

• • • ept
connectors



One27 Connectors

1.27 mm SMT for Board-to-Board Applications

One27 – 1.27 mm SMT for Board-to-Board Applications

Versatile, Robust, Compact

ept's new series of One27 provides connectors that are highly flexible in design options for board-to-board applications, offering highest reliability of interconnections. The product family is based upon a pitch of 1.27 mm.

There are available many different connector types including straight and angled versions, as well as flat cable connections. The pin count ranges from 12 to 80. The One27 female IDC is available separately or pre-assembled with a cable. ept's One27 connectors are fully compatible with already available products in the market.

The design of ept's One27 connectors was focused upon a highest demand for functionality, robustness, and ease of use.

Key Features:

- 12 to 80 pins
- 1.4 A operational current
- 500 mating cycles
- reliable contact
- tested compatibility with other suppliers
- female IDC separately or pre-assembled with a cable available
- packed in Tape & Reel

Applications:

- board-to-board (mezzanine) from 8 mm up to 13.8 mm
- parallel and perpendicular connection
- IDC-connection with ribbon cable

Termination

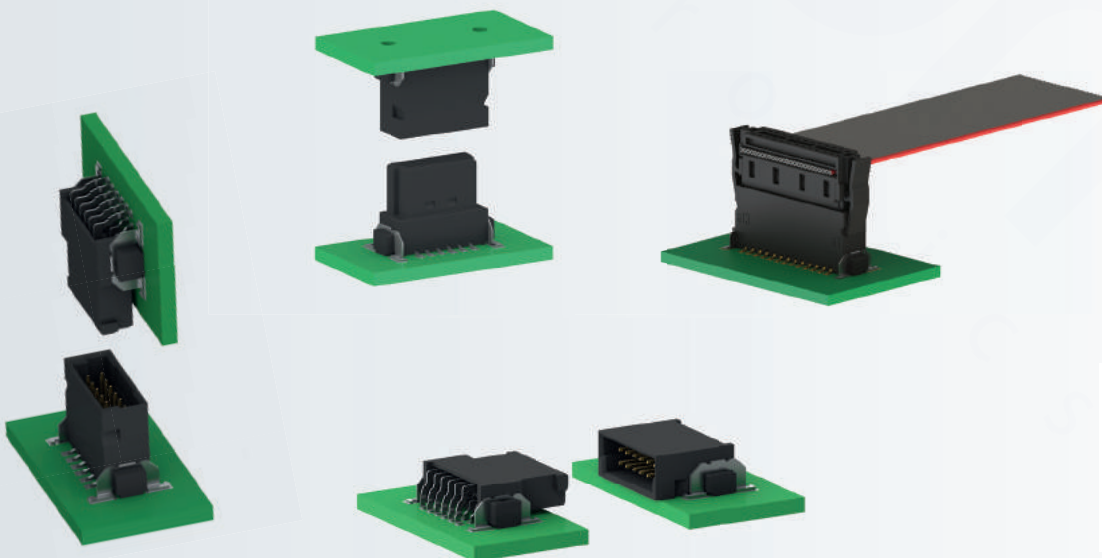


SMT

Application



High Density



Watch the new
One27 movie:

