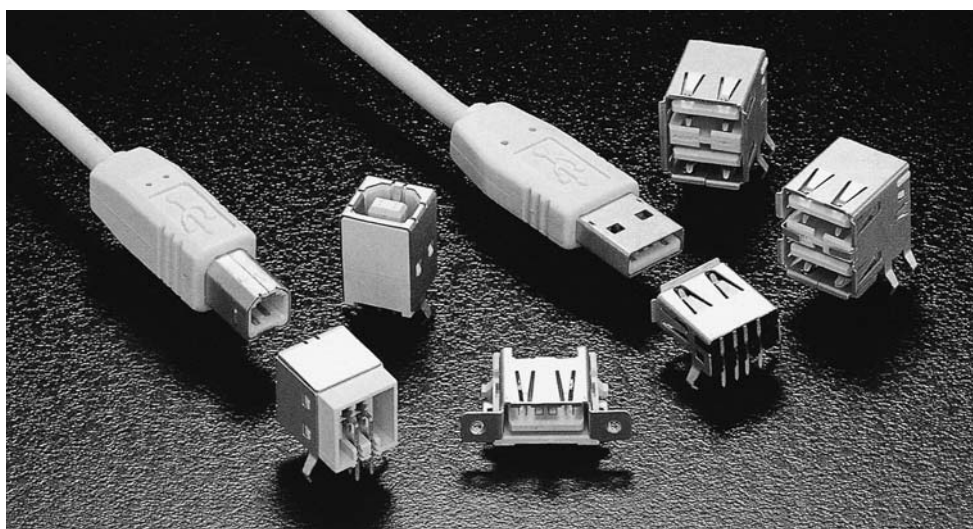


Product Facts

- Plug and Play capability
- Hot pluggable, permits attaching or detaching peripherals without power down or reboot
- Single 4-position connector, polarized for proper orientation
- Complete family of board-mount receptacles, including right-angle, thru-hole, thru-hole type B, side-by-side, and stacked
- Cable mount overmold plug kits for both standard and type B applications
- Consolidates serial parallel, keyboard, mouse and game ports
- Compatible with asynchronous and isochronous data transfer methods



The Tyco Electronics Connector System will accommodate the two differentially driven data wires that provide bi-directional, simultaneous signals for full speed 12Mbps or for low speed 1.5Mbps used in Universal Serial Bus (USB) Systems. The Tyco Electronics USB System is a complete inter-

connection technology for I/O devices, including: key-boards, mice, game port, serial port devices, digital audio, printers, scanners, modems, joy sticks, and other telecommunication devices. Designed for outside-of-box, user friendly applications, the Tyco Electronics system

consists of a single 4-position boardmount receptacle and mating cable mount overmolded plug. Boardmount receptacles are available in standard, Type B, stacked and side-by-side configurations, adding to the system's versatility to meet all USB applications.

Table of Contents

Standard USB

Series A Receptacle Assemblies	2-10
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Mini USB

Connectors	14-16
Plugs	17
Cable Assembly	18

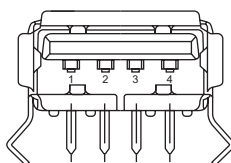
RJ45 Over USB

MAG45 Modular Jacks with Integrated Magnetics

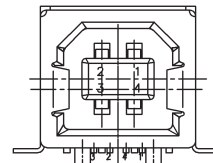
USB/IEEE Combo

Part Matrix

Product	Series	Part Number	RoHS Compliant	Orientation	SMT/ Thru-Hole	Page Number
Header	A	787616-1	202303-1	Right-Angle	Thru-Hole	2
		440260-1	292336-1	Right-Angle	Thru-Hole	2
Header	A	353929-1	5353929-1	Panel Mount, RA	SMT	3
		353928-1	1734038-1	Panel Mount, RA	SMT	4
Header	A	787617-1	5787617-1	Double Stack, RA	Thru-Hole	5
Header	A	440448-1	1-1734181-2	Triple Stack, RA	Thru-Hole	6
Header	A	1470007-2	1-1734383-2	Quad Stack, RA	Thru-Hole	7
Header	A	1364428-1	1734366-1	Vertical	Thru-Hole	8
Plug	A	1470697-1	1734080-1	Edge Mount	SMT	9
		1470695-1	1734028-1	Edge Mount	SMT	9
Plug Kit	A	1364978-1	1734372-1	Cable Appl.		10
Header	B	787780-1	292304-1	Right-Angle	Thru-Hole	11
Header	B	787834-1	5787834-1	Vertical	Thru-Hole	11
Header	B	1734346-1	1734346	Right-Angle	SMT	12
Plug Shell	B	796007-2	796007-3	Cable Appl.		12
Plug Housing	B	796006-4	5796006-4	Cable Appl.		12



Series A



Series B

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Series A Receptacle Assemblies (Continued)

**Panel Mount Right Angle
SMT Type**

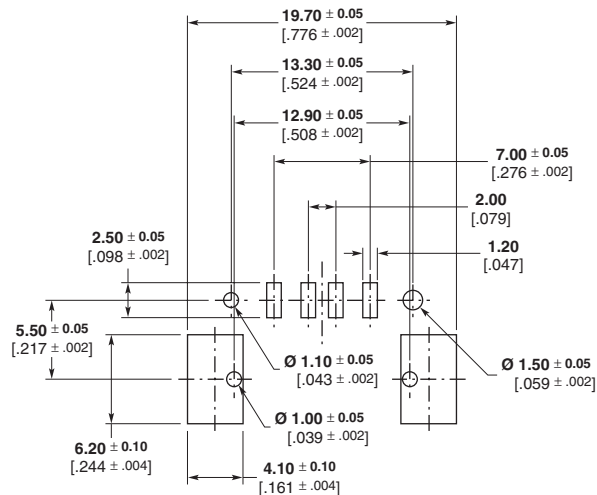
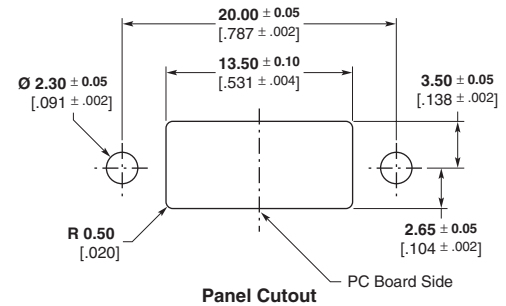
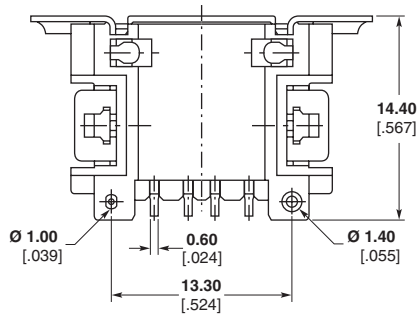
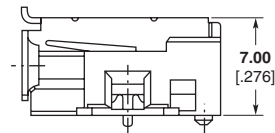
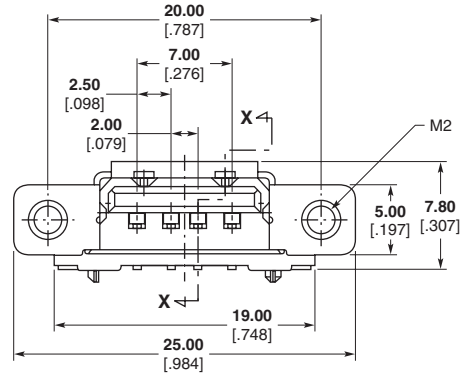
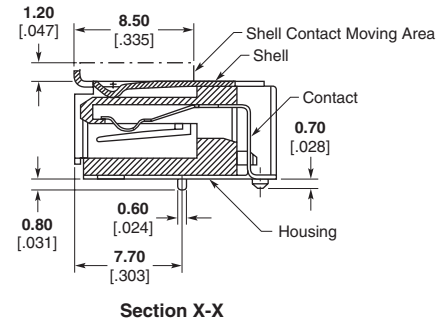
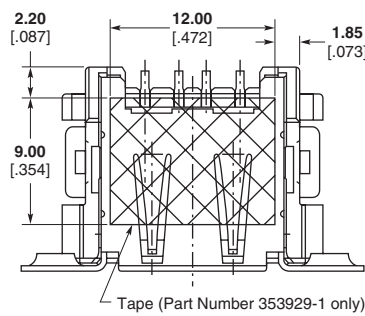
Part Number
5353929-1

Emboss Tape Mounted, ea. 350
Tape Width — 44.00 [1.732]

