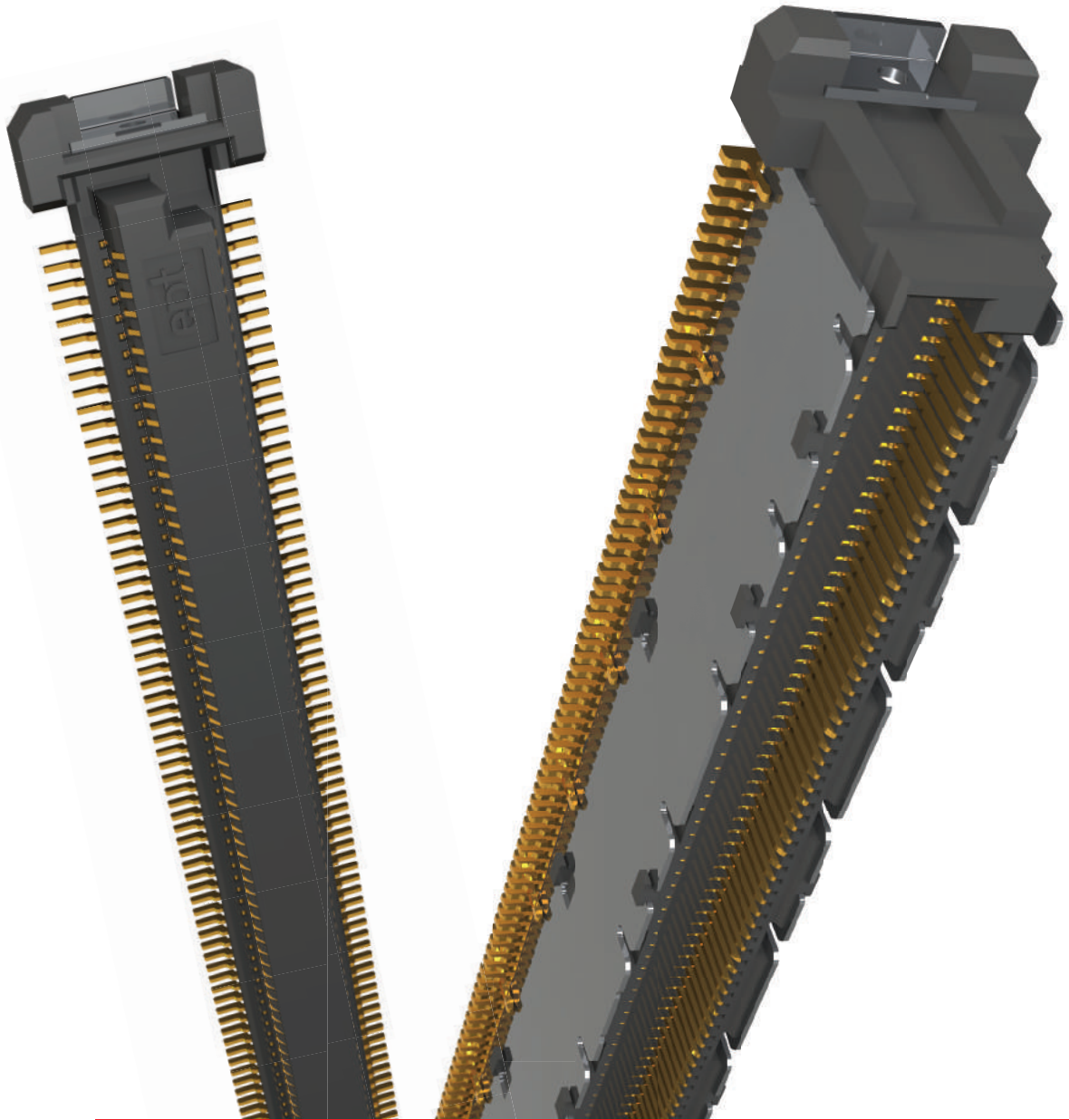


• • • ept
connectors



Colibri for COM Express®

0.5 mm SMT Board-to-Board Connector System

Colibri – 0.5 mm SMT for 10+ Gbit/s Applications

Connectors for COM Express®

ept's Colibri connector is a shielded, 2-row, SMT interconnect system in 0.5 mm pitch.

It is designed to meet the requirements according to specifications not only of PICMG COM Express®, but also of SFF-SIG Core Express® and nano-ETXexpress and can be used in high-speed applications with 10 Gbit/s and more. Furthermore Colibri® products are compatible with all common connectors available on the market and have been tested extensively.