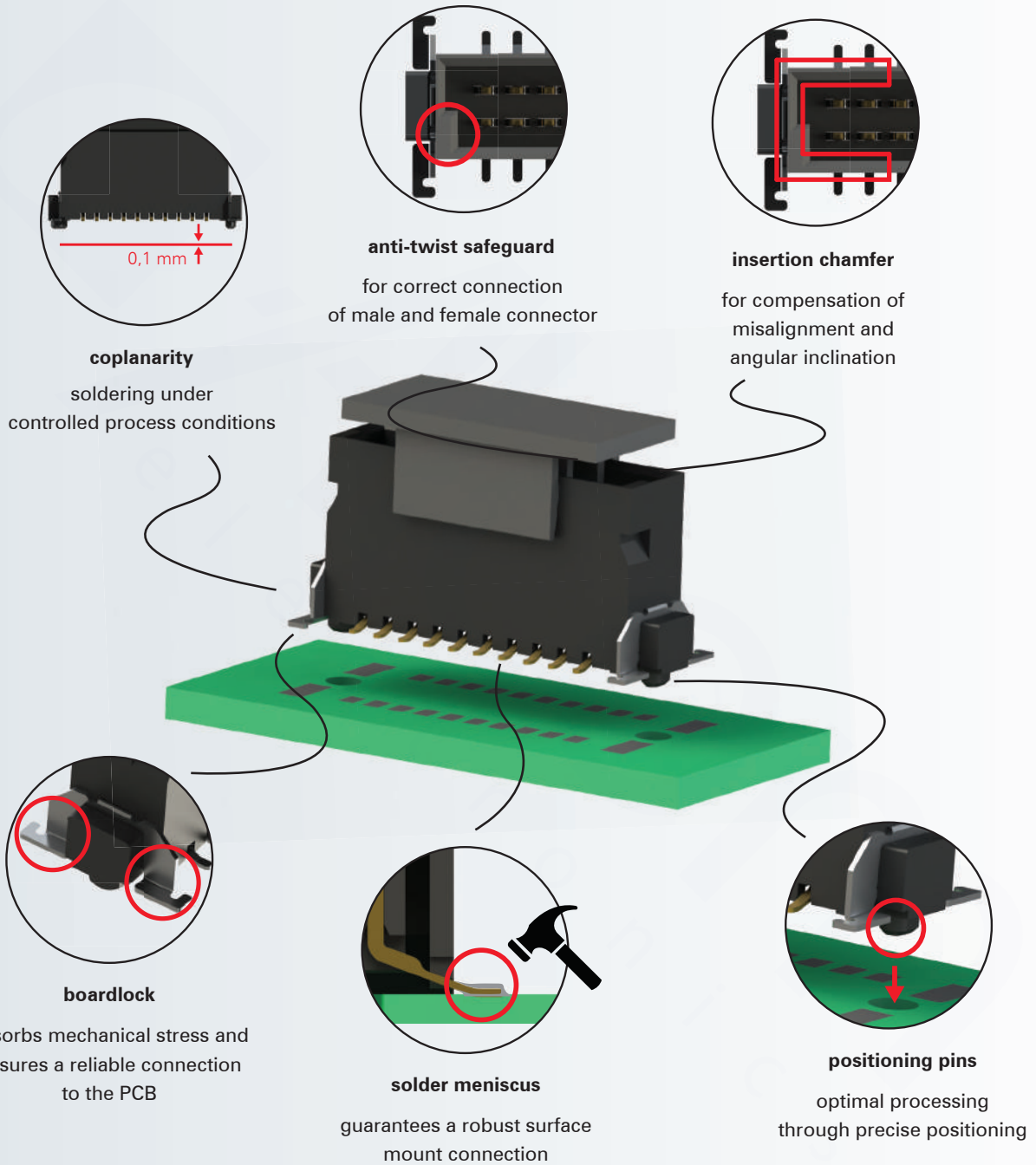


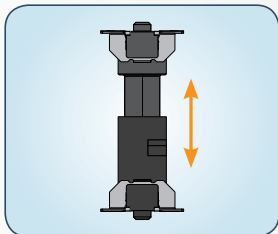
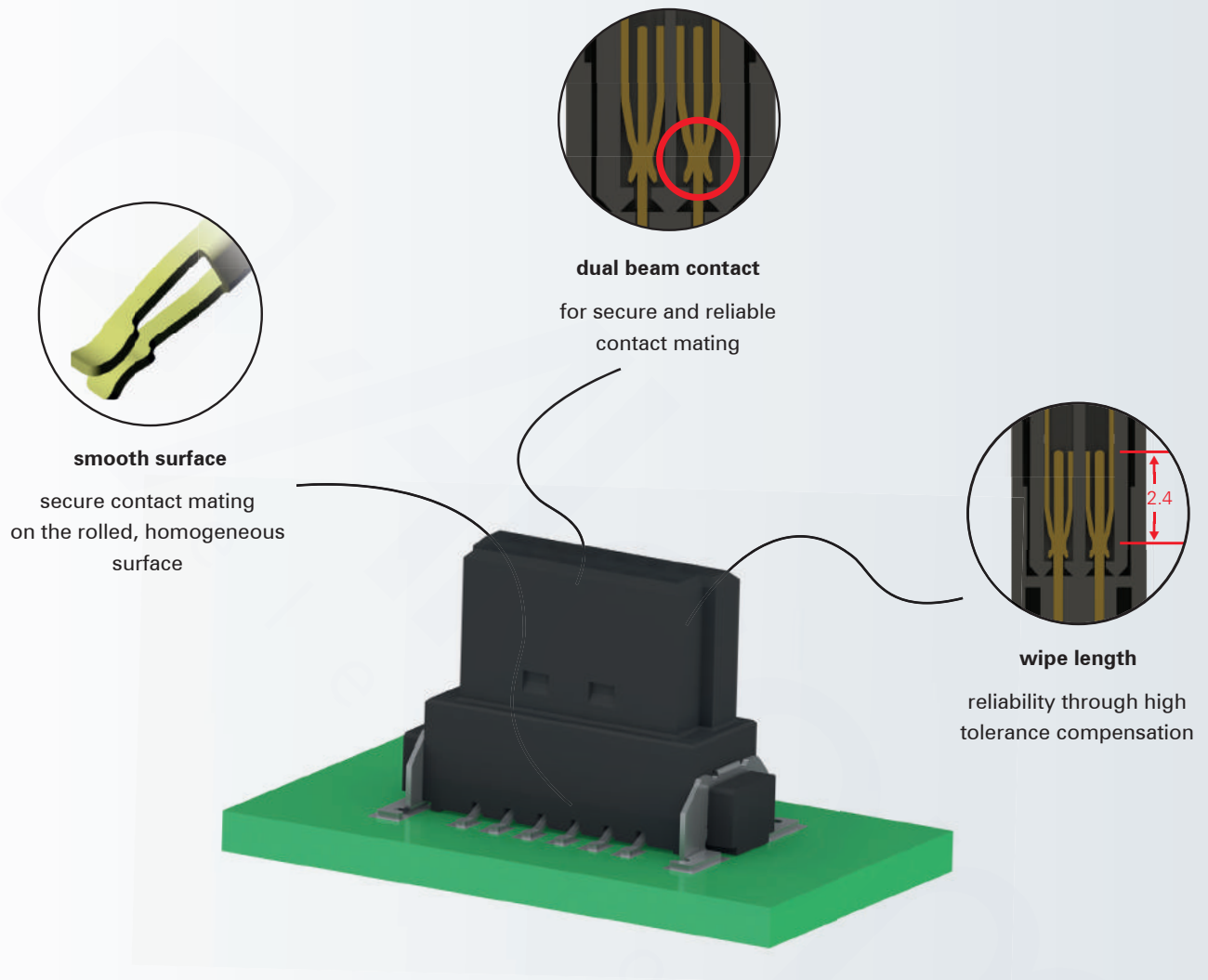
<https://youtu.be/k2i09m5eC-E>

One27 – Product Overview

Type of One27 connector	Height	Number of pins	Mating configuration				Page
			 Parallel	 Horizontal	 Perpendicular	 Cable	
 Male low-profile	1.75 mm	12 ... 80	✓		✓	✓	40
 Male mid-profile	3.25 mm	12 ... 80	✓		✓	✓	42
 Male angled		12 ... 80		✓	✓	✓	44
 Female low-profile	6.25 mm	12 ... 80	✓		✓		46
 Female mid-profile	9.05 mm	12 ... 80	✓		✓		48
 Female angled		12 ... 80		✓	✓		50
 Female IDC		12 ... 80				✓	52
 Female IDC pre-assembled with cable		12 ... 80				✓	54

Advantages of One27

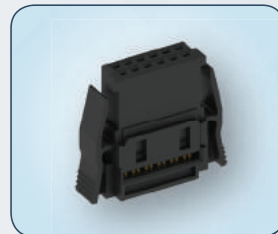




Test reports prove the compatibility with other connectors available on the market

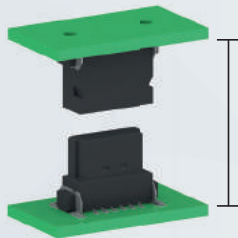


Tape & Reel packaging for automatic assembly



IDC connector available without ribbon cable for individual cable lengths

PCB Distances Board-to-Board

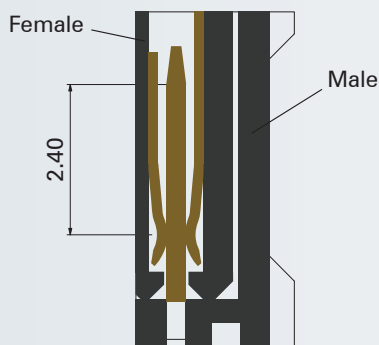


8.00 - 13.8 mm

Board-to-board distances of 8.00 mm up to 13.8 mm can be achieved using One27 connectors.

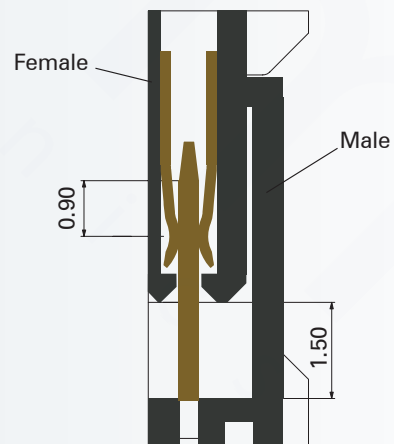
PCB distance (min. - max.)	8.00 - 9.50 mm	9.50 - 11.00 mm	10.80 - 12.30 mm	12.30 - 13.80 mm
Female connector height	low-profile 6.25 mm (see p. 46)	low-profile 6.25 mm (see p. 46)	mid-profile 9.05 mm (see p. 48)	mid-profile 9.05 mm (see p. 48)
Male connector height	low-profile 1.75 mm (see p. 40)	mid-profile 3.25 mm (see p. 42)	low-profile 1.75 mm (see p. 40)	mid-profile 3.25 mm (see p. 42)

**Connection for
min. PCB distance**



The minimum possible board-to-board distance is achieved by plugging the connector all the way in to the stop position.

**Connection for
max. PCB distance**

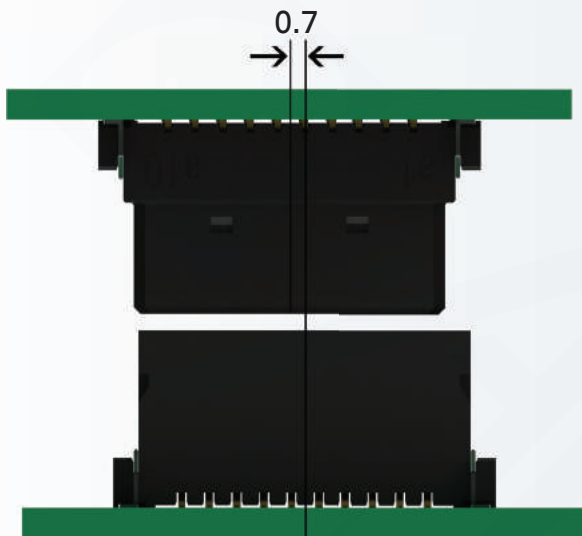


The male and female can be inserted anywhere within a range of 1.5 mm, thus allowing for the maximum possible board-to-board distance. The remaining 0.9 mm ensures secure contact mating.

