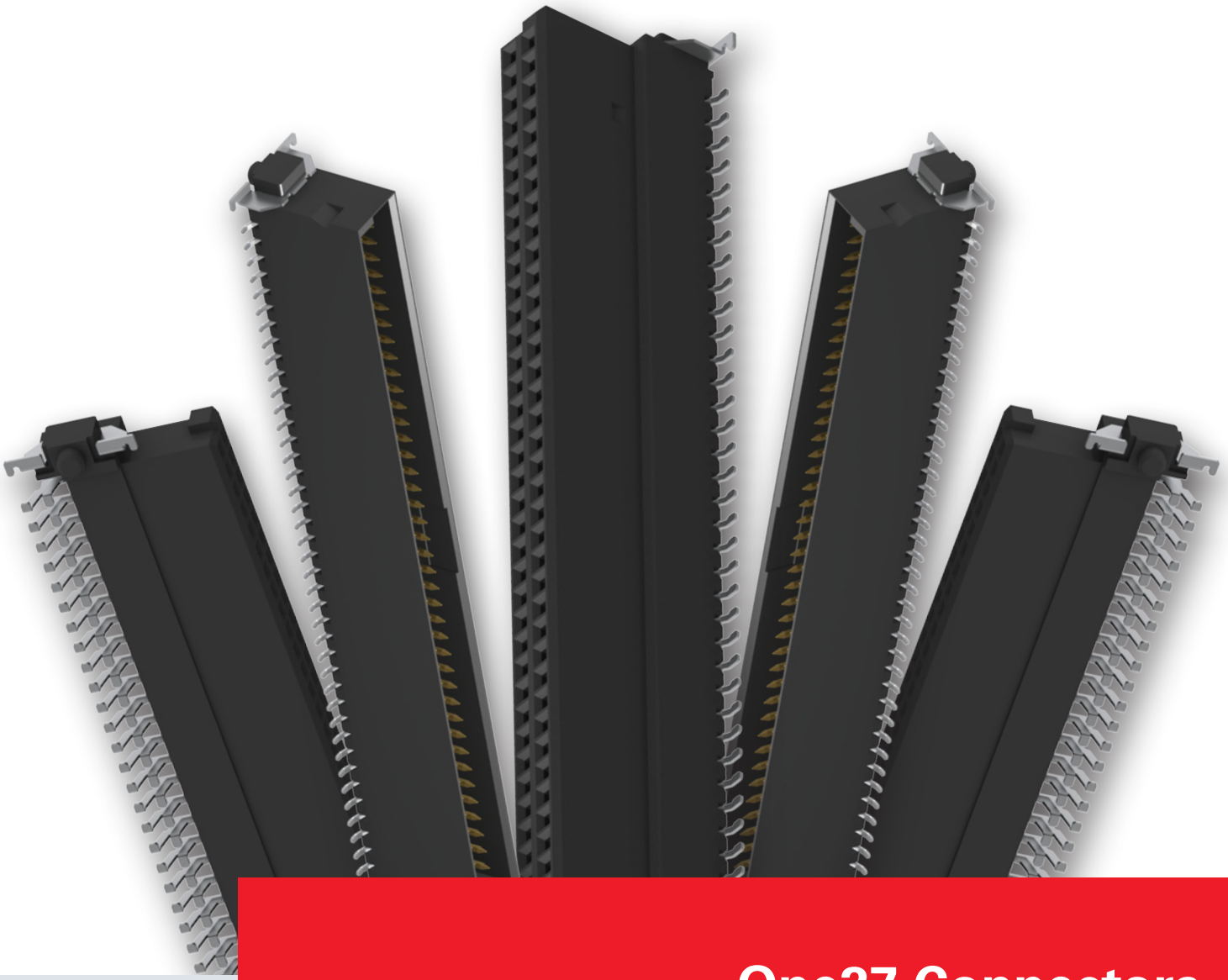
ept connectors



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 seperately 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 seperately or pre-assembled with a cable available
- packed in Tape & Reel

Applications:

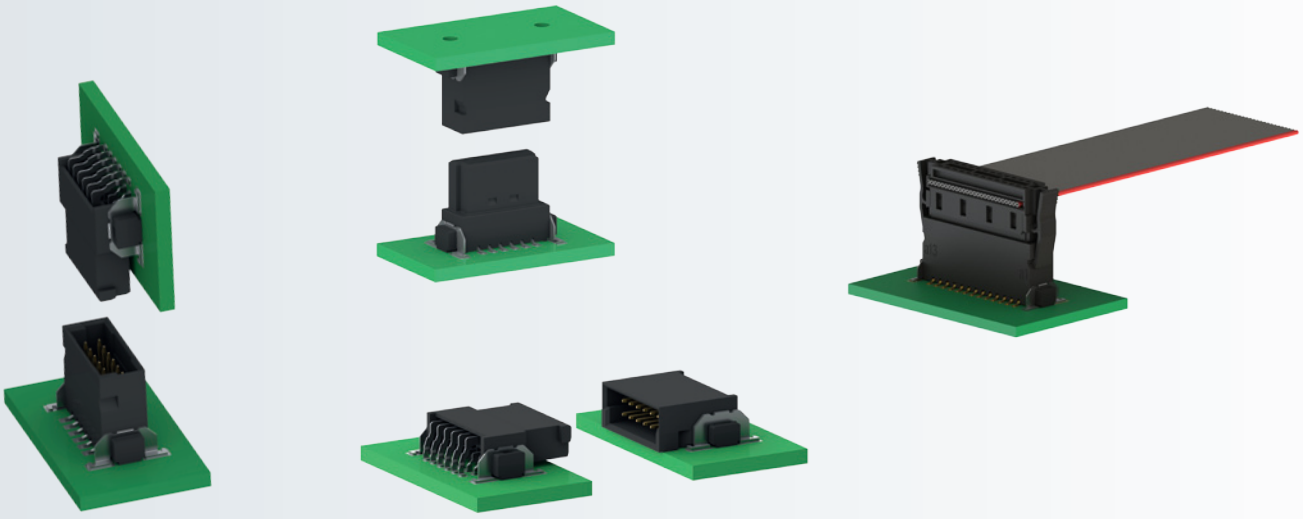
- board-to-board (mezzanine) from 8 mm up to 13.8 mm
- parallel and perpendicular connection
- IDC-connection with ribbon cable

