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AMP DUOPLUG 2.5 Connector System

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Introduction

AMP DUOPLUG 2.5 Connector System for Wire-to-Board Applications

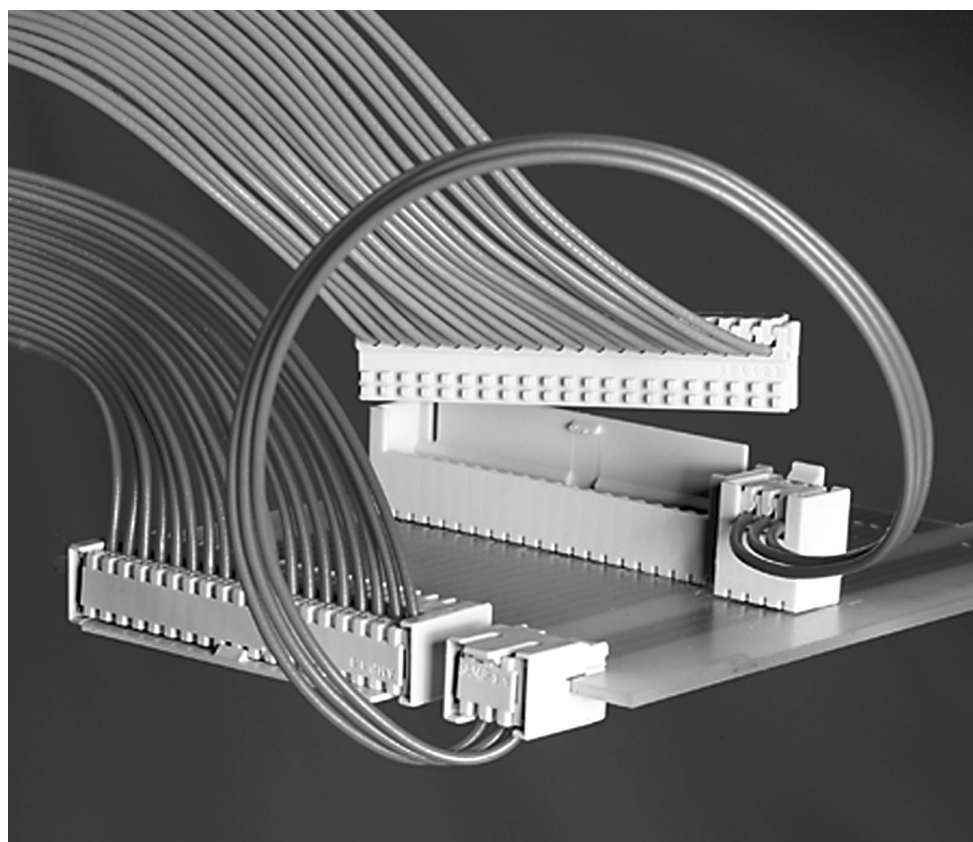
The AMP DUOPLUG 2.5 Connector System offers a complete printed circuit board system which is suitable for edge as well as female to header applications using the same female part.

The top of the female contact is provided with an IDC slot, a technique which permits high speed wire termination. Application tooling specially developed for this system can produce cable assemblies with connectors at one or both ends.

The connector keying is produced with a cutting unit on the application tooling machine.

Applications

- Household Appliances
- Consumer Electronics
- Telecommunication Industry
- Automotive Industry
- Vending Machines
- Measuring Devices and others



Technical Data

No. of Positions:
3- to 20-positions
3- to 12-positions

Centerline:
2.5 mm

Termination Technique:
Insulation Displacement
Technique

Housing Material:
PBT-GF, PA 6.6 GF

Contact Material:
CuSn (CuZn)
Phosphor Bronze (Brass)

Contact Finish:
Female pre-tinned
Male post-tinned

PC Board Thickness:
1.5mm

Wire Range (DGB I):
0.22mm², 7 stranded
0.35mm², 12 stranded

Wire Range (DGB II):
0.35mm², 7 stranded

Temperature Range:
-40 °C up to +110 °C

Current Voltage:
63 V (250 V)

Current Rating:
max. 2 A

Insulation Diameter:
1.2-1.4mm

Contact Resistance:
≤10 mΩ

Insulation Hardness:
Shore A 92±3

Flammability Rating:
acc. UL 94 V-0

AMP Product Specification:
108-18056 / 108-20238

AMP Application Specification:
114-18049

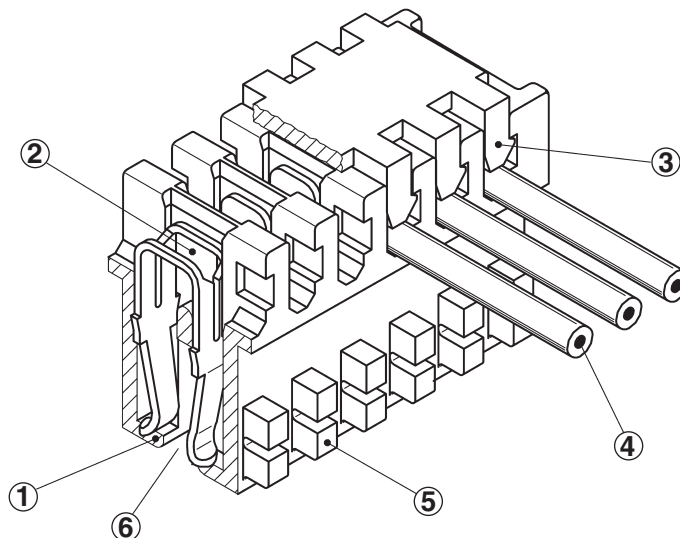
Technical Features

Product Features

- Connector system for rationalised production
- High production rate with no rejects
- One-piece and two-piece connector system
- Keyable female part
- Contacts protected against damage
- Controllable wire insertion
- Wire strain relief provided by cover
- Defined wire insertion depth
- Customer specific version of header
- Protection provided by three side walls
- Designed according to RAST 2.5 Specification
- VDE Tested acc. to:
DIN VDE 0627/9.91 and
DIN EN 60998, Part 2-3



-Reg. No. 1508

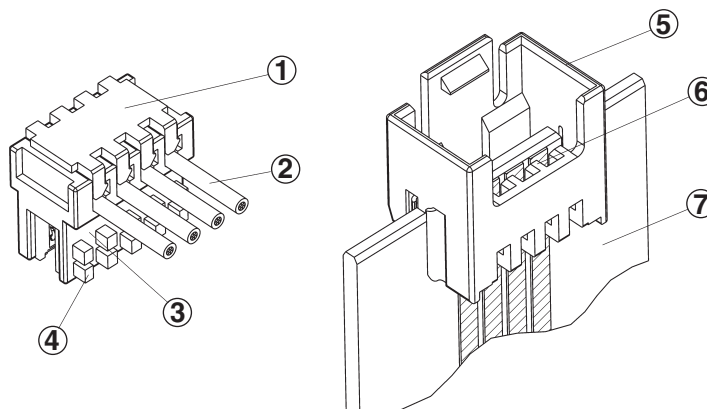


- | | | |
|--|--|---|
| <p>1 Very good contact protection in order to avoid any stubbing problems.</p> <p>2 Termination of the wire via metal stuffer of the tooling which guarantees a defined position of the wire in the IDC-slot of the contact.</p> | <p>3 Reliable locking feature of every single contact assures proper strain relief.</p> <p>4 Contact suitable for 7- and 12-stranded wire.</p> <p>5 Cutting of the keying in accordance to customer's demand during the termination process.</p> | <p>6 Connector design suitable for one-piece as well as for two-piece connection.</p> |
|--|--|---|

Indirect and Direct Connection, 2.5 mm Centerline

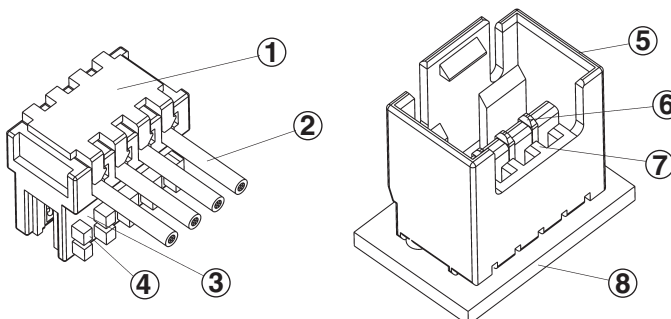
Direct Connection, 2.5 mm Centerline

- 1 Cover
- 2 Wire
- 3 Connector Front Side
- 4 Keying
- 5 Tab Header
- 6 Keying
- 7 PC Board 1.5mm thick



Indirect Connection, 2.5 mm Centerline

- 1 Cover
- 2 Wire
- 3 Connector Front Side
- 4 Keying
- 5 Tab Header
- 6 Tab Contact
(1.5mm x 0.6mm)
- 7 Keying
- 8 PC Board 1.5mm thick



Technical Data

No. of Positions:
3- to 20-positions

Centerline:
2.5 mm
(selective loading possible)

Termination Technique:
Insulation Displacement
Technique

Wire Size Range:
IDC Contact DGB I:
0.22-0.25mm², 7 strands
0.32-0.35mm², 12 strands
Solid wire 0.40-0.50mm
diameter

IDC Contact DGB II:
0.32-0.35mm², 7 strands

Insulation Diameter:
Nominal size 1.3mm

Insulation Hardness:
Shore A 92 ±3

Contact Material:
Phosphor Bronze (Brass)

Contact Finish:
Female pre-tinned
Male post-tinned

Housing Material:
PBT-GF, PA 6.6 GF

Flammability Rating:
UL 94 V-0

VDE Tested acc. to:
DIN VDE 0627/9.91 and
DIN EN 60998, Part 2-3

Keying:
Variable, because there is a row
of keying ribs on the front side
of the connector. Ribs removed
during application according
to requirements.

Current Carrying Capacity:
max. 2 A

Contact Resistance:
≤10 mΩ

Nominal Voltage:
Fully loaded, 63 V
Selectively loaded, 250 V

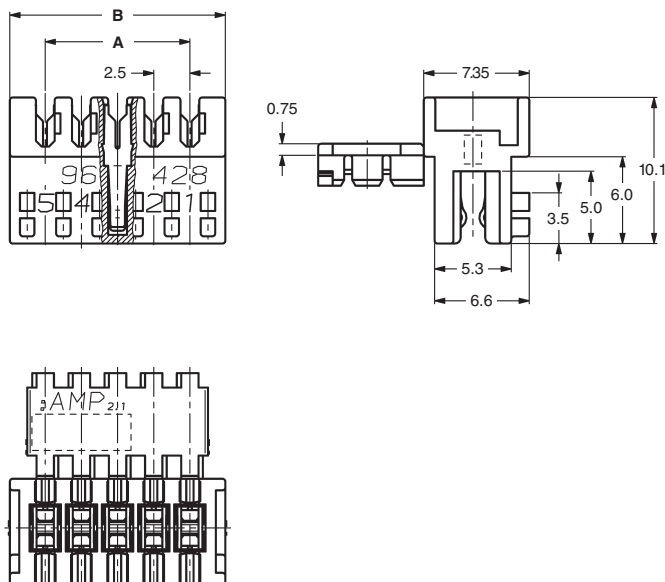
Temperature Range:
-40 °C up to +110 °C

AMP Product Specification:
108-18056

AMP Application Specification:
114-18049

Packaging Specification:
107-18026

Female Connectors

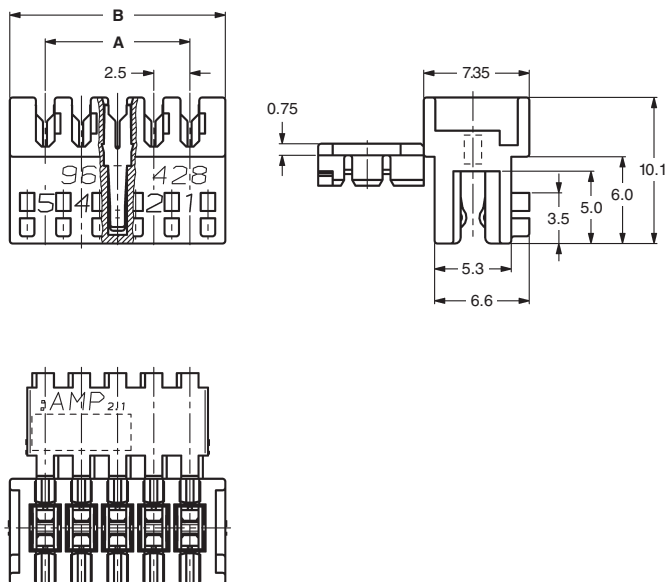


No. of Positions	Dimensions (mm)		Part Numbers			Package Quantity
			Wire Ranges			
			DGB I 1)	DGB II 1)	DGB II 1)	
	A	B	Colour Grey	Colour Natural	Colour Natural 2)	
3	5.0	9.9	3-829868-3	1-966194-3	1-966504-3	4.480
4	7.5	12.4	3-829868-4	1-966194-4	1-966504-4	3.640
5	10.0	14.9	3-829868-5	1-966194-5	1-966504-5	3.080
6	12.5	17.4	3-829868-6	1-966194-6	1-966504-6	2.800
7	15.0	19.9	3-829868-7	1-966194-7	1-966504-7	2.240
8	17.5	22.4	3-829868-8	1-966194-8	1-966504-8	2.240
9	20.0	24.9	3-829868-9	1-966194-9	1-966504-9	1.860
10	22.5	27.4	3-829868-0	1-966194-0	1-966504-0	1.680
11	25.0	29.9	3-829869-1	1-966195-1	1-966505-1	1.680
12	27.5	32.4	3-829869-2	1-966195-2	1-966505-2	1.400
13	30.0	34.9	3-829869-3	1-966195-3	1-966505-3	1.400
14	32.5	37.4	3-829869-4	1-966195-4	1-966505-4	1.400
15	35.0	39.9	3-829869-5	1-966195-5	1-966505-5	1.120
16	37.5	42.4	3-829869-6	1-966195-6	1-966505-6	1.120
17	40.0	44.9	3-829869-7	1-966195-7	1-966505-7	1.120
18	42.5	47.4	3-829869-8	1-966195-8	1-966505-8	1.120
19	45.0	49.9	3-829869-9	1-966195-9	1-966505-9	840
20	47.5	52.4	3-829869-0	1-966195-0	1-966505-0	840

1) Wire Range: DGB I: $7 \times \emptyset 0.20 = 0.22 \text{ mm}^2$
 $12 \times \emptyset 0.20 = 0.35 \text{ mm}^2$
DGB II: $7 \times \emptyset 0.25 = 0.35 \text{ mm}^2$

2) Versions for higher ambient temperature

Female Connectors, Selectively Loaded



No. of Positions	Dimensions (mm)		Part Numbers		Package Quantity
			Wire Ranges		
			DGB I 1)	DGB II 1)	
	A	B	Colour Grey	Colour Natural	
3	5.0	9.9	3-966480-3	1-966842-3	4.480
5	10.0	14.9	3-966480-5	1-966842-5	3.080
7	15.0	19.9	3-966480-7	1-966842-7	2.240
9	20.0	24.9	3-966480-9	1-966842-9	1.860
11	25.0	29.9	3-966481-1	1-966843-1	1.680
13	30.0	34.9	3-966481-3	1-966843-3	1.400
15	35.0	39.9	3-966481-5	1-966843-5	1.120
17	40.0	44.9	3-966481-7	1-966843-7	1.120
19	45.0	49.9	3-966481-9	1-966843-9	840