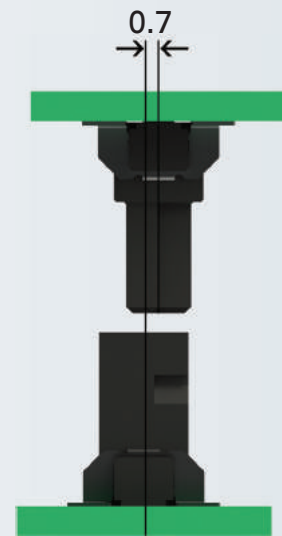
Misalignment One27 Connectors

Allowed misalignment tolerances

longitudinal: ± 0.7 mm



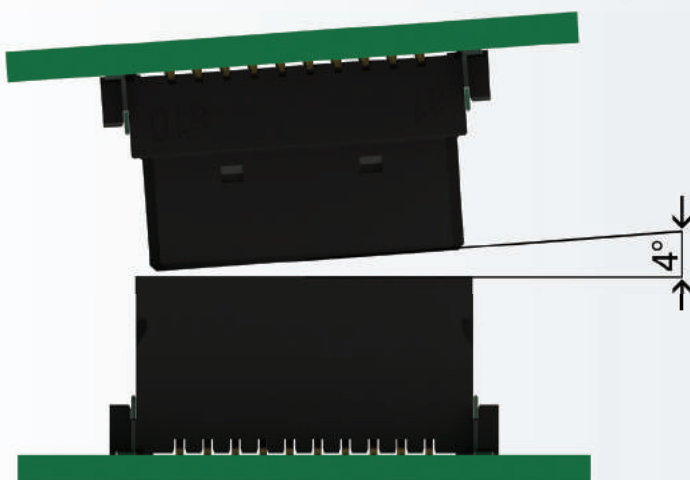
transverse: ± 0.7 mm



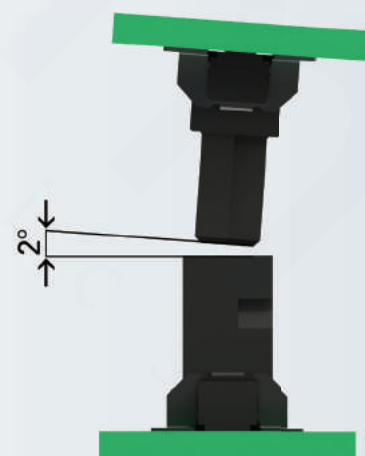
Angular Inclination One27 Connectors

Allowed angular inclination tolerances

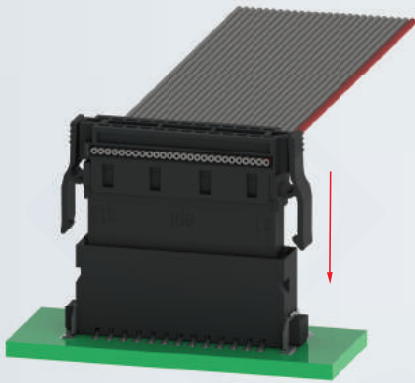
longitudinal: $\pm 4^\circ$



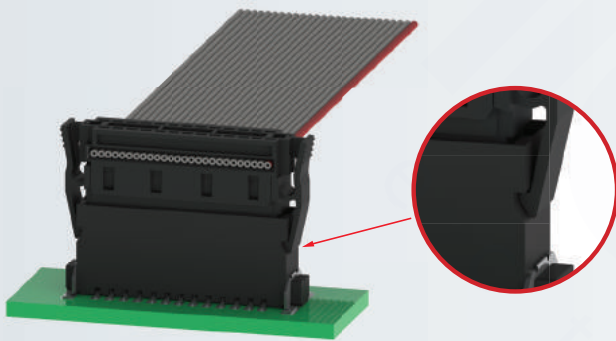
transverse: $\pm 2^\circ$



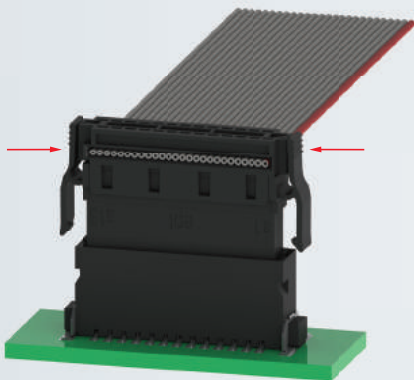
Locking of One27 IDC-Female Connector



While inserting the IDC-female connector into the male connector the snap-fits are locking automatically into the slots.



If the snap-fits are visibly locked into the slots, the connection between female and male connector is secured.

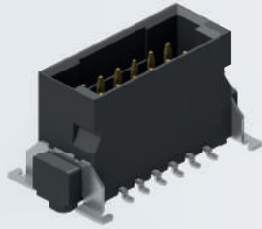


For disconnection: simply press the snap-fits together.

Technical Specification

Technical specification	One27	
	Test Standard	1.27 mm SMT Board-to-Board Connectors; IDC Cable Assembly
Basics		
Number of pins		12 / 16 / 20 / 26 / 32 / 40 / 50 / 68 / 80
Termination		SMT
Operating temperature range		-55°C to +125°C (Board-to-Board Connectors)
Material		
Insulator material		LCP
CTI value	IEC 60112	175
Contact material		Copper alloy
Contact surface		Au over PdNi over Ni / Au over NiP over Ni
Termination area		Sn
Mechanical		
Pitch		1.27 mm
Mating force per pin		0.5 N
Seperating force per pin		0.5 N
Durability	IEC 60512-9-1:2010	Performance level I: 500 mating cycles
Coplanarity		max. 0.1 mm
Vibration, sinusoidal	IEC 60512-6-4:2002	10 - 200 Hz 20 g
Contact mating problems if vibrations occur, sinusoidal	IEC 60512-2-5:2003	< 1 µs
Shock, semi-sinusoidal	IEC 60512-6-3:2002	50 g 11 ms
Contact mating problems if shocks occur, semi-sinusoidal	IEC 60512-2-5:2003	< 1 µs
Electrical		
Operational current	IEC 60512-5-2:2002	max. 1.4 A at 20°C (50 pins)
Contact resistance	IEC 60512-2-1:2002	max. 25 mΩ max. 10 mΩ (Female IDC assembled with cable)
Clearance and creepage		min. 0.4 mm
Insulation resistance	IEC 60512-3-1:2002	max. 10 GΩ
Test voltage	IEC 60512-4-1:2003	500 VAC
Processing		
Soldering temperature	JEDEC J-STD-020E	max. SMT reflow soldering temperature 20 - 40 s at 260°C
MSL	JEDEC J-STD-020E	1
Packaging		Tape and Reel, Tray (IDC female connector)
Assembly		Pick and place
Approval		
UL file		E130314
Environment		RoHS compliant