Termination

SMT

Application

High Density



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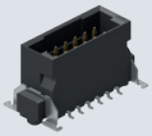
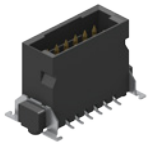
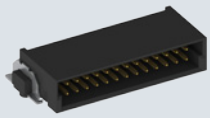
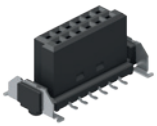
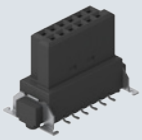
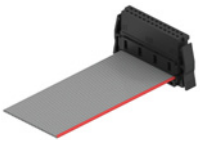
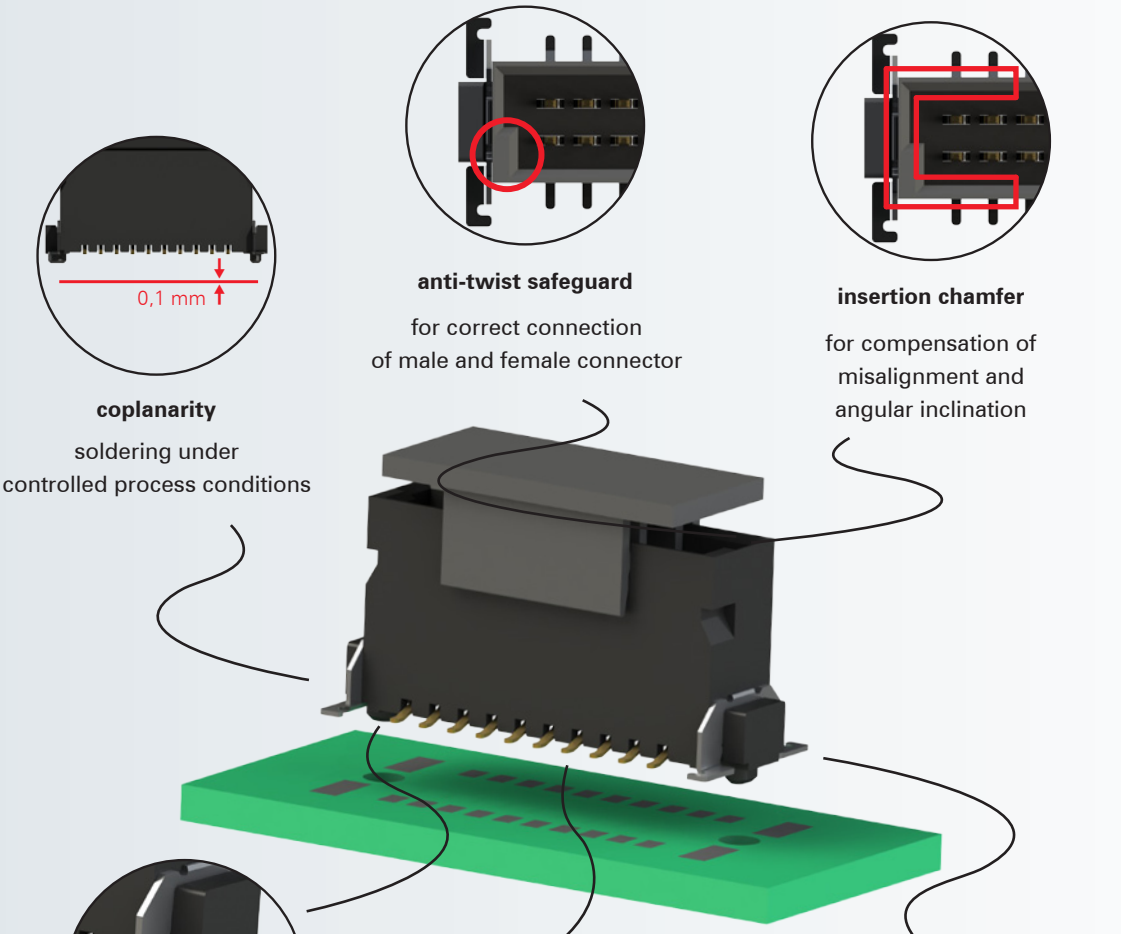
One27 – Product Overview

Type of One27 connector		Height	Number of pins	Mating configuration				Page
				Parallel	Horizontal	Perpendicular	Cable	
	Male low-profile	1.75 mm	12 ... 80	✓		✓	✓	8
	Male mid-profile	3.25 mm	12 ... 80	✓		✓	✓	10
	Male angled		12 ... 80		✓	✓	✓	12
	Female low-profile	6.25 mm	12 ... 80	✓		✓		14
	Female mid-profile	9.05 mm	12 ... 80	✓		✓		16
	Female angled		12 ... 80		✓	✓		18
	Female IDC		12 ... 80				✓	20
	Female IDC pre-assembled with cable		12 ... 80				✓	22

Advantages of One27



coplanarity

soldering under
controlled process conditions

anti-twist safeguard

for correct connection
of male and female connector

insertion chamfer

for compensation of
misalignment and
angular inclination

positioning pins

optimal processing
through precise positioning

solder meniscus

guarantees a robust surface
mount connection

boardlock

absorbs mechanical stress and
ensures a reliable connection
to the PCB

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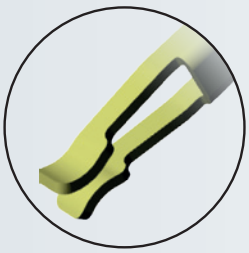
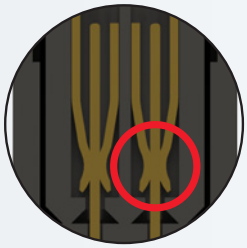
Your Advantages



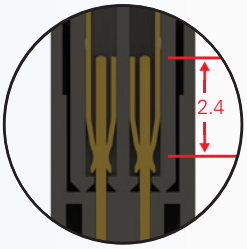
smooth surface

secure contact mating on the rolled, homogeneous surface



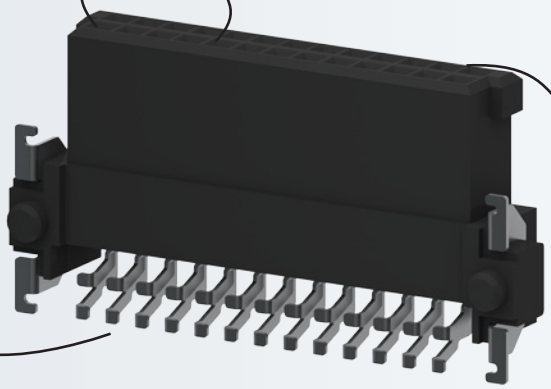
spring contacts

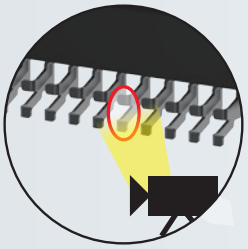
for secure and reliable contact mating



wipe length

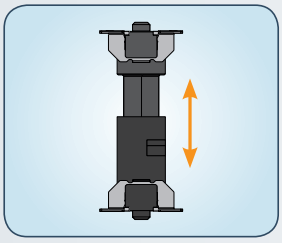
reliability through high tolerance compensation



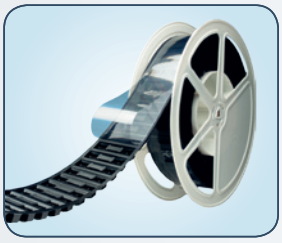


AOI-control

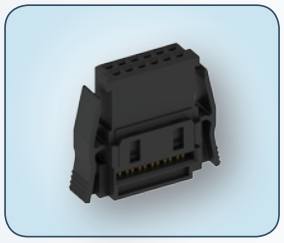
optimized contact design for automated testing after soldering