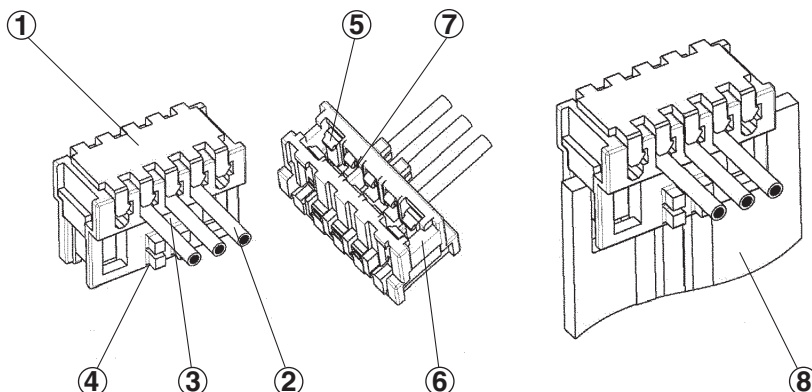
1) Wire Range: DGB I: 7 x Ø 0.20 = 0.22 mm²
 12 x Ø 0.20 = 0.35 mm²
 DGB II: 7 x Ø 0.25 = 0.35 mm²

2) Versions for higher ambient temperature

Direct Connection, 2.5 mm Centerline

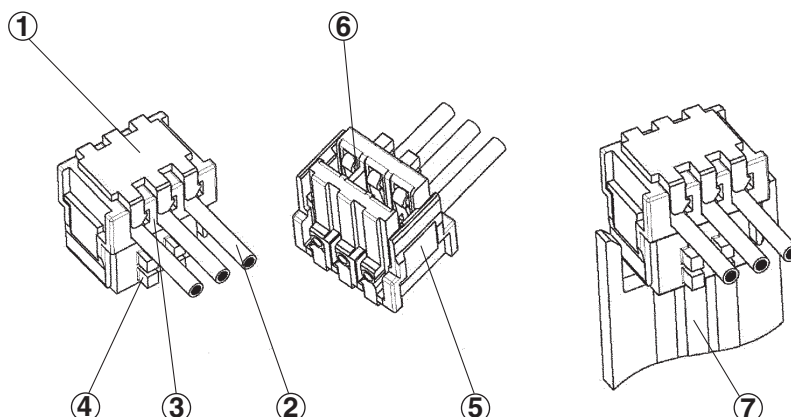
Direct Connection, Interior Locking 2.5 mm Centerline

- 1 Cover
- 2 Wire
- 3 Connector Front Side
- 4 Keying
- 5 Interior Locking Latch
- 6 Keying Rib
- 7 Polarisation Rib between cavities
- 8 PC Board 1.5mm thick



Direct Connection, Side Locking 2.5 mm Centerline

- 1 Cover
- 2 Wire
- 3 Connector Front Side
- 4 Keying
- 5 Side Locking Latch
- 6 Polarisation Rib between cavities
- 7 PC Board 1.5mm thick



Technical Data

No. of Positions:
3- to 20-positions
3- to 12-positions

Centerline:
2.5 mm
(selective loading possible)

Termination Technique:
Insulation Displacement
Technique

Wire Size Range:
IDC Contact DGB I:
0.22-0.25mm², 7 strands
0.32-0.35mm², 12 strands
Solid wire 0.40-0.50mm
diameter

IDC Contact DGB II:
0.32-0.35mm², 7 strands

Insulation Diameter:
Nominal size 1.3mm

Insulation Hardness:
Shore A 92 ±3

Contact Material:
Phosphor Bronze (Brass)

Contact Finish:
Female pre-tinned
Male post-tinned

Housing Material:
PBT-GF, PA 6.6 GF

Flammability Rating:
UL 94 V-0

VDE Tested acc. to:
DIN VDE 0627/9.91 and
DIN EN 60998, Part 2-3

Keying:
Variable, because there is a row
of keying ribs on the front side
of the connector. Ribs removed
during application according
to requirements.

Current Carrying Capacity:
max. 2 A

Contact Resistance:
≤10 mΩ

Nominal Voltage:
Fully loaded, 63 V
Selectively loaded, 250 V

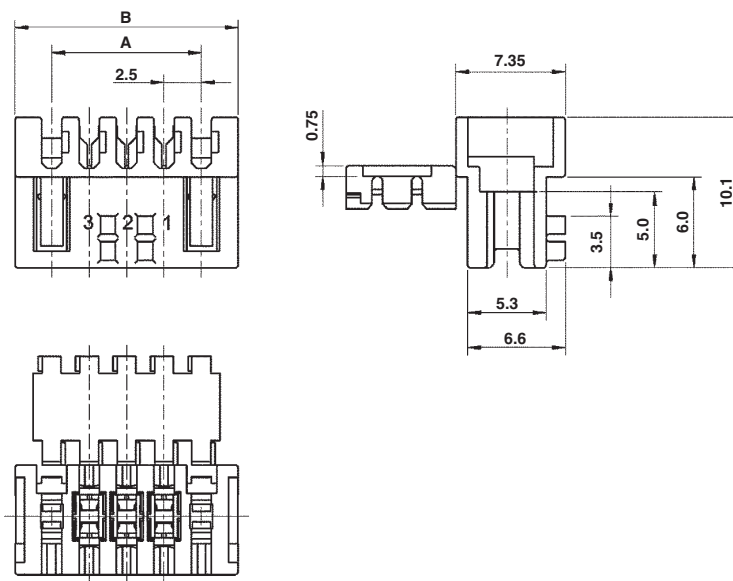
Temperature Range:
-40 °C up to +110 °C

AMP Product Specification:
108-18056 / 108-20238

AMP Application Specification:
114-18049

Packaging Specification:
107-18026 / 107-20237

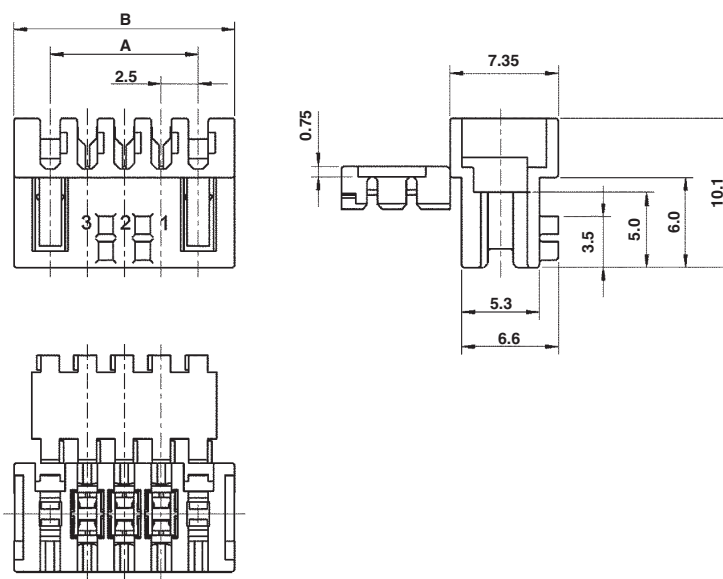
Female Connector, Interior Locking



No. of Positions	Dimensions (mm)		Part Number	Polarisation Ribs Between Pos.	Empty Pos.	Package Quantity
	A	B				
2	5.0	9.9	1-1355181-2	—	—	4480
3	10.0	14.9	1-1355181-3	—	—	3080
4	12.5	17.4	1-1355181-4	—	—	2800
5	15.0	19.9	1-1355181-5	—	—	2240
6	17.5	22.4	1-1355181-6	—	—	2240
			2-1355181-6	3-4	—	1960
7	20.0	24.9	1-1355181-7	—	—	1680
8	22.5	27.4	1-1355181-8	—	—	1680
			2-1355181-8	3-4	—	1680
9	25.0	29.9	1-1355181-9	—	—	1680
			2-1355181-9	4-5	—	1680
10	27.5	32.4	1-1355181-0	—	—	1400
			1-1534557-0 *	4-5	3-5	1400
			2-1534557-0 *	4-5	8-10	1400
11	30.0	34.9	1-1355182-1	—	—	1400
12	32.5	37.4	1-1355182-2	—	—	1400
			2-1355182-2	3-4	—	1400
13	35.0	39.9	1-1355182-3	—	—	1120
14	37.5	42.4	1-1355182-4	—	—	1120
15	40.0	44.9	1-1355182-5	—	—	1120
16	45.5	47.4	1-1355182-6	—	—	1120
17	45.0	49.9	1-1355182-7	—	—	840
18	47.5	52.4	1-1355182-8	—	—	840

* Special version selective loaded

Female Connector, Side Locking



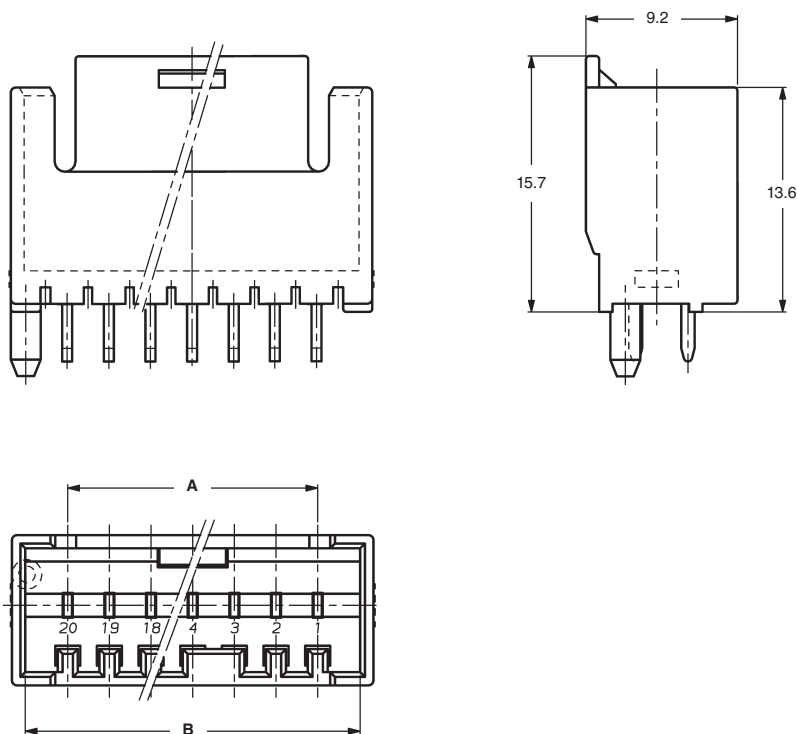
Fully Loaded

No. of Positions	Dimensions (mm)		Part Number	Colour	Polarisation Ribs Between Pos.	Package Quantity
	A	B				
3	5.0	9.9	0-284865-3	Black	2-3	4480
4	7.5	12.4	0-284865-4	Black	1-2	3640
5	10.0	14.9	0-284865-5	Black	2-3	3080
			2-284865-5	Red	3-4	3080
6	12.5	17.4	0-284865-6	Black	2-3	2800
7	15.0	19.9	0-284865-7	Black	2-4	2240
8	17.5	22.4	0-284865-8	Black	2-5	2240
			2-284865-8	Red	3-4	2240
9	20.0	24.9	0-284865-9	Black	2-3	1960
10	22.5	27.4	1-284865-0	Black	2-3	1680
			2-284865-0	Red	9-10	1680
12	27.5	32.4	1-284865-2	Black	2-3	1400
			2-284865-2	Red	11-12	1400
14	32.5	37.4	1-284865-4	Black	13-14	1400

Selectively Loaded

No. of Positions	Dimensions (mm)		Part Number	Colour	Polarisation Ribs Between Pos.	Empty Pos.	Package Quantity
	A	B					
8	17.5	22.4	0-284866-8	Blue	2-3	2-5	2240
			2-284866-8	Green	2-3	2	2240
9	20.0	24.9	0-284866-9	Blue	2-3	2-5-8	1960
10	22.5	27.4	1-284866-0	Blue	2-3	9	1680
12	27.5	32.4	1-284866-2	Blue	2-3	2-5-8-10	1400

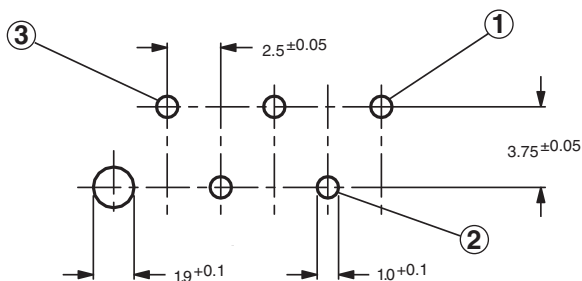
Tab Header 180°



PC Board Layout

Solder Side View.

- 1 First Cavity for uneven numbered positions
- 2 First Cavity for even numbered positions
- 3 Last Cavity



Tab Header 180° (continued)

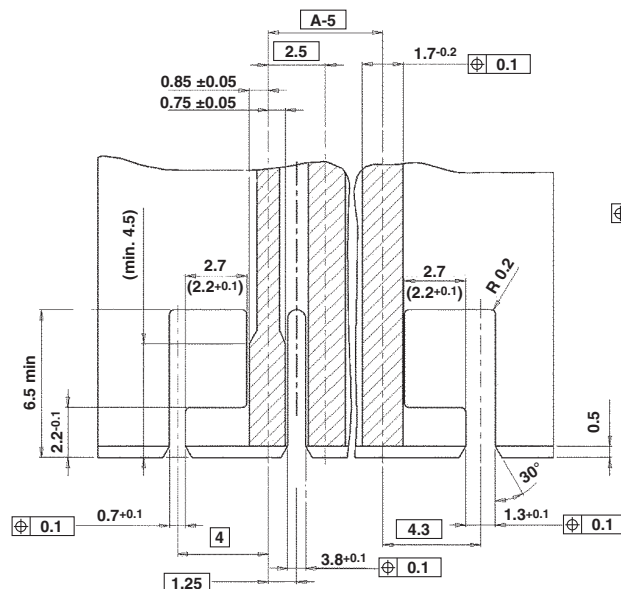
No. of Positions	Dimensions (mm)		Colour	Keying between Cavity Number	Part Number Tab Header	Package Quantity
	A	B				
3	5.0	10.15	natural	—	1-829866-3	416
3	5.0	10.15	grey	—	2-829866-3	416
3	5.0	10.15	grey	1/2	3-829866-3	416
4	7.5	12.65	natural	—	1-829866-4	352
4	7.5	12.65	grey	—	2-829866-4	352
5	10.0	15.15	natural	—	1-829866-5	300
5	10.0	15.15	grey	—	2-829866-5	300
5	10.0	15.15	grey	3/4	3-829866-5	300
5	10.0	15.15	grey	4/5	4-829866-5	300
6	12.5	17.65	natural	—	1-829866-6	256
6	12.5	17.65	grey	—	2-829866-6	256
7	15.0	20.15	natural	—	1-829866-7	224
7	15.0	20.15	grey	—	2-829866-7	224
7	15.0	20.15	grey	3/4	3-829866-7	224
8	17.5	22.65	natural	—	1-829866-8	196
8	17.5	22.65	grey	—	2-829866-8	196
9	20.0	25.15	natural	—	1-829866-9	180
9	20.0	25.15	grey	—	2-829866-9	180
10	22.5	27.65	natural	—	1-829866-0	168
10	22.5	27.65	grey	—	2-829866-0	168
11	25.0	30.15	natural	—	1-829867-1	150
11	25.0	30.15	grey	—	2-829867-1	150
12	27.5	32.65	natural	—	1-829867-2	140
12	27.5	32.65	grey	—	2-829867-2	140
13	30.0	35.15	natural	—	1-829867-3	140
13	30.0	35.15	grey	—	2-829867-3	140
14	32.5	37.65	natural	—	1-829867-4	128
14	32.5	37.65	grey	—	2-829867-4	128
15	35.0	40.15	natural	—	1-829867-5	120
15	35.0	40.15	grey	—	2-829867-5	120
16	37.5	42.65	natural	—	1-829867-6	112
16	37.5	42.65	grey	—	2-829867-6	112
17	40.0	45.15	natural	—	1-829867-7	104
17	40.0	45.15	grey	—	2-829867-7	104
18	42.5	47.65	natural	—	1-829867-8	102
18	42.5	47.65	grey	—	2-829867-8	102
19	45.0	50.15	natural	—	1-829867-9	96
19	45.0	50.15	grey	—	2-829867-9	96
20	47.5	52.65	natural	—	1-829867-0	90
20	47.5	52.65	grey	—	2-829867-0	90

Preferred Types are printed bold

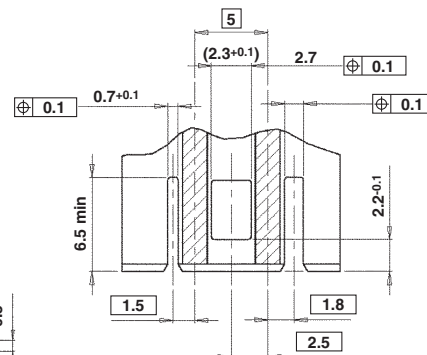
Note: Additional Keying available on request.