Part Number
353583-1

Tray Pack, ea. 55

Product Specification
108-5563



**Recommended PCB Layout
(Component Side)**

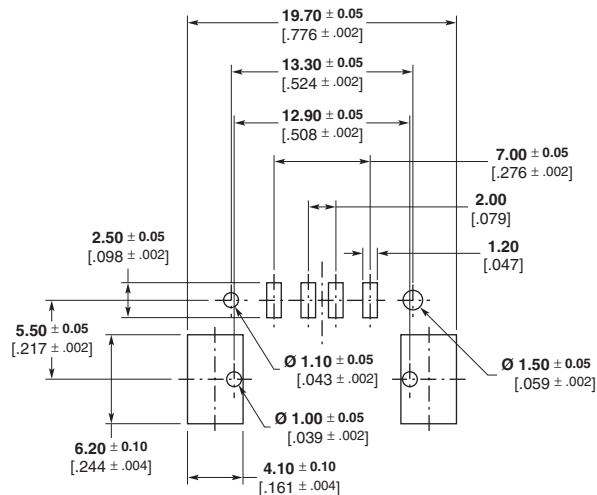
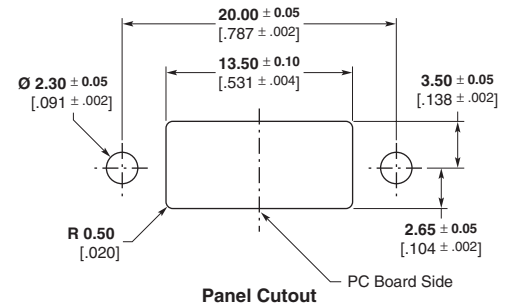
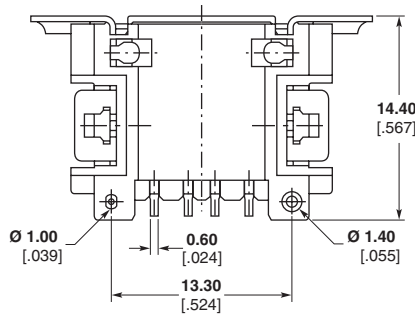
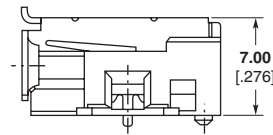
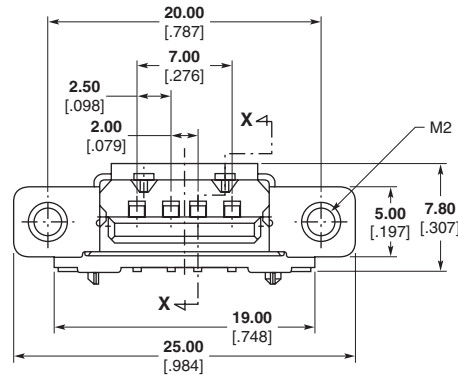
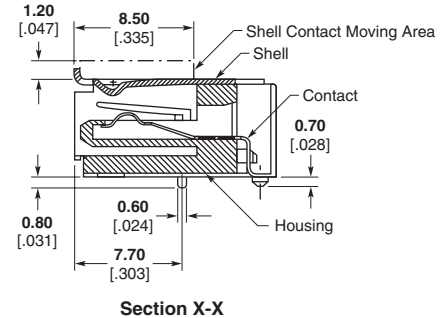
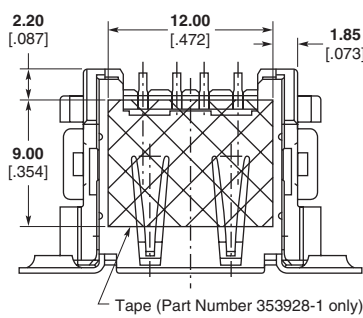
Series A Receptacle Assemblies (Continued)

**Panel Mount Right Angle
SMT Type, Reverse Mating**

Part Number
1734038
Emboss Tape Mounted, ea. 350
Tape Width — 44.00 [1.732]

Part Number
353576-1
Tray Pack, ea. 55

Product Specification
108-5563



**Recommended PCB Layout
(Component Side)**

Series A Receptacle Assemblies (Continued)

Right Angle Stacked, Thru-Hole

Part Number
5787617-1

Loose Piece

Solder Tail Length — 2.84 [.112]

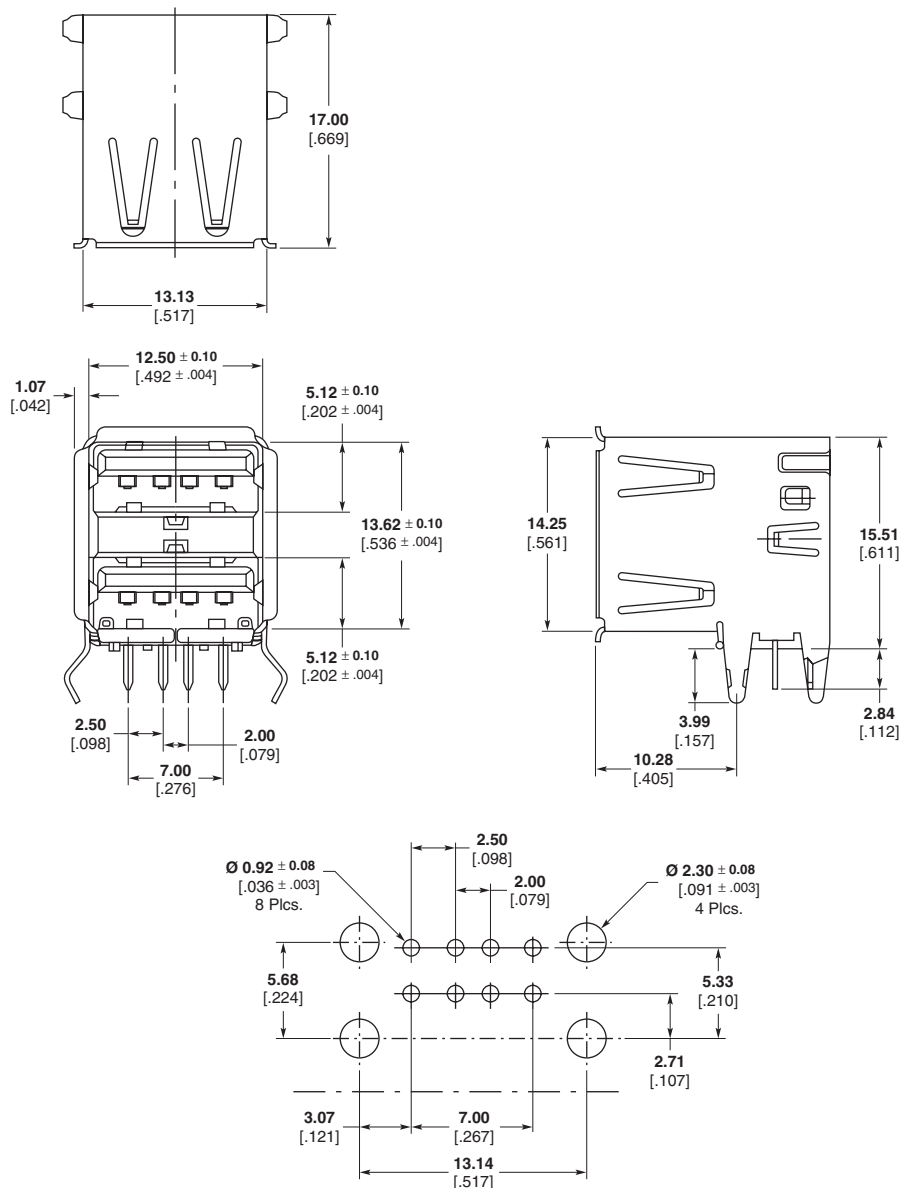
Recommended PCB Thickness —
1.57 [.062]

Material and Finish

Housing — Thermoplastic, UL94V-0

Shell — Copper alloy, plated bright tin

Contacts — Copper alloy, plated
0.076µm min. gold over 0.76µm min.
palladium-nickel on the mating end,
3.8µm min. tin lead on solder tails all
over 1.27µm min. nickel underplating or
0.076µm min. Gold on the mating end,
3.8µm min. tin lead on solder tails all
over 1.27µm min. nickel underplating.