The connector system is available with 8 mm and 5 mm stacking heights plus 40 - 440 pins. Colibri® connectors are packaged in „Tape and Reel“ to allow fully automated processing.

Additional versions with flexible pin count as well as multiple stacking heights are available on request.

Key Features:

- for applications with 10+ Gbit/s
- meets the requirements of PICMG COM Express® and SFF-SIG CoreExpress®
- intermatability with available connectors in the market
- robust connector design
- integrated Pick & Place area
- packed in Tape & Reel

Applications:

- COM Express®
- CoreExpress®
- mezzanin board-to-board

Termination



SMT

Mating configuration



Parallel
5 or 8 mm

Application





High Speed



High Density

Overview

Type		Number of pins	Board type	Mating connector	Page reference
	Colibri Plug	40 / 80 / 120 / 160 / 200 / 220 / 440	COM Express® Base Board	Colibri Receptacle	22 26
	Colibri Receptacle	40 / 80 / 120 / 160 / 200 / 220 / 440	COM Express® COM Module	Colibri Plug	24 28

Watch the new Colibri movie:

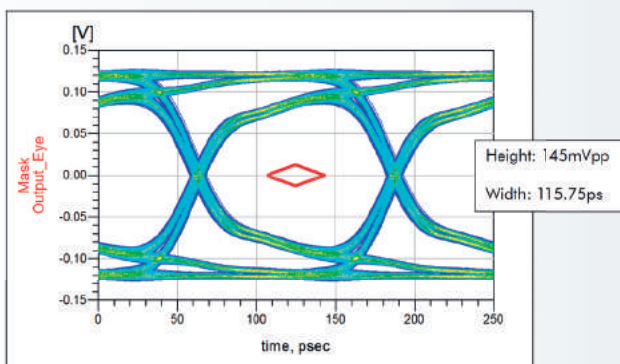


<https://youtu.be/rBry52V774Y>

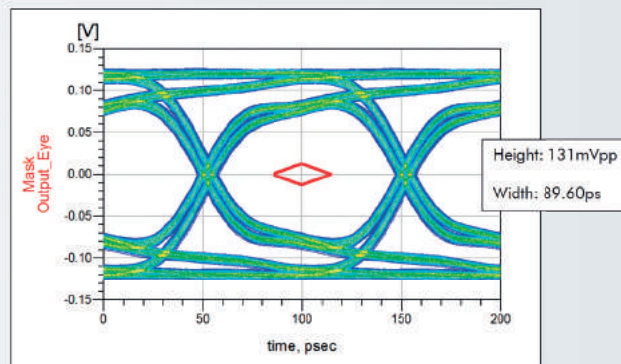
Your Com Express® Application needs more Speed? Colibri Connectors manage 10 Gbit/s and more!

Colibri® connectors are specially designed for High Speed applications. Looking at the eye diagrams below, you can see that the connectors still show a very high signal quality at 10 Gbit/s compared to 8 Gbit/s. They are therefore highly suitable for High Speed applications with 10 Gbit/s and more.

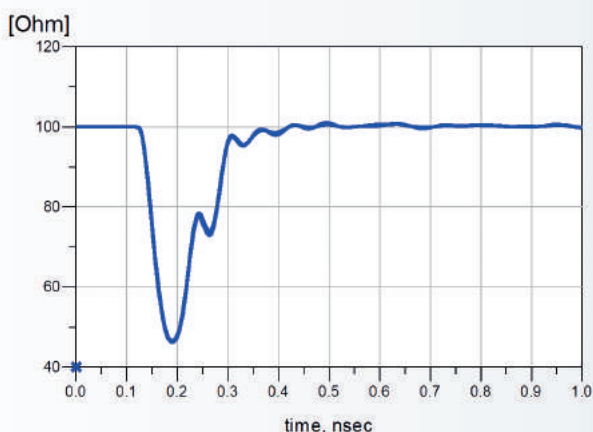
8 Gbit/s, 2x50mm PCB trace length, 100Ω impedance, simulated according to PCIe Gen 3



10 Gbit/s, 2x50mm PCB trace length, 100Ω impedance, simulated according to 10GBase-KR



Differential Impedance of a Colibri Connector Set



A differential signal was inserted into the plug side of the connector with a 25ps rise time.