Direct Connection, PC Board Frame

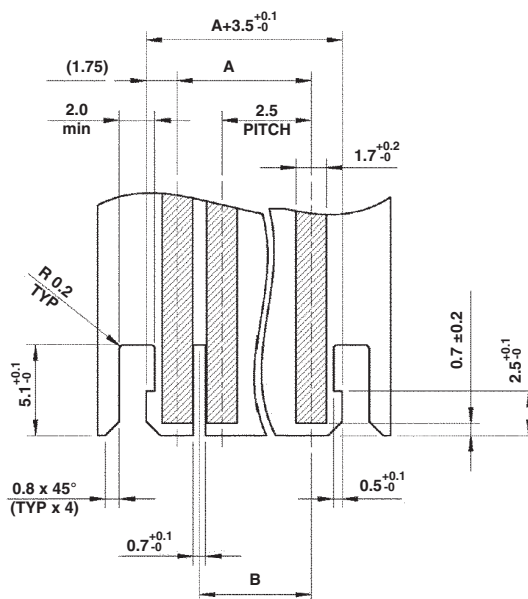
PC Board Layout (Interior Locking)



**Special Version for
2 pos. Connector**



PC Board Layout (Side Locking)



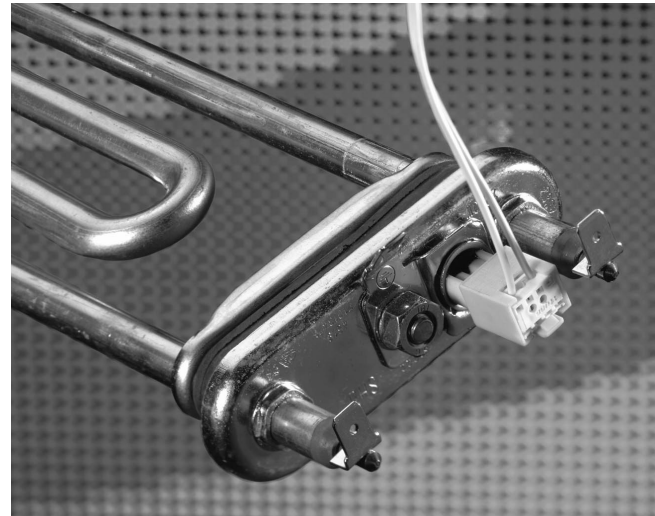
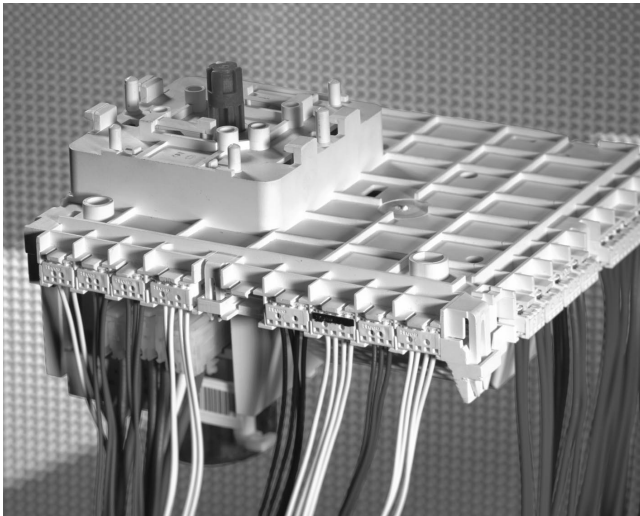
PC Board Frame (continued)

No. of Positions	Dimensions (mm)		Colour	Keying between Cavity Number	Part Number	Package Quantity
	A	B			PC Board Frame	
3	5.0	10.1	black	—	1-964575-3	300
4	7.5	12.6	black	—	1-964575-4	300
4	7.5	12.6	black	1/2	2-964575-4	300
4	7.5	12.6	black	2/3	3-964575-4	300
4	7.5	12.6	black	3/4	4-964575-4	300
5	10.0	15.1	black	—	1-964575-5	300
5	10.0	15.1	black	3/4	2-964575-5	300
5	10.0	15.1	black	1/2, 4/5	3-964575-5	300
6	12.5	17.6	black	—	1-964575-6	300
6	12.5	17.6	black	3/4, 5/6	2-964575-6	300
6	12.5	17.6	black	3/4, 4/5	3-964575-6	300
7	15.0	20.1	black	—	1-964575-7	300
7	15.0	20.1	black	3/4	2-964575-7	300
7	15.0	20.1	black	1/2, 4/5, 6/7	3-964575-7	300
7	15.0	20.1	natural	1/2, 4/5, 6/7	4-964575-7	300
8	17.5	22.6	black	—	1-964575-8	300
8	17.5	22.6	black	1/2, 2/3, 3/4, 7/8, 8/—	2-964575-8	300
9	20.0	25.1	black	—	1-964575-9	300
9	20.0	25.1	black	2/3, 3/4, 8/9	2-964575-9	300
10	22.5	27.6	black	—	1-964575-0	300
10	22.5	27.6	black	—/1, 1/2, 2/3, 4/5, 7/8, 8/9, 10/—	3-964575-0	300
11	25.0	30.1	black	—	1-964576-1	300
11	25.0	30.1	black	1/2, 2/3, 4/5, 6/7	2-964576-1	300
12	27.5	32.6	black	—	1-964576-2	300
12	27.5	32.6	black	10/11	2-964576-2	300
12	27.5	32.6	natural	10/11	3-964576-2	300
12	27.5	32.6	black	5/6, 6/7, 7/8, 8/9, 9/10, 10/11, 11/12	4-964576-2	300
12	27.5	32.6	natural	2/3, 3/4, 4/5, 8/9, 9/10, 10/11, 11/12	5-964576-2	300
12	27.5	32.6	natural	—	6-964576-2	300
13	30.0	35.1	black	—	1-964576-3	300
15	35.0	40.1	black	—/1, 3/4, 6/7, 8/9, 9/10, 13/14, 14/15, 15/—	2-964576-5	300
17	40.0	45.1	black	3/4, 17/—	2-964576-7	300

Preferred Types are printed bold

Note: Additional No. of Positions and Keying available on request.

Introduction



Applications

- Household Appliances
- Small Appliances
- Gambling Machines
- Consumer Electronics
- Telecommunications Industry
- Automotive Industry
- Vending Machines
- Measuring Devices and Others

Tyco Electronics' newly developed AMP DUOPLUG 2.5 Mark II IDC connector system merges decades of experience in IDC technology, with the latest materials, processes and processing equipment.

The design is based on the RAST 2.5 Standard as a direct and indirect connecting system for the PC board and component applications.

The female connectors fit in existing RAST 2.5 headers and frames.

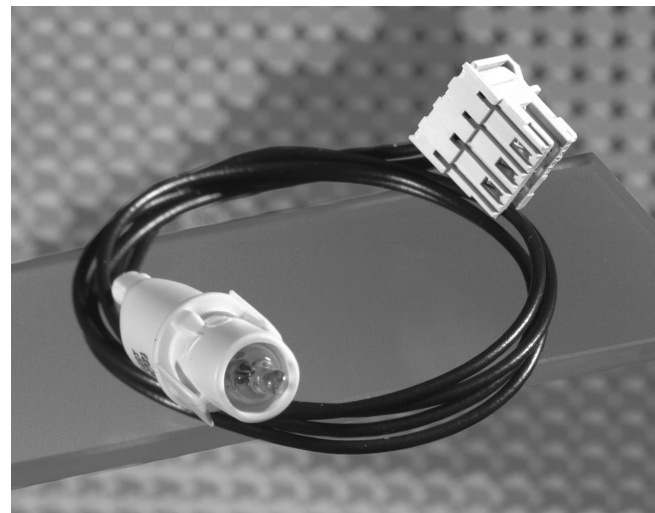
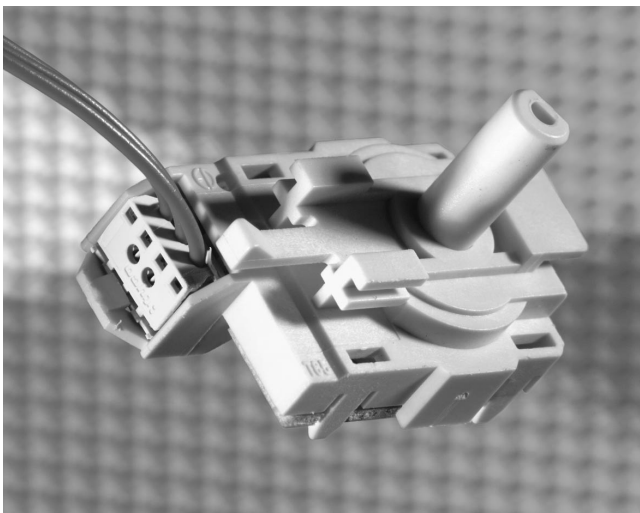
The twisted contact, the design of the contact zone and the two IDC slots guarantee safe functioning and a current rating up to 2 A.

The 7- and 12-stranded conductors are suitable for a wire range of 0.22 up to 0.35 mm² (AWG 24 up to AWG 22, AWM Style 1569/1007) with a max. insulation diameter of 1.6 mm.

The cover provides very good contact protection and has openings for easy electrical inspection.

We offer a complete range of termination equipment from the hand tool to the modular, fully-automatic IHM Mark III machine.

The connector keying and colour marking is done with units on the workstation. AMP DUOPLUG 2.5 Mark II and AMP DUOPLUG Power can be processed with minimal set-up times on the same workstation.

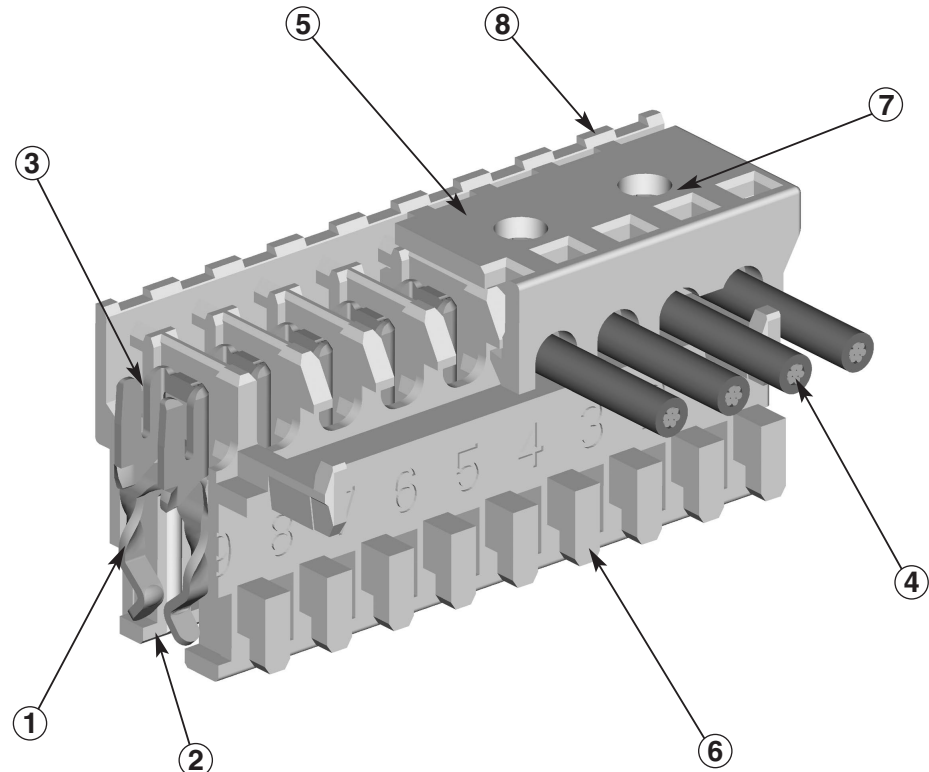


Technical Features

Product Features

- IDC connector system for harness production
- For PC board and electrical component applications
- Designed according to RAST 2.5 Standard
- 2.5 mm Centerline
- Openings in cover for electrical tests
- Excellent contact protection
- Keyable female connector
- Chainable products for optimal handling in logistics and manufacturing
- Special Version
Optional internal locking for secure retention to PC board without use of frame

-  -Approval-No. 40003624
Reg.-No. 1702000-1431-0046/17189
- UL recognised under File No. E 28476

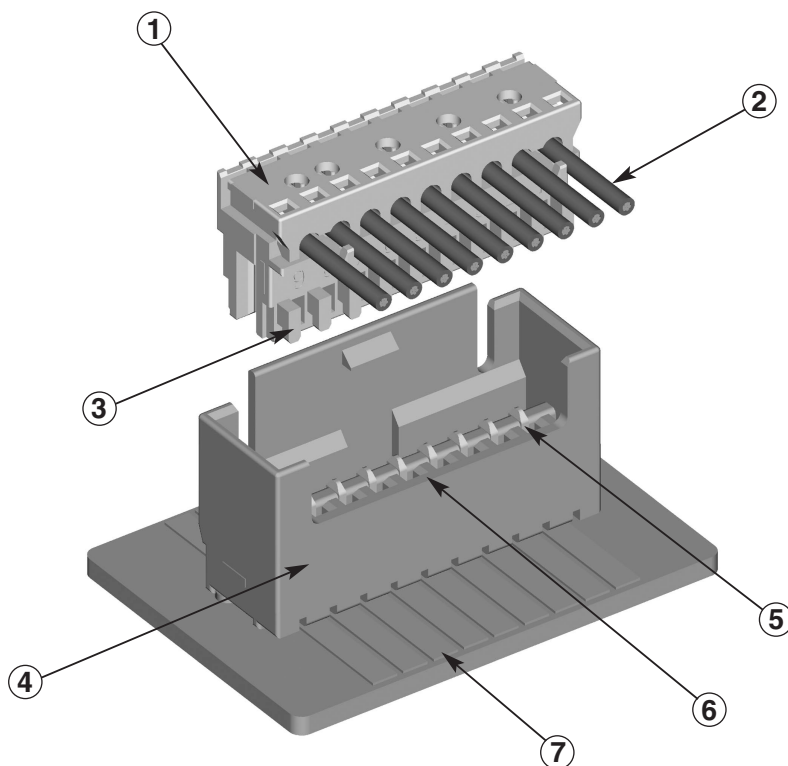


- | | | |
|--|--|--|
| <p>1 Twisted contact provides high contact force without excessive mating force.</p> <p>2 Very good contact protection eliminates stubbing problems.</p> <p>3 Wires are terminated via metal stuffer in tooling which ensures proper positioning of the wire in the IDC slot of contact.</p> | <p>4 Contacts are suitable for 7-stranded and multi-stranded wire.</p> <p>5 Cover provides contact protection.</p> <p>6 Cutting of the keying ribs, in accordance to customers demand, is done during the termination process.</p> | <p>7 Openings in cover for electrical inspection.</p> <p>8 Optional colour marking can be done during the termination process.</p> |
|--|--|--|