Recommended PCB Layout

Right-Angle, Triple Stack Thru-Hole with Panel Grounds

Part Number
1-1734181-2

Material and Finish

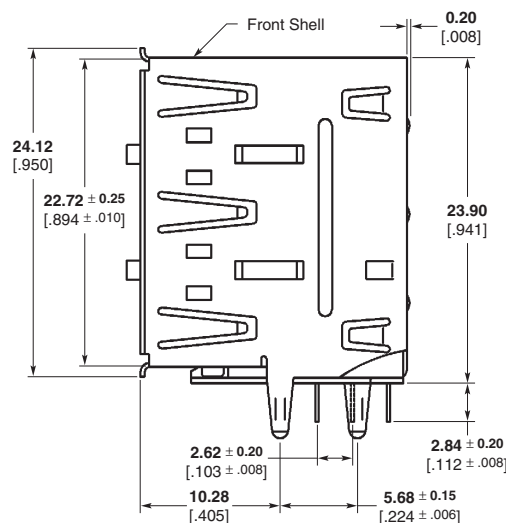
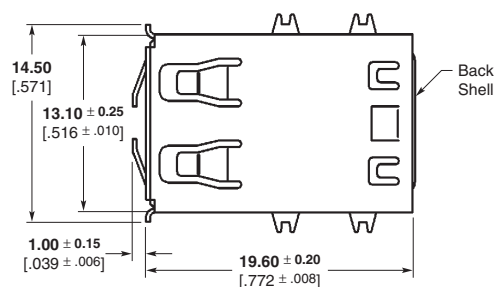
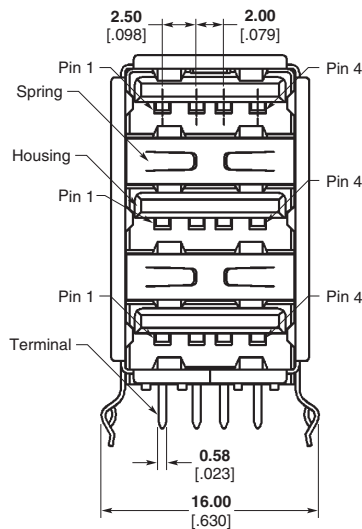
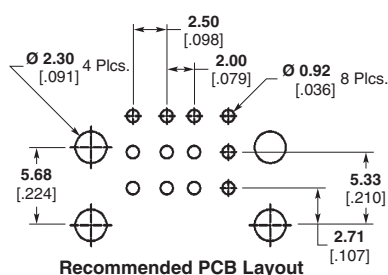
Housing — Thermoplastic, UL94V-0, white

Contact — Phosphor bronze, plated gold on contact area and tin on solder-tails, nickel underplated

Front Shell — Brass, nickel plated, copper underplated

Back Shell — SPCC, nickel plated, copper underplated

Product Specification
108-57113



Series A Receptacle Assemblies (Continued)

Right Angle, Quad Stack, Thru-Hole with Panel Grounds

Part Number
1-1734383-2

Material and Finish

Housing (1) — Thermoplastic with 30% G/F, UL94V-0, color black

Housing (2) — High temperature thermoplastic with 30% G/F, UL94V-0, color black

Contact — Phosphor bronze, gold plated in contact area, tin on solder tails, nickel underplated overall

Front Shield — Brass, tin plated on entire, nickel underplated overall

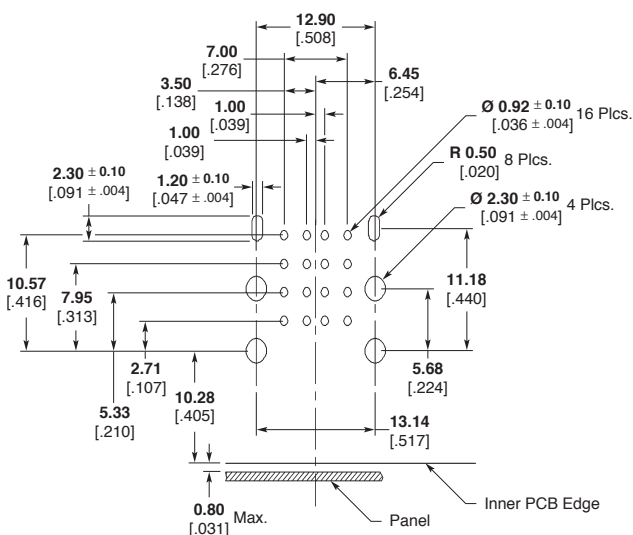
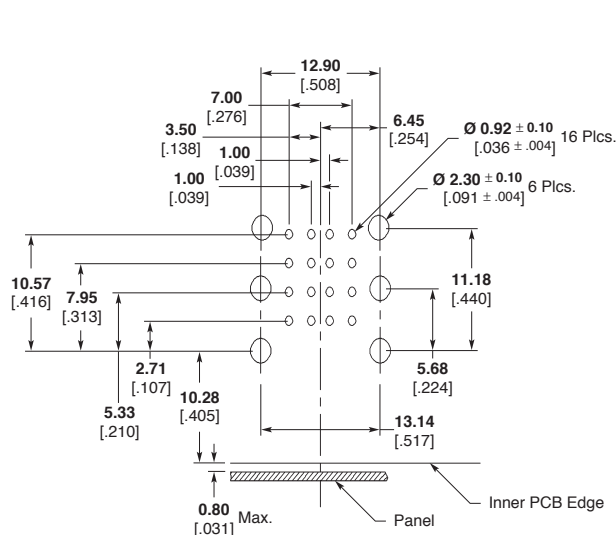
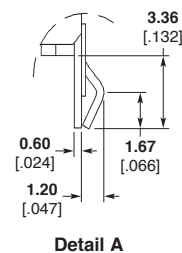
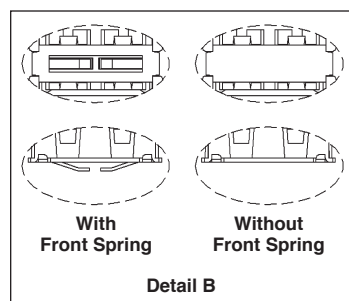
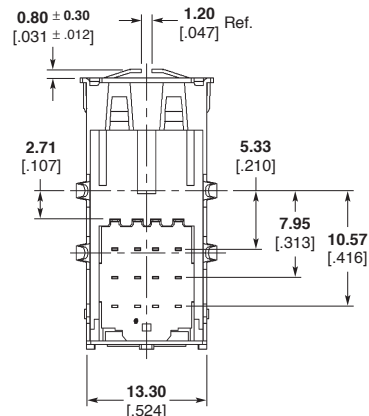
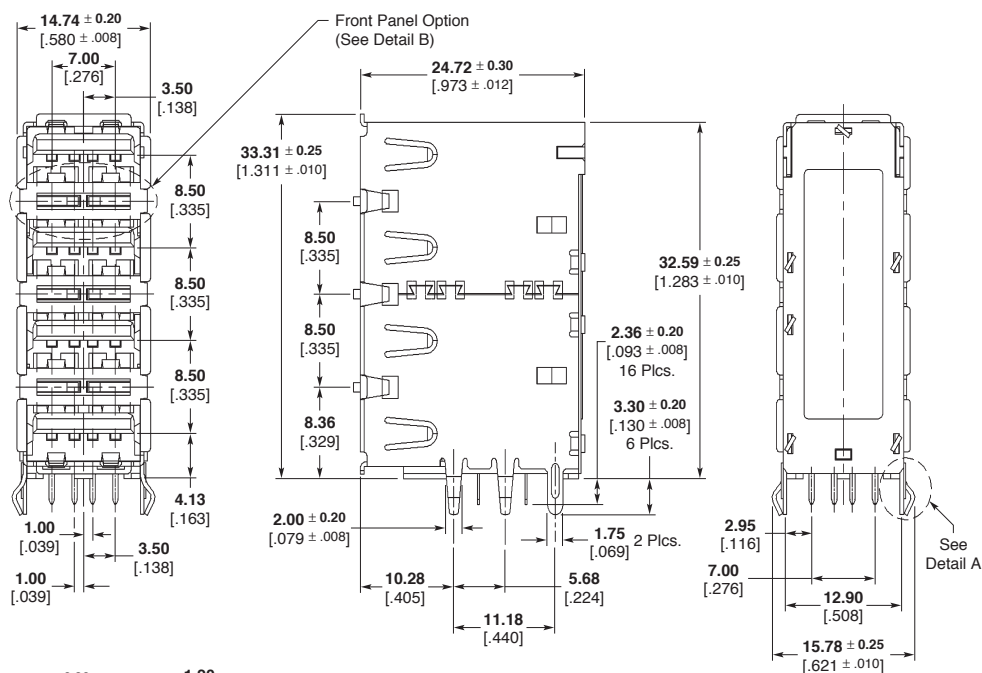
Rear Shield — Brass, nickel plated

Ground Finger — Brass, tin plated on entire, nickel underplated overall

Recommended PCB Thickness —
1.60 [.063]

