

# 0.50 Series Connectors for Automotive and Commercial Vehicles



AUTOMOTIVE

## INNOVATIVE TECHNOLOGIES

***TE Automotive - a business segment of TE Connectivity - follows the globalization goals of our customers, speeds up the integration of new technologies and enables our customers access to our vast product portfolio and services.***

### TERMINALS & CONNECTORS



TE Automotive offers a broad range of high quality terminals and connectors. Our electrical/electronic interconnection products and solutions are used to electrically and mechanically join wires and cables, printed circuit boards, integrated circuit packages and batteries. TE Automotive expanding capabilities include new copper and fiber-optic connectors, wires, cables/cable management systems that are designed to meet automotive industry demands. Our brands encompass the broadest range of connectors in the world, including high-density, high-speed designs for leading-edge communications equipment.

### HYBRID & ELECTRIC MOBILITY SOLUTIONS



Complete the connections you need to safely, and reliably make hybrid and electric mobility a reality for everyone, everyday. With over 50 years experience in automotive, industrial and energy connectivity, TE is an expert in pushing innovation from one industry to the next. Our portfolio of AMP+ high voltage relays, resistors, AMP+ headers, connectors, IPT/APT and cable assemblies and vehicle charging solutions are designed to connect and protect electric distribution inside and outside of the vehicle.

### CABLE ASSEMBLY SYSTEMS



TE Automotive is your partner for special cable assemblies. We offer research and development capabilities, prototyping, samples as well as manufacturing facilities for special cable assemblies. This includes overmold technology, semi/fully automatic manufacturing, testing equipment and appliances for handling of high volume production.

## SENSORS



Contact-less measuring eliminates interference effects, wear and tear, and provides increased reliability. TE Automotive, one of the largest technology providers for the automobile industry, offers contact-less sensors for a variety of applications.

As sensor manufacturer and processing partner, TE Automotive also provides project planning support for new sensor applications, assistance in the selection of the appropriate sensor technology for the respective application, and assistance with defining the corresponding mechanical, electrical and magnetic interface.

TE Automotive has a broad electro-mechanical portfolio that includes robust housing technologies, connector systems, and temperature stable designs based on foil and cable networks. This combination of technologies and experience ensures that reliable and cost effective sensor solutions are available for all application types.

## INFOTAINMENT



TE Automotive is focused on providing the best in class infotainment technology to support high speed data communication in the automotive industry. Data communication based optical, coaxial as well as shielded electrical physical layers are supported by a wide product portfolio of Automotive grade connector systems.

Through a deep understanding of the technical properties and requirements of signal integrity and combined with our application knowledge both in the vehicle as well as in the logistics chain, TE Automotive is well positioned to offer the right solution for all current and next generation Infotainment Systems.

## INDUCTIVE COIL SYSTEMS



TE Automotive is your source for interconnection technologies for automotive, truck and off-highway OEMs and Tier 1 suppliers. With our global design center in Belgium and manufacturing sites in all regions, TE Automotive's Inductive Coil Systems (ICS) group is ready to design your next-generation coil modules and provide local production support.

The ICS group maintains a leading market position in braking modules and other automotive coil applications. Through early involvement with you on your next design, TE Automotive can offer the benefits of miniaturization, design-in of platform components and optimized process flow for your standard, hybrid and electric vehicle project needs.





## TE Automotive Online

The TE Automotive website is an innovative and interactive source for application information, product updates and technical solutions. Please contact us at:

[www.te.com/automotive](http://www.te.com/automotive)

## Internet

[www.te.com](http://www.te.com)

[www.te.com/automotive](http://www.te.com/automotive)

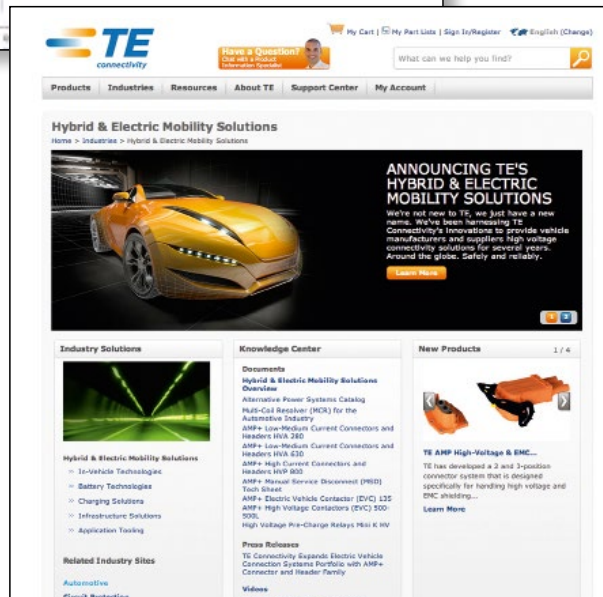
[www.te.com/automotive/sensors](http://www.te.com/automotive/sensors)

[www.te.com/automotive/most](http://www.te.com/automotive/most)

[www.te.com/en/industries/hybrid-electric-mobility-solutions](http://www.te.com/en/industries/hybrid-electric-mobility-solutions)

## Electronic Internet Catalog

[www.te.com/components](http://www.te.com/components)



[www.te.com/automotive](http://www.te.com/automotive)

[www.te.com/automotive/sensors](http://www.te.com/automotive/sensors)

[www.te.com/automotive/most](http://www.te.com/automotive/most)

[www.te.com/en/industries/hybrid-electric-mobility-solutions](http://www.te.com/en/industries/hybrid-electric-mobility-solutions)



## Product and Machine Literature

TE Automotive offers a variety of product specific catalogs, brochures and high impact flyers to help better serve you!

For more information on literature for TE Automotive, please contact your local organization or go to [www.te.com/automotive](http://www.te.com/automotive)

## Product Information Center (PIC)

You can rely on TE Connectivity's PIC Team to provide you support for answers to your general information or technical questions in an efficient and effective manner. To reach our PIC staff, please contact your local organization or see our Global Contacts page. Please contact us at:  
<http://www.te.com/customersupport/support.asp>



## Restriction on the use of Hazardous Substances (RoHS)

### Restriction on the use of Hazardous Substances (RoHS)

At TE Connectivity, we're ready to support your RoHS requirements. We've assessed more than 1.5 million end items/components for RoHS compliance, and issued new part numbers where any change was required to eliminate the restricted materials. Part numbers in this catalog are identified as:

#### RoHS Compliant

Part numbers in this catalog are RoHS Compliant, unless marked otherwise.