Indirect and Direct Connection, 2.5 mm Centerline

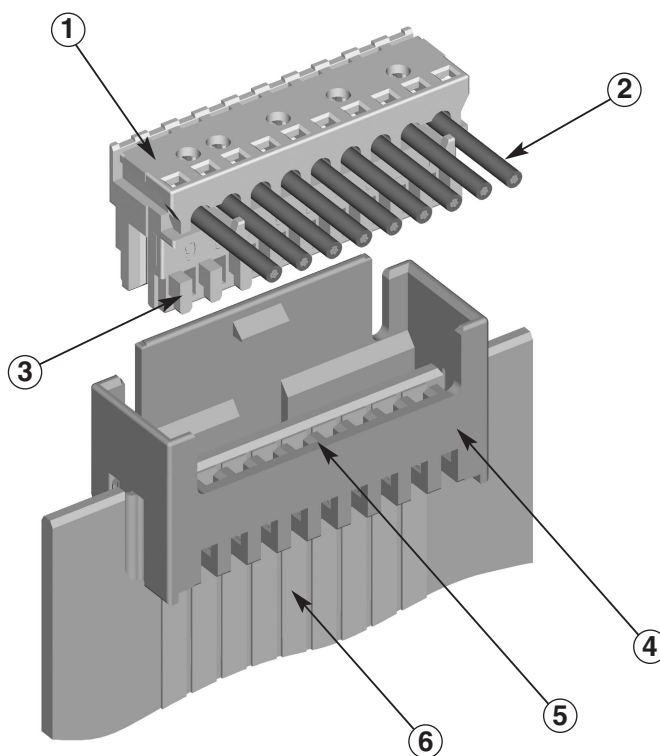
Indirect Connection, 2.5 mm Centerline

- 1 Cover
- 2 Wire
- 3 Keying Ribs
- 4 Tab Header
- 5 Tab Contact
(1.5 x 0.6 mm)
- 6 Keying
- 7 PC Board

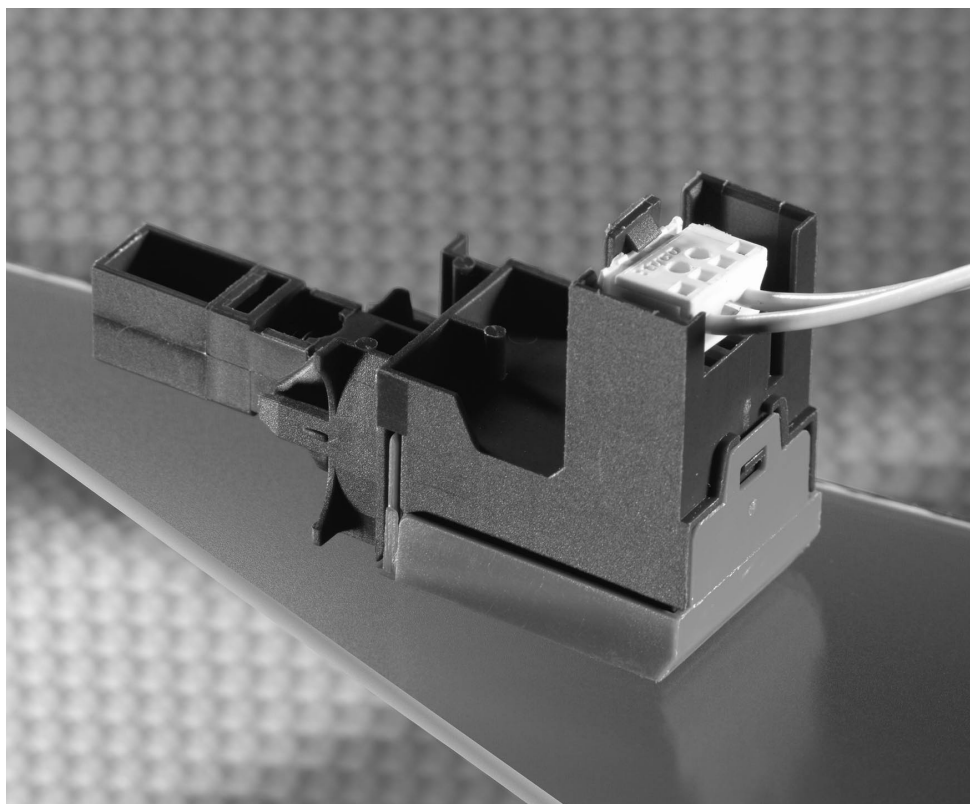


Direct Connection, 2.5 mm Centerline

- 1 Cover
- 2 Wire
- 3 Keying Ribs
- 4 PC Board Frame
- 5 Keying
- 6 PC Board



Technical Data



1

Rast 2.5

No. of Positions:
3- to 20-positions

Centerline:
2.5 mm,
adjacent with loss of pitch

Housing Material:
PA 6 GF (Polyamide)

Flammability Rating:
UL 94 V-2

Track Resistance:
PTI 250

Insulation Resistance:
>5 mΩ

Housing Colour:
natural

Colour Marking/Key Coding:
done by termination equipment

Contact Material:
Phosphor Bronze (CuSn)

Contact Finish:
tin plated

Temperature Range:
-40 °C up to +110 °C

Current Rating:
2 A max.

Current Voltage:
50 V fully loaded,
250 V selectively loaded

Air and Creepage Distance:
1 mm fully loaded,
>3.2 mm selectively loaded

**Mating Force per Contact
on Steel Gauge:**
6 N max.

Unmating Force per Contact:
0.7 N min.

Wire Size Range:
0.22–0.35 mm² (AWG 24–22,
AWM Style 1569/1007)

Composition of Conductors:
7- and 12-stranded

Insulation Hardness:
Shore A 92 ±3

Insulation Diameter:
1.2–1.6 mm

PC Board Thickness:
1.5 ±0.14 mm

Approval:

- VDE-Approval-No. 40003624
- VDE-Reg.-No. 1702000-1431-0046/17189
- UL File E 28476

Product Specification:
108-18785

Packaging Specification:
107-18068

Application Specification:
114-18467

Performance Diagrams

Technical Data

■ **Female Connector,
20 Positions**
Part-No. 3-1534797-0

■ Material and Finish

Housing Material:
PA 6 GF, acc. UL 94 V-2

Contact Material:
Phosphor Bronze (CuSn)

Contact Finish:
tin plated

■ Wire Range:

0.22 mm² (7-strands,
tin plated)
0.35 mm² (12-strands,
tin plated)

■ Counter Part

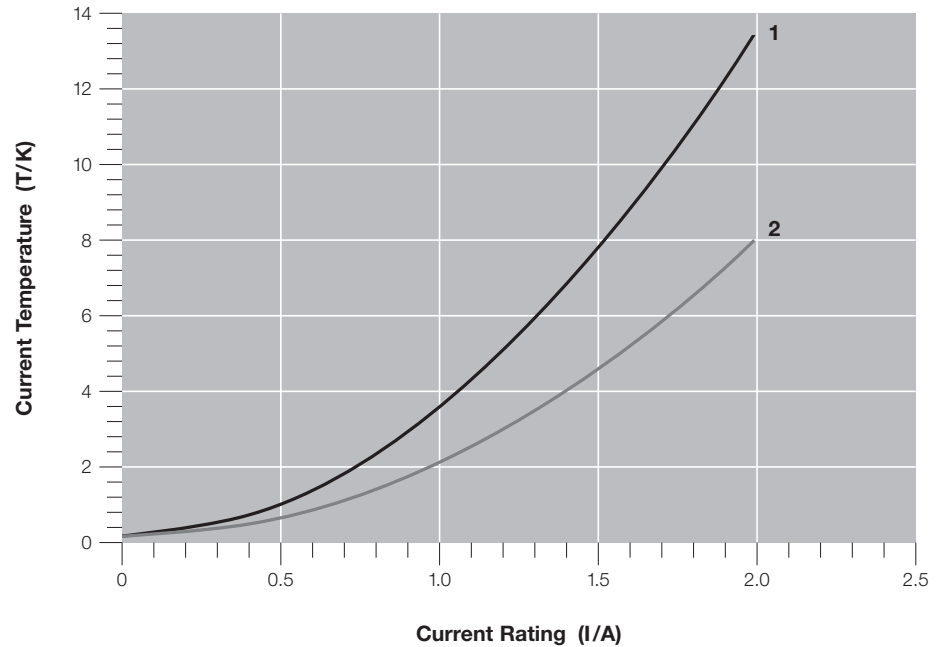
PC Board:
one side coated

Pad:
0.35 µm x 1.9 mm,
Copper, HAL, tin plated

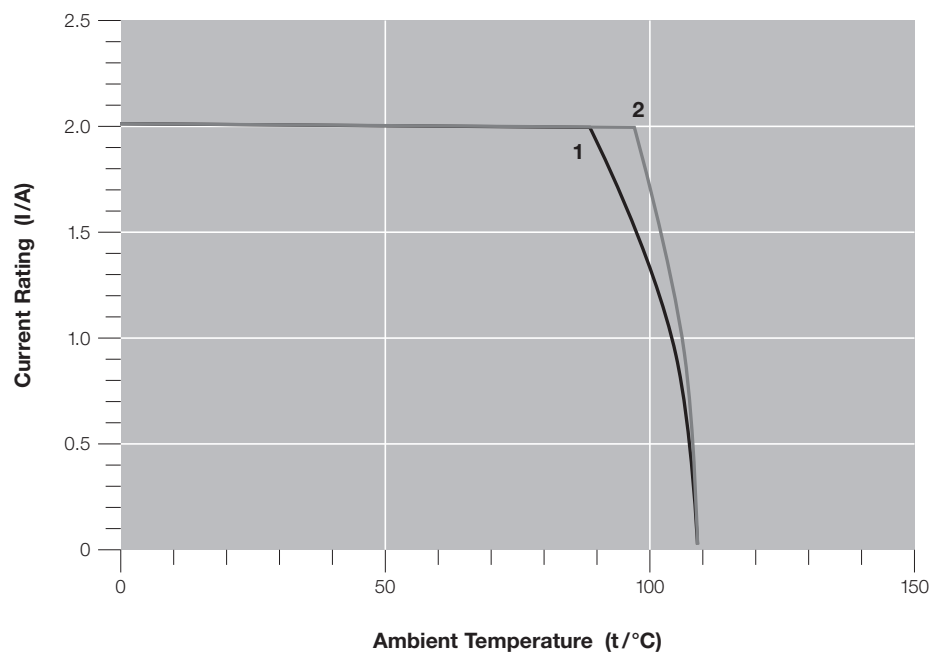
■ Measurement Construction:

(1): 0.22 mm²
(2): 0.35 mm²

Cause of Temperature Rise



Derating Curve



Performance Diagrams (continued)

Technical Data

■ Female Connector, 20 Positions

Part-No. 3-1534797-0

■ Material and Finish

Housing Material:

PA 6 GF, acc. UL 94 V-2

Contact Material:

Phosphor Bronze (CuSn)

Contact Finish:

tin plated

■ Wire Range:

0.22 mm² (7-strands,
tin plated)

0.35 mm² (12-strands,
tin plated)

■ Counter Part

Tab Header

Housing:

PBT-GF, acc. UL 94 V-0

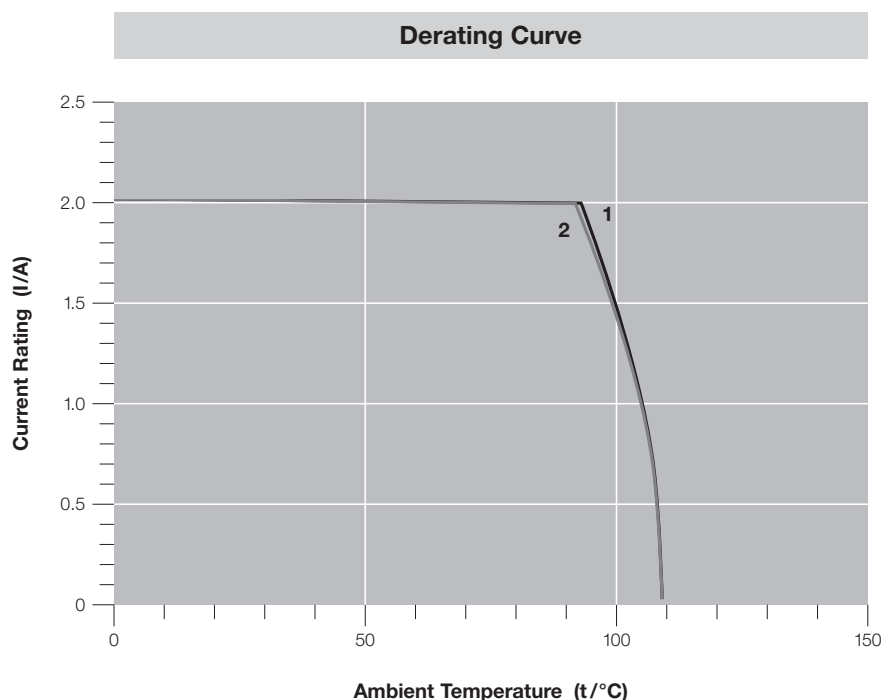
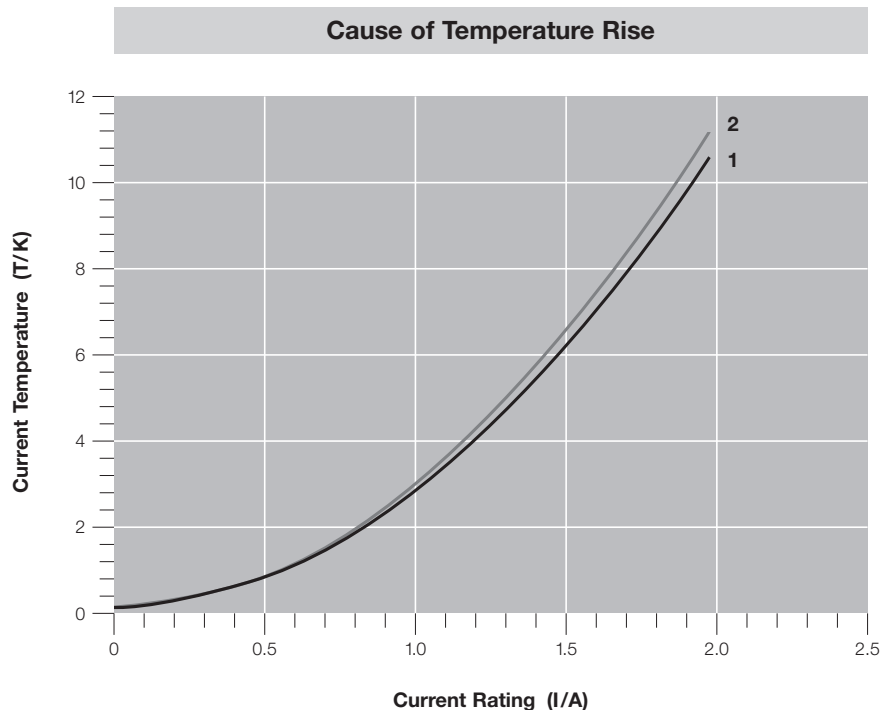
Pin:

1.5 x 0.6 mm,
CuZn 30, tin plated

■ Measurement Construction:

(1): 0.22 mm²

(2): 0.35 mm²



Keying Plan and Female Connector Geometry

Keying Plan

Delivery Form

with all Keying Ribs →



No. of Pos. →

1 2 3 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Keying Example: 3/2 positions

Housing, fully loaded →

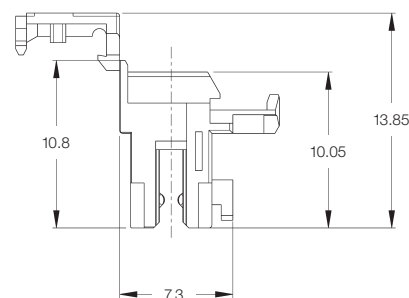
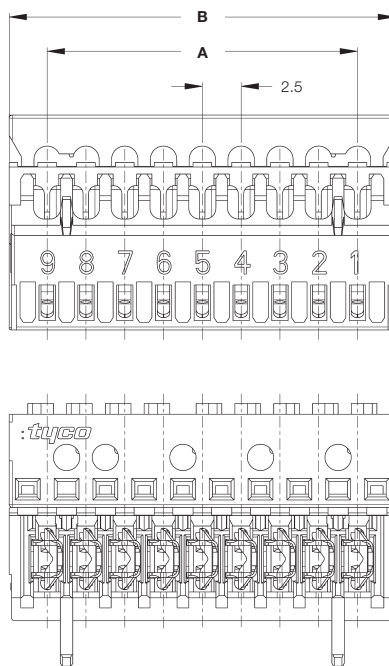


Housing, selectively loaded →



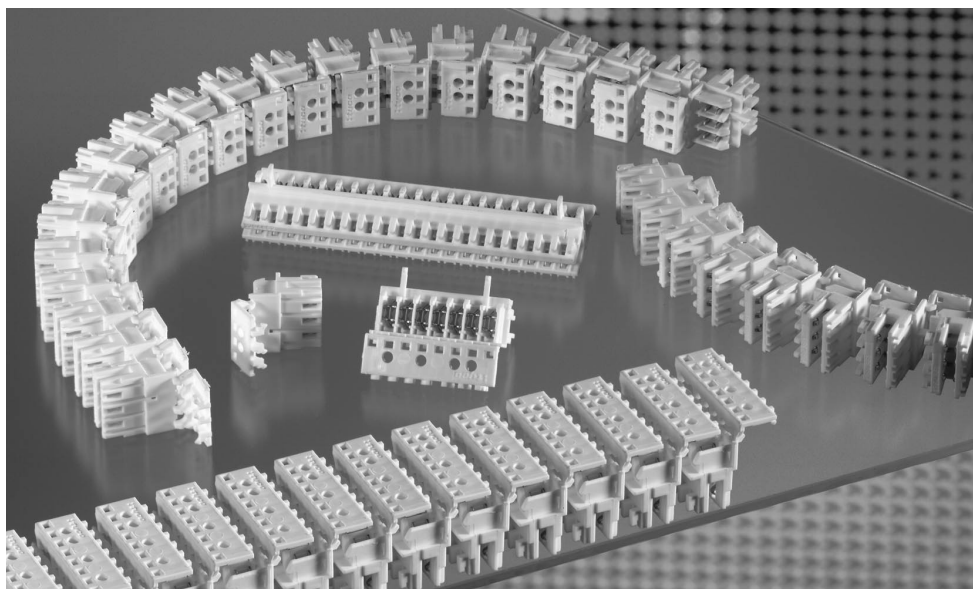
Keying is done by unit during application process.

AMP DUOPLUG 2,5 Mark II Female Connector



Female Connectors

AMP DUOPLUG 2.5 Mark II Female Connectors



No. of Positions	Dimensions (mm)		Keying	Housing Material: GWT, 750 °C *	Contact Material	Part Number	Package Quantity
	A	B		Housing Colour: Natural	Contact Finish		
3	5.0	9.9	R2.5/1-3-	PA 6 GF, V-2	CuSn, tin plated	3-1534796-3	15,400
4	7.5	12.4	R2.5/1-4-	PA 6 GF, V-2	CuSn, tin plated	3-1534796-4	12,320
5	10.0	14.9	R2.5/1-5-	PA 6 GF, V-2	CuSn, tin plated	3-1534796-5	10,472
6	12.5	17.4	R2.5/1-6-	PA 6 GF, V-2	CuSn, tin plated	3-1534796-6	8,624
7	15.0	19.9	R2.5/1-7-	PA 6 GF, V-2	CuSn, tin plated	3-1534796-7	7,392
8	17.5	22.4	R2.5/1-8-	PA 6 GF, V-2	CuSn, tin plated	3-1534796-8	6,776
9	20.0	24.9	R2.5/1-9-	PA 6 GF, V-2	CuSn, tin plated	3-1534796-9	6,160
10	22.5	27.4	R2.5/1-10-	PA 6 GF, V-2	CuSn, tin plated	3-1534796-0	5,544
11	25.0	29.9	R2.5/1-11-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-1	4,928
12	27.5	32.4	R2.5/1-12-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-2	4,312
13	30.0	34.9	R2.5/1-13-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-3	
14	32.5	37.4	R2.5/1-14-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-4	
15	35.0	39.9	R2.5/1-15-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-5	
16	37.5	42.4	R2.5/1-16-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-6	3,696
17	40.0	44.9	R2.5/1-17-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-7	3,080
18	42.5	47.4	R2.5/1-18-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-8	
19	45.0	49.9	R2.5/1-19-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-9	
20	47.5	52.4	R2.5/1-20-	PA 6 GF, V-2	CuSn, tin plated	3-1534797-0	

No. of Positions	Dimensions (mm)		Selectively Loaded Keying	Housing Material: GWT, 750 °C *	Contact Material	Part Number	Package Quantity
	A	B		Housing Colour: Natural	Contact Finish		
3	5.0	9.9	R2.5/2-2-	PA 6 GF, V-2	CuSn, tin plated	3-1534798-3	15,400
5	10.0	14.9	R2.5/2-3-	PA 6 GF, V-2	CuSn, tin plated	3-1534798-5	10,472
7	15.0	19.9	R2.5/2-4-	PA 6 GF, V-2	CuSn, tin plated	3-1534798-7	7,392
11	25.0	29.9	R2.5/2-6-	PA 6 GF, V-2	CuSn, tin plated	3-1534799-1	4,928

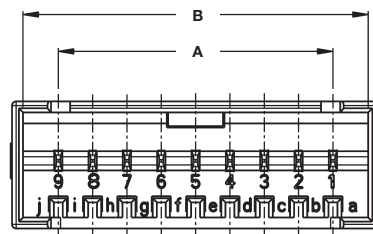
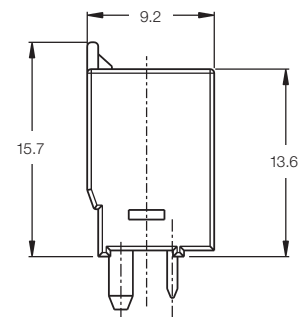
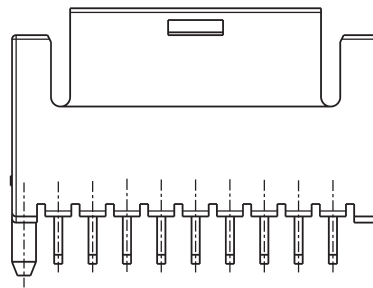
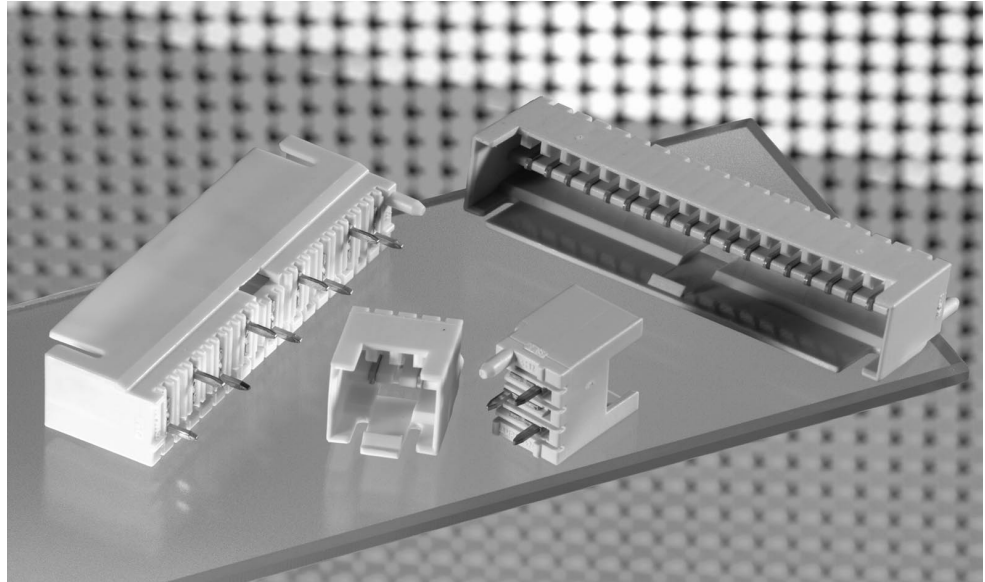
*) According IEC 60695-2-1/1; GWT (Glow Wire Test) 750 °C without flame, look VDE M-Test Report.

Note: Additional variants on request.

The connector keying and colour marking is done with the units on the workstation.

Tab Headers 180°

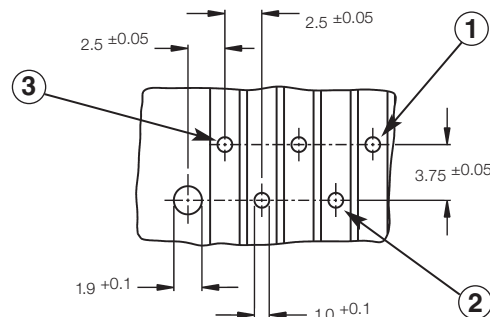
AMP DUOPLUG 2.5 Mark II Tab Header 180°



PC Board Layout for AMP DUOPLUG 2.5 Tab Header, Loaded with Contacts, 2.5 mm Centerline

Solder Side View.

- 1 First uneven Cavity
- 2 First even Cavity
- 3 Last Cavity



Tab Headers 180° (continued)

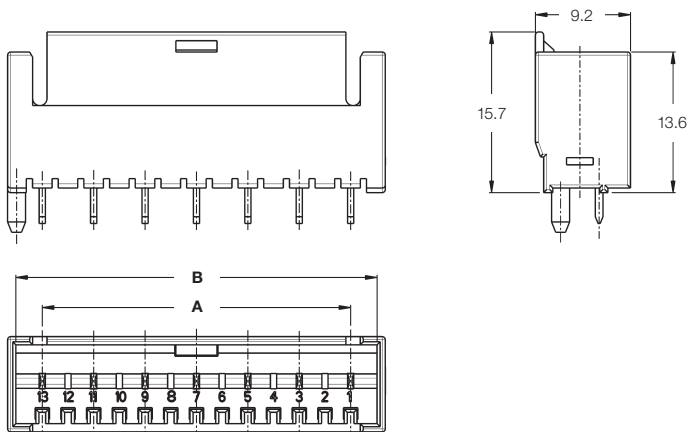
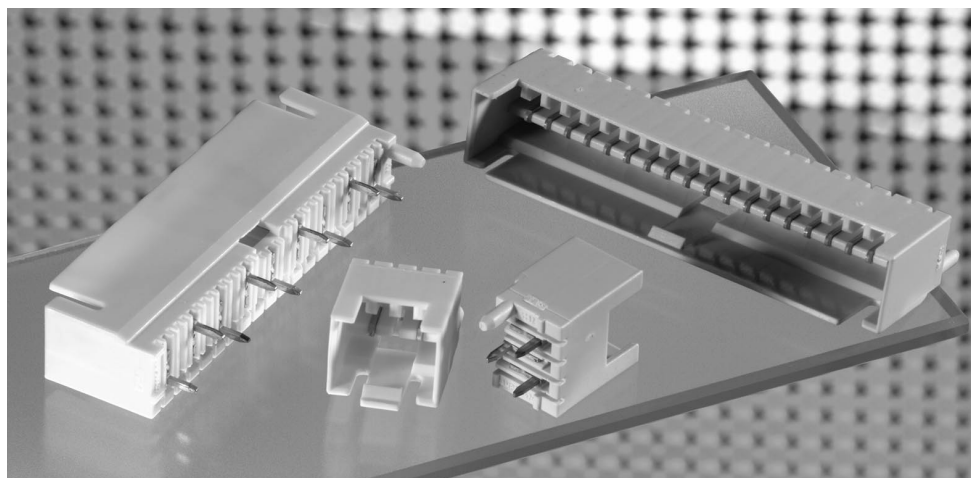
No. of Positions	Dimensions (mm)		Housing Material	Housing Colour	Keying	Part Number	Package Quantity
	A	B				Tab Header	
3	5.0	10.15	PBT-GF, V-0	natural	–	1-829866-3	416
				grey	–	2-829866-3	
				grey	b	3-829866-3	
4	7.5	12.65	PBT-GF, V-0	natural	–	1-829866-4	352
				grey	–	2-829866-4	
				natural	d	1-829866-5	
5	10.0	15.15	PBT-GF, V-0	grey	e	2-829866-5	300
				grey	–	3-829866-5	
				grey	–	4-829866-5	
				natural	–	1-829866-6	
6	12.5	17.65	PBT-GF, V-0	grey	–	2-829866-6	256
				natural	–	1-829866-7	
7	15.0	20.15	PBT-GF, V-0	grey	–	2-829866-7	224
				grey	d	3-829866-7	
				natural	–	1-829866-8	
8	17.5	22.65	PBT-GF, V-0	grey	–	2-829866-8	196
				natural	–	1-829866-9	
9	20.0	25.15	PBT-GF, V-0	grey	–	2-829866-9	180
				natural	–	1-829866-0	
10	22.5	27.65	PBT-GF, V-0	grey	–	2-829866-0	168
				natural	–	1-829867-1	
11	25.0	30.15	PBT-GF, V-0	grey	–	2-829867-1	150
				natural	–	1-829867-2	
12	27.5	32.65	PBT-GF, V-0	grey	–	2-829867-2	140
				natural	–	1-829867-3	
13	30.0	32.15	PBT-GF, V-0	grey	–	2-829867-3	140
				natural	–	1-829867-4	
14	32.5	37.65	PBT-GF, V-0	grey	–	2-829867-4	128
				natural	–	1-829867-5	
15	35.0	40.15	PBT-GF, V-0	grey	–	2-829867-5	120
				natural	–	1-829867-6	
16	37.5	42.65	PBT-GF, V-0	grey	–	2-829867-6	112
				natural	–	1-829867-7	
17	40.0	45.15	PBT-GF, V-0	grey	–	2-829867-7	104
				natural	–	1-829867-8	
18	42.5	47.65	PBT-GF, V-0	grey	–	2-829867-8	102
				natural	–	1-829867-9	
19	45.0	50.15	PBT-GF, V-0	grey	–	2-829867-9	96
				natural	–	1-829867-0	
20	47.5	52.65	PBT-GF, V-0	grey	–	2-829867-0	90
				natural	–		

Preferred Types are printed bold.

