




COMPU-SHIELD® - USB TYPE C



INELCO®
THE DISTINCTION



USB Type-C™ Key Messages:

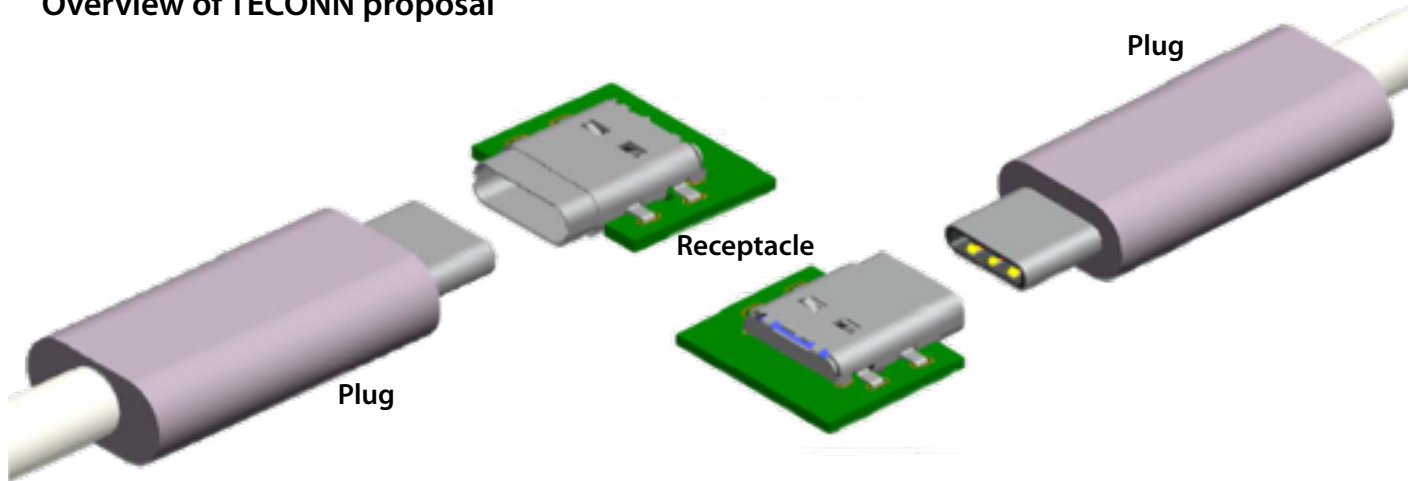
-  Slim and sleek connector tailored to fit mobile device product designs, yet robust enough for laptops and tablets
-  Features reversible plug orientation and cable direction
-  Supports scalable power and performance to future-proof your solution

Applications

- Newly small form factor
- Scales for future USB bus performance
- Supports scalable applications
- Scalable power charging



Overview of TECONN proposal

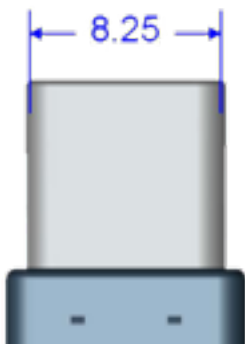
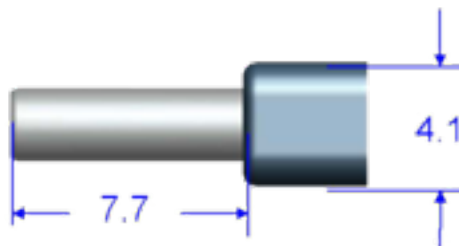


Features

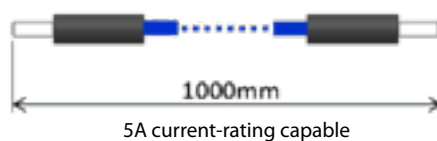
- Receptacle: 24 pins, Plug: 22 pins
- USB 3.1 signaling supported (15 Gbps in current support)
- User friendly reversible insertion
- No spring contact in Receptacle (consider the risk of damage for device)
- EMI countermeasure enhanced
- Power delivery supported (3A or 5A not yet determined)

Concept

- USB 3.1 supported (full-featured)
- Paddle card recommended for cable assembly
- Contact terminal is soldered on paddle card