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

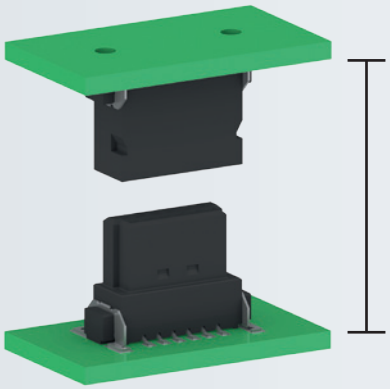


Tape & Reel packaging for automatic assembly



IDC connector available without ribbon cable for individual cable lengths

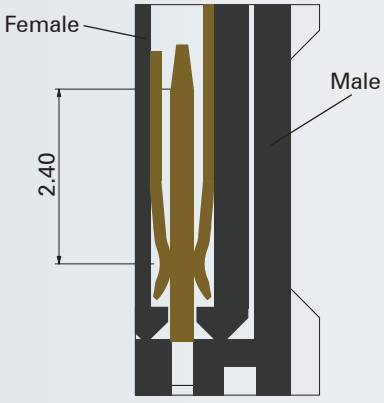
PCB Distances Board-to-Board



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

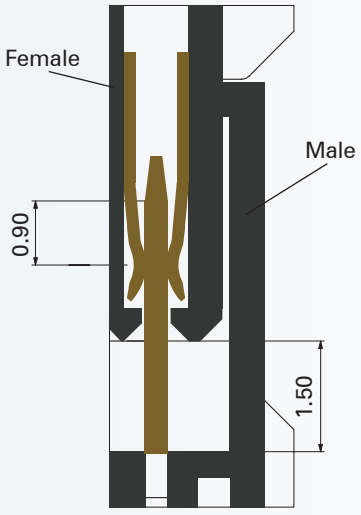
PCB distance min. - max.	Male connector height	Female connector height
8.00 - 9.50 mm	low-profile 1.75 mm *(see p. 8)*	low-profile 6.25 mm *(see p. 14)*
9.50 - 11.00 mm	mid-profile 3.25 mm *(see p. 10)*	low-profile 6.25 mm *(see p. 14)*
10.80 - 12.30 mm	low-profile 1.75 mm *(see p. 8)*	mid-profile 9.05 mm *(see p. 16)*
12.30 - 13.80 mm	mid-profile 3.25 mm *(see p. 10)*	mid-profile 9.05 mm *(see p. 16)*

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.

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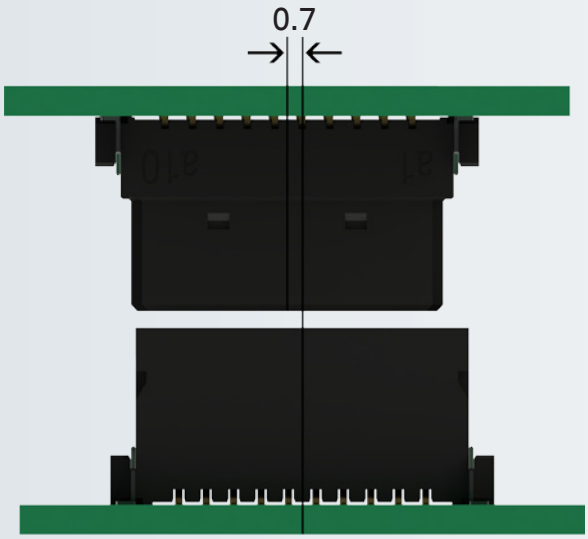
Misalignment One27 Connectors

Allowed misalignment tolerances

longitudinal: ± 0.7 mm

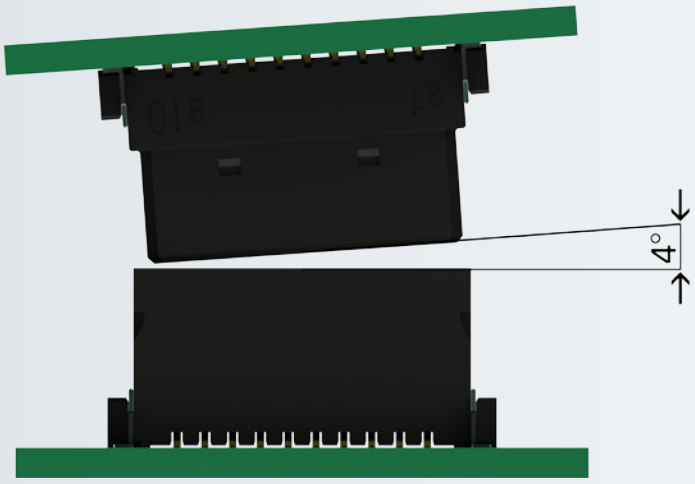


transverse: ± 0.7 mm

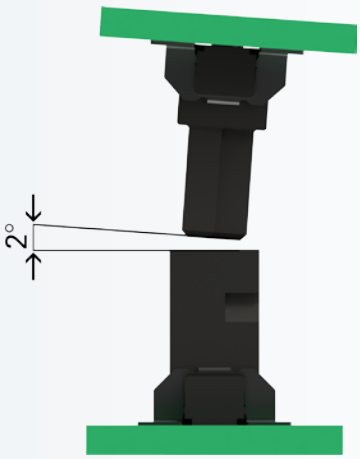
Angular Inclination One27 Connectors

Allowed angular inclination tolerances

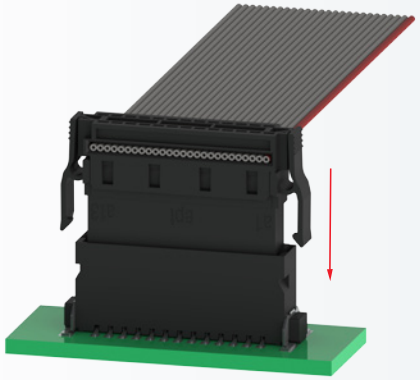
longitudinal: ± 4°



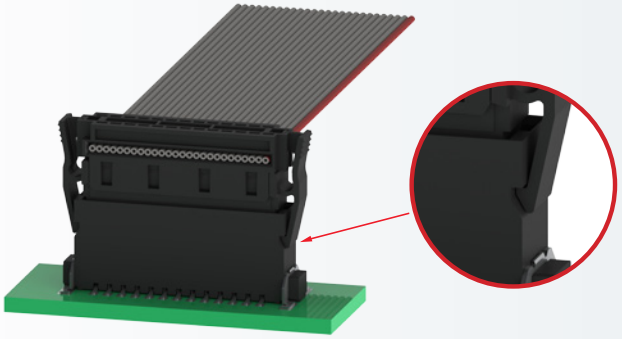
transverse: ± 2°



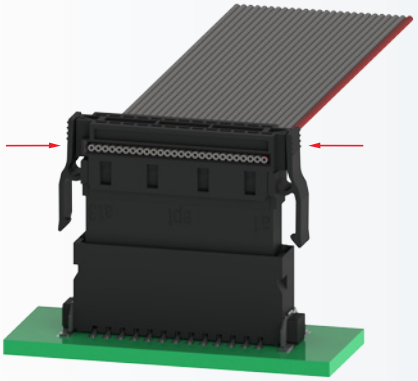
Locking of One27 IDC-Female Connector



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.