Note: Additional keying variants available on request

Tab Headers 180° - Selectively Loaded

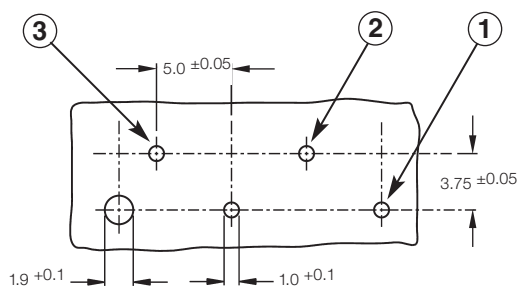
**Tab Header 180° for
Use with Selectively
Loaded AMP DUOPLUG 2.5
Mark II Housings**



**PC Board Layout
for AMP DUOPLUG 2.5 Tab
Header, Loaded with Contacts,
5.0 mm Centerline**

Solder Side View.

- 1 First uneven Cavity
- 2 First even Cavity
- 3 Last Cavity

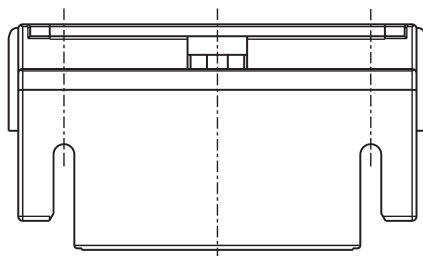
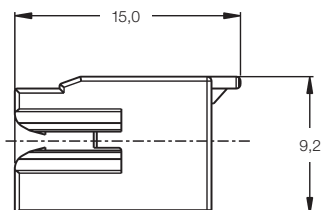
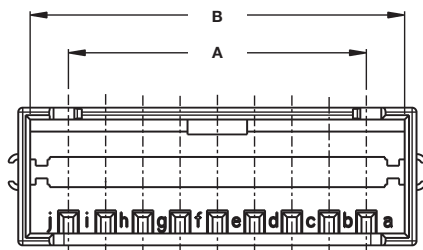
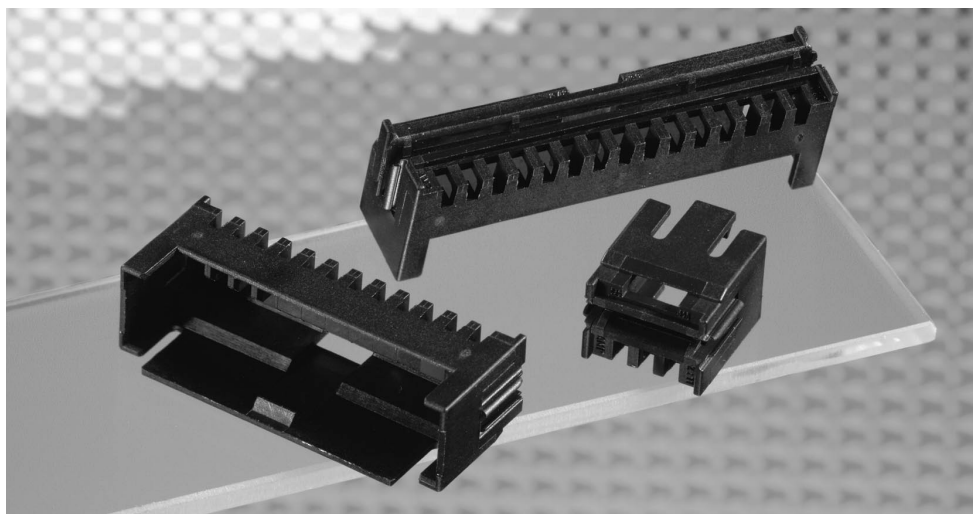


No. of Positions	Dimensions (mm)		Tab Header Selectively Loaded	Housing Material Housing Colour: Grey	Part Number	Package Quantity
	A	B	Keying			
3	5.0	10.15	R2.5/2-2-	PBT-GF, V-0	1-1534787-3	416
5	10.0	15.15	R2.5/3-2-	PBT-GF, V-0	1-1534787-5	300
7	15.0	20.15	R2.5/4-2-	PBT-GF, V-0	1-1534787-7	224
9	20.0	25.15	R2.5/5-2-	PBT-GF, V-0	1-1534787-9	180
11	25.0	30.15	R2.5/6-2-	PBT-GF, V-0	1-1534788-1	150
13	30.0	35.15	R2.5/7-2-	PBT-GF, V-0	1-1534788-3	140
15	35.0	40.15	R2.5/8-2-	PBT-GF, V-0	1-1534788-5	120
17	40.0	45.15	R2.5/9-2-	PBT-GF, V-0	1-1534788-7	104

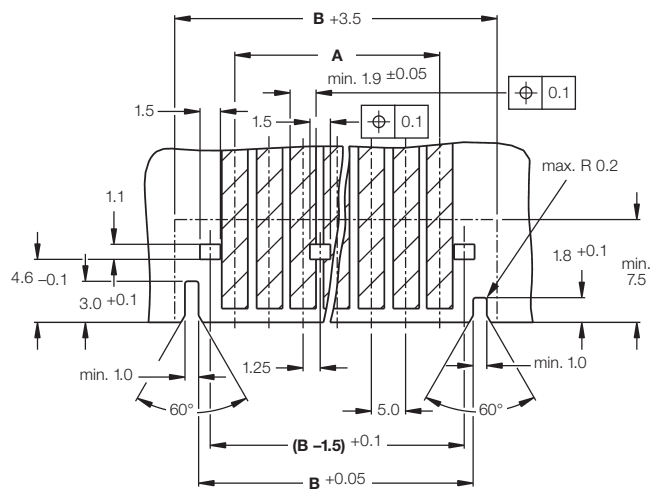
Note: Additional keying variants available on request.

PC Board Frame

PC Board Frame



PC Board Layout



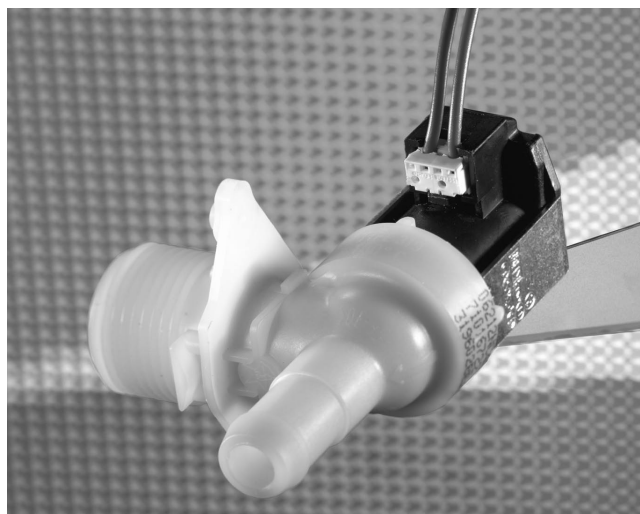
PC Board Frame (continued)

No. of Positions	Dimensions (mm)		Housing Material	Housing Colour	Keying	Part Number
	A	B				Tab Header
3	5.0	10.1	PA 6.6 GF, V-0	black	–	1-964575-3
				black	–	1-964575-4
4	7.5	12.6	PA 6.6 GF, V-0	black	b	2-964575-4
				black	c	3-964575-4
				black	d	4-964575-4
				black	–	1-964575-5
5	10.0	15.1	PA 6.6 GF, V-0	black	d	2-964575-5
				black	b, e	3-964575-5
				black	–	1-964575-6
6	12.5	17.6	PA 6.6 GF, V-0	black	d, f	2-964575-6
				black	d, e	3-964575-6
				black	–	1-964575-7
7	15.0	20.1	PA 6.6 GF, V-0	black	d	2-964575-7
				black	b, e, g	3-964575-7
				natural	b, e, g	4-964575-7
8	17.5	22.6	PA 6.6 GF, V-0	black	–	1-964575-8
				black	b, c, d, h	2-964575-8
9	20.0	25.1	PA 6.6 GF, V-0	black	–	1-964575-9
				black	c, d, i	2-964575-9
10	22.5	27.6	PA 6.6 GF, V-0	black	–	1-964575-0
				black	a, b, c, e, h, i, k	3-964575-0
11	25.0	30.1	PA 6.6 GF, V-0	black	–	1-964576-1
				black	b, c, e, g	2-964576-1
				black	–	1-964576-2
				black	k	2-964576-2
12	27.5	32.6	PA 6.6 GF, V-0	natural	k	3-964576-2
				black	f, g, h, i, j, k, l	4-964576-2
				natural	c, d, e, i, j, k, l	5-964576-2
				natural	–	6-964576-2
13	30.0	32.6	PA 6.6 GF, V-0	black	–	1-964576-3
15	35.0	40.1	PA 6.6 GF, V-0	black	a, d, g, i, j, n, o, p	2-964576-5
17	30.0	45.1	PA 6.6 GF, V-0	black	d, r	2-964576-7

Preferred Types are printed bold.

Note: Additional keying variants available on request

Introduction



Applications

- Household Appliances
- Small Appliances
- Components
- Gambling Machines
- Heating

The AMP DUOPLUG Power is a new economical IDC Connector System for safe and fast production of electrical connections.

The design is based on the RAST 2.5 Standard as a direct and indirect connecting system for PC board and component applications.

The female connectors fit in existing RAST 2.5 headers and frames.

The twisted contact, the design of the contact zone

and the two IDC slots ensure safe functioning and a current rating up to 6 A.

The 7-stranded and multi-stranded conductors are suitable for a wire range of 0.35 mm² up to 0.5 mm² (AWG 22 up to AWG 20, AWM Style 1569/1007).

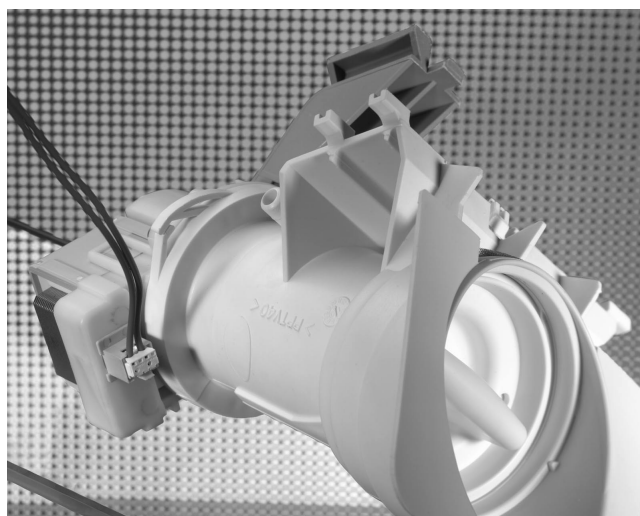
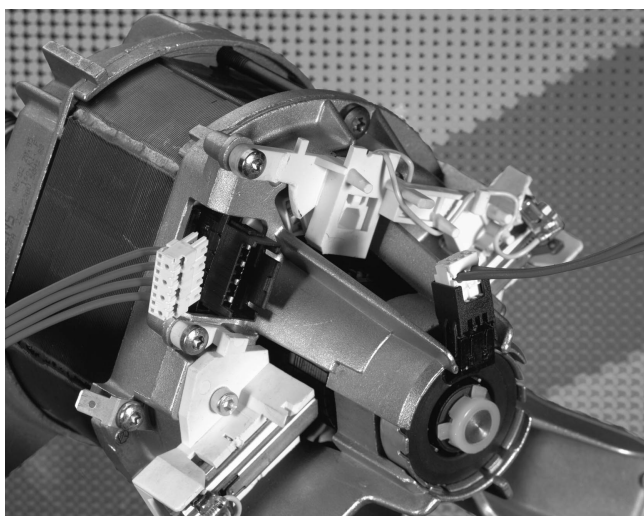
The cover provides very good contact protection and has openings for easy electrical inspection.

We offer a complete range of termination equipment from the hand tool to the

modular fully-automatic IHM Mark III machine.

The connector keying and colour marking is done with units on the workstation.

AMP DUOPLUG Power and AMP DUOPLUG 2.5 Mark II IDC connector systems are able to be processed with minimal set up time on the same workstation.

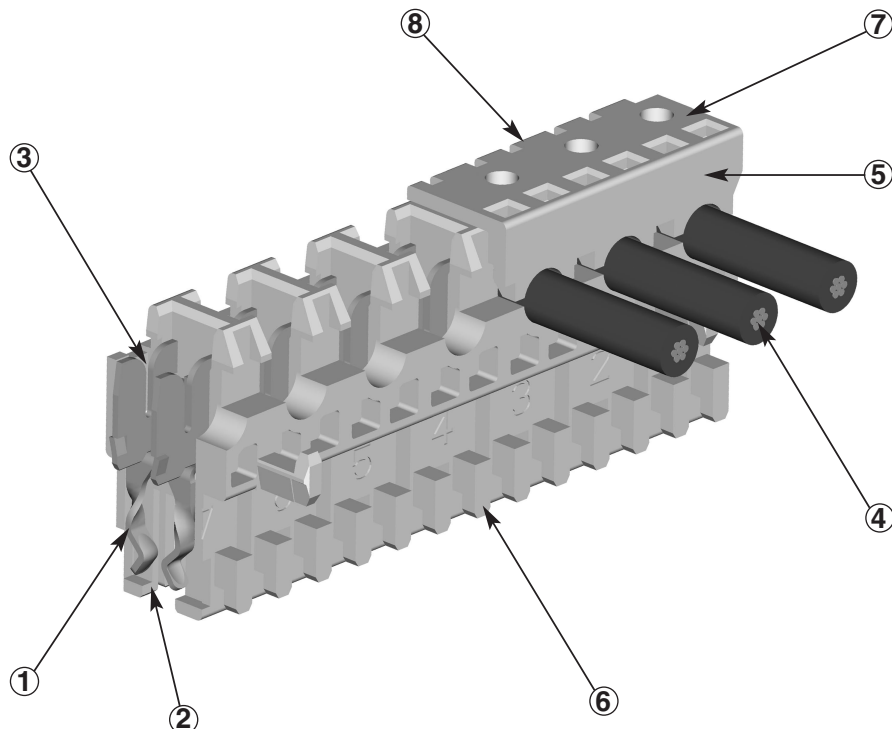


Technical Features

Product Features

- IDC connector system for harness production
- For PC board and electrical component application
- Designed according to RAST 2.5 Standard
- Low housing height
- 5.0 mm Centerline
- Excellent contact protection
- Keyable female part
- Chainable products for optimal handling in logistics and manufacturing
- Special Version
Optional internal locking for secure retention to PC board without use of frame

-  -Approval-No. 40003581
Reg.-No. 1702000-1431-0045/11473
- UL recognised under File No. E 28476

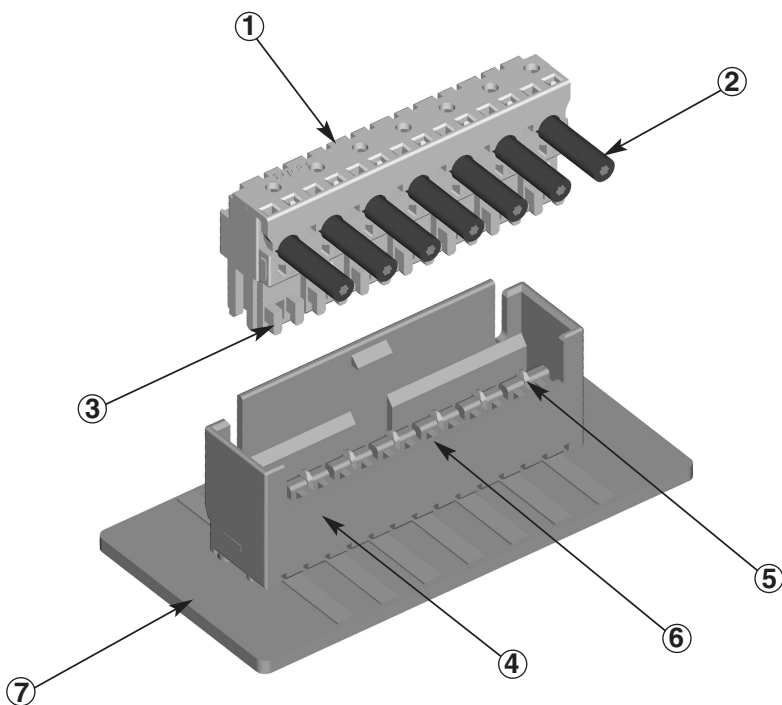


- | | | |
|--|--|--|
| <p>1 Twisted contact provides high contact force without excessive mating force.</p> <p>2 Very good contact protection eliminates stubbing problems.</p> <p>3 Wires are terminated via metal stuffer in tooling which ensures proper positioning of the wire in the IDC slot of contact.</p> | <p>4 Contacts are suitable for 7-stranded and multi-stranded wire.</p> <p>5 Cover provides contact protection.</p> <p>6 Cutting of the keying ribs, in accordance to customers demand, is done during the termination process.</p> | <p>7 Openings in cover for electrical inspection.</p> <p>8 Optional colour marking can be done during the termination process.</p> |
|--|--|--|