Product Specification

108-57391

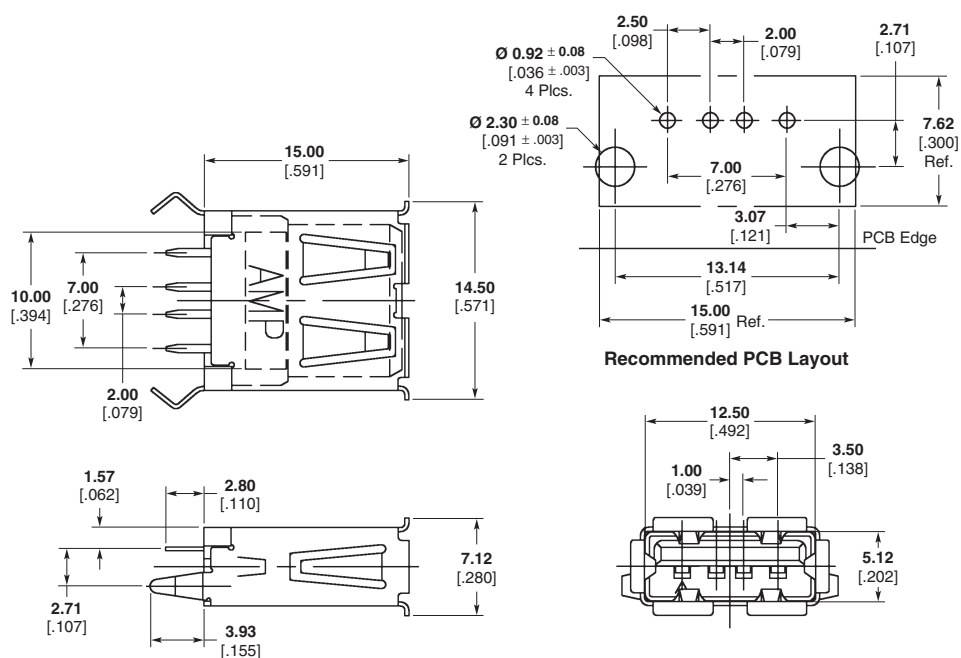


Series A Receptacle Assemblies (Continued)

Vertical, Thru-Hole

Part Number
1734366-1

Product Specification
108-57547



Series A Plug Assemblies

Edge Mount, SMT

Part Number
1734080-1

Material and Finish

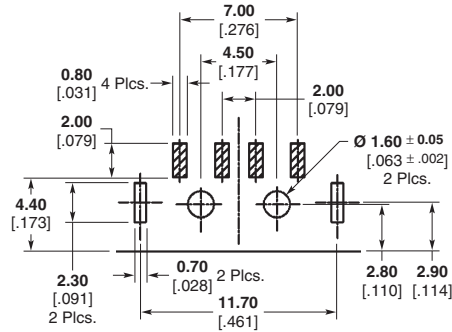
Housing — High temperature thermoplastic, UL94V-0, black or white

Contact — Brass, plated gold on contact area and tin-lead on soldertails, nickel underplated

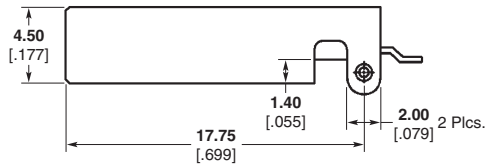
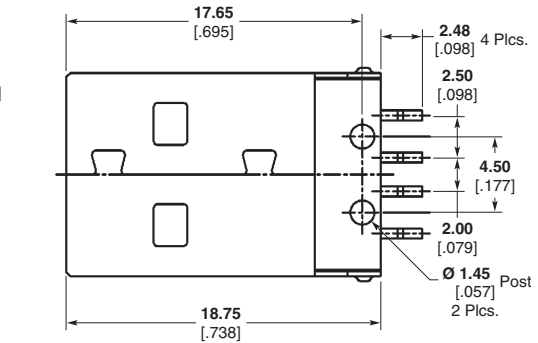
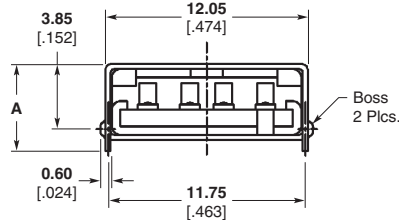
Shield — Steel, nickel plated, copper underplated

Product Specification
108-57304

Dim. A	Part Number
5.85	1470697-1
.230	1470697-2
5.05	1-1470697-1
.199	1-1470697-2
	2-1470697-1
	7-1470697-2



Recommended PCB Layout



Edge Mount, SMT

Part Number
1734028-1

Material and Finish

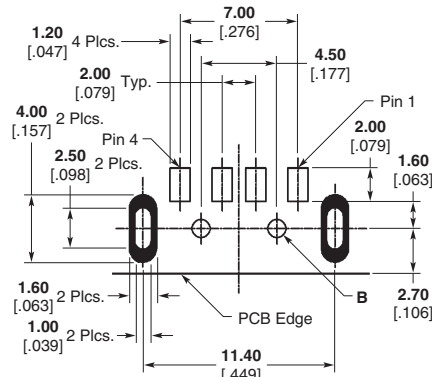
Housing — Thermoplastic, UL94V-0, black or natural

Contact — Brass, plated gold on contact area and tin-lead on soldertails, nickel underplated

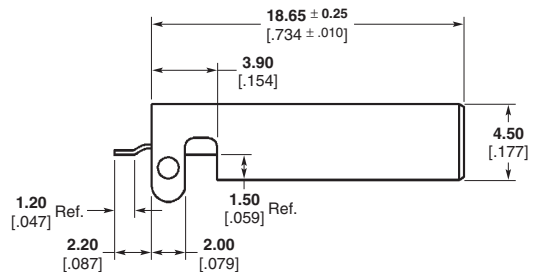
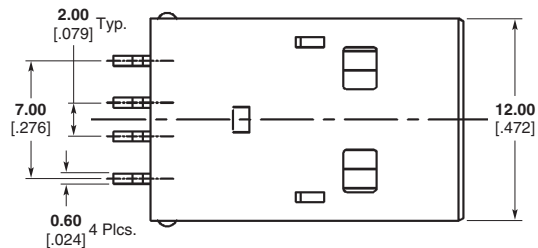
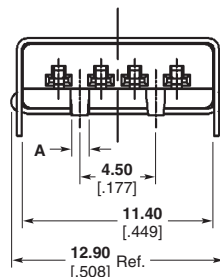
Shield — Steel, nickel plated, copper underplated

Product Specification
108-57306

Dim. B	Part Number
1.10	1734028-1
.043	1734028-2
1.50	1734028-3
.059	1734028-4



Recommended PCB Layout



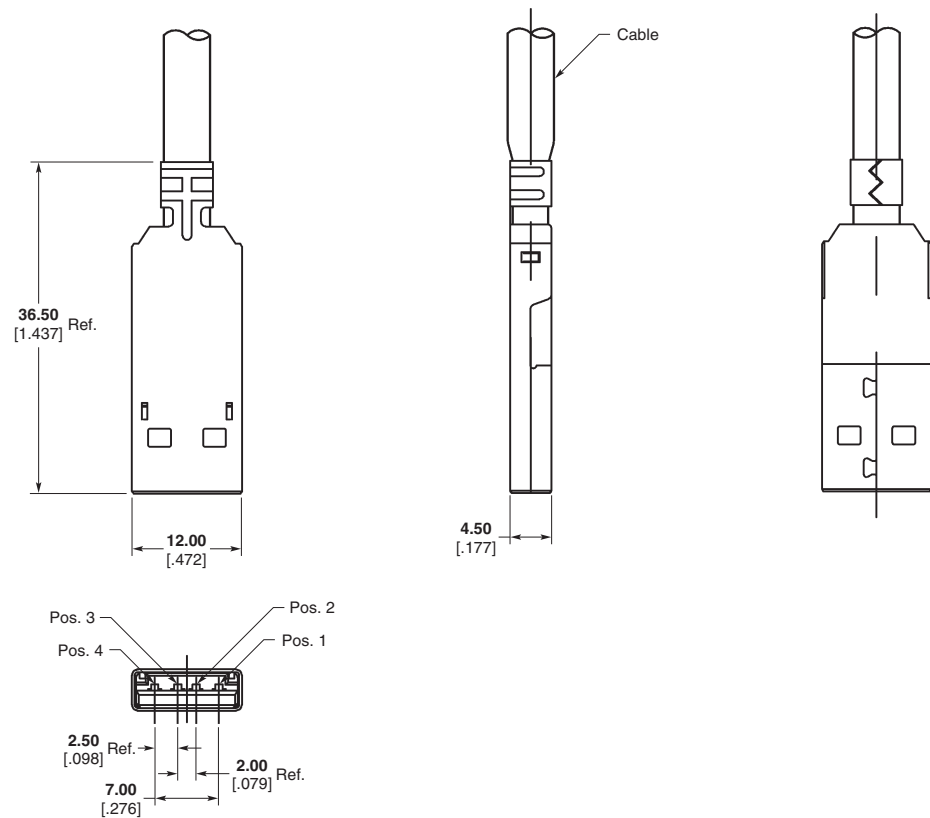
Series A Plug Assemblies (Continued)