A detailed report about the simulation with 10 Gbit/s as well as S-parameters for the simulation of your own design are available on request.

COM Express®

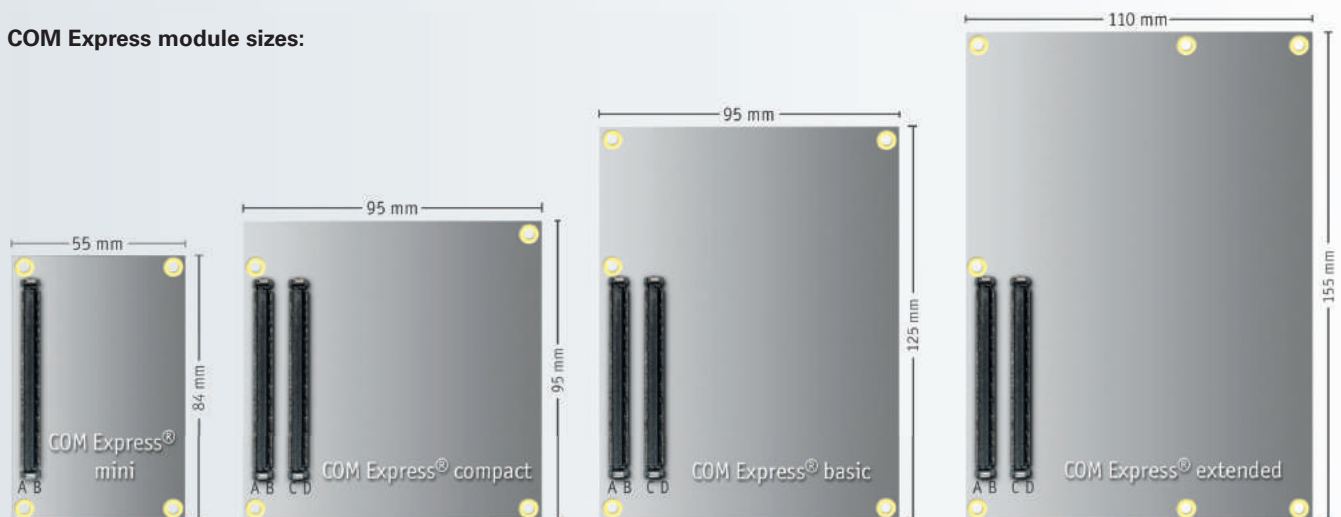
COM Express®, a computer-on-module (COM) form factor, was developed and is maintained by PICMG (PCI Industrial Computer Manufacturers Group). The standard defines not only the physical dimensions and placement of the module on the carrier board, but also the connectors used to plug the COM with the carrier board. COM Express modules integrate the core functionalities of a bootable PC, such as

CPU, RAM and standard interfaces on a module that is plugged by either one or two connectors on an individually designed carrier board. ept's Colibri connectors are specified in the latest release of the PICMG Design Guide for COM Express.

The ability to plug a COM Express module onto a carrier board reduces time and cost to develop a product, as

the user does not need to understand the often complex details associated with high speed signaling or the latest chip sets. Furthermore, product lifetime can be increased, as newer COM Express modules can simply be plugged onto the carrier board to improve performance.

COM Express module sizes:

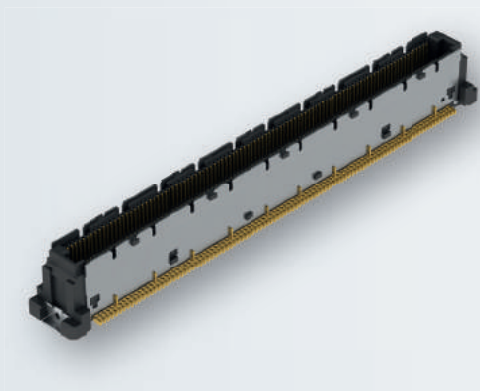


Typical applications:

- Industrial Automation
- POS-systems
- Medical
- Instrumentation
- Consumer electronics & Gaming
- Transportation
- Building Technology

