated Dates:

Last Order Date (Obsolete Parts Only):	First Date To Ship (Changed Parts Only):
	02-DEC-2019
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
1-965641-1	NO						
1-965641-2	NO						
1-965641-3	NO						
1-965641-4	NO						
1-965641-5	NO						
1-965641-6	NO						
1-965641-7	NO						
1-967626-1	NO						
1-967626-2	NO						
1-967626-4	NO						
1-967626-5	NO						
1-967626-6	NO						
1-967627-1	NO						
1-967627-2	NO						
1-967627-3	NO						
1-967627-5	NO						
1-967627-6	NO						
1-967628-1	NO						
1-967628-2	NO						
1-967628-3	NO						
1-967628-4	NO						

1-967628-5	NO						
1-967628-6	NO						
1-967629-1	NO						
1-967629-2	NO						
1-967629-3	NO						
1-967629-4	NO						
1-967629-5	NO						
1-967629-6	NO						
1-967630-1	NO						
1-967630-2	NO						
1-967630-3	NO						
1-967630-4	NO						
1-967630-5	NO						
1-967630-6	NO						
2-965641-1	NO						
2-967626-1	NO						
2-967628-1	NO						
2-967629-1	NO						
2-967630-1	NO						
3-967626-1	NO						
3-967628-1	NO						
3-967629-1	NO						
3-967630-1	NO						
4-967628-1	NO						
4-967629-1	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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
1355072	967634-1, 1-967627-5, 1-967630-2, 1-965641-1, 1-967626-1, 968271-1	TYC1-965641-1	D	

Customer: TTI, Inc. (1305175)

Location: Maisach-gernlinden

Agreement Number: TTI001

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
1-965641-1	NO		TYC1-965641-1				
1-965641-2	NO		TYC1-965641-2				
1-965641-3	NO		TYC1-965641-3				
1-965641-4	NO						
1-965641-5	NO		TYC1-965641-5				
1-965641-6	NO		TYC1-965641-6				
1-965641-7	NO						
1-967626-1	NO		TYC1-967626-1				
1-967626-2	NO		TYC1-967626-2				
1-967626-4	NO		TYC1-967626-4				
1-967626-5	NO						
1-967626-6	NO		TYC1-967626-6				
1-967627-1	NO		TYC1-967627-1				
1-967627-2	NO		TYC1-967627-2				
1-967627-3	NO		TYC1-967627-3				
1-967627-5	NO		TYC1-967627-5				
1-967627-6	NO		TYC1-967627-6				
1-967628-1	NO		TYC1-967628-1				
1-967628-2	NO		TYC1-967628-2				
1-967628-3	NO		TYC1-967628-3				
1-967628-4	NO		TYC1-967628-4				
1-967628-5	NO		TYC1-967628-5				

1-967628-6	NO		TYC1-967628-6				
1-967629-1	NO		TYC1-967629-1				
1-967629-2	NO		TYC1-967629-2				
1-967629-3	NO		TYC1-967629-3				
1-967629-4	NO		TYC1-967629-4				
1-967629-5	NO		TYC1-967629-5				
1-967629-6	NO						
1-967630-1	NO		TYC1-967630-1				
1-967630-2	NO		TYC1-967630-2				
1-967630-3	NO		TYC1-967630-3				
1-967630-4	NO		TYC1-967630-4				
1-967630-5	NO		TYC1-967630-5				
1-967630-6	NO		TYC1-967630-6				
2-965641-1	NO						
2-967626-1	NO		TYC2-967626-1				
2-967628-1	NO		TYC2-967628-1				
2-967629-1	NO						
2-967630-1	NO		TYC2-967630-1				
3-967626-1	NO						
3-967628-1	NO						
3-967629-1	NO						
3-967630-1	NO		TYC3-967630-1				
4-967628-1	NO						
4-967629-1	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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
1355072	1-965641-1	TYC1-965641-1	D	

Customer: TTI Inc (3164508)

Location: Fort Worth

Agreement Number: Agreement Unknown

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
1-967626-1	NO						
1-967627-1	NO						
1-967628-1	NO						
1-967628-6	NO						
1-967629-1	NO						
1-967630-2	NO						
1-967630-5	NO						
2-967630-1	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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
1355072	1-967626-1		D	

Customer: TTI Inc (1281288)