Male connector low-profile



Type: Male connector straight low-profile
1.75 mm unmated

Number of pins: 12 to 80

Pitch: 1.27 mm

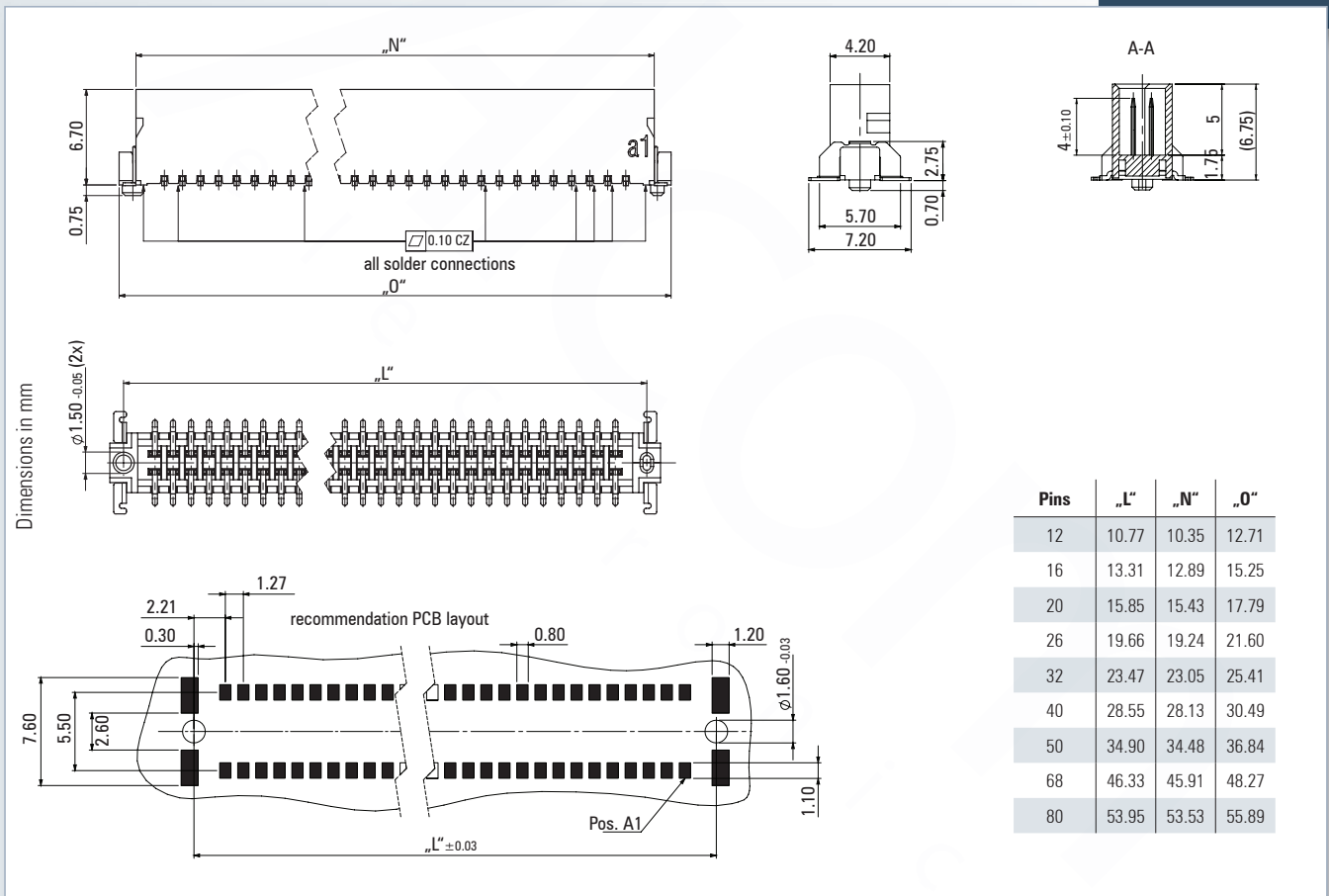
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape & Reel

Approval: RoHS COMPLIANT

Technical Specification on page 39

For drawings and technical data visit www.ept.de



Mating connector / Application:

- for parallel applications (p. 46-49)
- for perpendicular applications (p. 50-51)
- for applications with cable (p. 52-55)



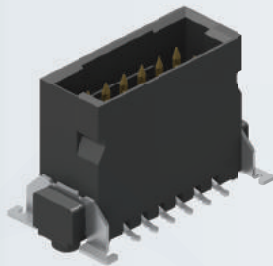
Male connector low-profile - Performance level I

Number of pins	Part number	PU (Tape & Reel)
12	403-52012-51	280
16	403-52016-51	
20	403-52020-51	
26	403-52026-51	
32	403-52032-51	
40	403-52040-51	
50	403-52050-51	
68	403-52068-51	
80	403-52080-51	

On request

- different number of pins
- other performance level

Male connector mid-profile



Type: Male connector straight mid-profile
3.25 mm unmated

Number of pins: 12 to 80

Pitch: 1.27 mm

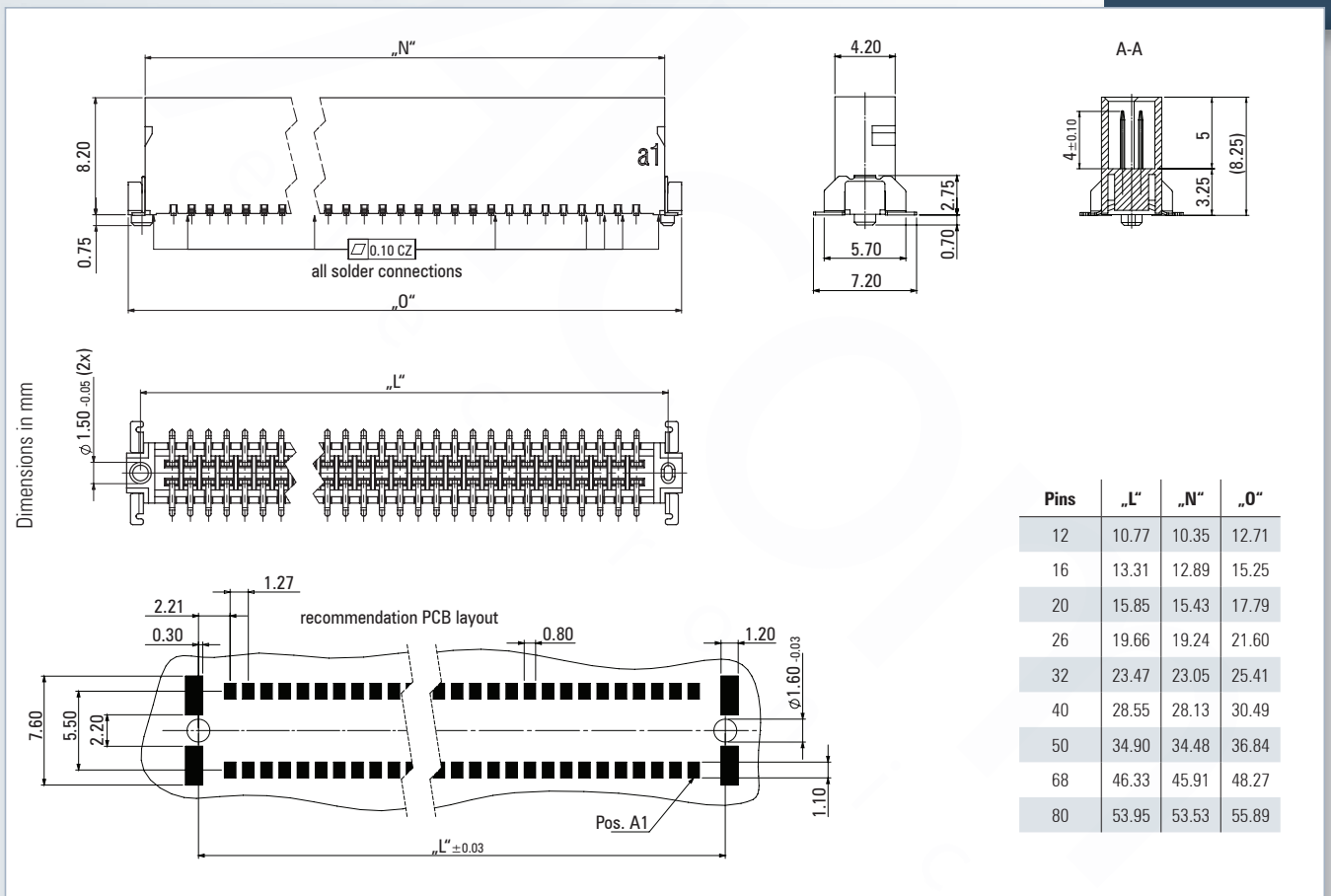
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape & Reel




Approval: 

Technical Specification on page 39

For drawings and
technical data visit
www.ept.de



Mating connector / Application:

-  for parallel applications (p. 46-49)
-  for perpendicular applications (p. 50-51)
-  for applications with cable (p. 52-55)



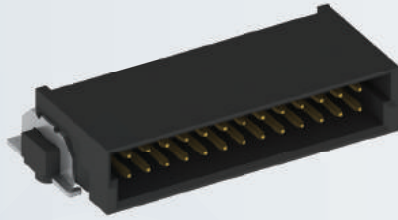
Male connector mid-profile - Performance level I

Number of pins	Part number	PU (Tape & Reel)
12	403-53012-51	280
16	403-53016-51	
20	403-53020-51	
26	403-53026-51	
32	403-53032-51	
40	403-53040-51	
50	403-53050-51	
68	403-53068-51	
80	403-53080-51	