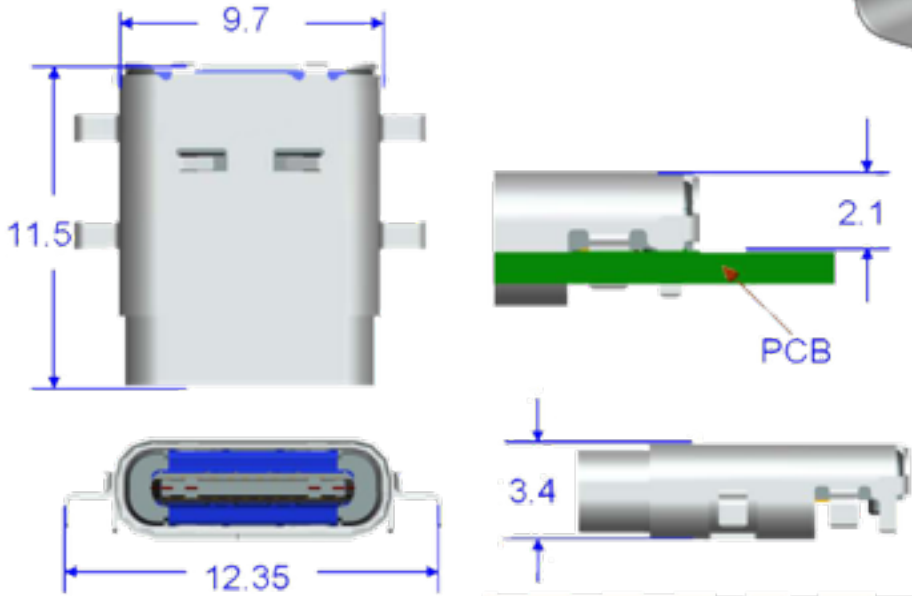
Cable assembly (Type C ←→ Type C)



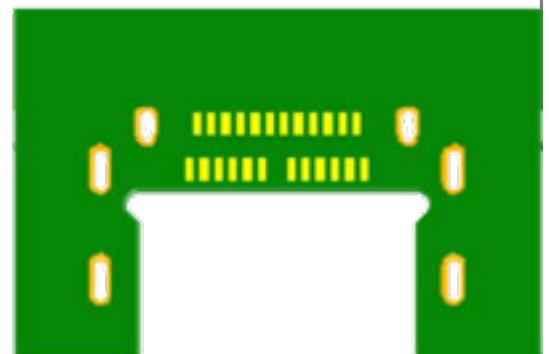
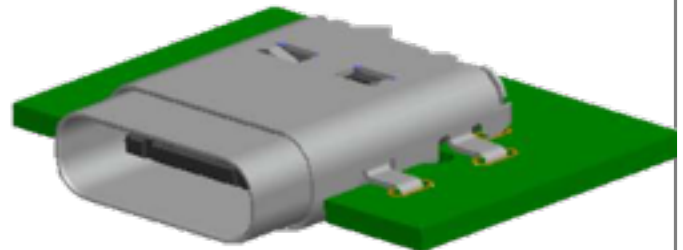
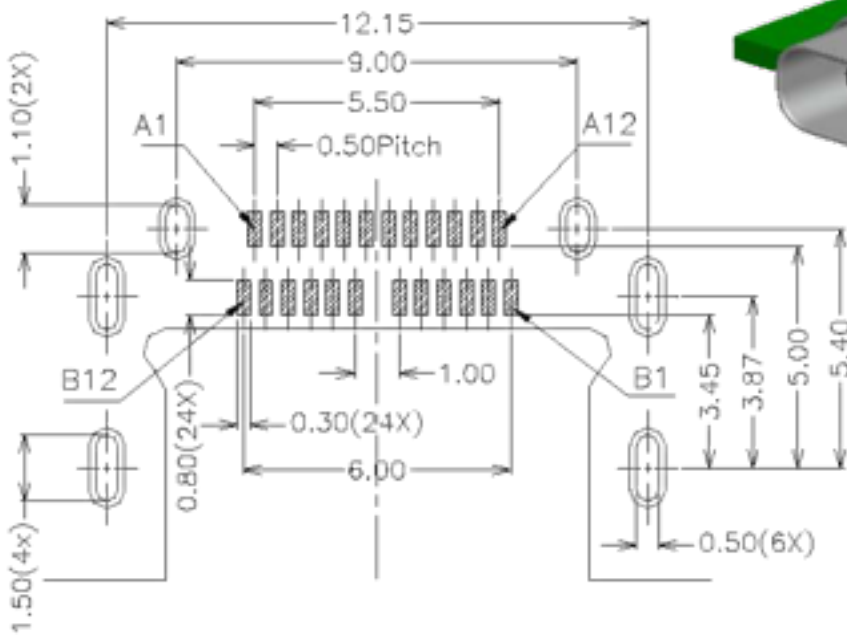
| | Component name | Q'ty |
|----|--------------------------|------|
| 1 | Contact | 22 |
| 2 | GND spring | 2 |
| 3 | Latch | 1 |
| 4 | Shell (front) | 1 |
| 5 | Insulator | 1 |
| 6 | Inner molding (inside) | 2 |
| 7 | Insulation tape (inside) | 2 |
| 8 | Shield (inside) | 1 |
| 9 | Shell (middle outside) | 1 |
| 10 | Shell (back outside) | 1 |
| 11 | PCB | 1 |