Technical Specifications

Colibri® for COM Express®		
Technical Specification	Testing Standard	0.5 mm SMT Board-to-Board connector system
Basics		
Specification		PICMG COM.0
Number of pins		40 / 80 / 120 / 160 / 200 / 220 / 440
Termination		SMT
Operating temperature range		-40°C to +125°C
Material		
Insulator material		LCP
Contact material		Copper alloy
Contact surface		Au over Ni
Mechanical		
Pitch		0.5 mm
Mating force per pin		max. 0.9 N
Separating force per pin		min. 0.1 N
Durability	IEC 60512-9-1:2010	30 mating cycles
Coplanarity		max. 0.1 mm
Electrical		
Operational current	IEC 60512-5-2:2002	max. 0.5 A
Operating voltage		50 VAC
Contact resistance	IEC 60512-2-1:2002	max. 75 mΩ
Insulation resistance	IEC 60512-3-1:2002	> 100 MΩ
Test voltage	IEC 60512-4-1:2003	200 VAC
Data transfer rate		10 Gbit/s
Processing		
Soldering temperature		260°C according to J-STD-020
MSL		1
Packaging		Tape and Reel or Tray
Assembly		Pick and place
Approval		
UL file		E130314
Environment		RoHS compliant



Type: Plug (Base Board)

Number of pins: 220, 440

Pitch: 0.5 mm

Data transfer rate: 10 Gbit/s

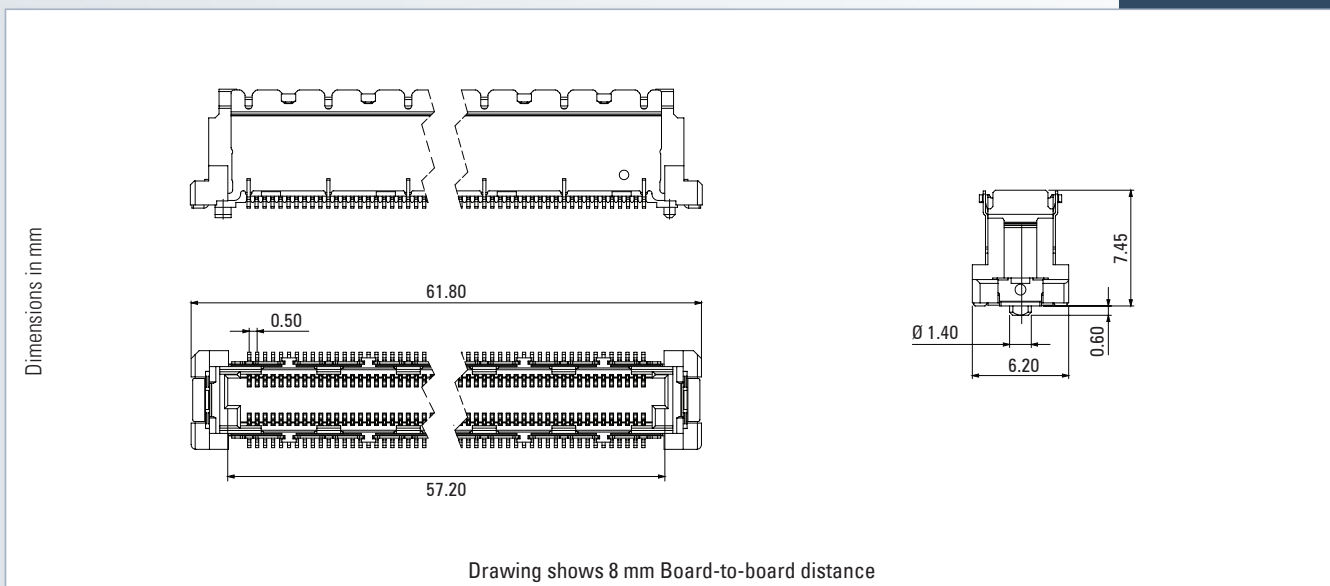
Packaging: Tape & Reel, Tray

Standards: PICMG COM.0



Technical Specification on page 5

For drawings and technical data visit www.ept.de



Note

All Colibri connectors also available with heavy gold plating (see ordering note on p. 7)

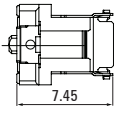
Mating connector / Application:



Colibri Receptacle (p. 8)



8 mm board-to-board distance . . .

	Colibri [®] Plug			
				
	Packaging			
	Tape & Reel		Tray	
Number of pins	Part number	PU	Part number	PU
220	401-55101-51	600	401-55101-51VP1	336
440	401-55501-51	240	401-55501-51VP1	168

Ordering note


All pin numbers are also available with heavy gold plating; therefore please use the ending „52“ instead of 51 in the part number

On request

- other board-to-board distances
- alternative contact surface
- with pick & place cap



5 mm board-to-board distance . . .