On request

- different number of pins
- other performance level

Male connector angled



Type: Male connector angled

Number of pins: 12 to 80

Pitch: 1.27 mm

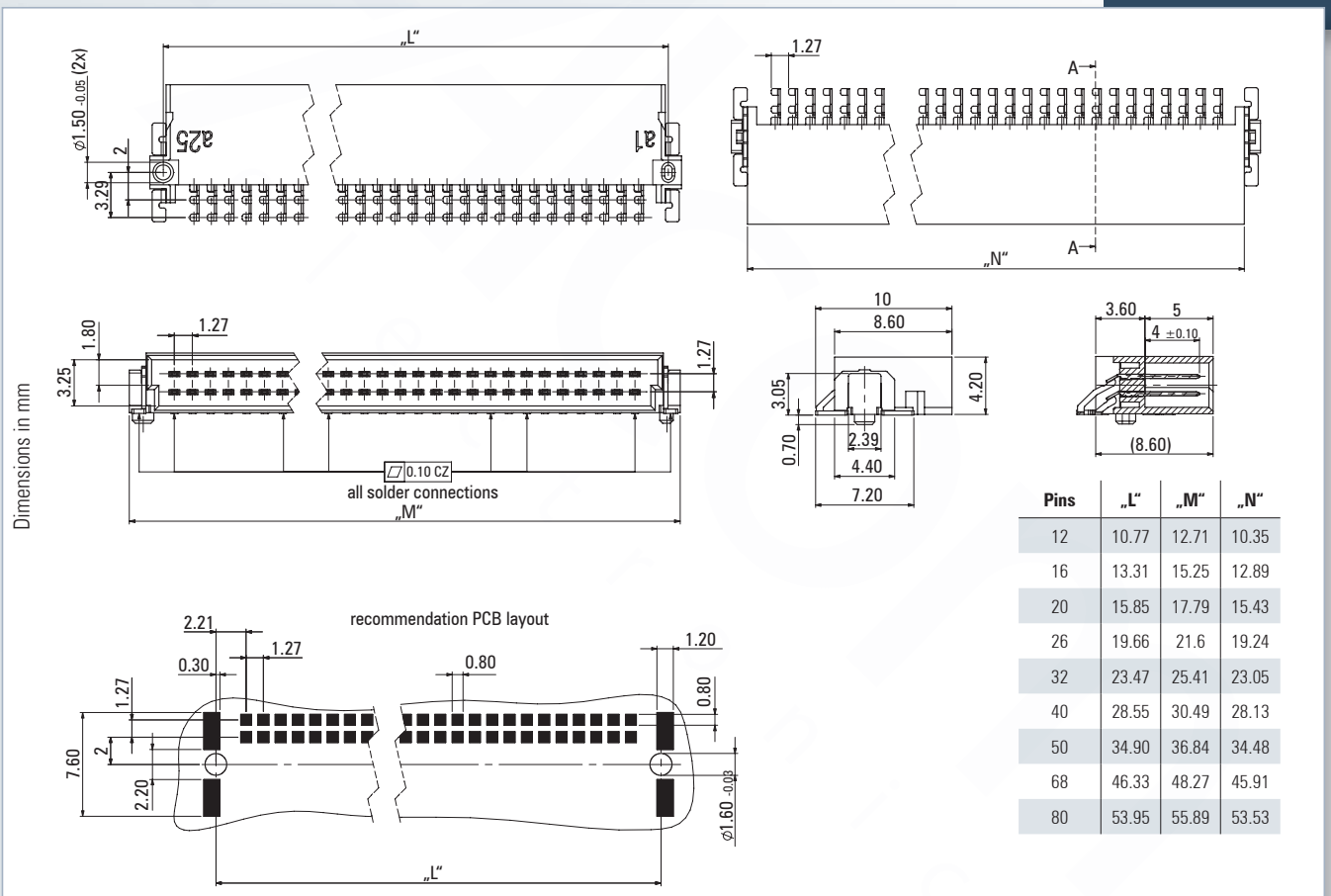
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape & Reel

Approval: RoHS COMPLIANT

Technical Specification on page 39

For drawings and technical data visit www.ept.de



Mating connector / Application:

- for horizontal applications (p. 50-51)
- for perpendicular applications (p. 46-49)
- for applications with cable (p. 52-55)



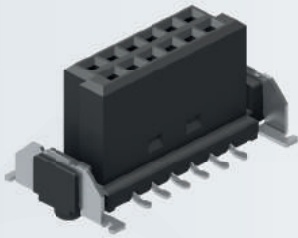
Male connector angled - Performance level I

Number of pins	Part number	PU (Tape & Reel)
12	403-51012-51	560
16	403-51016-51	
20	403-51020-51	
26	403-51026-51	
32	403-51032-51	
40	403-51040-51	
50	403-51050-51	
68	403-51068-51	
80	403-51080-51	

On request

- different number of pins
- other performance level

Female connector low-profile



Type: Female connector straight low-profile
6.25 mm unmated

Number of pins: 12 to 80

Pitch: 1.27 mm

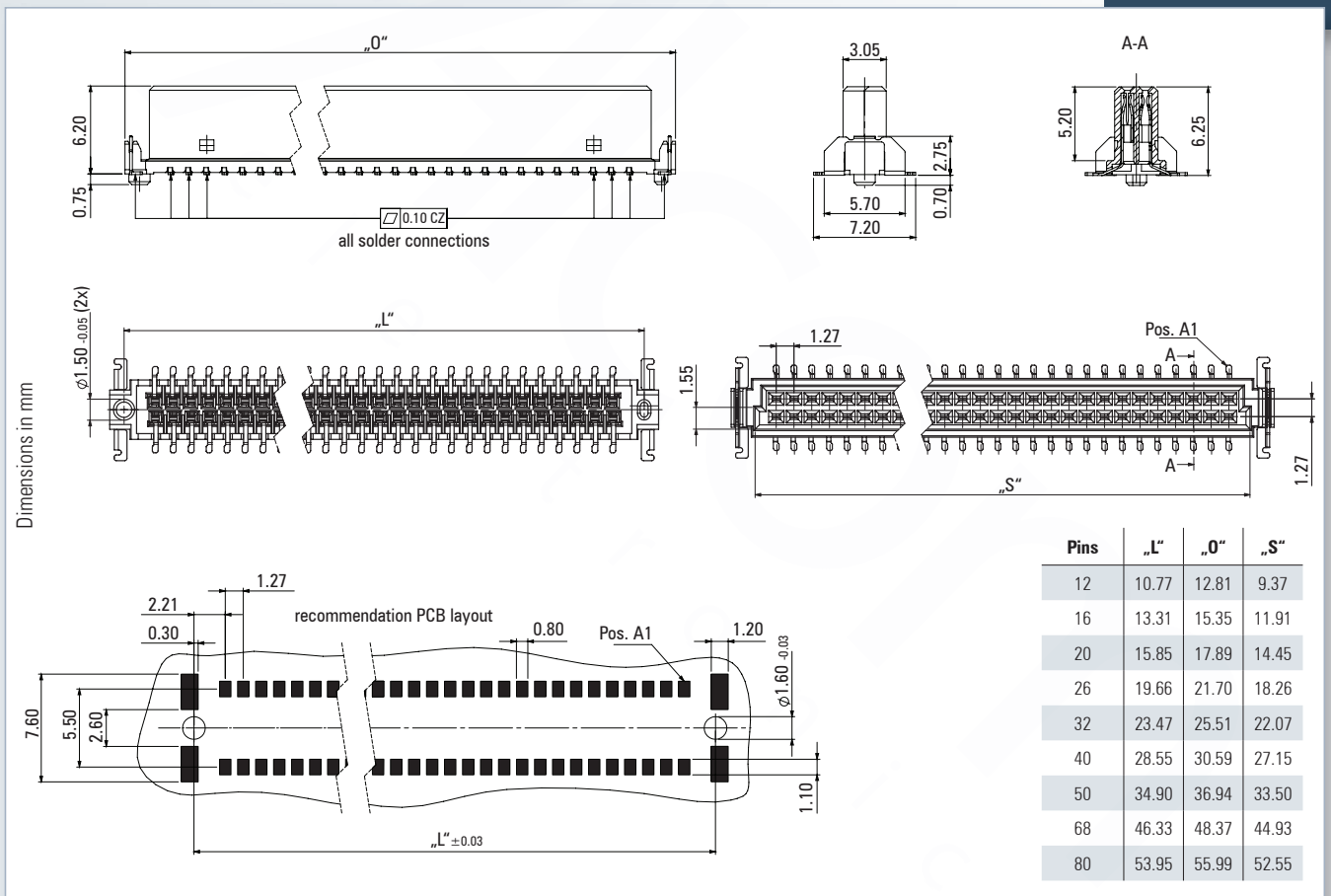
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape & Reel