Cable Plug

Kit includes Housing with contacts cover, front and back shells

Part Number
1734372-1

Product Specification
108-57547



Series B Receptacle Assemblies

Right Angle, Thru-Hole

Part Number
292304-1

Loose Piece

Material and Finish

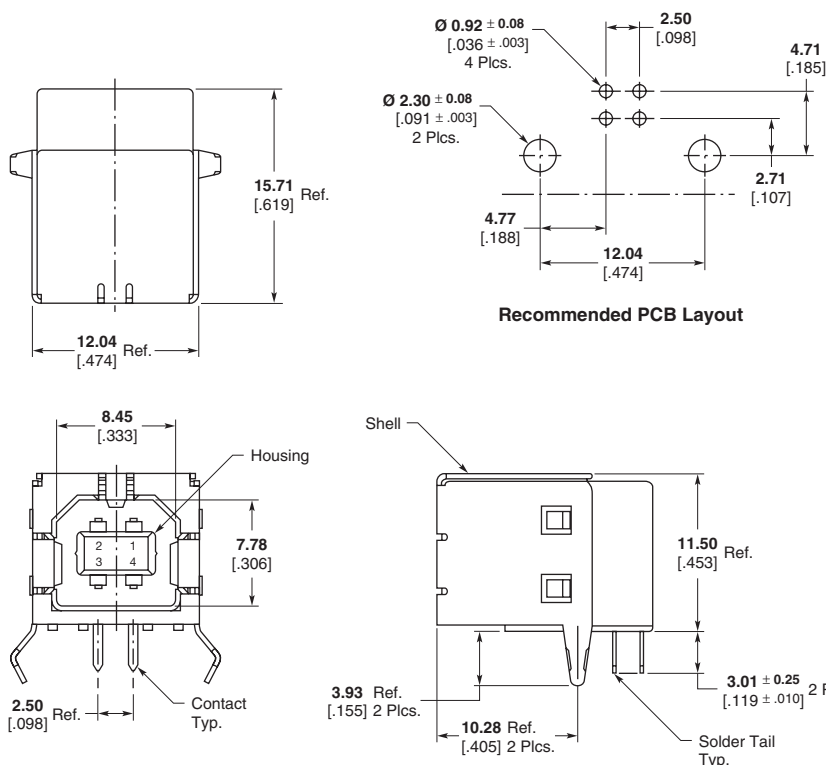
Housing — Thermoplastic, UL94V-0

Shell — Copper alloy, plated bright tin

Contacts — Copper alloy, plated 0.076µm min. gold over 0.76µm min. palladium-nickel on the mating end, 3.8µm min. tin lead on solder tails all over 1.27µm min. nickel underplating or 0.076µm min. gold on the mating end, 3.8µm min. tin lead on solder tails all over 1.27µm min. nickel underplating.

Recommended PCB Thickness —
1.57 [.062]

Product Specification
108-1586



Vertical Thru-Hole

Part Number
5787834-1

Loose Piece

Material and Finish

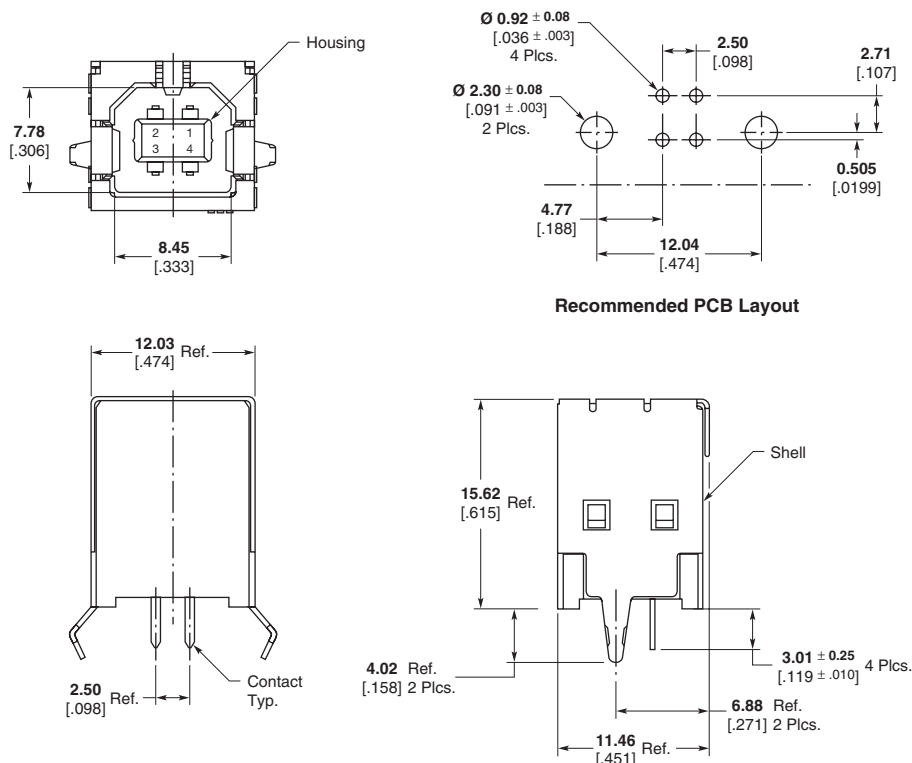
Housing — Thermoplastic, UL94V-0

Shell — Copper Alloy, plated bright Tin

Contacts — Copper Alloy, plated 0.076µm min. Gold over 0.76µm min. palladium-nickel on the mating end, 3.8µm min. Tin lead on solder tails all over 1.27µm min. nickel underplating or 0.076µm min. Gold on the mating end, 3.8µm min. Tin lead on solder tails all over 1.27µm min. nickel underplating.

Recommended PCB Thickness —
1.57 [.062]

Product Specification
108-1586



Series B Receptacle Assemblies (Continued)

Right-Angle, SMT

Part Number
1734346

Material and Finish

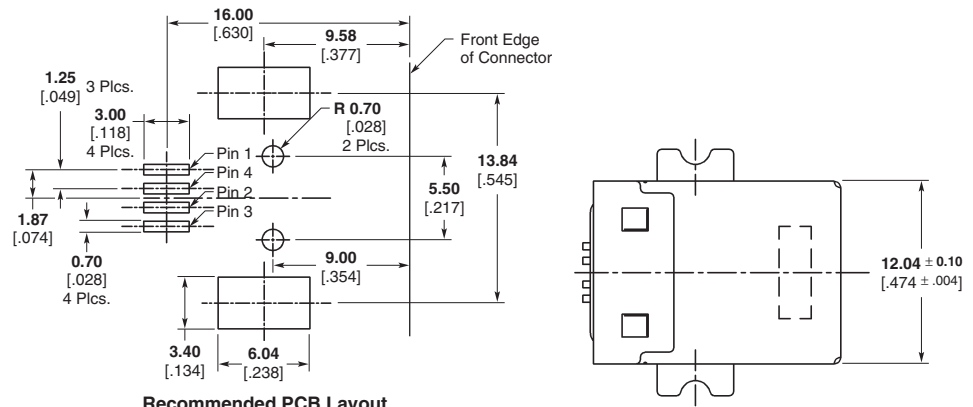
Housing — High temperature thermoplastic, UL94V-0, black

Contact — Phosphor bronze, plated gold on contact area and tin-copper on soldertails, nickel underplated

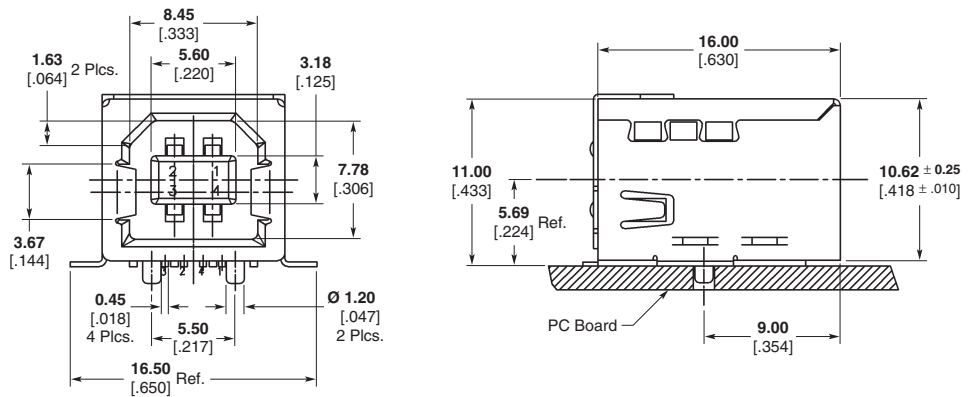
Front Shell — Phosphor bronze, nickel plated

Back Shell — Stainless steel, nickel plated

Product Specification
108-57538



Recommended PCB Layout



Cable Plug

Part Numbers
796007-3
796006-4

Plug Housing & Contact Assembly (Loose Piece)