These products comply with European Union Directive 2002/95/EC as amended 1 January 2006 that restricts the use of lead, mercury, cadmium, hexavalent chromium, PBB, and PBDE in certain electrical and electronic products sold into the EU as of 1 July 2006.

**Note:** For purposes of this Catalog, included within the definition of RoHS Compliant are products that are clearly "Out of Scope" of the RoHS Directive such as hand tools and other non-electrical accessories.

#### Non-RoHS Compliant

These part numbers are identified with a "◆" symbol. These products do not comply with the material restrictions of the European Union Directive 2002/95/EC.

#### 5 of 6 Compliant

A "●" symbol identifies these part numbers. These products do not fully comply with the European Union Directive 2002/95/EC because they contain lead in solderable interfaces (they do not contain any of the other five restricted substances above allowable limits). However, these products may be suitable for use in RoHS applications where there is an application-based exception for lead in solders, such as the server, storage, or networking infrastructure exemption.

**Note:** Information regarding RoHS compliance is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For latest compliance status, refer to our website referenced below.

#### Getting the information you need

Our comprehensive on-line RoHS Customer Support Center provides a forum to answer your questions and support your RoHS needs. A RoHS FAQ (Frequently Asked Questions) is available with links to more detailed information. You can also submit RoHS questions and receive a response within 24 hours during a normal work week. The Support Center also provides:

- Cross-Reference from Non-compliant to Compliant Products
- Ability to browse RoHS Compliant Products in our on-line catalog:  
<http://www.te.com/commerce/alt/RohsAltHome.do>
- Downloadable Technical Data Customer Information Presentation
- More detailed information regarding the definitions used above

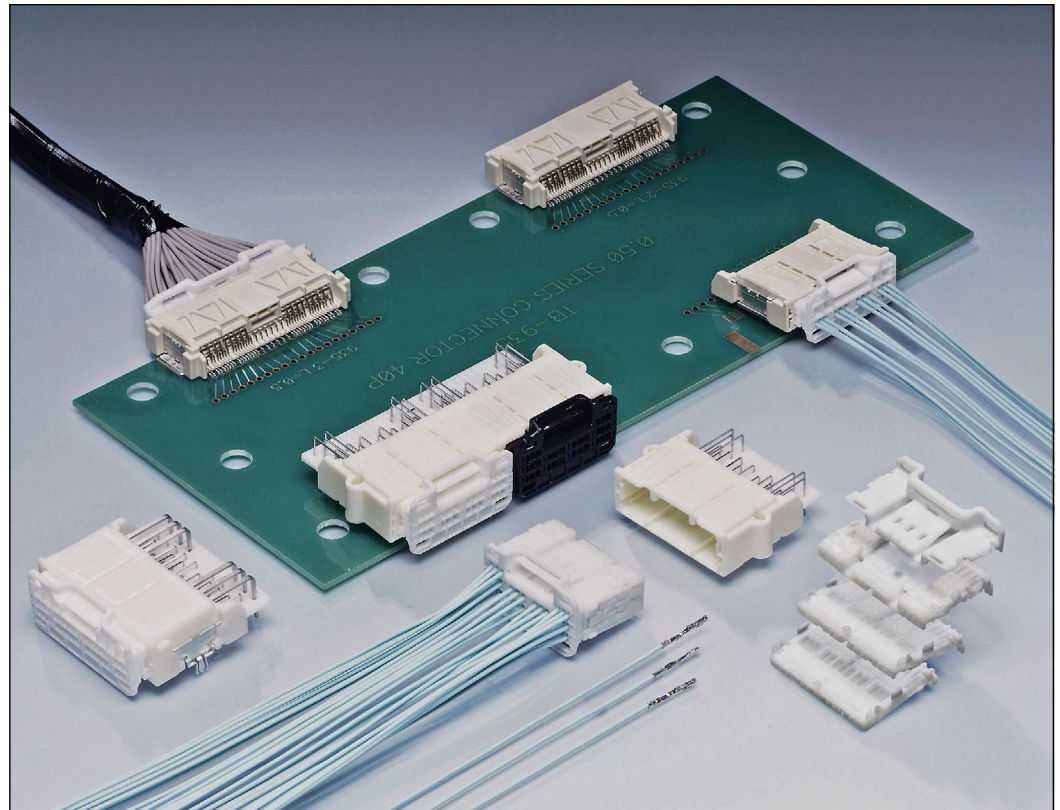
So whatever your questions when it comes to RoHS, we've got the answers at <http://www.te.com/customersupport/rohssupportcenter/>



Introduction



**Innovative Miniature  
0.50 Series Connectors  
for Automotive &  
Commercial Vehicles**



**0.50 Series and  
0.50/1.5 Hybrid Connectors**

TE Connectivity has developed an 0.50 series and 0.50/1.5 hybrid automotive I/O connector series for thin-type computer units, high-density circuit boards and ultra-narrow wiring.

The 0.50 series connectors offer significant improvements in miniaturization and weight reduction compared to TE Connectivity 0.64 connector series.

The 0.50 connector series tin plated terminals maintain the same contact reliability as the 0.64 series while reducing packaging volume by 70 percent, weight by 50 percent and height by 50 percent.

The wire-side connectors are small but easy to lock – requiring a mating force of under 55 N for the 40 position size – with an ergonomic shape for proper mating. PCB-side connectors provide a stable surface mount with a center-weighted design.