Location: Fort Worth

Agreement Number: Agreement Unknown

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
1-967626-1	NO						

1-967628-1	NO						
1-967628-6	NO						
1-967629-1	NO						
1-967630-1	NO						
2-967630-1	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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
1355072	1-967626-1		D	

Customer: Shanghai TTI Electronics Co Ltd (1405773)

Location: Shanghai

Agreement Number: Agreement Unknown

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
1-967630-2	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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
1355072	1-967630-2		D	

Customer: TTI Electronics Asia Pte Ltd (3063486)

Location: Taipei

Agreement Number: Agreement Unknown

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Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
1355072	968271-1		D	

Customer: Shanghai TTI Electronics Co Ltd (3064990)

Location: 

Agreement Number: Agreement Unknown

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
1-967630-2	NO						

Customer: TTI Inc (168830)

Location: Fort Worth

Agreement Number: Agreement Unknown

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
1-967626-1	NO						
1-967627-1	NO						
1-967628-1	NO						
1-967628-6	NO						
1-967629-1	NO						
1-967630-1	NO						
1-967630-2	NO						
1-967630-5	NO						
2-967630-1	NO						

Customer: TTI, Inc. (3057778)

Location: Maisach-gernlinden

Agreement Number: Agreement Unknown

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
1-965641-1	NO		TYC1-965641-1				
1-965641-2	NO		TYC1-965641-2				
1-965641-3	NO		TYC1-965641-3				
1-965641-4	NO						
1-965641-5	NO		TYC1-965641-5				
1-965641-6	NO		TYC1-965641-6				
1-965641-7	NO						
1-967626-1	NO		TYC1-967626-1				
1-967626-2	NO		TYC1-967626-2				
1-967626-4	NO		TYC1-967626-4				
1-967626-5	NO						
1-967626-6	NO		TYC1-967626-6				
1-967627-1	NO		TYC1-967627-1				
1-967627-2	NO		TYC1-967627-2				
1-967627-3	NO		TYC1-967627-3				
1-967627-5	NO		TYC1-967627-5				
1-967627-6	NO		TYC1-967627-6				
1-967628-1	NO		TYC1-967628-1				
1-967628-2	NO		TYC1-967628-2				
1-967628-3	NO		TYC1-967628-3				
1-967628-4	NO		TYC1-967628-4				
1-967628-5	NO		TYC1-967628-5				

1-967628-6	NO		TYC1-967628-6				
1-967629-1	NO		TYC1-967629-1				
1-967629-2	NO		TYC1-967629-2				
1-967629-4	NO		TYC1-967629-4				
1-967629-5	NO		TYC1-967629-5				
1-967629-6	NO						
1-967630-1	NO		TYC1-967630-1				
1-967630-2	NO		TYC1-967630-2				
1-967630-3	NO		TYC1-967630-3				
1-967630-5	NO		TYC1-967630-5				
2-967629-1	NO						
2-967630-1	NO		TYC2-967630-1				
3-967626-1	NO						
3-967629-1	NO						
3-967630-1	NO		TYC3-967630-1				
4-967629-1	NO						

Customer: TTI (3075935)

Location: Eden Prairie

Agreement Number: Agreement Unknown

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Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
1355072	967634-1		D	

Customer: TTI Inc (3221065)

Location: Fort Worth

Agreement Number: Agreement Unknown

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
1-967627-5	NO						
1-967630-4	NO						
1-967630-5	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.

Customer Drawing(s) Being Modified:

Drawing Number	Related Part Number	Customer Part Number	Current Revision	New Revision
1355072	1-967627-5		D	

PCN No.
 PCN Category
 Category of change
 OEM / CAM informed
 Part Number
 New Revision
 Drawing Number
New Revision
 General Product Description
 Estimated First Date for samples
 Estimated First Date to Ship (Changed part only)
 Estimated Last Date of Mixed Shipment
 Estimated Last Order Date (Obsolete Parts Only)
 Estimated Last Ship Date (Obsolete Parts Only)