Approval:  

Technical Specification on page 39

For drawings and technical data visit www.ept.de



Mating connector / Application:

 for parallel applications (p. 40-43)

 for perpendicular applications (p. 44-45)



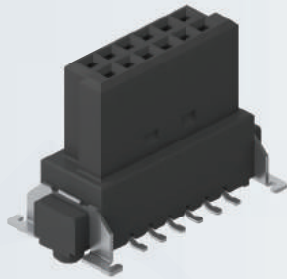
Female connector low-profile - Performance level I

Number of pins	Part number	PU (Tape & Reel)
12	404-52012-51	280
16	404-52016-51	
20	404-52020-51	
26	404-52026-51	
32	404-52032-51	
40	404-52040-51	
50	404-52050-51	
68	404-52068-51	
80	404-52080-51	

On request

- different number of pins
- other performance level

Female connector mid-profile



Type: Female connector straight mid-profile
9.05 mm unmated

Number of pins: 12 to 80

Pitch: 1.27 mm

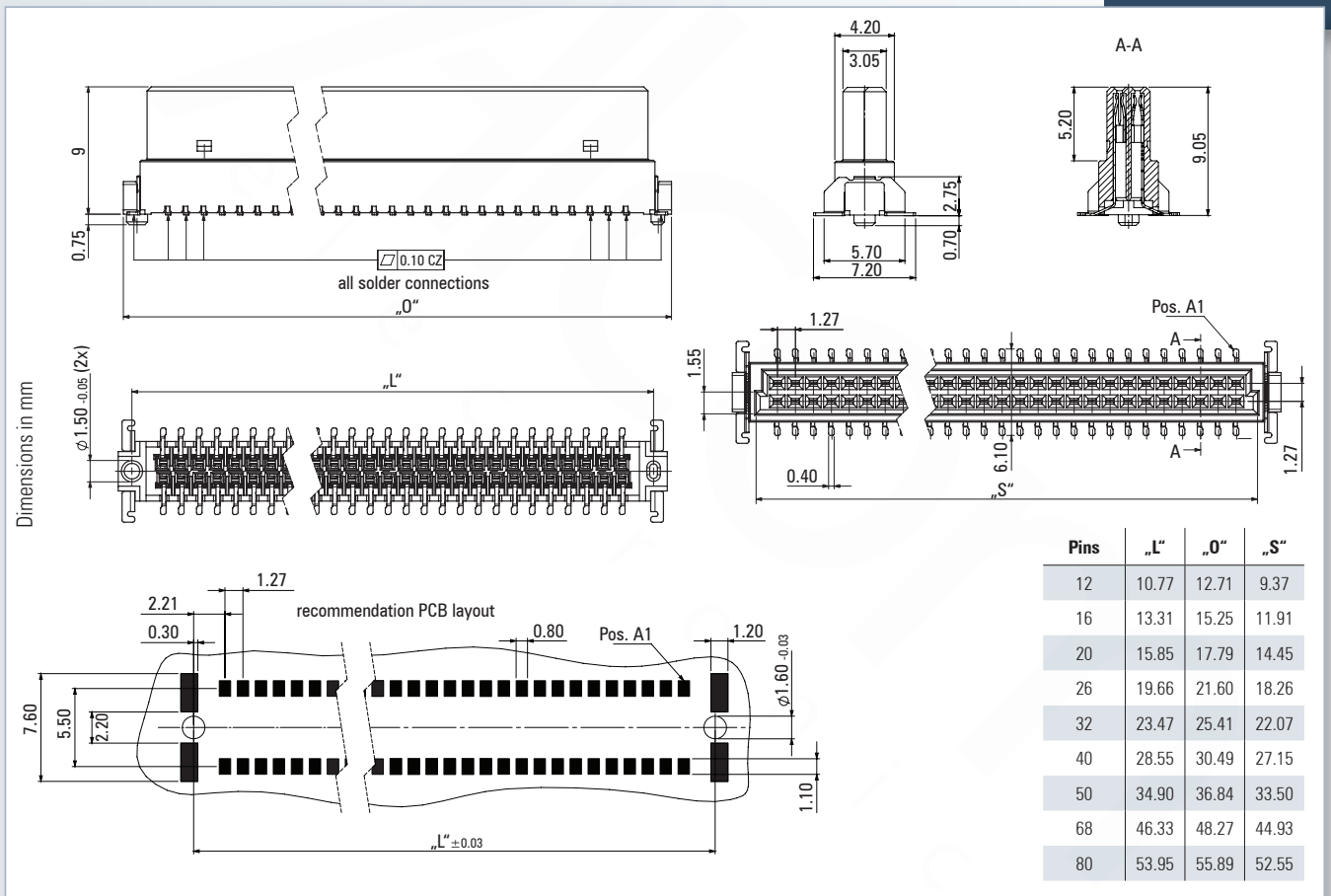
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape & Reel

Approval:  

Technical Specification on page 39

For drawings and technical data visit www.ept.de



Mating connector / Application:

 for parallel applications (p. 40-43)

 for perpendicular applications (p. 44-45)



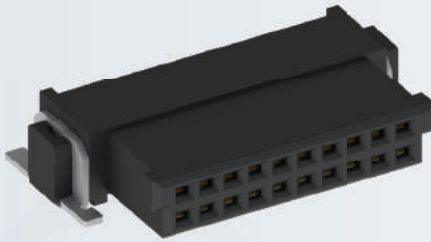
Female connector mid-profile - Performance level I

Number of pins	Part number	PU (Tape & Reel)
12	404-53012-51	280
16	404-53016-51	
20	404-53020-51	
26	404-53026-51	
32	404-53032-51	
40	404-53040-51	
50	404-53050-51	
68	404-53068-51	
80	404-53080-51	