**Product Features**

- Minimum pitch of 0.75 mm for surface mounting PCB
- Minimum pitch of 1.5 mm for wire harnesses
- Lead-free solder compliant

**Applications**

- Drive Support System, Luggage Door Closer System
- Body ECU, Air-Conditioning ECU
- Navigation ECU
- ECUs for Compact and High Density Requirements



**0.50 Receptacle Contacts**

**Technical Features**

**Contact Material:**

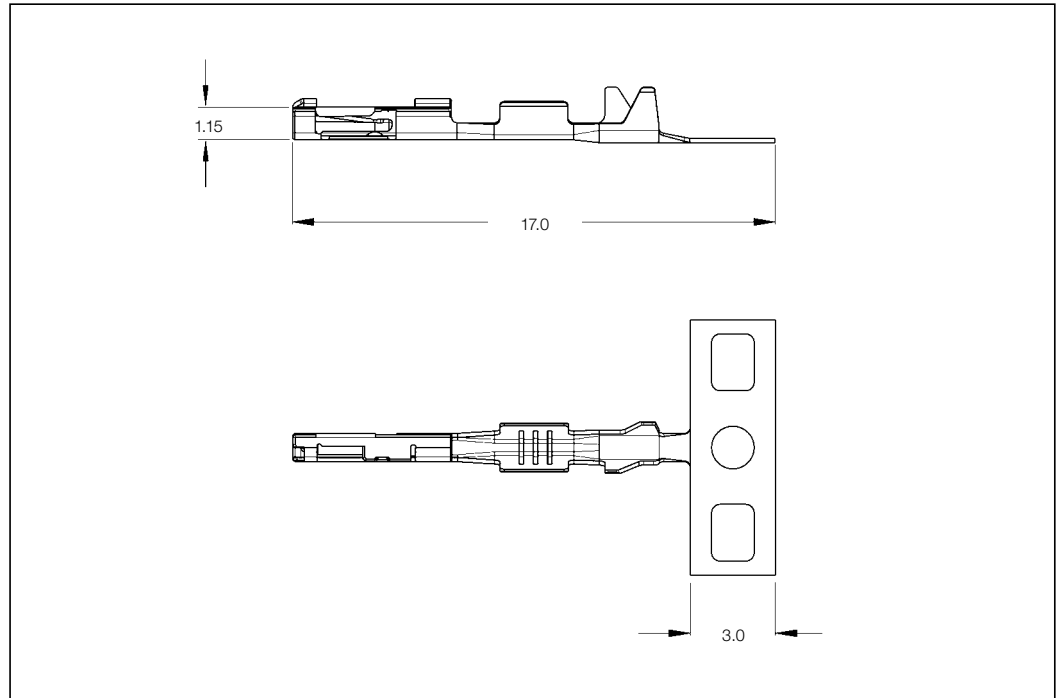
Copper Alloy

**Contact Finish:**

Pre-tin plated,  
Selective gold plated

**Application Specification:**

See table



**0.50 Receptacle Contacts**

Wire Size Range (mm <sup>2</sup> )	Insulation Diameter (mm)	Material and Finish	Feed (mm)	Strip Form	Part Numbers				Applicator	Hand Tool with Die Set
					Package Quantity	Loose-Piece	Package Quantity	Application Spec.		
CHFUS 0.22-0.35	0.95-1.20	Copper alloy, pre-tin plated	7	1827855-1	40,000	-	-	114-5379	1762850-2	-
		Copper alloy, selective gold plated	7	1903703-1						
CHFUS 0.35-0.50	1.10-1.40	Copper alloy, pre-tin plated	7	1827855-2	40,000	-	-	114-5379	1762851-2	-
CPEX 0.22	1.30-1.50	Copper alloy, pre-tin plated	7	1827855-3	40,000	-	-	114-5379	1762852-2	-
CHFUS 0.13	0.85-0.95	Copper alloy, pre-tin plated	7	1827855-4	40,000	-	-	114-5379	1762853-2	-
ISO 6722 0.22-0.35 7 strand	0.95-1.20	Copper alloy, pre-tin plated	6	2098583-1*	40,000	-	-	114-13287	2151677-[]	-
ISO 6722 0.35 7 strand	1.10-1.40	Copper alloy, pre-tin plated	6	2098583-2*	40,000	-	-	114-13287	2151678-[]	-
ISO 6722 0.13 7 strand	0.85-1.05	Copper alloy, pre-tin plated	6	2098583-4*	40,000	-	-	114-13287	2151679-[]	-

\*This terminal intended for USCAR usage

Note: All Part Numbers are RoHS and ELV compliant

**1.5 Receptacle Contacts**

Please consult our sales representatives to select applicable 1.5 receptacle contacts.



24 & 40 Position Surface Mount Type

**Technical Features**

**No. of Positions:**  
24 & 40 Positions

**Housing Material**

**Tab Housing:**  
LCP-GF

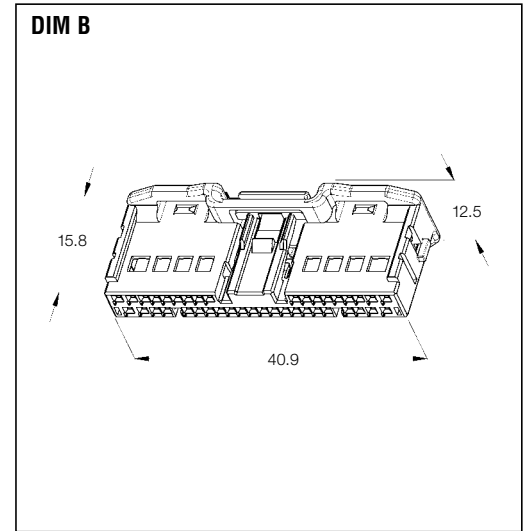
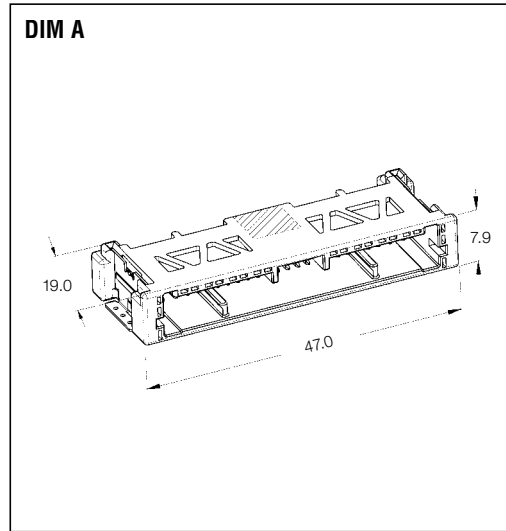
**Tab Contact Finish:**  
Post-tinned