	Colibri [®] Plug			
				
	Packaging			
	Tape & Reel		Tray	
Polzahl	Part number	PU	Part number	VPE
220	401-51101-51	875	401-51101-51VP1	336
440	401-51501-51	350	401-51501-51VP1	168



Type: Receptacle (COM Module)

Number of pins: 220, 440

Pitch: 0.5 mm

Data transfer rate: 10 Gbit/s

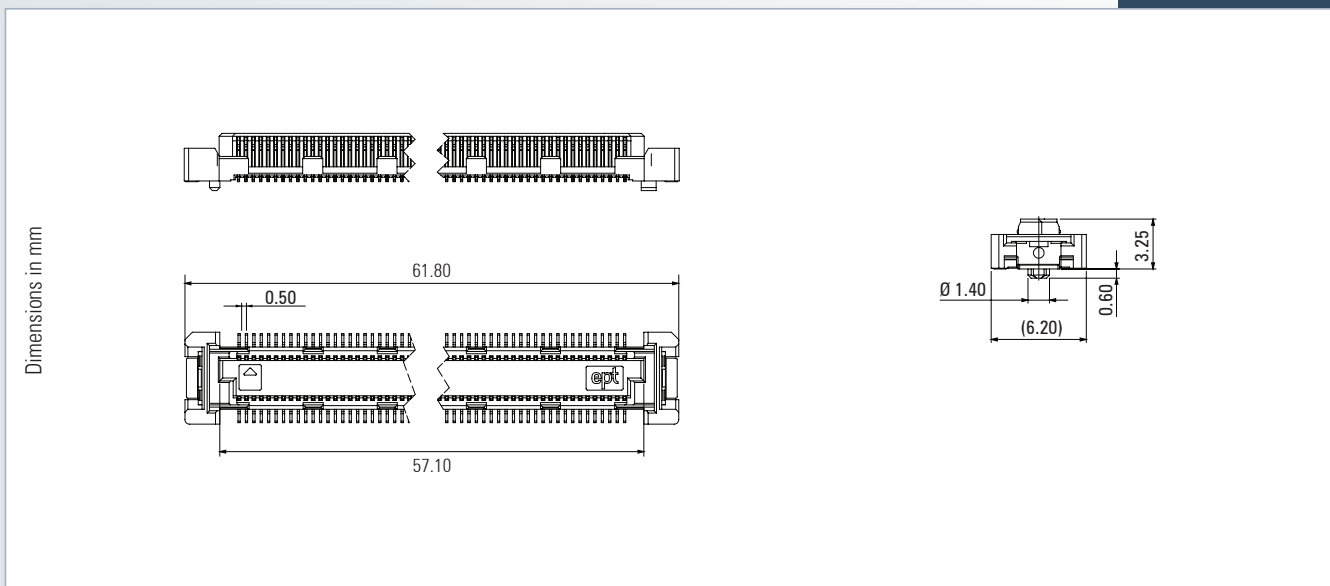
Packaging: Tape & Reel, Tray

Standards: PICMG COM.0



Technical Specification on page 5

For drawings and technical data visit www.ept.de



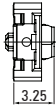
Hint

All Colibri connectors also available with heavy gold plating (see ordering note on p. 9)

Mating connector / Application:



Colibri Plug 5 mm & 8 mm (p. 6)

Colibri® Receptacle				
				
Packaging				
Tape & Reel			Tray	
Number of pins	Part number	PU	Part number	PU
220	402-51101-51	1050	402-51101-51VP1	336
440 with pick & place cap	402-51501-51	400	402-51501-51VP1	168

Ordering note

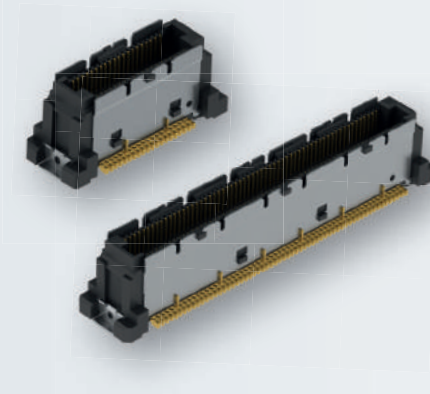
All pin numbers are also available with heavy gold plating; therefore please use the ending „52“ instead of 51 in the part number