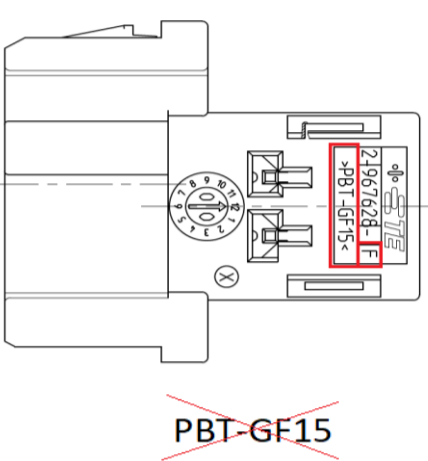
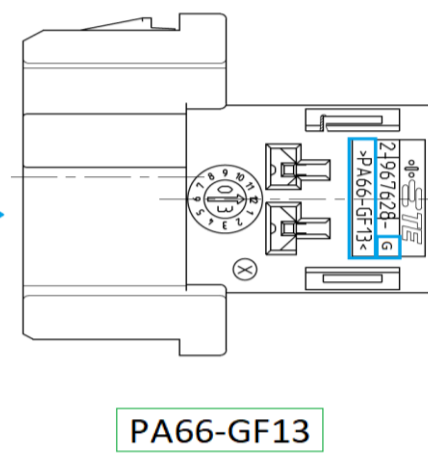
E-19-016792									
Form, Fit & Function									
Manufacturing Request									
Yes									
See below (Picture)									
G									
1355072									
E									
Tab Housing 2,8 mm 6-21 pos. and Secondary Locking Device									
02-12-2019									

The information under column - Potential Impact for customer, is ment as a non binding guideline only.
 The customer has to do its own evaluation of the potential impact the change described in the Product Change Notification will have for him.

Picture:

Positions	PN	Version
6	965641	1-1;
		1-2;
		1-3;
		1-4;
		1-5;
		1-6;
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		
9	967626	1-1;
		1-2;
		1-3;
		1-4;
		1-5;
		1-6;
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		
12	967627	1-1;
		1-2;
		1-3;
		1-4;
		1-5;
		1-6;
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		

Positions	PN	Version
15	967628	1-1;
		1-2;
		1-3;
		1-4;
		1-5;
		1-6;
2-1;		
3-1;		
4-1;		
1-0		
18	967629	1-1;
		1-2;
		1-3;
		1-4;
		1-5;
		1-6;
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		
21	967630	1-1;
		1-2;
		1-3;
		1-4;
		1-5;
		1-6;
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		

New part revisions: 'G'

X	Potential Impact for Customer	X	Product Type	X	Change Type	X	Kind of Change	X	Change Feature	Remark / Free text
x	Risk Minimization	x	Connector	x	Form, Fit, Function	x	Material	x	Material Change	Change the raw material / resin from HS PBT-GF to PA66-GF13.
				x	Drawing	x	Drawing adapted to part change	x	revision adapted	PCN for drawing update of TE Custome Drawing 1355072