On request

- different number of pins
- other performance level

Female connector angled



Type: Female connector angled

Number of pins: 12 to 80

Pitch: 1.27 mm

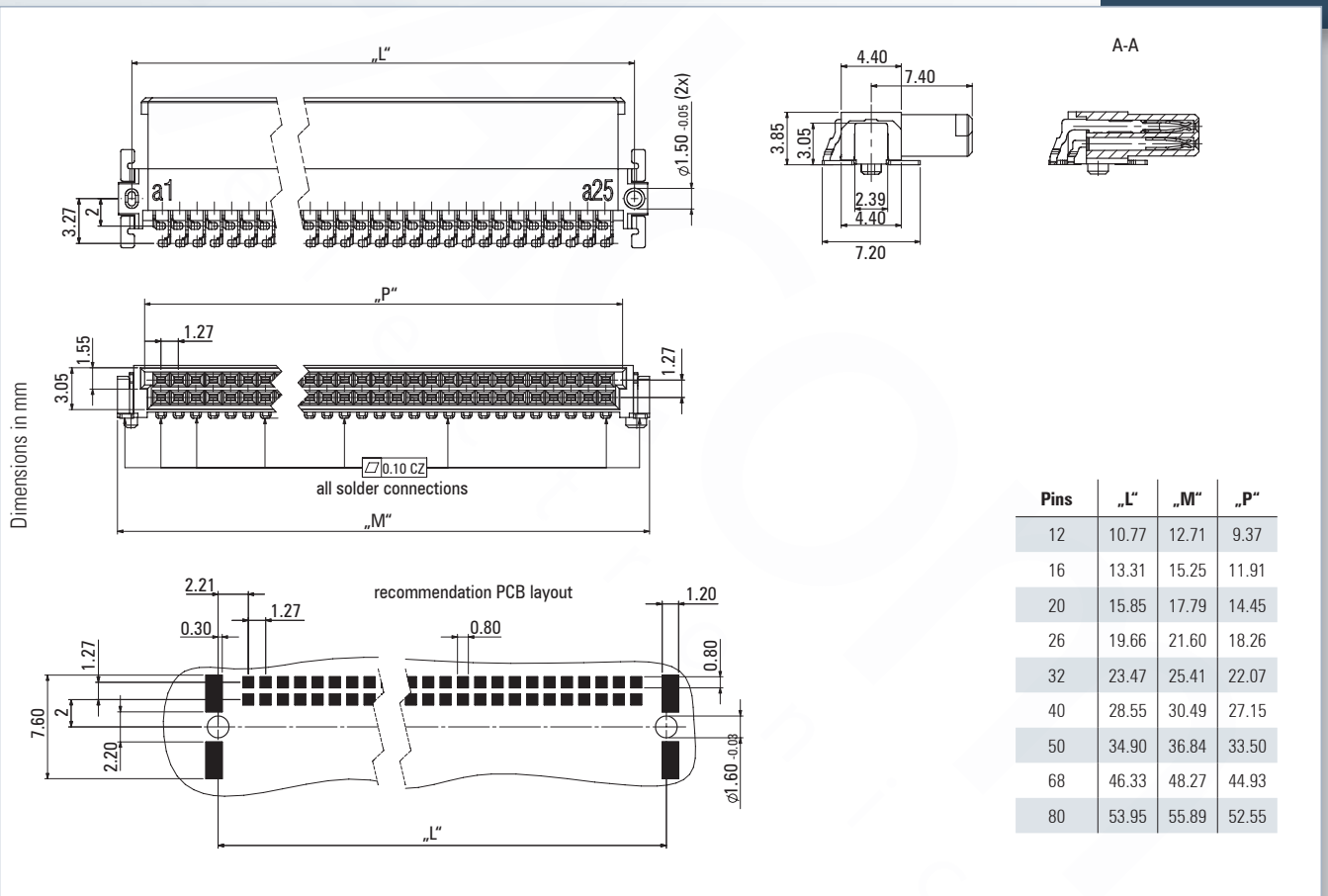
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape & Reel

Approval: RoHS COMPLIANT

Technical Specification on page 39

For drawings and technical data visit www.ept.de



Mating connector / Application:

for horizontal applications (p. 44-45)

for perpendicular applications (p. 40-43)



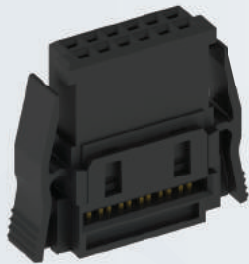
Female connector angled - Performance level I •••

Number of pins	Part number	PU (Tape & Reel)
12	404-51012-51	560
16	404-51016-51	
20	404-51020-51	
26	404-51026-51	
32	404-51032-51	
40	404-51040-51	
50	404-51050-51	
68	404-51068-51	
80	404-51080-51	

On request

- different number of pins
- other performance level

Female connector IDC



Type: Female connector IDC

Number of pins: 12 to 80

Pitch: 1.27 mm

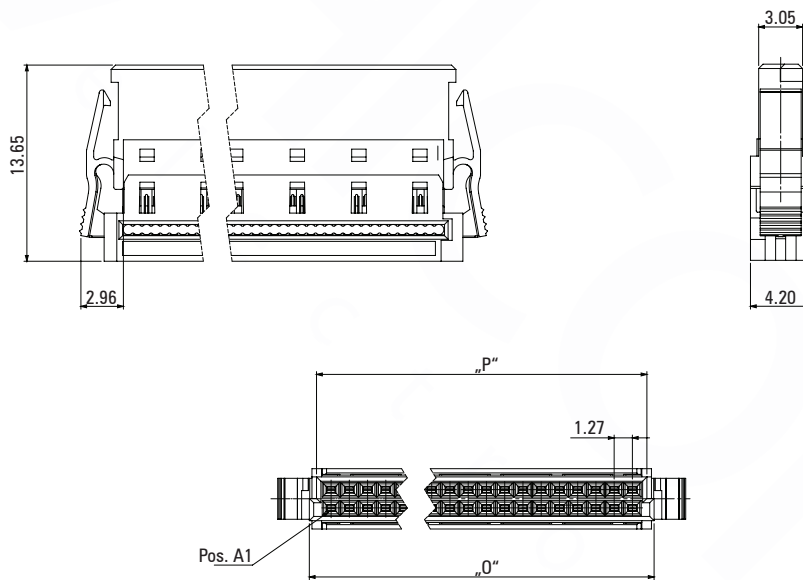
Packaging: Tray

Approval:

Technical Specification on page 39

For drawings and technical data visit www.ept.de

Dimensions in mm



Pins	„P“	„O“
12	7.67	9.37
16	10.21	11.91
20	12.75	14.45
26	16.56	18.26
32	20.37	22.07
40	25.45	27.15
50	31.80	33.50
68	43.23	44.93
80	50.85	52.55

Note

The female IDC is designed to be reused for cable assembly. Observe the recommendations for processing at www.ept.de.

Mating connector / Application:

- Mating connector straight (p. 40-43)
- Mating connector angled (p. 44-45)
- Cable assembly for female IDC (p. 54-55)



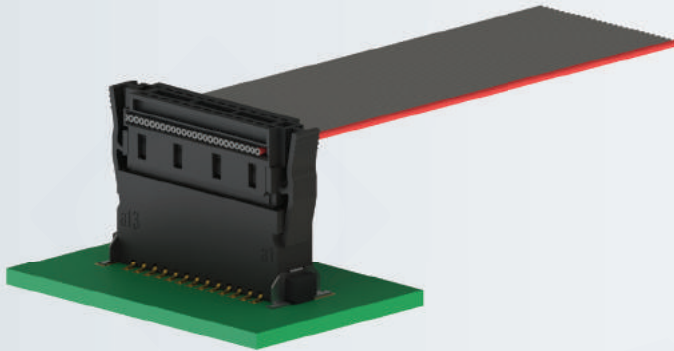
Female connector IDC - Performance level I

Number of pins	Part number	PU (Tray)
12	404-59012-61	60/480
16	404-59016-61	50/400
20	404-59020-61	45/360
26	404-59026-61	35/280
32	404-59032-61	30/240
40	404-59040-61	25/200
50	404-59050-61	20/160
68	404-59068-61	15/120
80	404-59080-61	15/120

On request

- different number of pins
- other performance level
- pre-assembled with cable (p. 26-27)

One27 Female IDC pre-assembled with cable



- female connector IDC see p. 24 and 25
- user defines orientation of connectors, number of pins and cable length
- Cable AWG 30/7 - cross section 0.06 mm²
- assembly in insulation displacement connectors (IDC)
- type of cable PVC: -30°C to +105°C (in idle state)
- colored lead on a1