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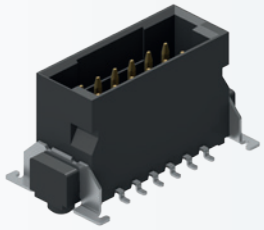
Technical Specification

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, UL 94 V-0
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

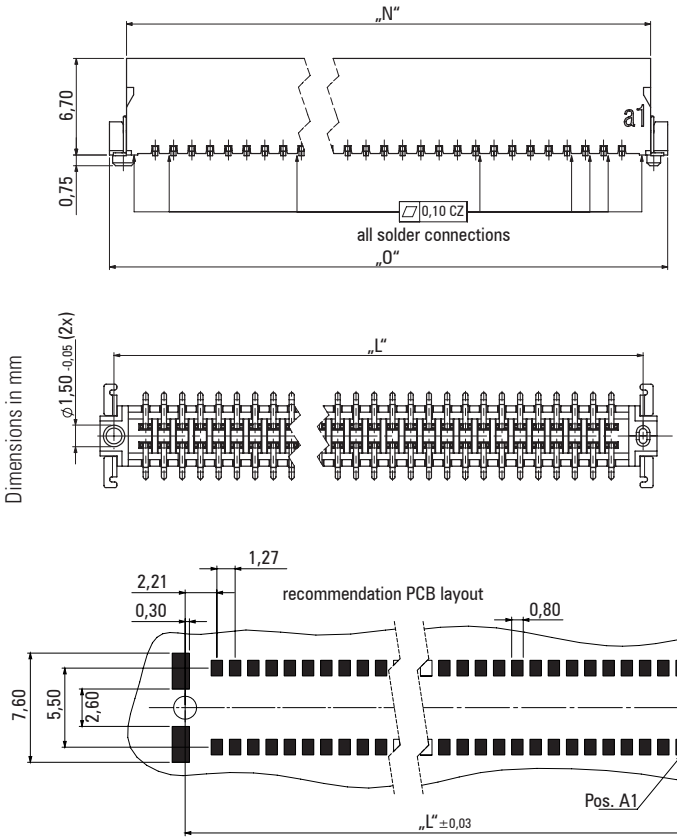
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape and Reel

Standards: cULus RoHS COMPLIANT

Technical Specification on page 7

For drawings and technical data visit www.ept.de



Pins	„L"	„N"	„O"
12	10,77	10,35	12,71
16	13,31	12,89	15,25
20	15,85	15,43	17,79
26	19,66	19,24	21,60
32	23,47	23,05	25,41
40	28,55	28,13	30,49
50	34,90	34,48	36,84
68	46,33	45,91	48,27
80	53,95	53,53	55,89

Mating connector / Application:

for parallel applications (p. 14-17)
for perpendicular applications (p. 18-19)
for applications with cable (p. 20-23)

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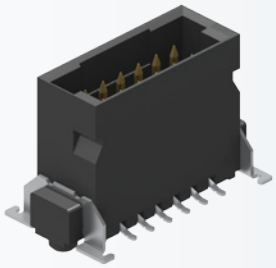
Male connector low-profile - Performance level I

Number of pins	Part number
12	403-52012-51
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

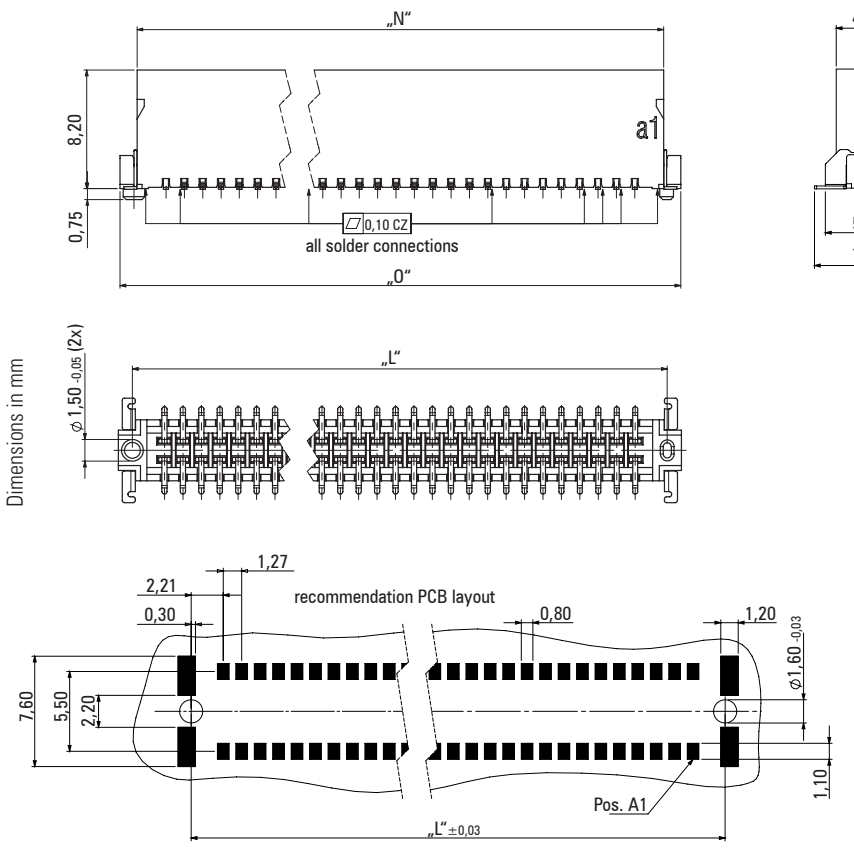
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape and Reel

Standards: cULus RoHS COMPLIANT

Technical Specification on page 7

For drawings and technical data visit www.ept.de



Pins	„L"	„N"	„O"
12	10,77	10,35	12,71
16	13,31	12,89	15,25
20	15,85	15,43	17,79
26	19,66	19,24	21,60
32	23,47	23,05	25,41
40	28,55	28,13	30,49
50	34,90	34,48	36,84
68	46,33	45,91	48,27
80	53,95	53,53	55,89

Mating connector / Application:

for parallel applications (p. 14-17)
for perpendicular applications (p. 18-19)
for applications with cable (p. 20-23)

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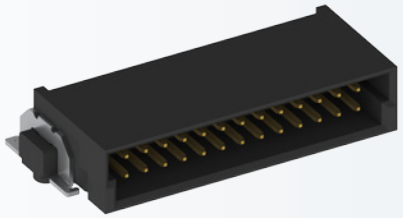
Male connector mid-profile - Performance level I

Number of pins	Part number
12	403-53012-51
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)