**Receptacle Housing:**  
PBT

**Product Specification:**  
108-78208

**Instruction Sheet:**  
411-78199

**Application Specification:**  
114-5379



**24 & 40 Position Surface Mount Type**

No. of Positions	Keying Options	Housing Color	DIM		Part Numbers		
			A	B	Tab Housing Assembly	Cover	Mating Receptacle Housing
24	–	Black	37.9	31.8	2013029-4	–	2013031-2
40	–	Natural (White)	47.0	40.9	1871806-1	–	1827842-1

**30 Position Screw Mount Type**

**Technical Features**

**No. of Positions:**

30 Positions

**Housing Material**

Tab Housing:  
SPS-GF

**Tab Contact Finish:**

Post-tinned

**Receptacle Housing:**

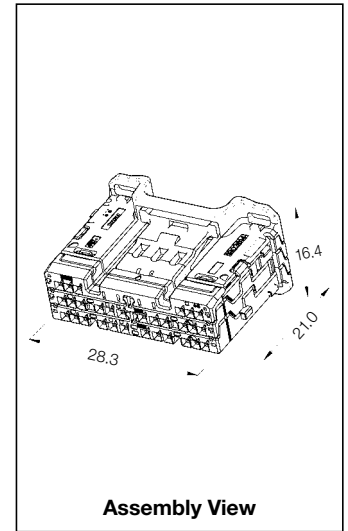
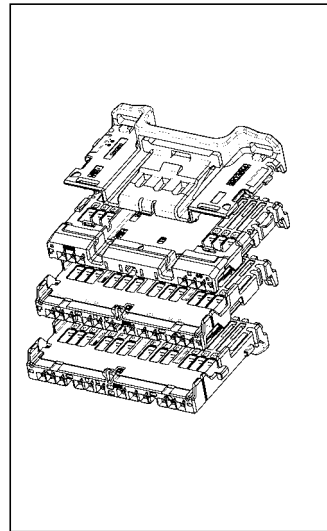
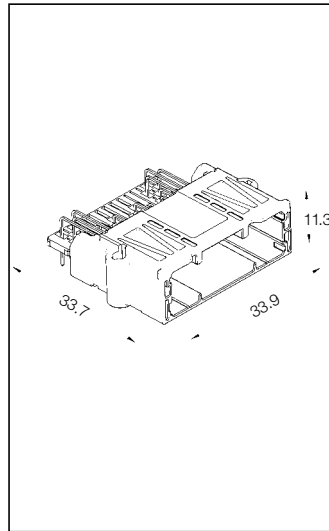
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**Product Specification:**

108-78437-1

**Application Specification:**

411-78199



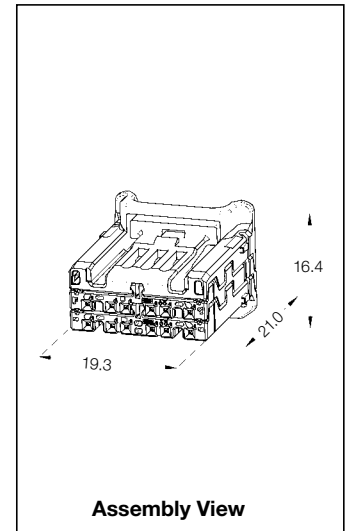
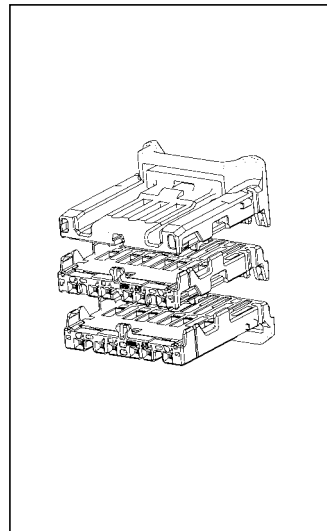
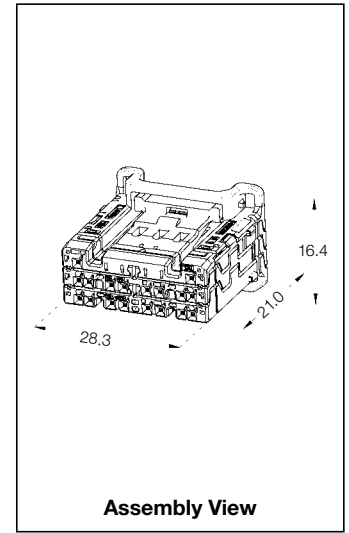
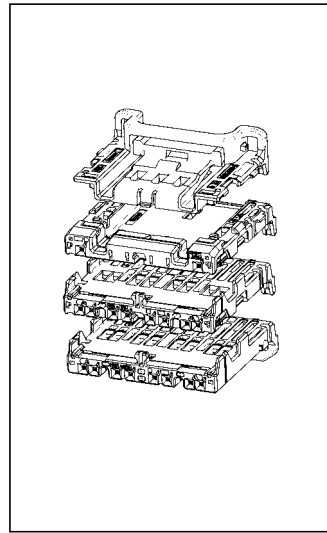
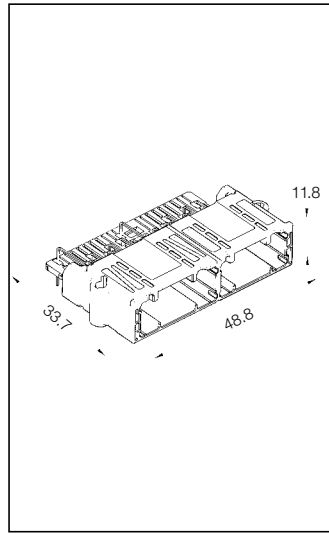
**30 Position Screw Mount Type**

No. of Positions	Keying Options	Housing Color	Tab Housing Assembly	Part Numbers			
				Lock Housing	Upper Receptacle	Middle Receptacle	Lower Receptacle
30	–	Natural (White)	1939440-1	1903614-1	1903615-1	1903608-4	1903611-5