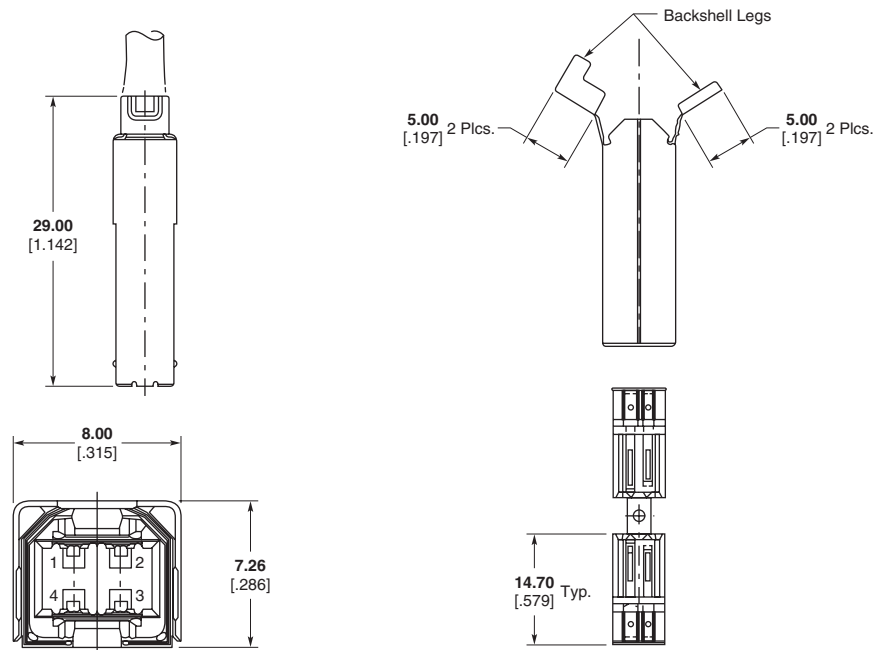
Material and Finish

Housing — Thermoplastic, UL94V-0

Shell — Copper alloy, plated bright tin

Contacts — Copper alloy, plated 0.076µm min. gold over 0.76µm min. palladium-nickel on the mating end, 3.8µm min. tin lead on solder tails all over 1.27µm min. nickel underplating or 0.076µm min. gold on the mating end, 3.8µm min. tin lead on solder tails all over 1.27µm min. nickel underplating.

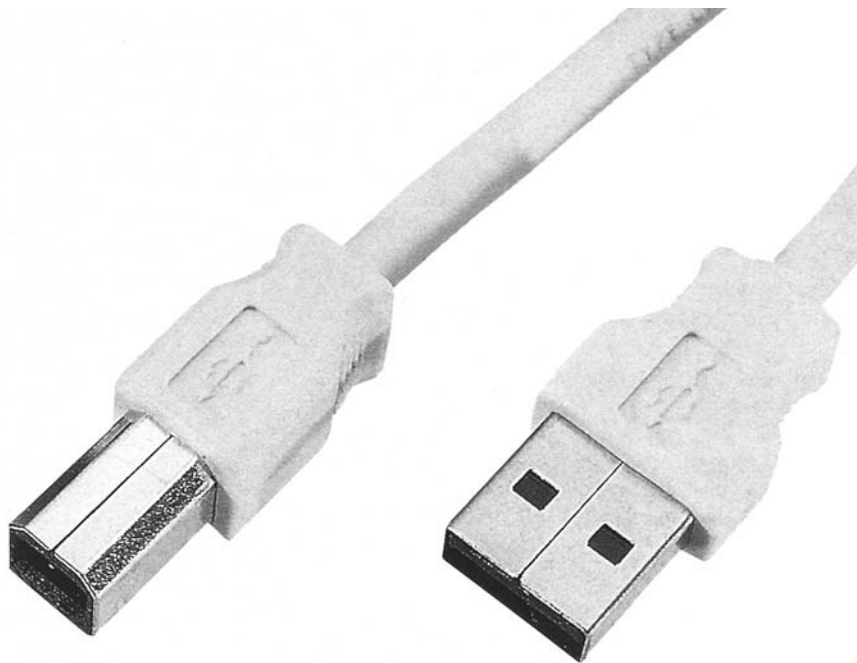
Product Specification
108-1586



USB Cable Plug Cable Assemblies

Product Facts

- Support latest technology for personal computer Plug and Play peripheral connectivity
- Uses Serial Bus technology to connect USB equipped personal computer to keyboards, mice, printers, video camera, etc
- Requires personal computer equipped with an "A" receptacle, Universal Serial Port
- Larger wire sizes are required for longer lengths to meet USB specifications for maximum current load and millivolt drop



Standard Universal Serial Bus (USB) Cable Assemblies Bus Extender Cable Assemblies



Cable Construction	Length* m [ft]	Part Number
2/AWG28 (0.08mm ²), 2/AWG28 (0.08mm ²), Shielded	500 [1,640]	1487594-1
2/AWG28 (0.08mm ²), 2/AWG26 (0.15mm ²), Shielded	250 [820]	1487594-2
2/AWG28 (0.08mm ²), 2/AWG24 (0.20mm ²), Shielded	162 [531]	1487594-3
2/AWG28 (0.08mm ²), 2/AWG22 (0.40mm ²), Shielded	310 [1,017]	1487594-4
2/AWG28 (0.08mm ²), 2/AWG20 (0.60mm ²), Shielded	4.0 [13]	974329-1
2/AWG28 (0.08mm ²), 2/AWG20 (0.60mm ²), Shielded	5.0 [16]	974329-2

Blunt End-Cut Assemblies for connecting to devices, such as keyboard, mice, etc.



Cable Construction	Length* m [ft]	Part Number
2/AWG28 (0.08mm ²), 2/AWG28 (0.08mm ²), Shielded	0.83 [2.7]	974538-1
2/AWG28 (0.08mm ²), 2/AWG26 (0.15mm ²), Shielded	1.0 [3.3]	974539-1
2/AWG28 (0.08mm ²), 2/AWG24 (0.20mm ²), Shielded	2.0 [6.6]	974540-1

*Indicates preferred lengths.

Mini USB Connector and Cable Assemblies Input/Output

Product Facts

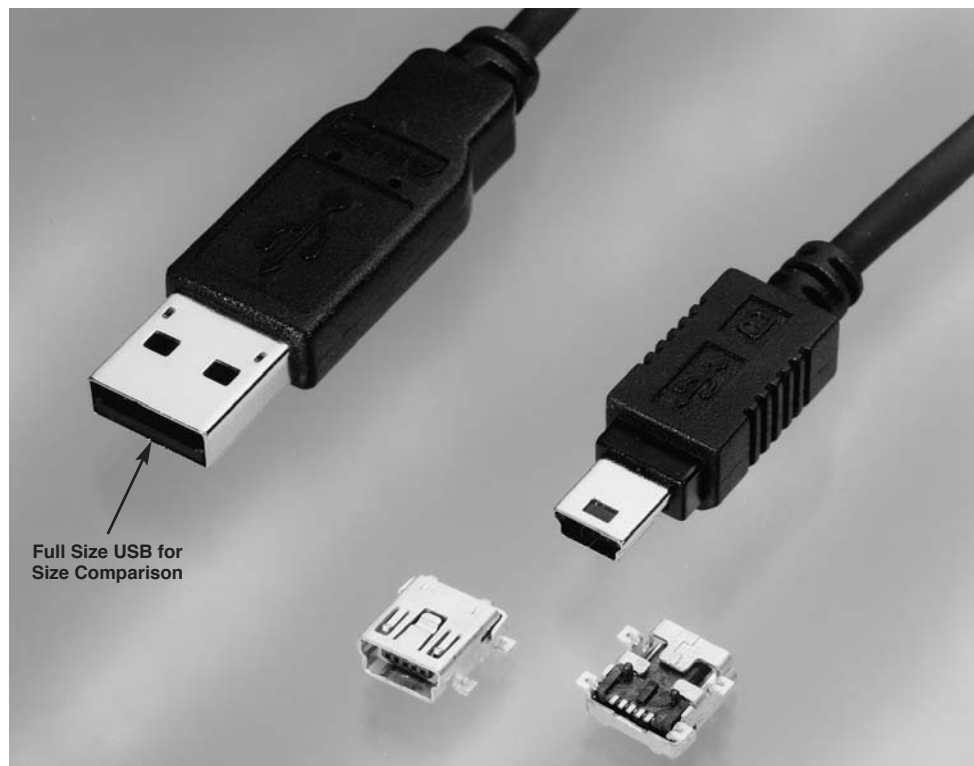
- Designed to meet the USB 2.0 specifications
- Single 5-Position (one ID pin) receptacle connector polarized for proper orientation
- Used in next generation high density computer peripherals, PDA's, palm tops and cell phones
- Designed for 480MB/s transfer rate

Mini USB Types

- High density design, allows for all the benefits of USB in a smaller package than traditional USB connectors
- **Mini-A** receptacle is keyed to allow a device to act as the host. It has four solder hold downs, which provide stability in mating and unmating by preventing stress on SMT connector leads
- **Mini-B** receptacle is keyed to allow device to act as a peripheral
- **Mini-AB** receptacle is keyed for devices that can act as a host or peripheral