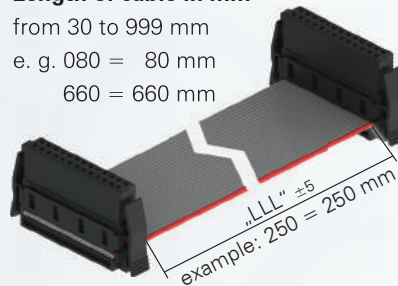
Product key

404 - 61NN - LLL - CCC - 1

see next page

Length of cable in mm

from 30 to 999 mm
 e. g. 080 = 80 mm
 660 = 660 mm



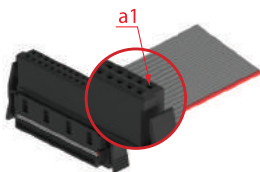
Number of pins

12, 16, 20, 26, 32, 40, 50, 68, 80

Assembled versions

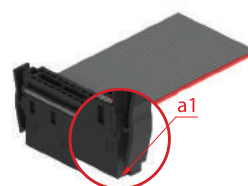
Assembled version 100

Part number
 404-61NN-LLL-100-1



Assembled version 400

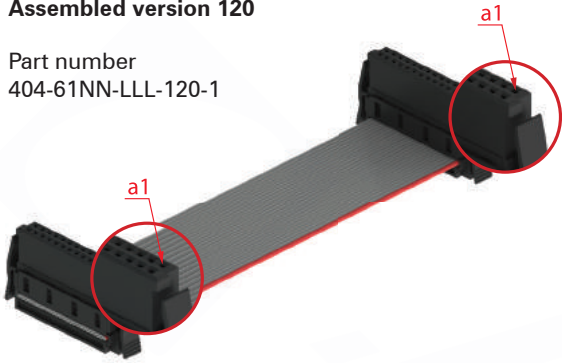
Part number
 404-61NN-LLL-400-1



Assembled versions

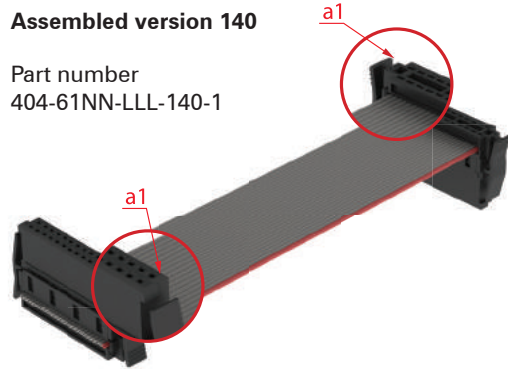
Assembled version 120

Part number
404-61NN-LLL-120-1



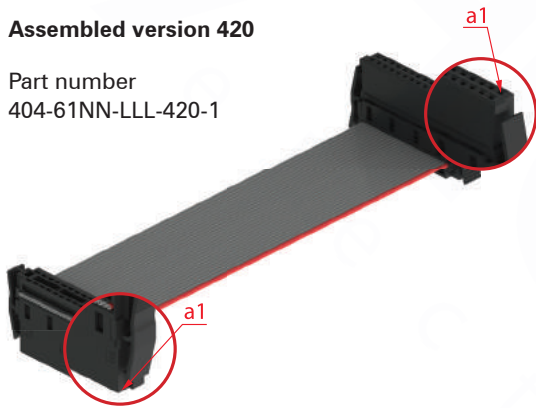
Assembled version 140

Part number
404-61NN-LLL-140-1



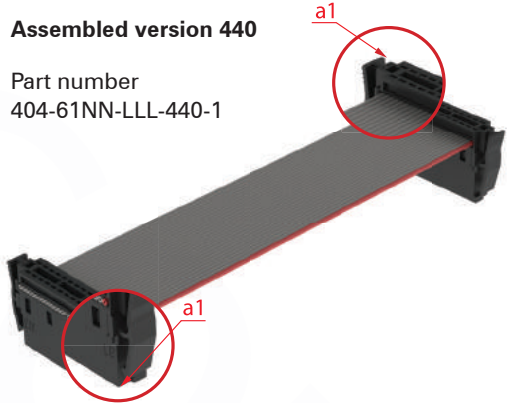
Assembled version 420

Part number
404-61NN-LLL-420-1



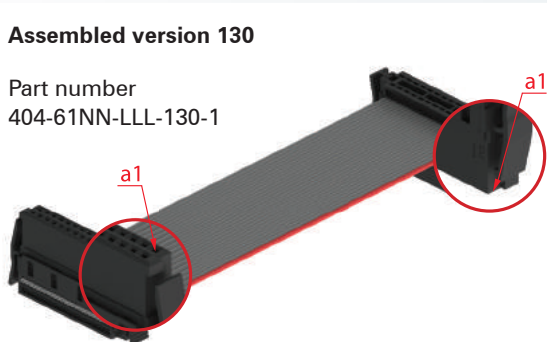
Assembled version 440

Part number
404-61NN-LLL-440-1



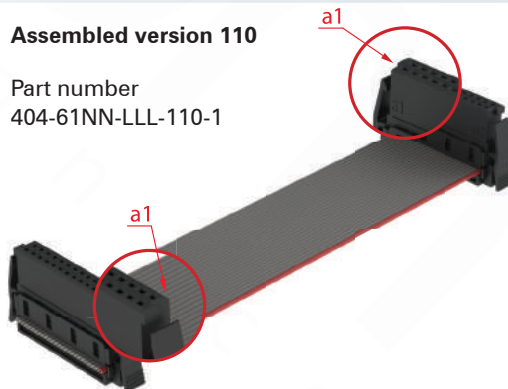
Assembled version 130

Part number
404-61NN-LLL-130-1



Assembled version 110

Part number
404-61NN-LLL-110-1



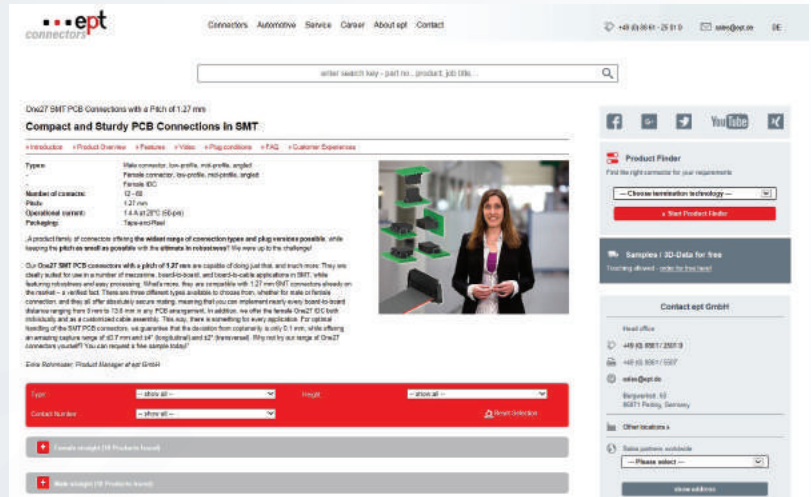
On request

- on request we can also provide
- other assembled versions
- cable length > 1.000 mm

For more Information visit Sie www.ept.de!

On our website, www.ept.de, we offer a broad range of information, downloads, and interactive search functions for our connectors:

- component data that can be downloaded in 3D format (IGES, STEP) and 2D format (DXF)
- a product finder for choosing connectors based on your individual requirements
- an order form for product samples
- technical information, recommendations for processing
- drawings of individual products in PDF format



Product Samples

You can receive product samples from ept quickly, easily, and free of charge, either by making a quick and easy selection at www.ept.de, or by contacting us directly and discussing your needs with us personally, especially if you have specific requirements, such as modifications. For detailed discussion and individual consultation, you can speak to our sales representative in your area, our service staff in Peiting, our local business partner or retailer as well as selected catalog distributors.

We are standing by to advise you!



International Presence - the ept Locations

ept's roots are located in the scenic landscape of southern Bavaria and from there ept has set out to become an international company. With production locations and sales offices in several countries as well as competent partners

all over the world, ept is able to offer its connectors and solutions worldwide.

ept – your global partner



For your local contact please refer to www.ept.de

ept connectors

ept designs, produces and distributes electronic connectors for highquality applications. Founded by Bernhard Guglhör over 40 years ago, we are proud to remain an independent and family owned company. Today, we employ about 1,200 people at six locations worldwide.

Over decades we have built trusting and successful partnerships with our customers, who are the primary focus of all. Our products and core competencies are used in high-level applications.

With our motto "Precision with Passion" ept stands for the highest quality and reliability under the personal and individual touch of dedicated employees.

We are looking forward to working with you.
Your ept-Team

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