Material substitution of 6-21 pos. AMP MCP 2,8 mm Tab Header Series

PCN E-19-016792



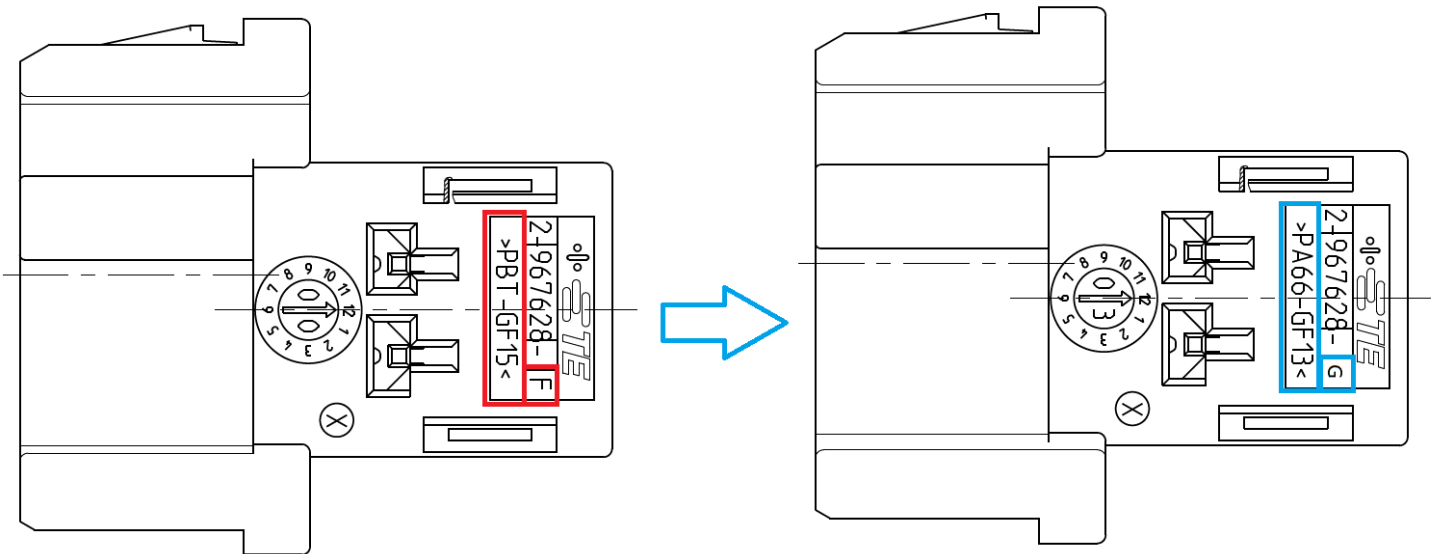
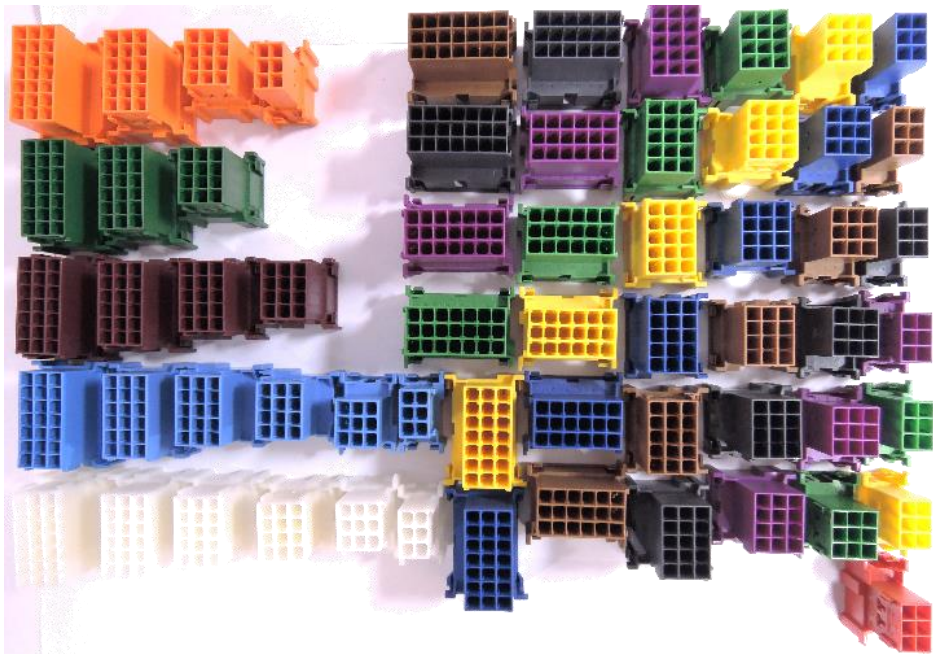
EVERY CONNECTION COUNTS



Material substitution of AMP MCP 2.8 mm Tab Header Series from PBT-GF15 HS to PA66-GF13

Description:

- The material will be changed back from **PBT-GF15** to the previous resin **PA66-GF13**, which shows very similar properties.



Material substitution of AMP MCP 2.8 mm Tab Header Series from PBT-GF15 HS to PA66-GF13