Applications

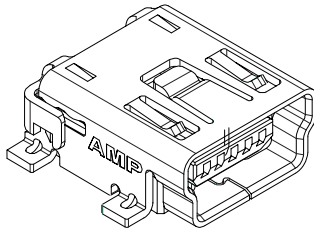
- Supports latest technology for personal computer Plug and Play peripheral connectivity
- Uses serial bus technology to connect USB personal computers to PDA's, cell phones, video cameras, scanners, printers, keyboard and mouse



Part Matrix

Product	Series	Part Number	RoHS Compliant	Packaging	Page Number
Header	Mini-A	440478-1	1734327-1	Tray	15
		440478-2	1734327-2	T/R	15
	Mini-B	440247-1	1734035-1	Tray	16
		440247-2	1734035-2	T/R	16
	Mini-AB	440479-1	1734328-1	Tray	15
		440479-2	1734328-2	T/R	15
Plug	Mini-A	440315	—	Loose Piece	17
	Mini-B	—	1734205-1	Loose Piece	17

Right Angle SMT



Part Numbers

Mini-A	1734327-1	Tray
	1734327-2	T/R
Mini-B	440247-1	Tray
	440247-2	T/R
Mini-AB	440479-1	Tray
	440479-2	T/R

Performance Data

Electrical

Dielectric Withstanding Voltage — 100 VAC

Current Rating — 1.5A @ 250VAC min.

Insulation Resistance — 100 megaohms min.

Contact Resistance — 50 milliohms max.

Contact Capacitance — 2pf max per contact

Safety Certification — Recognized under the Component Program of Underwriters Laboratories, Inc. File No. E81956



Mechanical

Durability — 5,000 cycles

Mating Force — 3.57 kg. max.

Unmating Force — .31 kg. min.

Recommended PCB Board Thickness — 1.57 [.062] and 0.80 [.031]

Materials

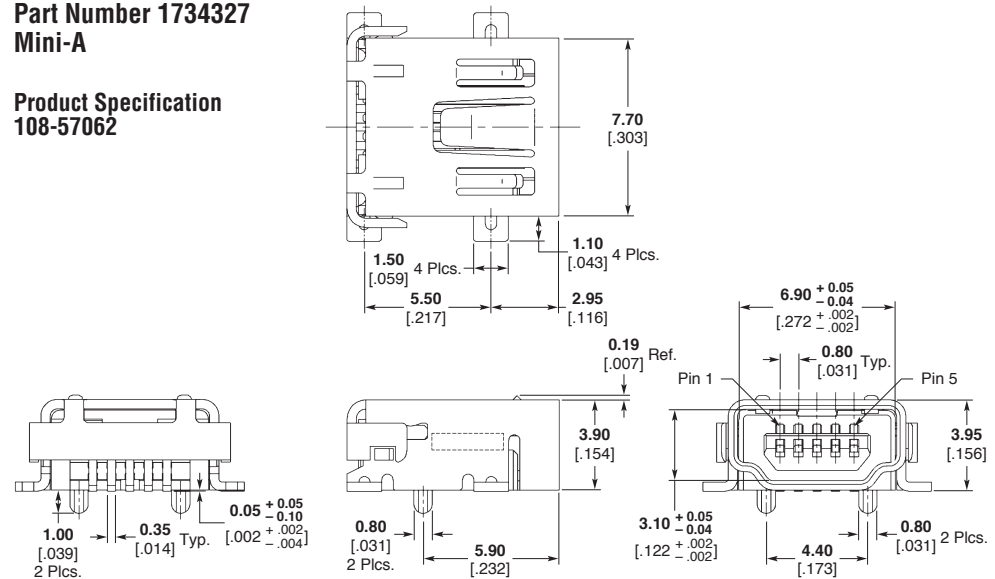
Housing — High temperature, thermoplastic glass filled; UL-94-V-0 rated; color black

Shell — Copper alloy

Contacts — .76 microns Au mating end, tin or tin/lead on solder tails as needed

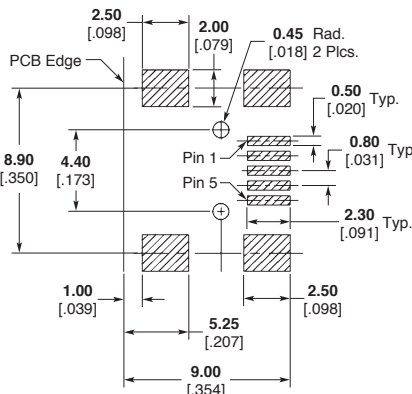
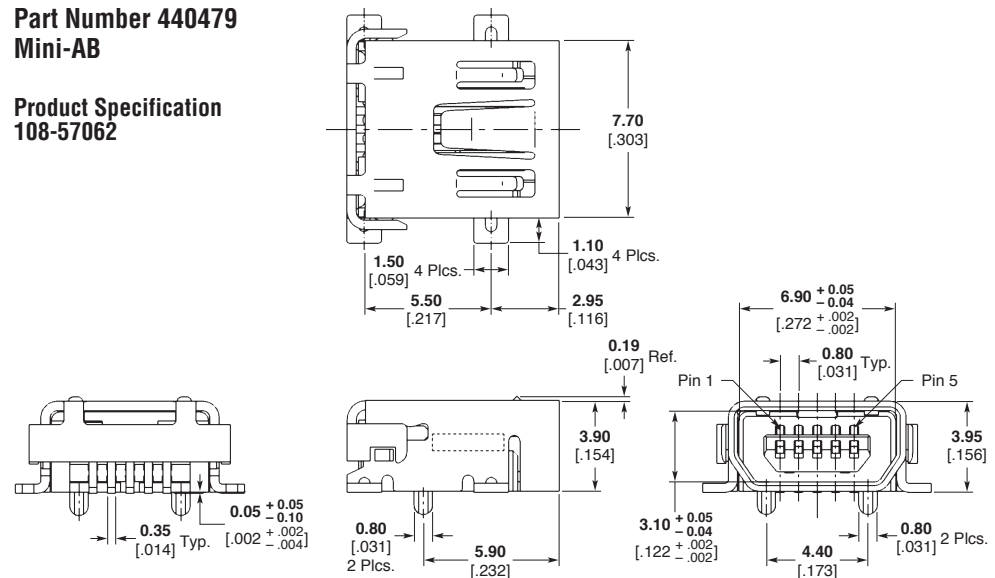
**Part Number 1734327
Mini-A**

**Product Specification
108-57062**



**Part Number 440479
Mini-AB**

**Product Specification
108-57062**



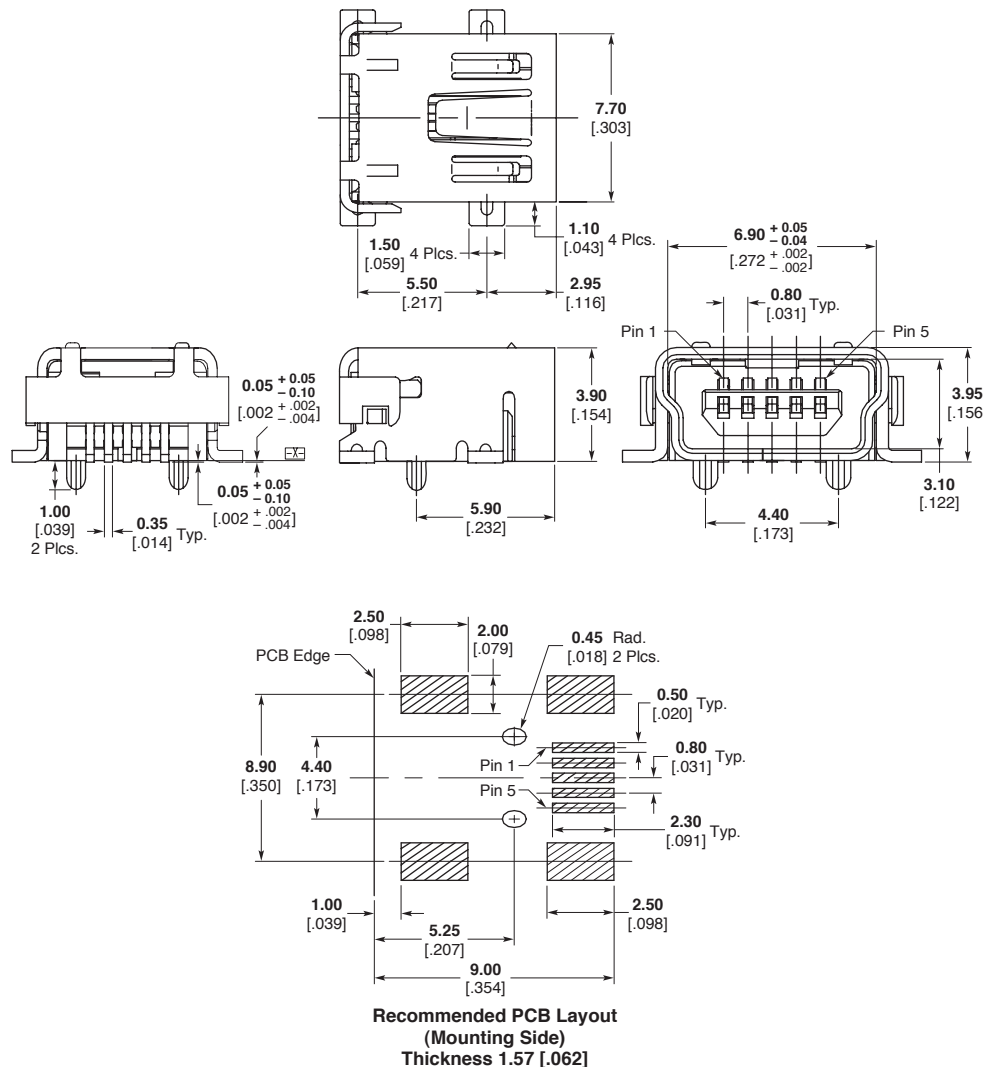
**Recommended PCB Layout
(Mounting Side)
for Part Numbers 440478 and 440479
Thickness 1.57 [.062]**