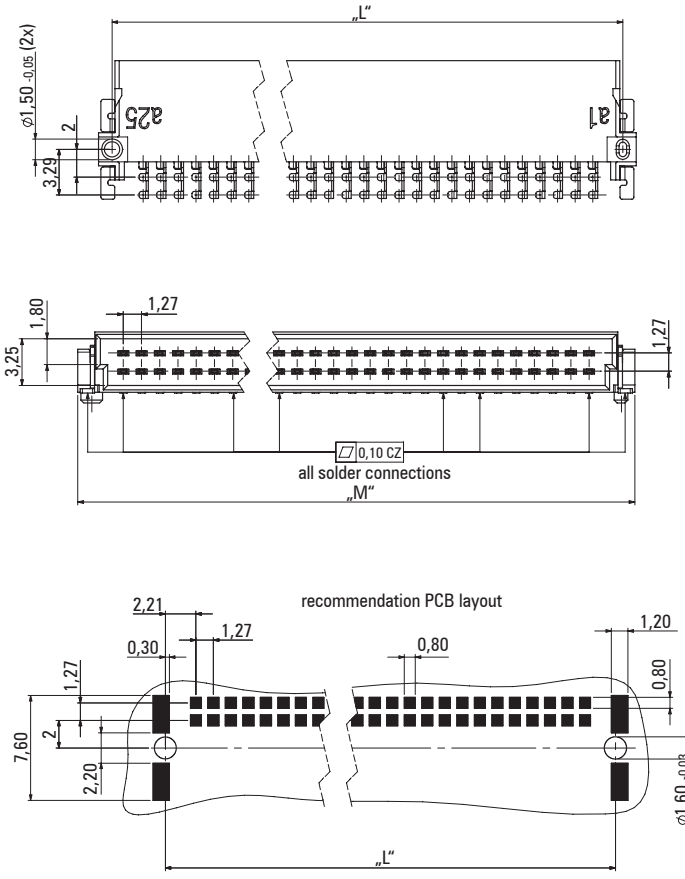
Packaging: Tape and Reel

Standards: cULus RoHS COMPLIANT

Technical Specification on page 7

For drawings and technical data visit www.ept.de

Dimensions in mm



Pins	„L"	„M"	„N"
12	10,77	12,71	10,35
16	13,31	15,25	12,89
20	15,85	17,79	15,43
26	19,66	21,6	19,24
32	23,47	25,41	23,05
40	28,55	30,49	28,13
50	34,90	36,84	34,48
68	46,33	48,27	45,91
80	53,95	55,89	53,53

Mating connector / Application:

for horizontal applications (p. 18-19)

for perpendicular applications (p. 14-17)

for applications with cable (p. 20-23)

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Male connector angled

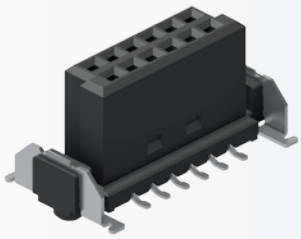
Male connector angled - Performance level I

Number of pins	Part number
12	403-51012-51
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)

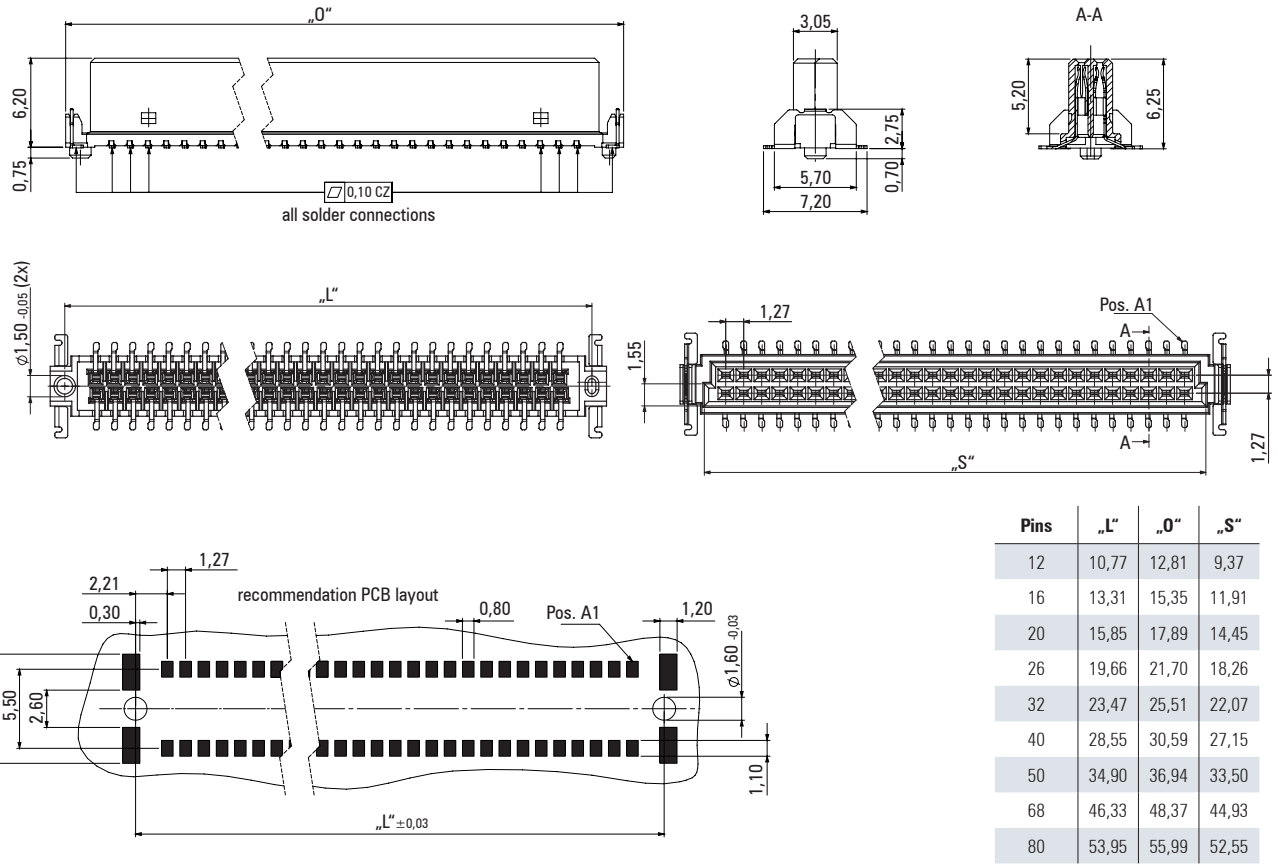
Packaging: Tape and Reel

Standards: cULus RoHS COMPLIANT

Technical Specification on page 7

For drawings and technical data visit www.ept.de

Dimensions in mm



Pins	„L"	„0"	„S"
12	10,77	12,81	9,37
16	13,31	15,35	11,91
20	15,85	17,89	14,45
26	19,66	21,70	18,26
32	23,47	25,51	22,07
40	28,55	30,59	27,15
50	34,90	36,94	33,50
68	46,33	48,37	44,93
80	53,95	55,99	52,55