Concept

- USB 3.1 supported (full-featured)
- Mid-mount type
- Dual row SMT (contact) / DIP (shell & GND)



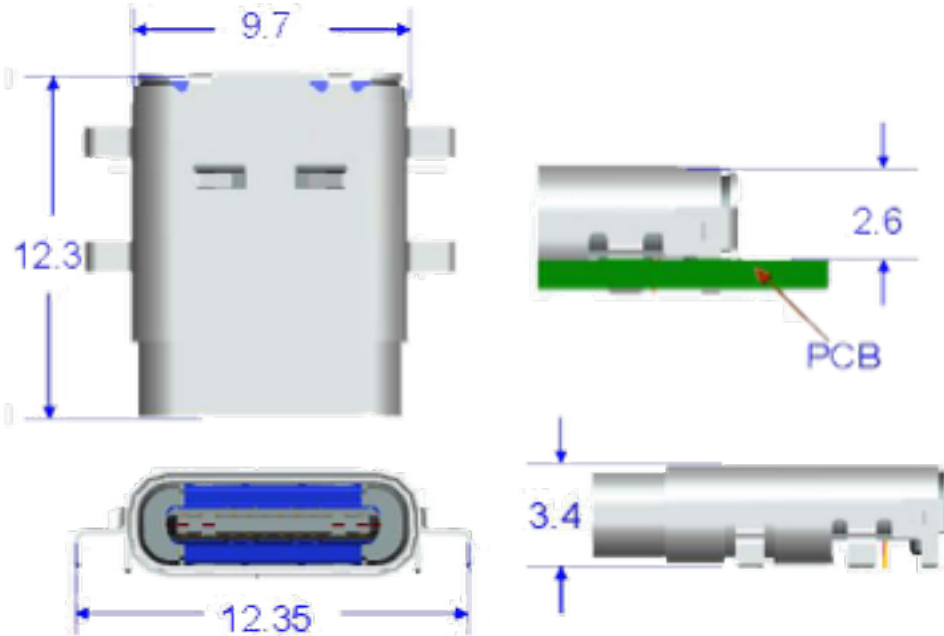
| | Component name | Q'ty |
|---|-----------------------|------|
| 1 | Upper contact | 12 |
| 2 | Lower contact | 12 |
| 3 | GND plate (inside) | 2 |
| 4 | Shield plane (inside) | 1 |
| 5 | Shell-1 | 1 |
| 6 | Shell-2 | 1 |
| 7 | Insulator | 1 |
| 8 | Tap | 1 |



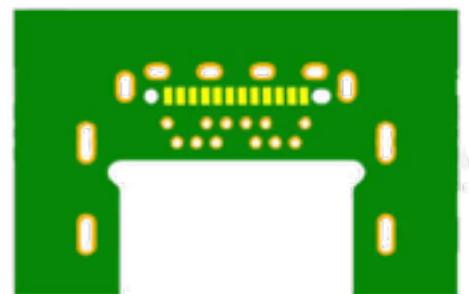
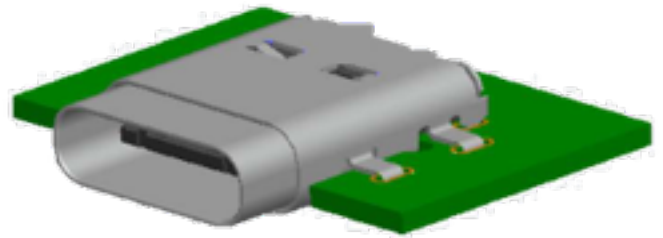
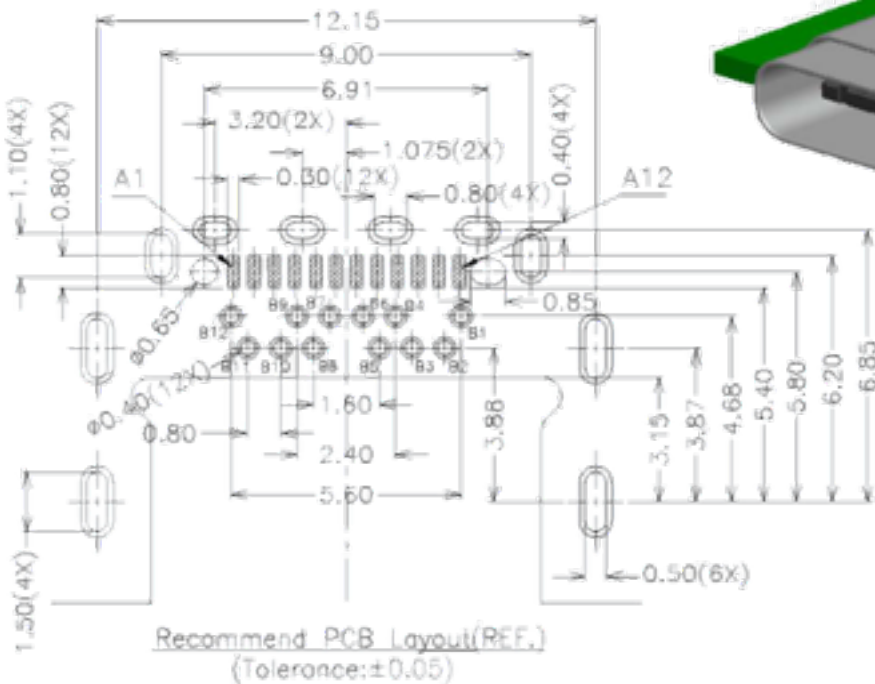
Recommend PCB (T = 0,8 m)