On request

- alternative contact surface

Colibri ■ ■ ■

Plug Male Connector



Type: Plug

Number of pins: 40, 80, 120, 160, 200

Pitch: 0.5 mm

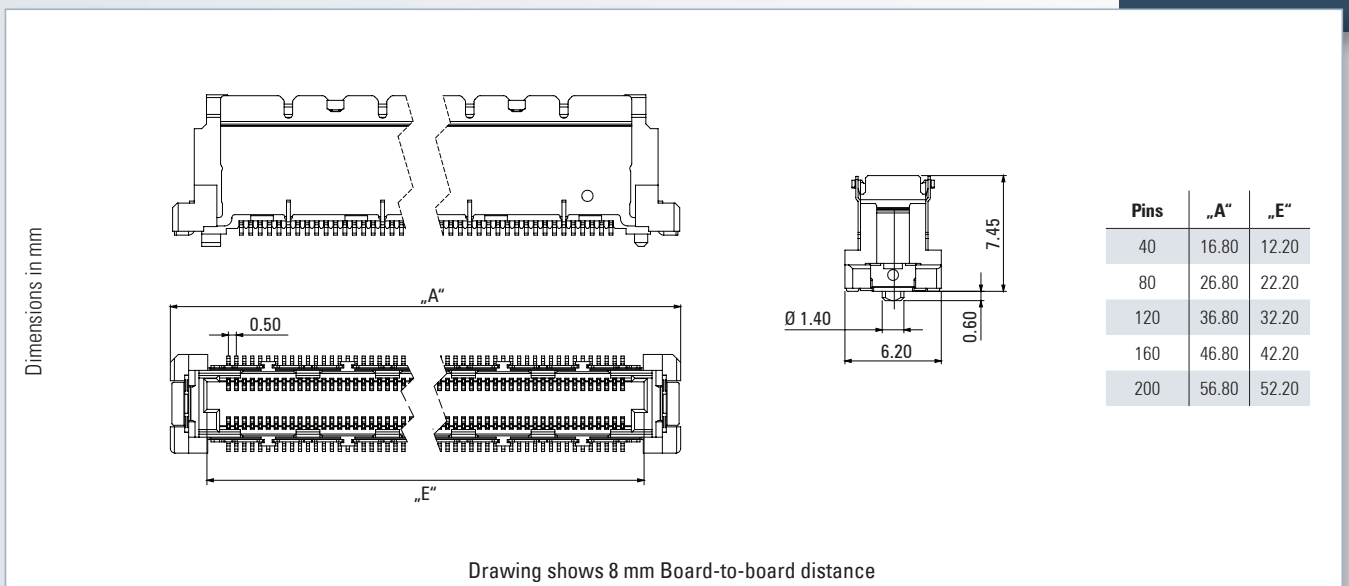
Data transfer rate: 10 Gbit/s

Packaging: Tape & Reel

Approval:  **US RoHS COMPLIANT**

Technical Specification on page 5

For drawings and technical data visit www.ept.de



Hint

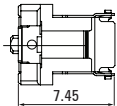
All Colibri connectors also available with heavy gold plating (see ordering note on p. 11)

Mating connector / Application:

 Colibri Receptacle (p. 12)



8 mm board-to-board distance

Colibri® Plug		
		
Number of pins	Part number	PU (Tape & Reel)
40	401-55701-51	600
80	401-55601-51	
120	401-55401-51	
160	401-55301-51	
200	401-55201-51	

Ordering note


All pin numbers are also available with heavy gold plating; therefore please use the ending „52“ instead of 51 in the part number

On request

- other board-to-board distances
- alternative contact surface
- with pick & place cap



5 mm board-to-board distance

Colibri® Plug		
		
Number of pins	Part number	PU (Tape & Reel)
40	401-51701-51	875
80	401-51601-51	
120	401-51401-51	
160	401-51301-51	
200	401-51201-51	

Receptacle Female Connector



Type: Receptacle (COM Module)