Mating connector / Application:

for parallel applications (p. 8-11)

for perpendicular applications (p. 12-13)

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Female connector low-profile

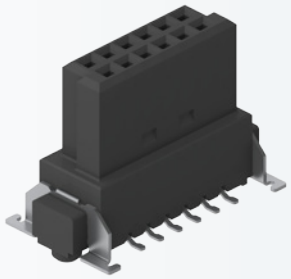
Female connector low-profile - Performance level I

Number of pins	Part number
12	404-52012-51
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

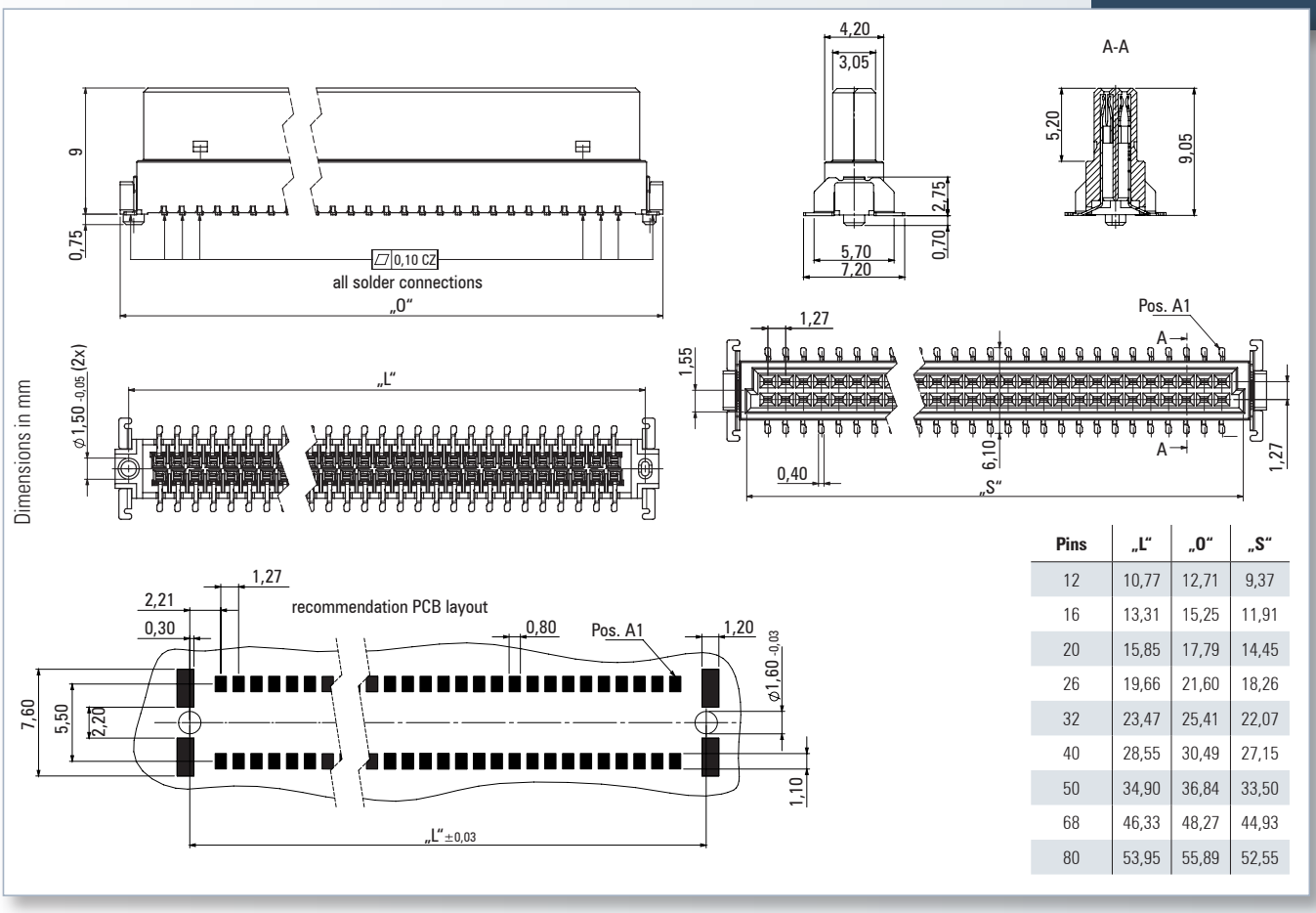
Operational current: 1.4 A at 20°C (50 pins)

Packaging: Tape and Reel

Standards: cULus RoHS COMPLIANT

Technical Specification on page 7

For drawings and technical data visit www.ept.de



Pins	„L"	„0"	„S"
12	10,77	12,71	9,37
16	13,31	15,25	11,91
20	15,85	17,79	14,45
26	19,66	21,60	18,26
32	23,47	25,41	22,07
40	28,55	30,49	27,15
50	34,90	36,84	33,50
68	46,33	48,27	44,93
80	53,95	55,89	52,55

Mating connector / Application:

for parallel applications (p. 8-11)

for perpendicular applications (p. 12-13)

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Female connector mid-profile

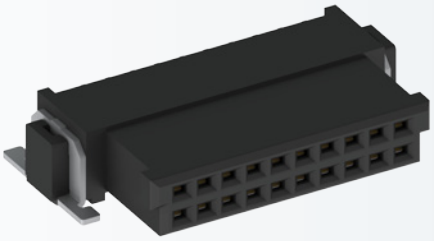
Female connector mid-profile - Performance level I

Number of pins	Part number
12	404-53012-51
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

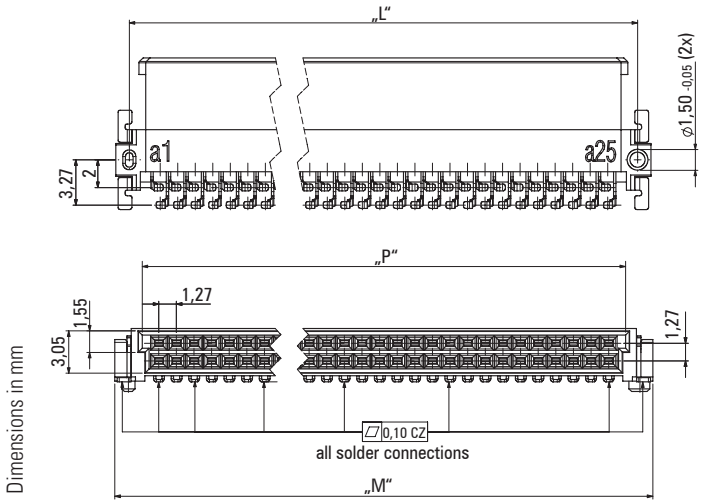
Operational current: 1.4 A at 20°C (50 pins)