Concept

- USB 3.1 supported (full-featured)
- Mid-mount type
- Dual row DIP (contact) & SMT (contact)/ DIP (shell & GND plane)



| | Component name | Q'ty |
|---|-----------------------|------|
| 1 | Upper contact | 12 |
| 2 | Lower contact | 12 |
| 3 | GND plate (inside) | 2 |
| 4 | Shield plane (inside) | 1 |
| 5 | Shell-1 | 1 |
| 6 | Shell-2 | 1 |
| 7 | Insulator | 1 |
| 8 | Tap-1 | 1 |
| 9 | Tap-2 | 1 |



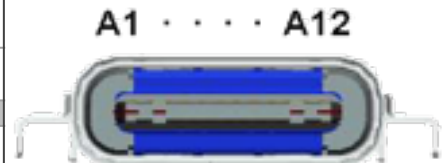
Recommend PCB (T = 0,8 m)

- TX**/ RX**Super speed differential pair (4 pairs)
- D*USB 2.0 differential pair (1 pair)
- CC*Configuration channel
- SBU*Sideband Use

Mating Sequence

- FirstGND & VBUS (A1, A4, A9, A12, B1, B4, B9, B12)
- SecondOther pins

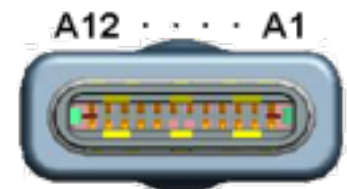
| | | | | | | | | | | | |
|-----|------|------|------------------|------|----|----|------|------------------|------|------|-----|
| A1 | A2 | A3 | A4 | A5 | A6 | A7 | A8 | A9 | A10 | A11 | A12 |
| GND | TX1+ | TX1- | V _{BUS} | CC1 | D+ | D- | SBU1 | V _{BUS} | RX2- | RX2+ | GND |
| GND | RX1+ | RX1- | V _{BUS} | SBU2 | D- | D+ | CC2 | V _{BUS} | TX2- | TX2+ | GND |
| B12 | B11 | B10 | B9 | B8 | B7 | B6 | B5 | B4 | B3 | B2 | B1 |



A1 A12
B12 B1

Receptacle (front view)

| | | | | | | | | | | | |
|-----|------|------|------------------|-------------------|----|----|------|------------------|------|------|-----|
| A12 | A11 | A10 | A9 | A8 | A7 | A6 | A5 | A4 | A3 | A2 | A1 |
| GND | RX2+ | RX2- | V _{BUS} | SBU1 | D- | D+ | CC | V _{BUS} | TX1- | TX1+ | GND |
| GND | TX2+ | TX2- | V _{BUS} | V _{CONN} | | | SBU2 | V _{BUS} | RX1- | RX1+ | GND |
| B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 |



A12 A1
B1 B12

Plug (front view)

| Standard | USB 3.1 Type C | Micro USB 2.0 | Micro USB 3.0 | USB 3.0 Standard |
|------------------------|----------------|---------------|---------------|------------------|
| Pin Counts | 24 | 5 | 10 | 9 |
| Pitch | 0,5 mm | 0,65 mm | 0,65 mm | 2 & 2,5 mm |
| Contact Rows | 2 | 1 | 1 | 2 |
| Front View (Rec.) | | | | |
| A (interior height) | 2,54 mm | 1,85 mm | 1,85 mm | 5,12 mm |
| B (interior height) | 8,34 mm | 6,92 mm | 12,25 mm | 12,5 mm |
| Data transmission rate | 15 Gbps | 480 Mbps | 5 Gbps | 5 Gbps |