30 Position Screw Mount Type (continued)

**Technical Features**

- No. of Positions:**  
30 Positions
- Housing Material**
- Tab Housing:**  
SPS-GF
- Tab Contact Finish:**  
Post-tinned
- Receptacle Housing:**  
PBT
- Product Specification:**  
108-78437
- Application Specification:**  
411-78268



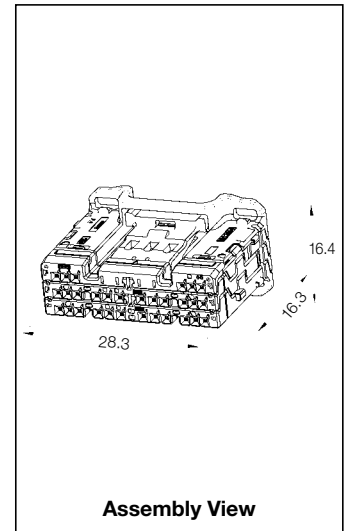
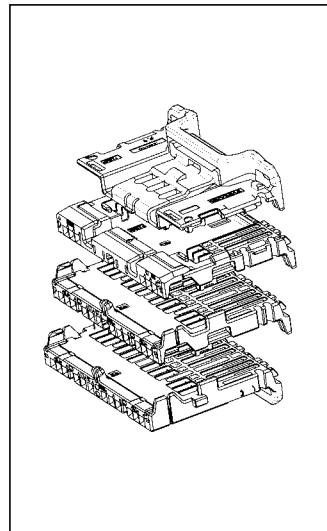
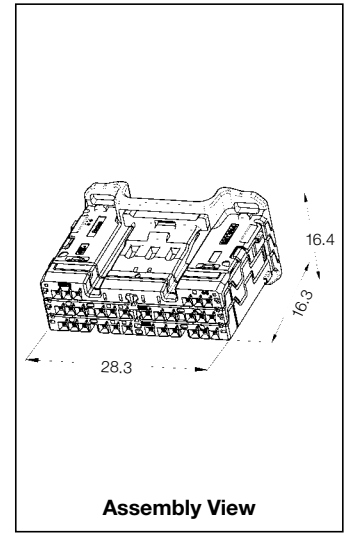
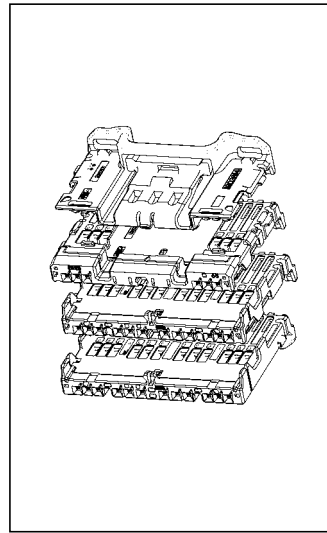
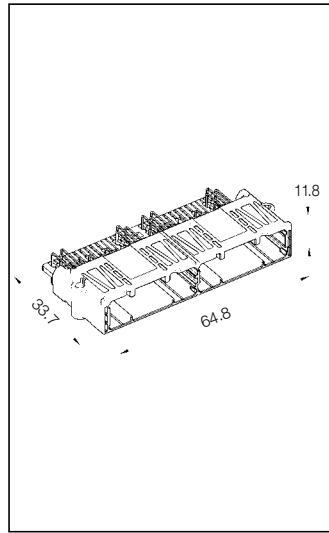
**30 Position Screw Mount Type**

No. of Positions	Keying Options	Housing Color	Tab Housing Assembly	Part Numbers			
				Lock Housing	Upper Receptacle	Middle Receptacle	Lower Receptacle
30			1939331-1	-	-	-	-
18	-	Natural (White)	-	1903984-1	1903985-1	1903988-4	1903991-4
12			-	1903994-1	-	1903995-1	1903998-1

60 Position Screw Mount Type

**Technical Features**

- No. of Positions:**  
60 Positions
- Housing Material**
- Tab Housing:**  
SPS-GF
- Tab Contact Finish:**  
Post-tinned
- Receptacle Housing:**  
PBT
- Product Specification:**  
108-78437
- Application Specification:**  
411-78268



**60 Position Screw Mount Type**

No. of Positions	Keying Options	Housing Color	Tab Housing Assembly	Part Numbers			
				Lock Housing	Upper Receptacle	Middle Receptacle	Lower Receptacle
60			1903695-2	-	-	-	-
30	-	Natural (White)	-	1903614-1	1903615-3	1903608-6	1903611-4
30			-	1903614-2*	1903615-4	1-1903608-0	2-1903611-6

\*) Housing Color: Black



16 Position Surface Mount Type

**Technical Features**

**No. of Positions:**

16 Positions

**Housing Material**

Tab Housing:  
LCP-GF

**Tab Contact Finish:**

Post-tinned

**Receptacle Housing:**

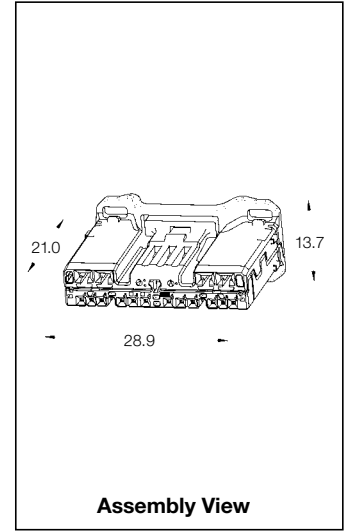
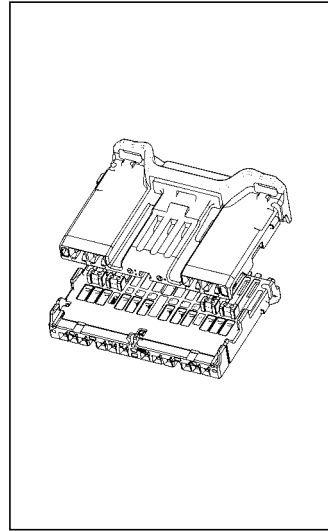
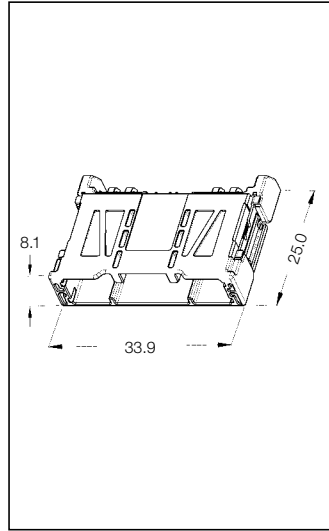
PBT