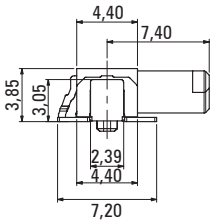
Packaging: Tape and Reel

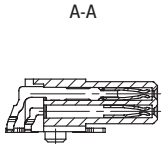
Standards: c UL us RoHS COMPLIANT

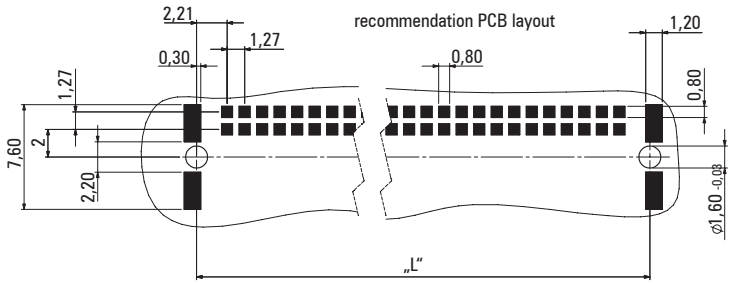
Technical Specification on page 7

For drawings and technical data visit www.ept.de









Pins	„L"	„M"	„P"
12	10,77	12,71	9,37
16	13,31	15,25	11,91
20	15,85	17,79	14,45
26	19,66	21,60	18,26
32	23,47	25,41	22,07
40	28,55	30,49	27,15
50	34,90	36,84	33,50
68	46,33	48,27	44,93
80	53,95	55,89	52,55

Mating connector / Application:

for horizontal applications (p. 12-13)

for perpendicular applications (p. 8-11)

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Female connector angled

Female connector angeld - Performance level I

Number of pins	Part number
12	404-51012-51
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

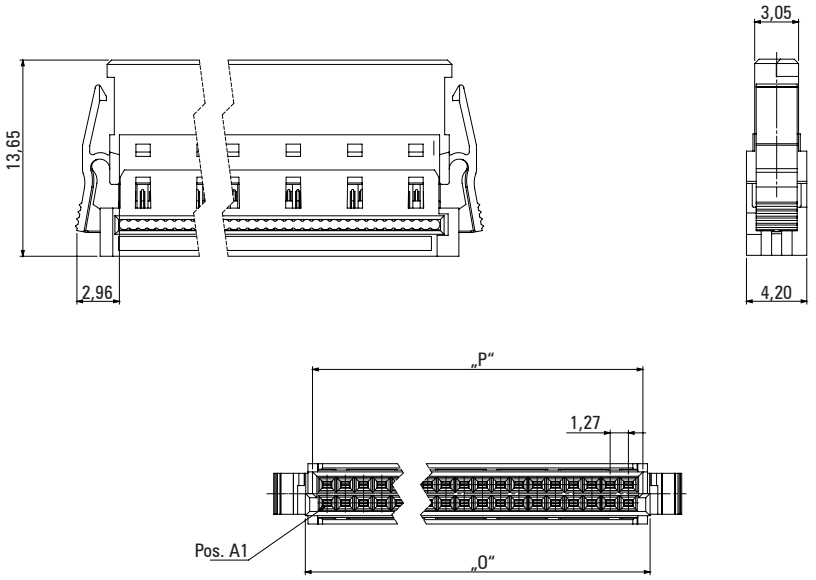
Packaging: Tape and Reel

Standards: cULus RoHS COMPLIANT

Technical Specification on page 7

For drawings and technical data visit www.ept.de

Dimensions in mm



Pins	„P“	„0“
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.

Mating connector / Application:

Mating connector straight (p. 8-11)

Mating connector angled (p. 12-13)

Cable assembly for female IDC (p. 22-23)

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Female connector IDC - Performance level I

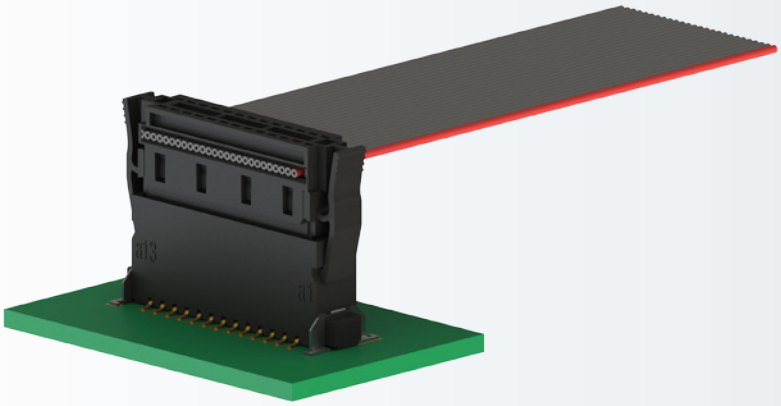
Number of pins	Part number
12	404-59012-61
16	404-59016-61
20	404-59020-61
26	404-59026-61
32	404-59032-61
40	404-59040-61
50	404-59050-61
68	404-59068-61
80	404-59080-61

On request

- different number of pins
- other performance level
- pre-assembled with cable (p. 22-23)

Cable assembly for female IDC

One27 Female IDC pre-assembled with cable



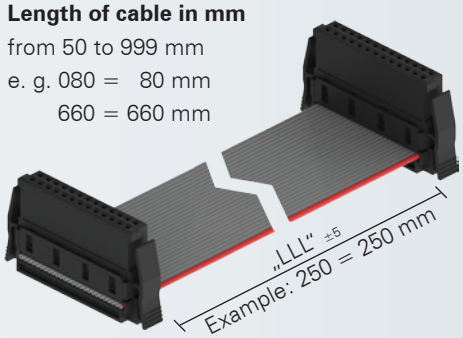
- female connector IDC see p. 20 and 21
- user defines orientation of connectors, number of pins and cable length
- AWG 30/7
- assembly in insulation displacement connectors (IDC)
- three cable types available
- colored lead on a1

Product key

404 - 6XNN - LLL - CCC - 1

see next page

Length of cable in mm
from 50 to 999 mm
e. g. 080 = 80 mm
660 = 660 mm



Number of pins
12, 16, 20, 26, 32, 40, 50, 68, 80

Type of cable

X	Type of cable	Temperature area
1	PVC	-30°C to +105°C (in idle state)
2	TPE-S (high-temperature-resistant)	-60°C to +125°C (in idle state)
3	TPE-0 (Halogen-free)	-40°C to +105°C (in idle state)

Data sheets on request

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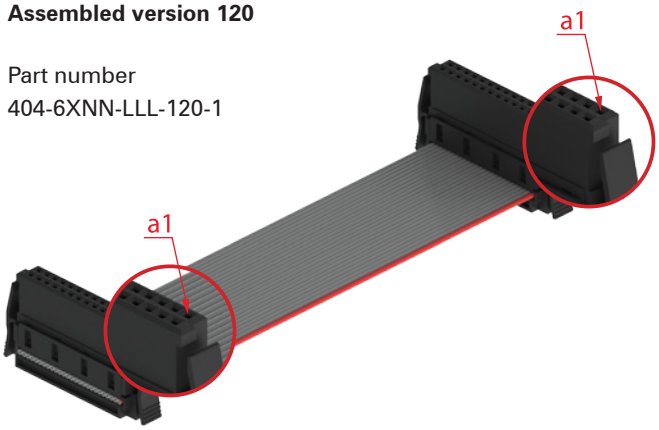
Assembled versions