Indirect and Direct Connection, 5.0 mm Centerline

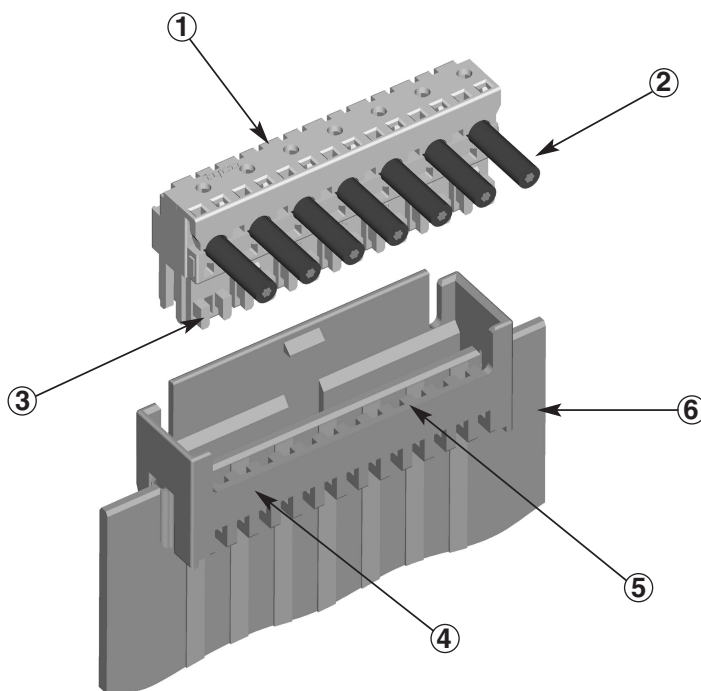
Indirect Connection, 5.0 mm Centerline

- 1 Cover
- 2 Wire
- 3 Keying Ribs
- 4 Tab Header
- 5 Tab Contact (1.5 x 0.6 mm)
- 6 Keying
- 7 PC Board

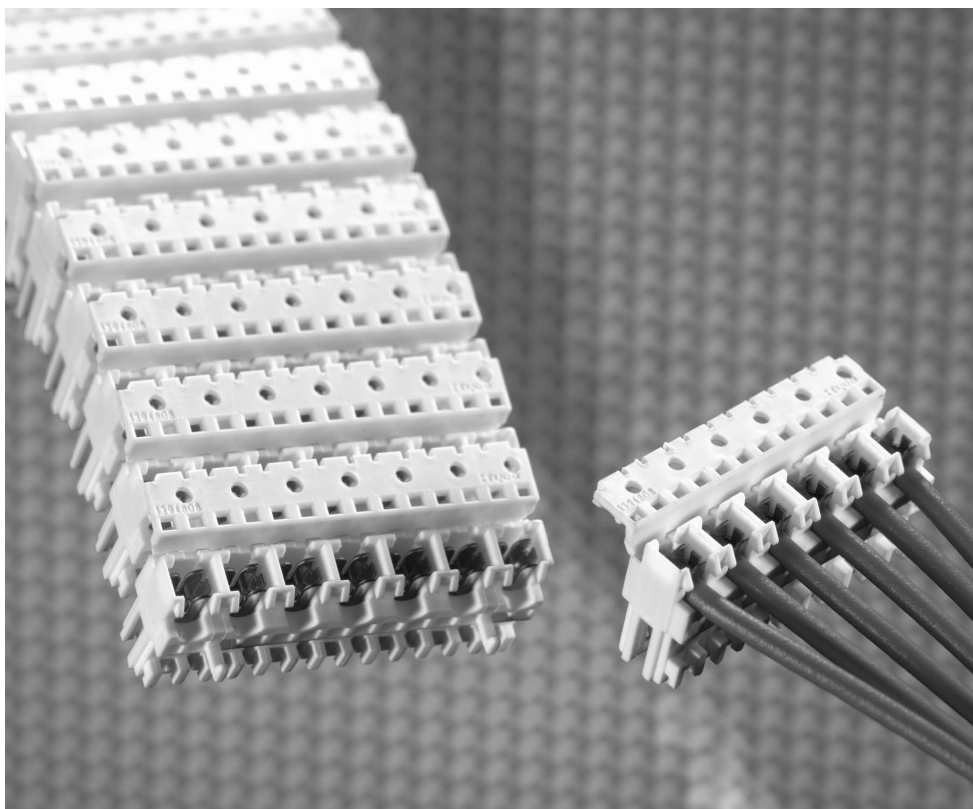


Direct Connection, 5.0 mm Centerline

- 1 Cover
- 2 Wire
- 3 Keying Ribs
- 4 PC Board Frame
- 5 Keying
- 6 PC Board



Technical Data



No. of Positions:
2- to 9-positions

Centerline:
5.0 mm, adjacent

Housing Material:
PA 6.6 and PA 6 (Polyamide)

Flammability Rating:
UL 94 V-0 and UL 94 V-2

Track Resistance:
PTI 250

Insulation Resistance:
>5 m Ω

Housing Colour:
pale grey, natural

Colour Marking/Key Coding:
done by termination equipment

Contact Material:
CuNiSi

Contact Finish:
tin plated

Temperature Range:
-40 °C to +110 °C

Current Rating:
6 A max.

Rated Voltage:
250 V

Air and Creepage Distance:
 ≥ 3.2 mm

**Mating Force per Contact
on Steel Gauge:**
6 N max.

Unmating Force per Contact:
0.7 N min.

Wire Size Range:
0.35–0.5 mm² (AWG 22–20,
AWM Style 1569/1007)

Composition of Conductors:
7-stranded and fine stranded

Insulation Hardness:
Shore A 92 ± 3

Insulation Diameter:
1.2–2.4 mm

PC Board Thickness:
1.5 ± 0.14 mm

Approval:

- VDE-Approval-No. 40003581
- VDE-Reg.-No.
1702000-1431-0045/11473,
- UL File E 28476

Product Specification:
108-18780

Packaging Specification:
107-18068

Application Specification:
114-18458

Performance Diagrams

Technical Data

■ **Female Connector,
9 Positions**
Part-No. **394918-9**

■ Material and Finish

Housing Material:

PA 6.6, acc. UL 94 V-0 and
PA 6, acc. UL 94 V-2

Contact Material:

CuNiSi

Contact Finish:

tin plated

■ Wire Range:

0.5 mm², 16-strands

■ Counter Part

PC Board:

Single side and double side
coated

Pad:

0.35 µm x 1.9 mm,
Copper, HAL, tin plated

Tab Header:

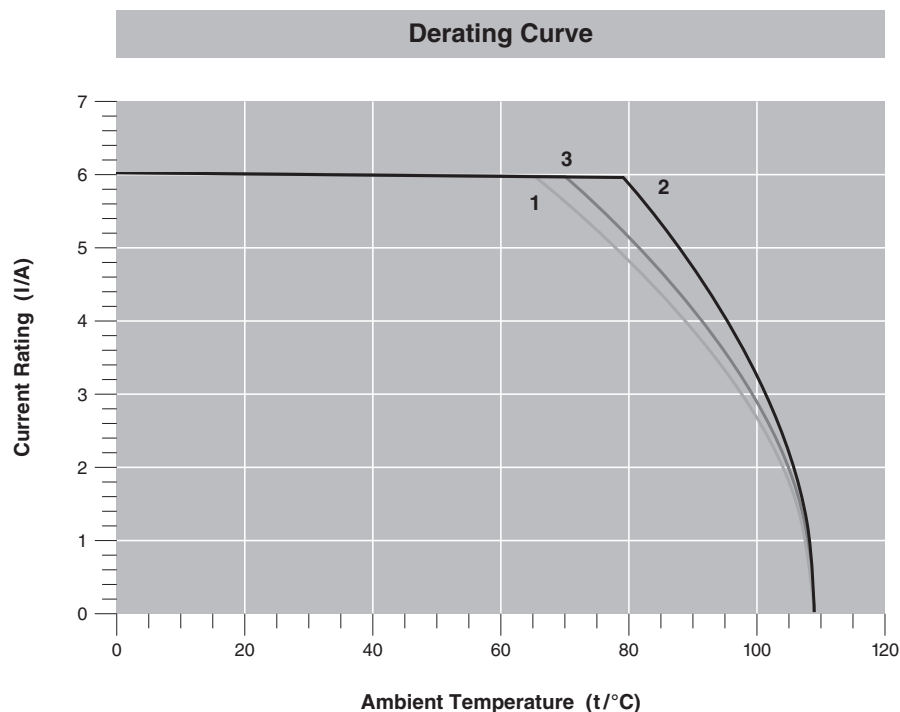
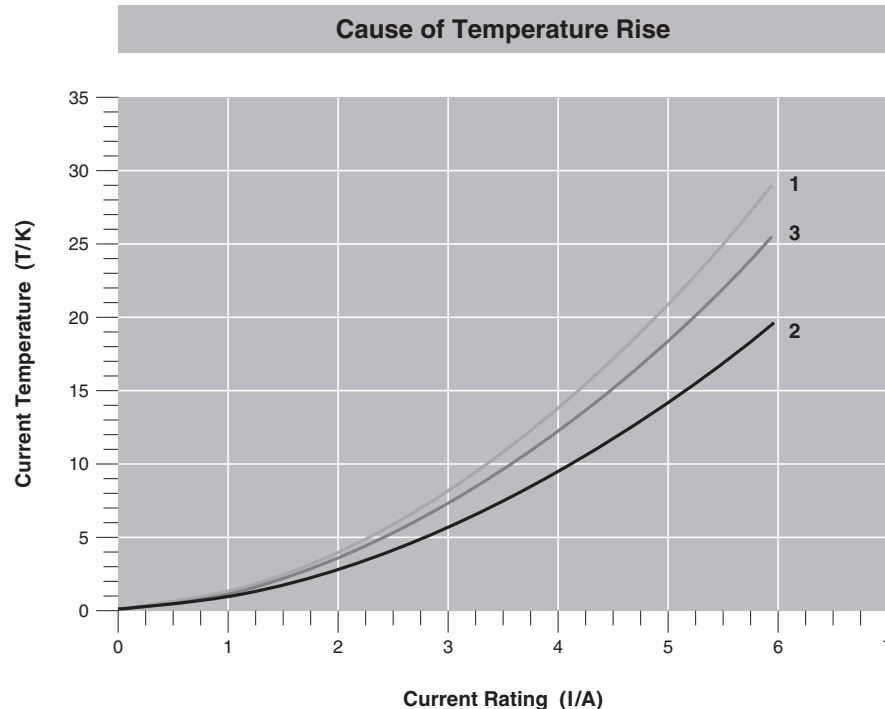
Pin 1.5 x 0.6 mm,
CuZn 30, tin plated

■ Measurement:

(1): CEM1, single side
coated

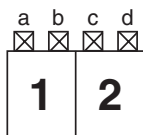
(2): FR4, double side coated

(3): PBT-GF, Tab Header

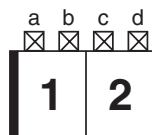


Keying Plan

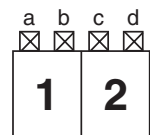
1394918-2
1534415-2



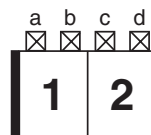
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1-1534415-2



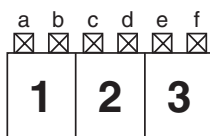
2-1394918-2
2-1534415-2



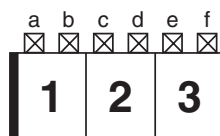
3-1394918-2
3-1534415-2



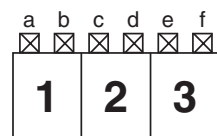
1394918-3
1534415-3



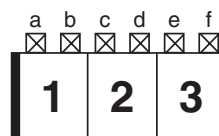
1-1394918-3
1-1534415-3



2-1394918-3
2-1534415-3



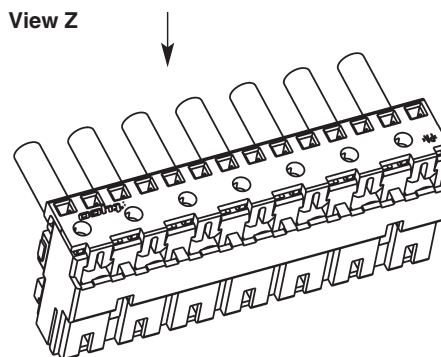
3-1394918-3
3-1534415-3



1394918-9
1534415-9



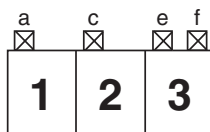
View Z



Possible Keying
Example R2.5 / P-3b,d

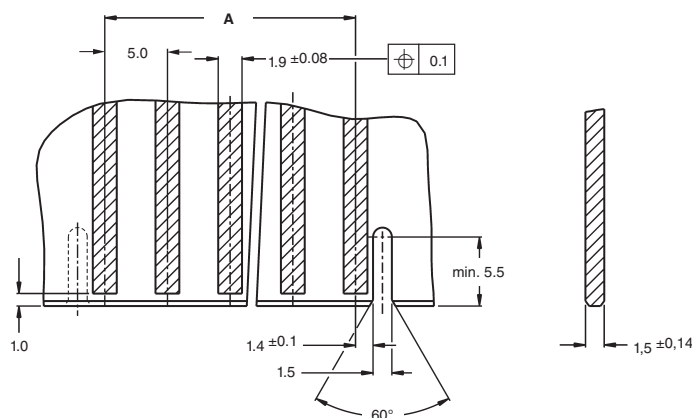
1394918-3
1534415-3

Keying is done with units during
application process.