Number of pins: 40, 80, 120, 160, 200

Pitch: 0.5 mm

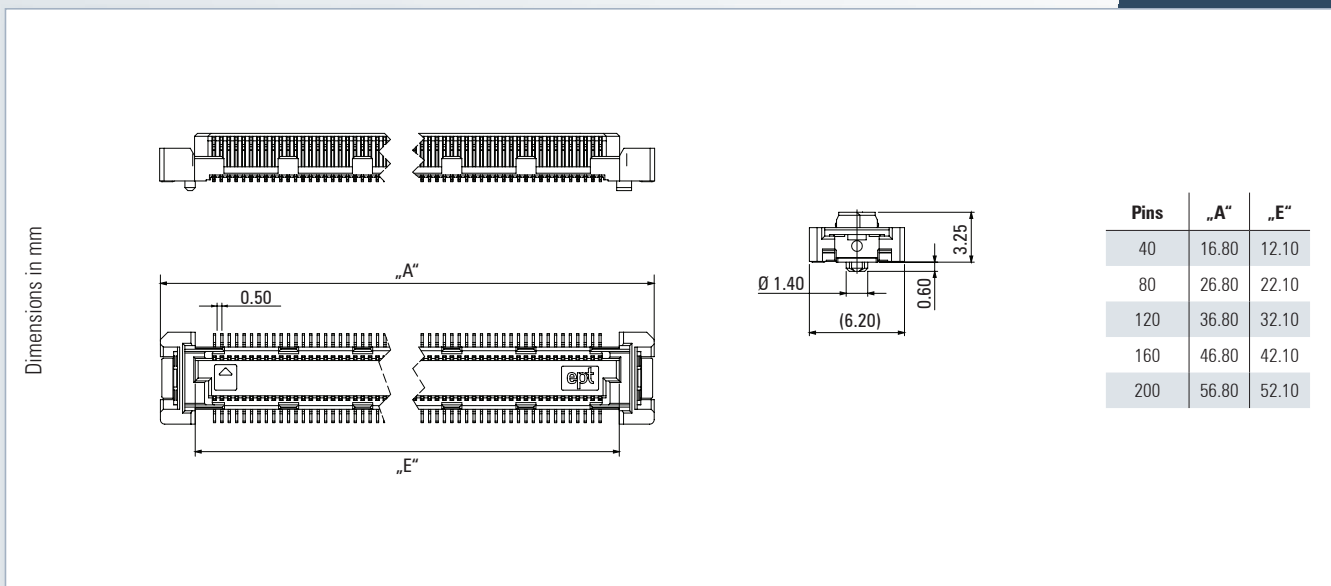
Data transfer rate: 10 Gbit/s

Packaging: Tape & Reel

Approval:  **RoHS COMPLIANT**

Technical Specification on page 5

For drawings and technical data visit www.ept.de



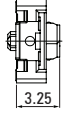
Hint

All Colibri connectors also available with heavy gold plating (see ordering note on p. 13)

Mating connector / Application:



Colibri Plug 5 mm & 8 mm (p. 10)

Colibri® Receptacle		
		
Number of pins	Part number	PU (Tape & Reel)
40	402-51701-51	1050
80	402-51601-51	
120	402-51401-51	
160	402-51301-51	
200	402-51201-51	

Ordering note

All pin numbers are also available with heavy gold plating; therefore please use the ending „52“ instead of 51 in the part number

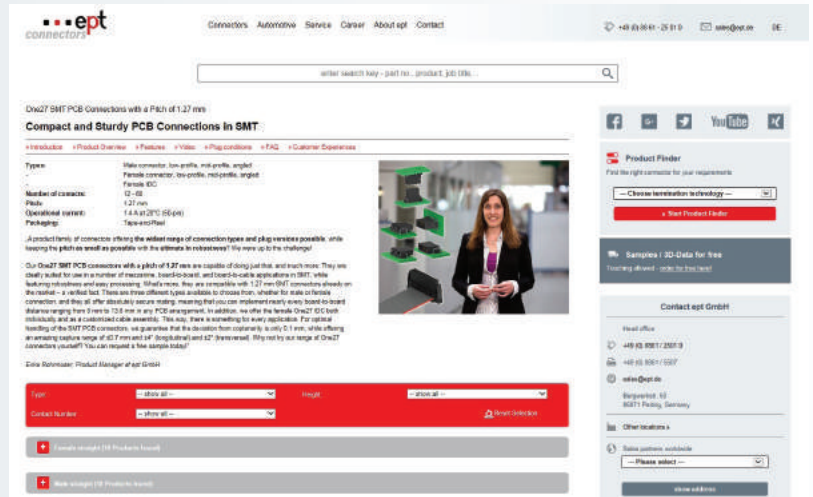
On request

- alternative contact surface

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

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.
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