**Product Specification:**

108-78438

**Application Specification:**

411-78199



16 Position Surface Mount Type

No. of Positions	Keying Options	Housing Color	Tab Housing Assembly	Part Numbers			
				Lock Housing	Upper Receptacle	Middle Receptacle	Lower Receptacle
16	–	Natural	1939082-2	1903607-1	(White)	–	1903611-1

**Note:** 12 cavities are for 0.50 receptacle contacts and 4 cavities are for 1.5 receptacle contacts.

**38 Position Board Lock Type**

**Technical Features**

**No. of Positions:**

38 Positions

**Housing Material**

Tab Housing:  
PBT-GF

**Tab Contact Finish:**

Post-tinned

**Receptacle Housing:**

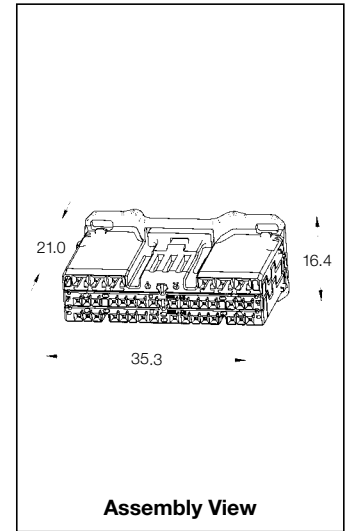
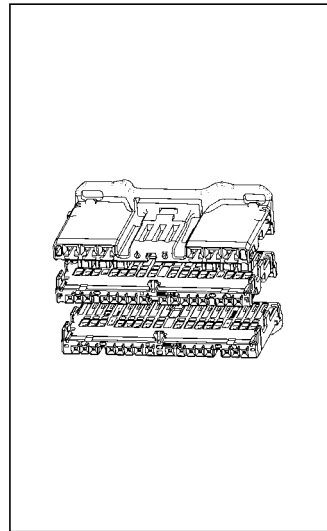
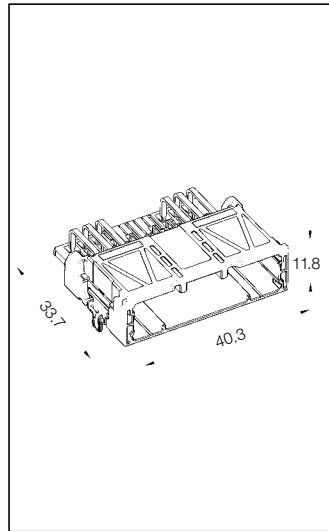
PBT

**Product Specification:**

108-78437

**Application Specification:**

411-78268



**38 Position Board Lock Type**

No. of Positions	Keying Options	Housing Color	Tab Housing Assembly	Part Numbers			
				Lock Housing	Upper Receptacle	Middle Receptacle	Lower Receptacle
38	–	Natural	1903876-1	1903882-1	(White)	1903883-1	1903886-4

**Note:** 32 cavities are for 0.50 receptacle contacts and 6 cavities are for 1.5 receptacle contacts.

58 Position Board Lock Type

**Technical Features**

**No. of Positions:**

58 Positions

**Housing Material**

Tab Housing:  
PBT-GF

**Tab Contact Finish:**

Post-tinned

**Receptacle Housing:**

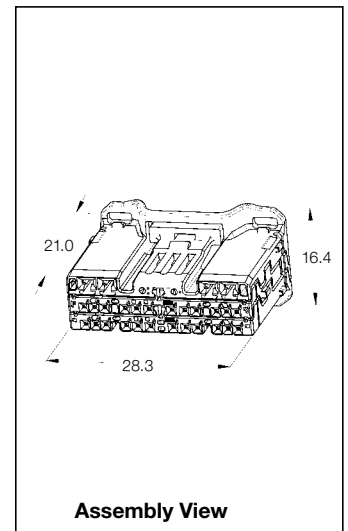
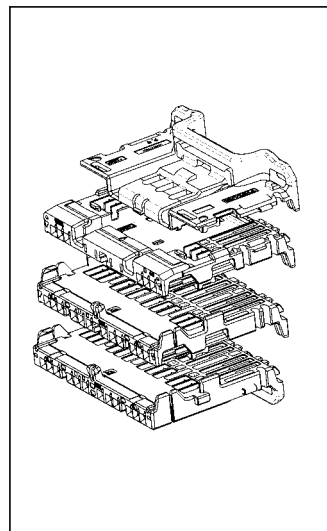
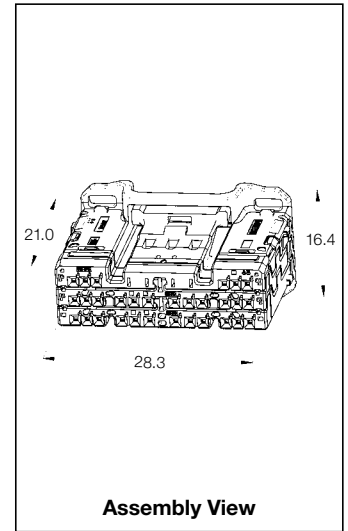
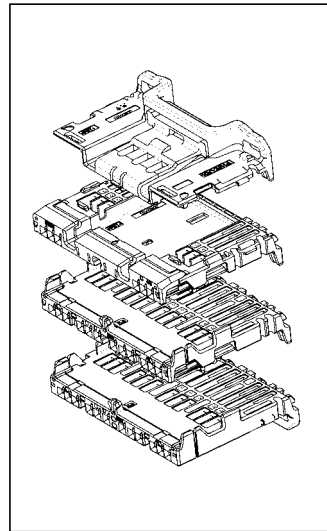
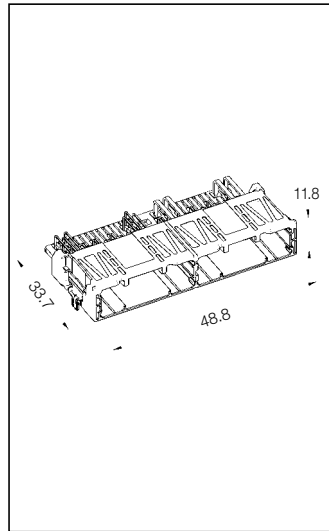
PBT