Ultradur® B 4300 G3 High Speed

BASF
We create chemistry

Current raw material

Product Information

Typical values for uncoloured product at 23 °C¹⁾

	Test method	Unit	Values ²⁾
Properties			
Polymer abbreviation	-	-	PBT-GF15
Density	ISO 1183	kg/m ³	1410
Filler content: Glass fiber (GF), glass balls (GB), Mineral (M)	-	%	GF15
Viscosity number (solution 0,005 g/ml Phenole/1,2 Dichlorbenzol 1:1)	ISO 307, 1157, 1628	cm ³ /g	100
natural	-	-	+
black	-	-	+
Water absorption, equilibrium in water at 23°C	similar to ISO 62	%	0.4
Moisture absorption, equilibrium 23°C/50% r.h.	similar to ISO 62	%	0.20
Processing			
Melt volume-flow rate MVR at 250 °C and 2.16 kg	ISO 1133	cm ³ /10min	24
Melting temperature, DSC	ISO 11357-1/-3	°C	223
Melt temperature, Injection moulding/Extrusion	-	°C	230 - 275
Mould temperature, Injection moulding	-	°C	60 - 100
Molding shrinkage (parallel)	ISO 294-4	%	0.70
Molding shrinkage (normal)	ISO 294-4	%	1.10
Flammability			
Burning Behav. at 1.6 mm nom. thickn.	IEC 60695-11-10	class	HB
Burning Behav. at thickness d = 0.75 mm	IEC 60695-11-10	class	HB
Automotive materials (thickness d= 1mm) ³⁾	FMVSS 302	-	+
Mechanical properties			
Tensile modulus	ISO 527-1/-2	MPa	5600
Stress at break	ISO 527-1/-2	MPa	100
Strain at break	ISO 527-1/-2	%	3.7
Charpy unnotched impact strength (23°C)	ISO 179/1eU	kJ/m ²	30
Charpy unnotched impact strength (-30°C)	ISO 179/1eU	kJ/m ²	30
Charpy notched impact strength (23°C)	ISO 179/1eA	kJ/m ²	5
Thermal properties			
HDT A (1.80 MPa)	ISO 75-1/-2	°C	185
HDT B (0.45 MPa)	ISO 75-1/-2	°C	215
Max. service temperature (short cycle operation)	-	°C	210
Electrical properties			
Relative permittivity (100Hz)	IEC 60250	-	3.7
Relative permittivity (1 MHz)	IEC 60250	-	3.7
Dissipation factor (100 Hz)	IEC 60250	E-4	12
Dissipation factor (1 MHz)	IEC 60250	E-4	150
Volume resistivity	IEC 60093	Ohm*m	1E14
Surface resistivity	IEC 60093	Ohm	1E13
Comparative tracking index, CTI, test liquid A	IEC 60112	-	300

General information	Value	Unit	Test Standard
Resin Identification	PA66-IGF13	-	ISO 1043
Part Marking Code	PA66-IGF13	-	ISO 11469
Rheological properties			
	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	0.5 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8 / -	%	ISO 294-4, 2577
Mechanical properties			
	dry / cond	Unit	Test Standard
Tensile Modulus	5000 / 3700	MPa	ISO 527-1/-2
Stress at break	120 / 70	MPa	ISO 527-1/-2
Strain at break	4 / 10	%	ISO 527-1/-2
Tensile creep modulus			ISO 899-1
1h	* / 3600	MPa	
1000h	* / 3200	MPa	
Charpy impact strength			ISO 179/1eU
73 °F	70 / 60	kJ/m ²	
-22 °F	60 / 50	kJ/m ²	
Charpy notched impact strength			ISO 179/1eA
73 °F	8 / 14	kJ/m ²	
-22 °F	6 / 6	kJ/m ²	
Izod notched impact strength			ISO 180/1A
73 °F	8 / 9	kJ/m ²	
-22 °F	6 / 4	kJ/m ²	
Hardness, Rockwell, M-scale	90 / 74	-	ISO 2039-2
Thermal properties			
	dry / cond	Unit	Test Standard
Melting temperature, 18 °F/min	263 / *	°C	ISO 11359-1/-3
Temp. of deflection under load			ISO 75-1/-2
260 psi	242 / *	°C	
65 psi	260 / *	°C	
Vicat softening temperature, 90 °F/h, 11 lbf	239 / *	°C	ISO 306
Coeff. of linear therm. expansion, parallel	50 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	130 / *	E-6/K	ISO 11359-1/-2
RTI, electrical			
30mil	105 / *	°C	
60mil	120 / *	°C	
120mil	120	°C	
RTI, impact			
30mil	65	°C	UL 746B
60mil	105 / *	°C	
120mil	105	°C	
RTI, strength			
30mil	105	°C	UL 746B
60mil	120 / *	°C	
120mil	120	°C	
Flammability			
	dry / cond	Unit	Test Standard
Burning Behav. at 60mil nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *	-	UL 94
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.81 / *	mm	IEC 60695-11-10
Flammability, 3.0mm	HB / *	-	IEC 60695-11-10
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	22	mm/min	ISO 3795 (FMVSS 302)
Electrical properties			
	dry / cond	Unit	Test Standard
Comparative tracking index	250 / -	-	IEC 60112
Other properties			
	dry / cond	Unit	Test Standard
Humidity absorption, 80mil	2.2 / *	%	Sim. to ISO 62
Water absorption, 80mil	6.5 / *	%	Sim. to ISO 62
Density	1210 / -	kg/m ³	ISO 1183
Density of melt	1040	kg/m ³	-
VDA Properties			
	dry / cond	Unit	Test Standard
Emission of organic compounds	13	µgC/g	VDA 277
Odor test	4 ¹⁾	class	VDA 270
Fogging, G-value (condensate)	0.3 / *	mg	ISO 6452