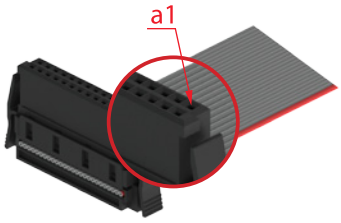
Assembled version 120

Part number
404-6XNN-LLL-120-1



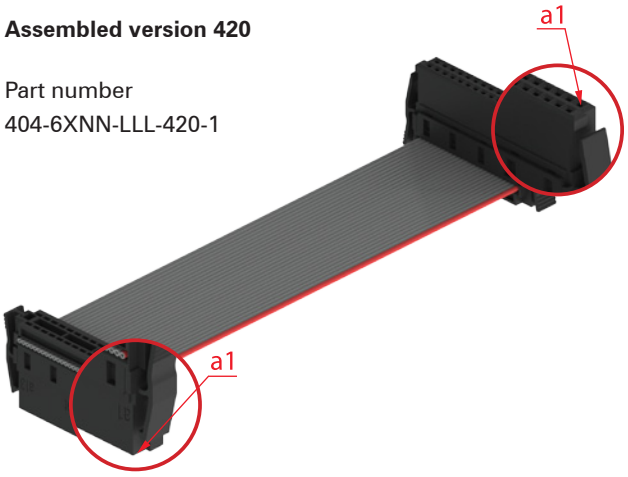
Assembled version 100

Part number
404-6XNN-LLL-100-1



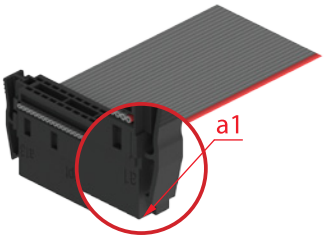
Assembled version 420

Part number
404-6XNN-LLL-420-1



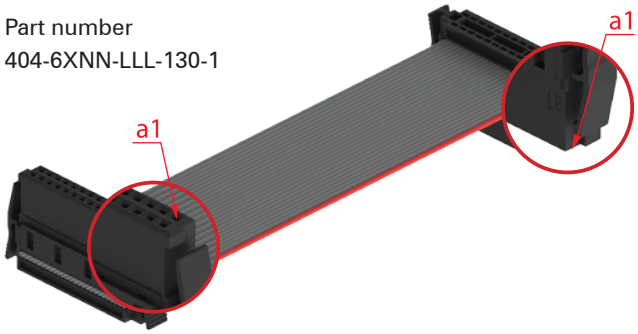
Assembled version 400

Part number
404-6XNN-LLL-400-1



Assembled version 130

Part number
404-6XNN-LLL-130-1



On request

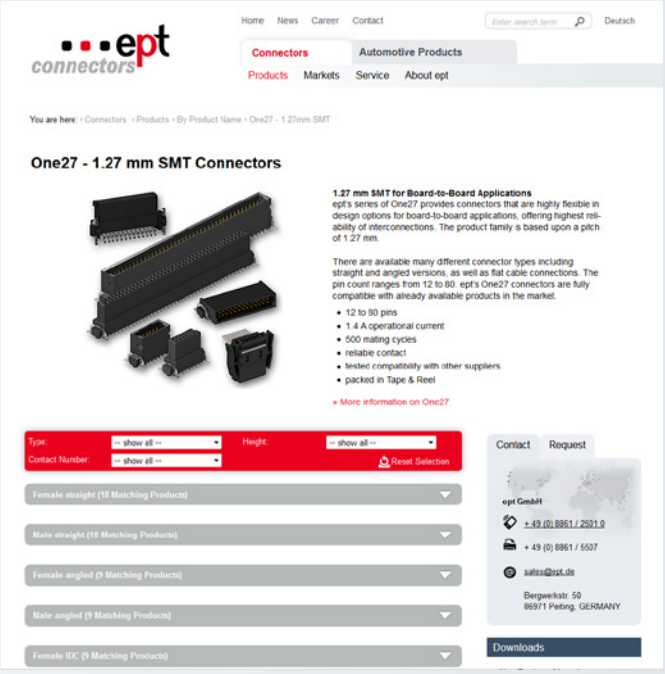
- other assembled versions

More Information & Product Samples

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!

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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 1.000 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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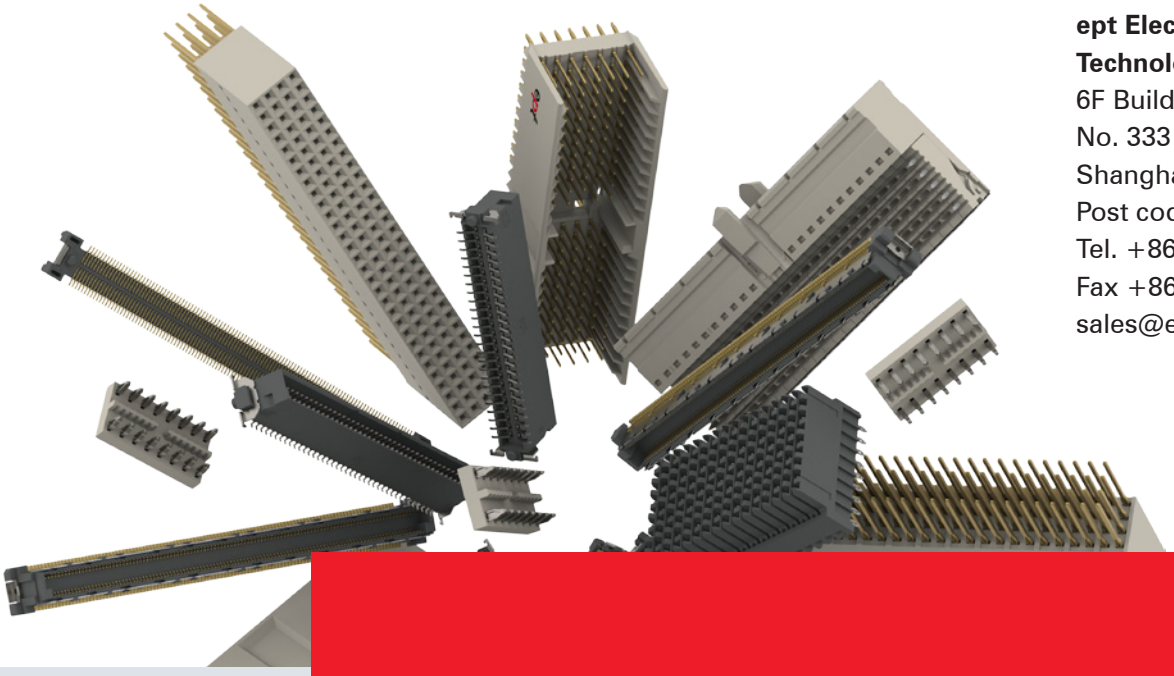

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