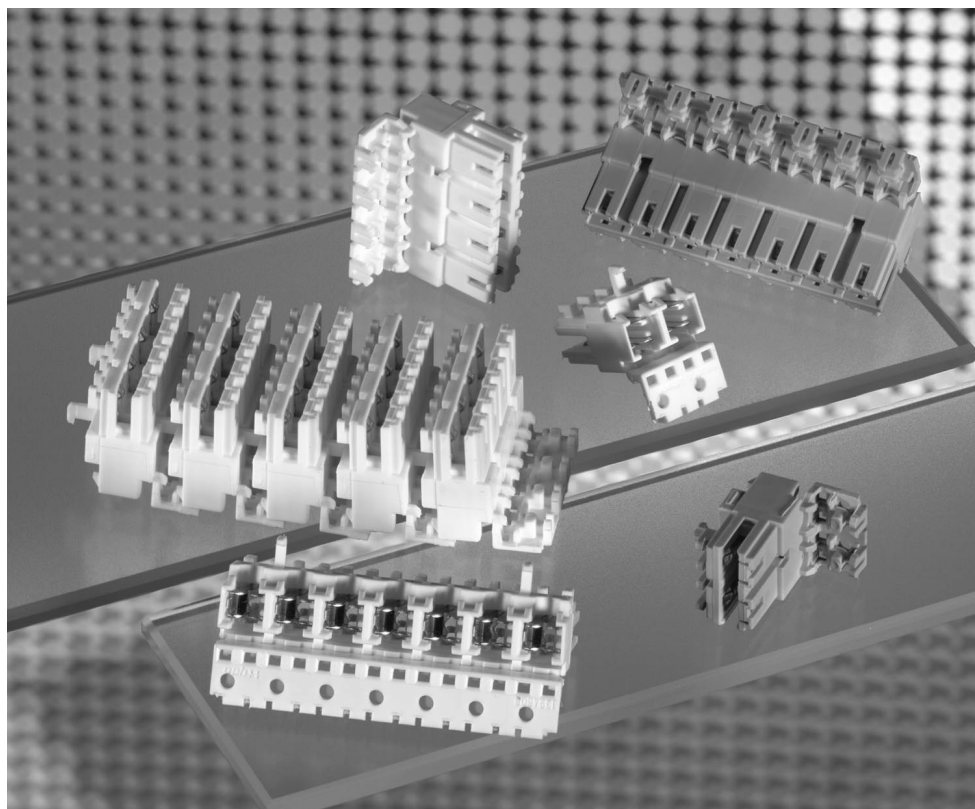
PC Board Layout

**PC Board Layout keyed,
Connected only with Additional
Guide Frame**



Female Connectors

AMP DUOPLUG Power Female Connectors



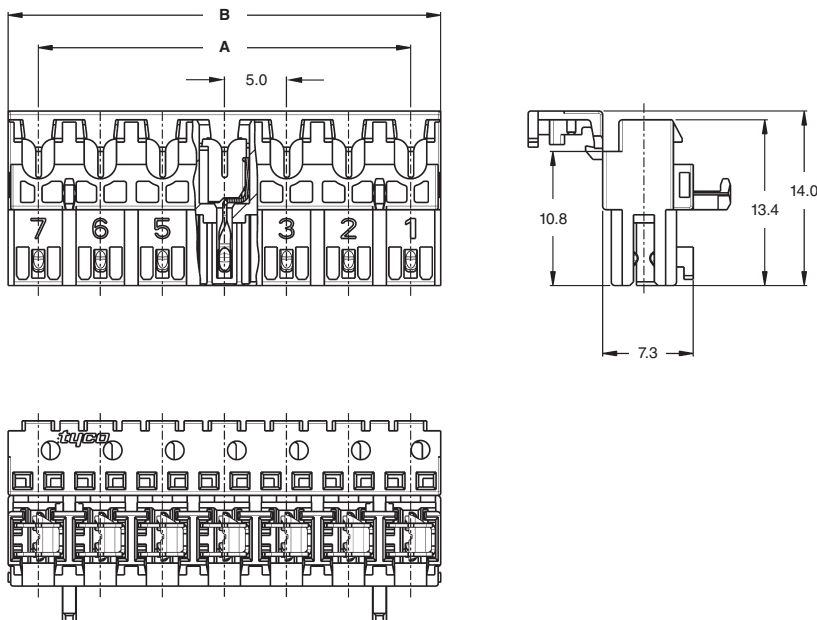
No. of Positions	Dimensions (mm)		Keying	Housing Material	Contact Material	Part Number	Package Quantity
	A	B		Housing Colour: Pale Grey	Contact Finish		
2	5.0	9.9	R2.5 / P-2-	PA 6.6 V-0	CuNiSi, tin plated	0-1394918-2	15,400
			R2.5 / PL-2-	PA 6.6 V-0	CuNiSi, tin plated	1-1394918-2	
			R2.5 / PR-2-	PA 6.6 V-0	CuNiSi, tin plated	2-1394918-2	
			R2.5 / PRL-2-	PA 6.6 V-0	CuNiSi, tin plated	3-1394918-2	
3	10.0	14.9	R2.5 / P-3-	PA 6.6 V-0	CuNiSi, tin plated	0-1394918-3	10,472
			R2.5 / PL-3-	PA 6.6 V-0	CuNiSi, tin plated	1-1394918-3	
			R2.5 / PR-3-	PA 6.6 V-0	CuNiSi, tin plated	2-1394918-3	
			R2.5 / PRL-3-	PA 6.6 V-0	CuNiSi, tin plated	3-1394918-3	
4	15.0	19.9	R2.5 / P-4-	PA 6.6 V-0	CuNiSi, tin plated	0-1394918-4	7,392
5	20.0	24.9	R2.5 / P-5-	PA 6.6 V-0	CuNiSi, tin plated	0-1394918-5	6,160
6	25.0	29.9	R2.5 / P-6-	PA 6.6 V-0	CuNiSi, tin plated	0-1394918-6	4,928
7	30.0	34.9	R2.5 / P-7-	PA 6.6 V-0	CuNiSi, tin plated	0-1394918-7	4,312
8	35.0	39.9	R2.5 / P-8-	PA 6.6 V-0	CuNiSi, tin plated	0-1394918-8	3,696
9	40.0	44.9	R2.5 / P-9-	PA 6.6 V-0	CuNiSi, tin plated	0-1394918-9	3,080

Note: Additional variants on request.

The connector keying and colour marking is done with the units on the workstation.

Female Connectors (continued)

AMP DUOPLUG Power Female Connectors (continued)



No. of Positions	Dimensions (mm)		Selectively Loaded Keying	Housing Material: GWT, 750 °C *	Contact Material	Part Number	Package Quantity
	A	B					
2	5.0	9.9	R2.5 / P-2-	PA 6 V-2	CuNiSi, tin plated	0-1534415-2	15,400
			R2.5 / PL-2-	PA 6 V-2	CuNiSi, tin plated	1-1534415-2	
			R2.5 / PR-2-	PA 6 V-2	CuNiSi, tin plated	2-1534415-2	
			R2.5 / PRL-2-	PA 6 V-2	CuNiSi, tin plated	3-1534415-2	
3	10.0	14.9	R2.5 / P-3-	PA 6 V-2	CuNiSi, tin plated	0-1534415-3	10,472
			R2.5 / PL-3-	PA 6 V-2	CuNiSi, tin plated	1-1534415-3	
			R2.5 / PR-3-	PA 6 V-2	CuNiSi, tin plated	2-1534415-3	
			R2.5 / PRL-3-	PA 6 V-2	CuNiSi, tin plated	3-1534415-3	
4	15.0	19.9	R2.5 / P-4-	PA 6 V-2	CuNiSi, tin plated	0-1534415-4	7,392
5	20.0	24.9	R2.5 / P-5-	PA 6 V-2	CuNiSi, tin plated	0-1534415-5	6,160
6	25.0	29.9	R2.5 / P-6-	PA 6 V-2	CuNiSi, tin plated	0-1534415-6	4,928
7	30.0	34.9	R2.5 / P-7-	PA 6 V-2	CuNiSi, tin plated	0-1534415-7	4,312
8	35.0	39.9	R2.5 / P-8-	PA 6 V-2	CuNiSi, tin plated	0-1534415-8	3,696
9	40.0	44.9	R2.5 / P-9-	PA 6 V-2	CuNiSi, tin plated	0-1534415-9	3,080

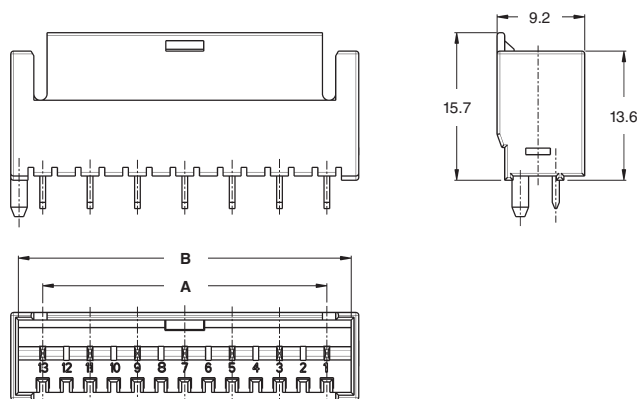
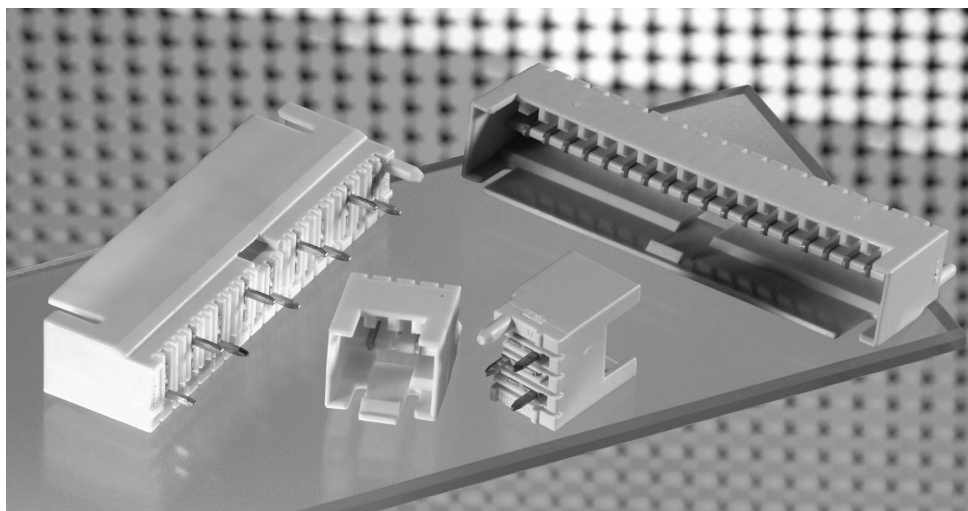
*) According IEC 60695-2-1/1; GWT (Glow Wire Test) 750 °C without flame, look VDE M-Test Report.

Note: Additional variants on request.

The connector keying and colour marking is done with the units on the workstation.

Tab Headers 180°

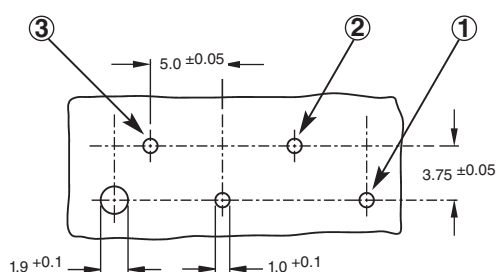
Tab Header 180° for Use with AMP DUOPLUG Power



PC Board Layout for AMP DUOPLUG 2.5 Tab Header, Loaded with Contacts, 5.0 mm Centerline

Solder Side View.

- 1 First uneven Cavity
- 2 First even Cavity
- 3 Last Cavity

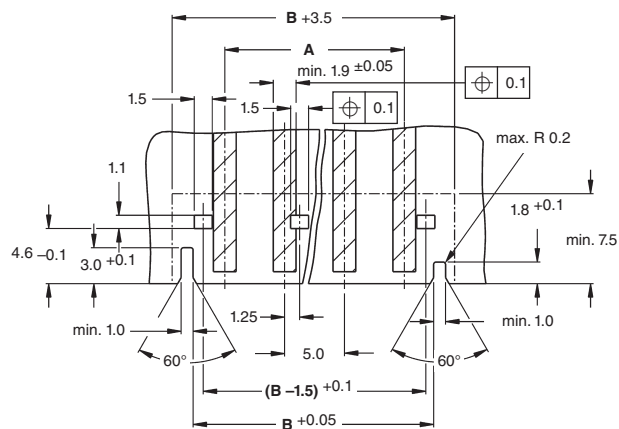
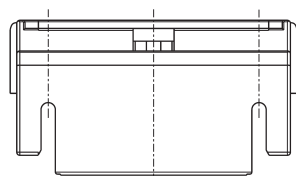
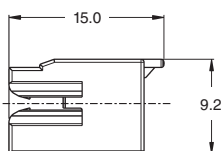
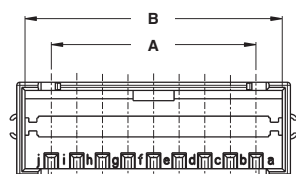
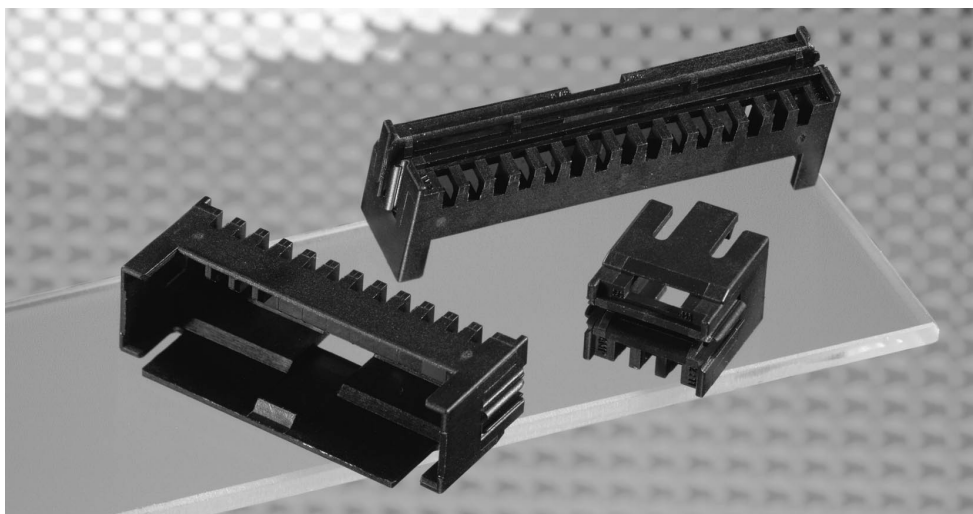


No. of Positions	Dimensions (mm)		Tab Header Selectively Loaded Keying	Housing Material Housing Colour: Grey	Part Number	Package Quantity
	A	B				
3	5.0	10.15	R2.5/2-2-	PBT-GF, V-0	1-1534787-3	416
5	10.0	15.15	R2.5/3-2-	PBT-GF, V-0	1-1534787-5	300
7	15.0	20.15	R2.5/4-2-	PBT-GF, V-0	1-1534787-7	224
9	20.0	25.15	R2.5/5-2-	PBT-GF, V-0	1-1534787-9	180
11	25.0	30.15	R2.5/6-2-	PBT-GF, V-0	1-1534788-1	150
13	30.0	35.15	R2.5/7-2-	PBT-GF, V-0	1-1534788-3	140
15	35.0	40.15	R2.5/8-2-	PBT-GF, V-0	1-1534788-5	120
17	40.0	45.15	R2.5/9-2-	PBT-GF, V-0	1-1534788-7	104

Note: Additional keying variants available on request.

PC Board Frame

PC Board Frame for Use with AMP DUOPLUG Power



PC Board Layout

No. of Positions	Dimensions (mm)		Housing Material: PA 6.6 GF, V-0	Keying	Part Number
	A	B			PC Board Frame
3	5.0	10.1	black	—	1-964575-3
			black	—	1-964575-5
5	10.0	15.1	black	d	2-964575-5
			black	b, e	3-964575-5
7	15.0	20.1	black	—	1-964575-7
			black	d	2-964575-7
			black	b, e, g	3-964575-7
			natural	b, e, g	4-964575-7
9	20.0	25.1	black	—	1-964575-9
			black	c, d, i	2-964575-9
11	25.0	30.1	black	—	1-964576-1
			black	b, c, e, g	2-964576-1
13	30.0	35.1	black	—	1-964576-3
15	35.0	40.1	black	a, d, g, i, j, n, o, p	2-964576-5
17	40.0	45.1	black	d, r	2-964576-7

Note: Additional keying variants available on request.

Engineering Notes

Engineering Notes