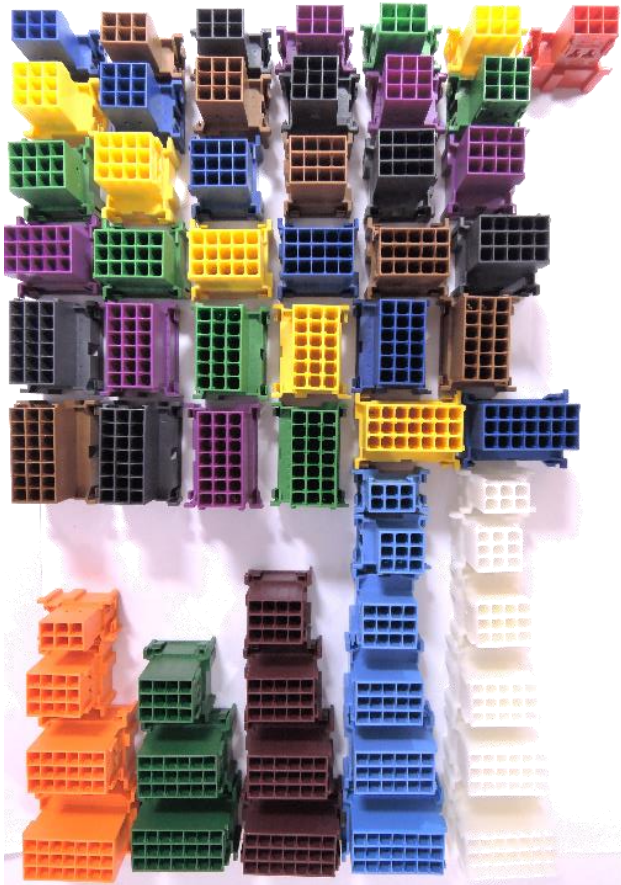
DuPont™ Zytel® 79G13HSL NC010
NYLON RESIN

New raw material



Material substitution of AMP MCP 2.8 mm Tab Header Series from PBT-GF15 HS to PA66-GF13

Affected parts (TE part numbers):



Positions	PN	Version
6	965641	1-1;
		1-2;
		1-3;
		1-4;
		1-5;
		1-6;
		1-7;
		2-1;
		3-1;
		4-1;
		5-1;
		6-1;
		1-1;
		1-2;
1-3;		
1-4;		
1-5;		
1-6;		
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		
1-1;		
1-2;		
1-3;		
1-4;		
1-5;		
1-6;		
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		

Positions	PN	Version
15	967628	1-1;
		1-2;
		1-3;
		1-4;
		1-5;
		1-6;
		2-1;
		3-1;
		4-1;
		1-0
		1-1;
		1-2;
		1-3;
		1-4;
1-5;		
1-6;		
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		
1-1;		
1-2;		
1-3;		
1-4;		
1-5;		
1-6;		
2-1;		
3-1;		
4-1;		
5-1;		
6-1;		

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Validation

- Comparison of the two materials by CT was done -**no dimensional deviation** according to customer drawing

Current material part

New material part (previous PA66 resin)

Comparison of Current and New material parts



Material substitution of AMP MCP 2.8 mm Tab Header Series from PBT-GF15 HS to PA66-GF13

Validation

- Successful product validation according to LV 214 -2010-04
- Engineering Change and PCN submission (E-19-016792)

Summary / Advantage:

- No dimensional deviations by CT – Scan according to customer drawing
- Supply chain for PA66 is no longer constrained with availability and has been used for life of product line
- After additional production runs with the PBT, we have gathered and analysed all process related information and have come to the conclusion that the PA66 material is more favorable for processing on existing tooling

Thank you for your attention!

Gergely Benczur

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