**Product Specification:**

108-78437

**Application Specification:**

411-78268



**58 Position Screw Mount Type**

No. of Positions	Keying Options	Housing Color	Tab Housing Assembly	Part Numbers			
				Lock Housing	Upper Receptacle	Middle Receptacle	Lower Receptacle
58			1903166-1	-	-	-	-
30	-	Natural (White)	-	1903614-1	1903615-1	1903608-4	1903611-6
28			-	1903607-4*	-	1903608-8	1-1903611-0

\*) Housing Color: Black

**Note:** Only the 0.50 receptacle contact goes into 30 positions receptacle.

As to 28 positions, 24 cavities are for 0.50 receptacle contacts and 4 cavities are for 1.5 receptacle contacts.

76 Position Screw Mount Type

**Technical Features**

**No. of Positions:**

76 Positions

**Housing Material**

Tab Housing:  
SPS-GF

**Tab Contact Finish:**

Post-tinned

**Receptacle Housing:**

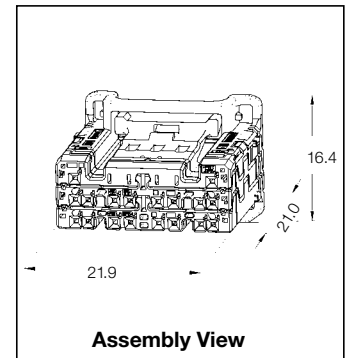
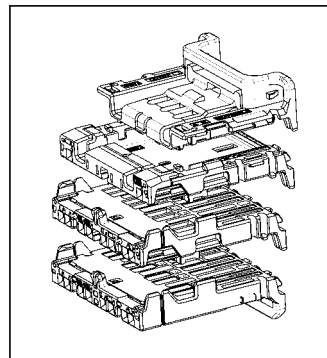
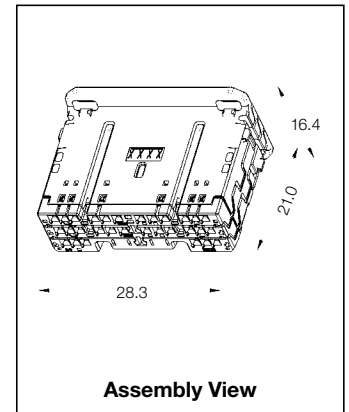
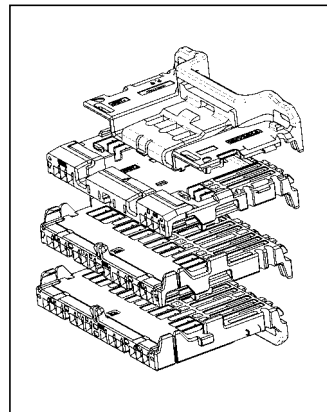
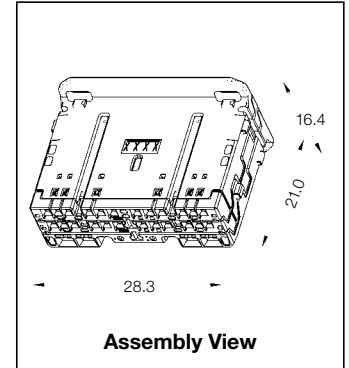
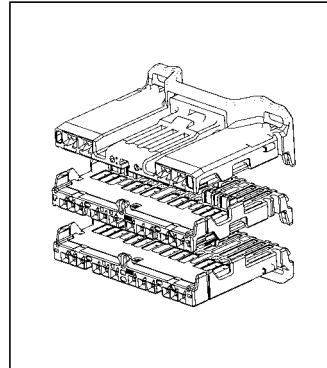
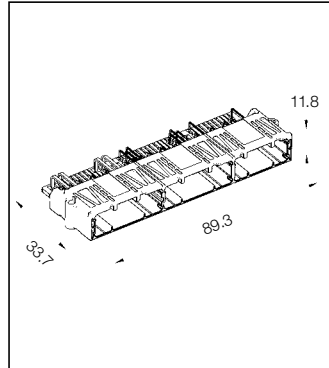
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**Product Specification:**

108-78437

**Application Specification:**

411-78268



**76 Position Screw Mount Type**

No. of Positions	Keying Options	Housing Color	Tab Housing Assembly	Part Numbers			
				Lock Housing	Upper Receptacle	Middle Receptacle	Lower Receptacle
76			1903965-1	–	–	–	–
28		Natural (White)	–	1903607-1	–	1903608-3	1903611-4
30			–	1903614-1	1903615-1	1903608-4	1903611-5
18			–	1903984-1	1903985-1	1903988-4	1903991-4

**Note:** Only the 0.50 receptacle contact goes into 30 positions and 18 positions receptacle.

As to 28 positions, 24 cavities are for 0.50 receptacle contacts and 4 cavities are for 1.5 receptacle contacts.



12 Position Receptacle (Plug) Housing

**Technical Features**

**No. of Positions:**

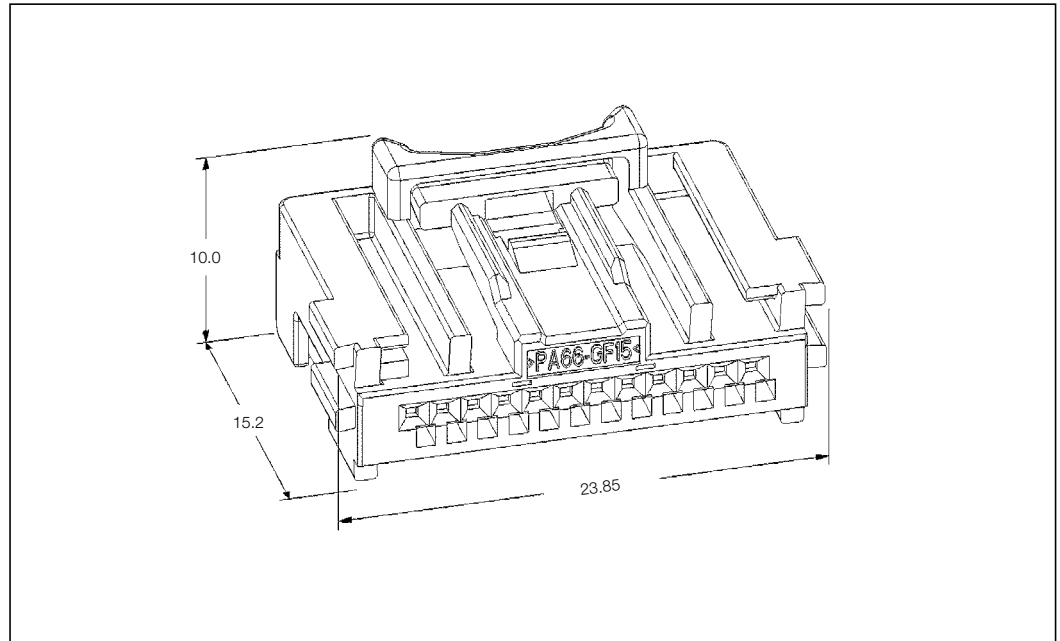
12 Positions

**Housing Material**

Nylon-15GF

**Application Specification:**

Not released at this time. Can be found on the TE Connectivity website by searching for documents associated with part numbers in the table below.



**12 Position Receptacle (Plug) Housing**

No. of Positions	Keying Options	Housing Color	Receptacle (plug) Part Number
12	A	Black	2138374-1
12	B	Black	2138374-2
12	C	Black	2138374-3
12	D	Black	2138374-4

This connector is on 1.5 mm centerlines. Due to size constraints the largest O.D. insulation that can be used is 1.20 mm.

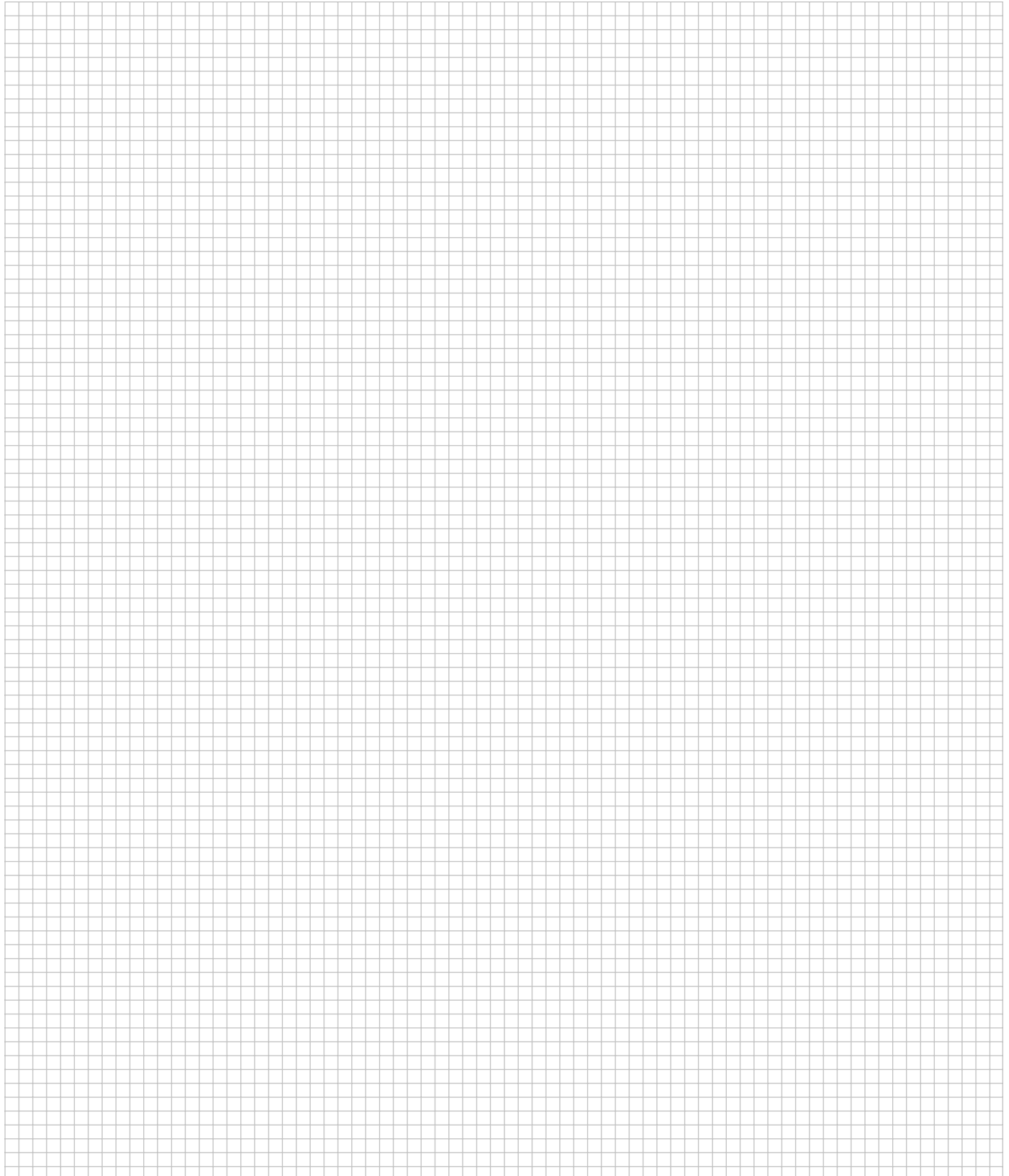
Engineering notes

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Engineering notes

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Engineering notes

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**Tyco Electronics AMP GmbH**  
a **TE Connectivity Ltd.** company

AMPèrestr. 12-14  
64625 Bensheim / Germany  
Phone: +49 (0)6251-133-0  
Fax: +49 (0)6251-133-1600

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