Mini USB Receptacle Assemblies (Continued)

Right Angle, SMT Mini-B

Part Numbers: 440247
RoHS Compliant: 1734035

Product Specification 108-57062

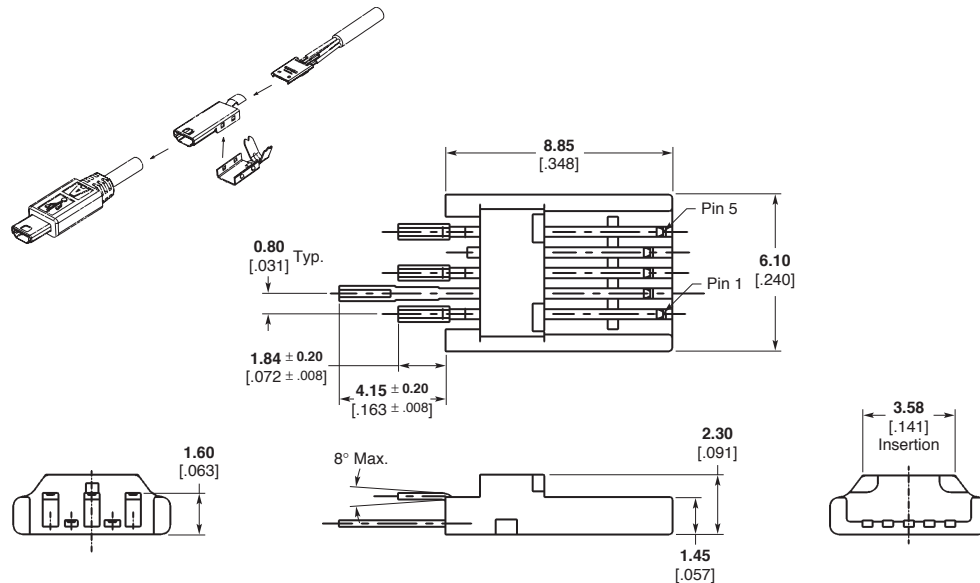


Mini USB Plug Assemblies

Cable Plug Mini USB Type A

Part Number: 440315-1
Lower Shell: 440315-2
Upper Shell: 440315-3, &
1-440315-3

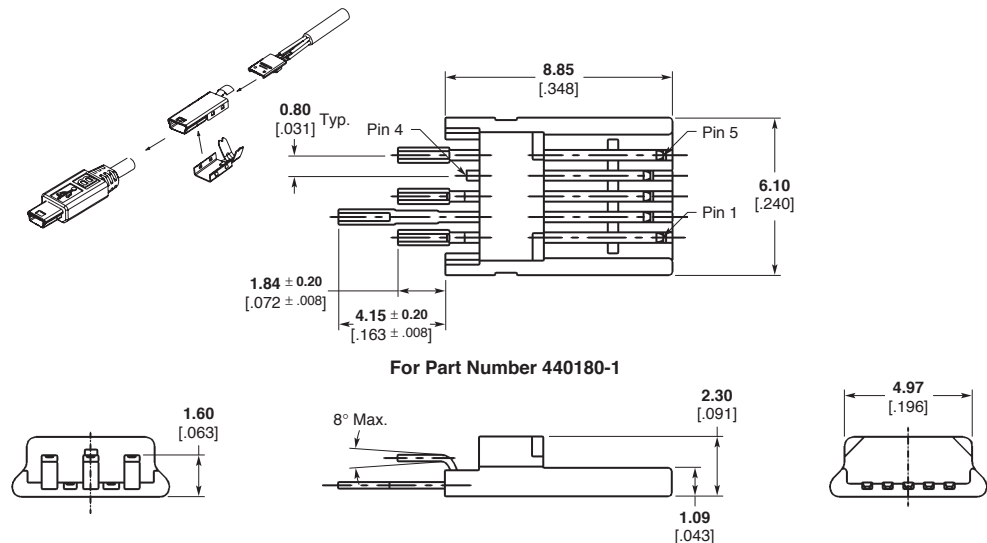
Product Specification
108-57062



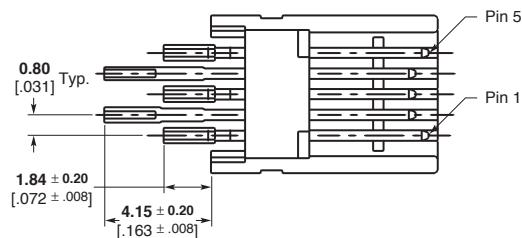
Cable Plug Mini USB Type B

Part Number 1734205-1
Lower Shell and Upper
Shell

Product Specification
108-57062



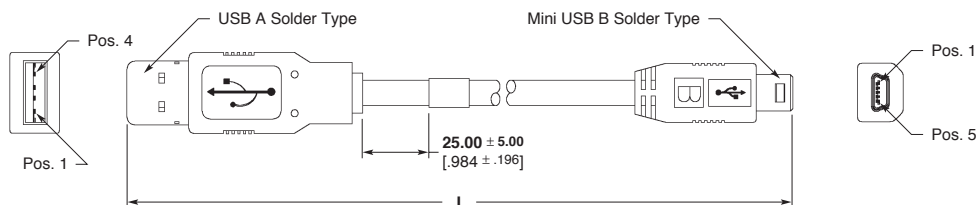
For Part Number 440180-1



For Part Number 1-440180-1

Cable Assembly

We currently offer a number of customer specials, but still only one standard cable assembly.



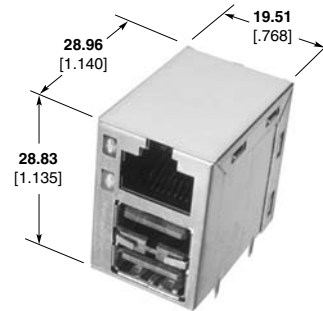
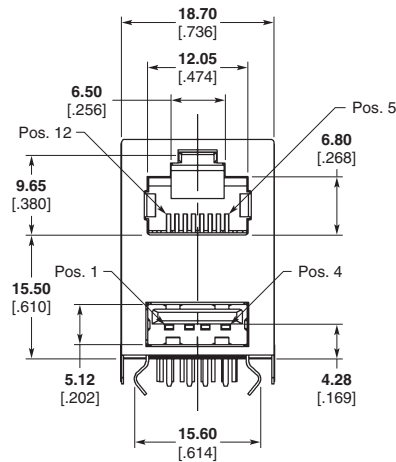
Part Number	Description	Dim. L (Cable Length)
1487586-1	Standard USB-A to Mini-B Assembly	0.500 m
1487586-2	Standard USB-A to Mini-B Assembly	0.250 m
1487586-3	Standard USB-A to Mini-B Assembly	0.162 m
1487586-4	Standard USB-A to Mini-B Assembly	0.310 m
1487587-1	Standard USB-A to Mini-B Assembly	1.000 m
1487587-2	Standard USB-A to Mini-B Assembly	1.300 m
1487587-3	Standard USB-A to Mini-B Assembly	0.830 m
1487588-1	Standard USB-A to Mini-B Assembly	2.000 m
1487588-2	Standard USB-A to Mini-B Assembly	1.500 m
1487588-3	Standard USB-A to Mini-B Assembly	1.829 m
1487589-1	Standard USB-A to Mini-B Assembly	3.000 m
1487589-2	Standard USB-A to Mini-B Assembly	2.500 m
1487590-1	Standard USB-A to Mini-B Assembly	4.000 m
1487590-2	Standard USB-A to Mini-B Assembly	5.000 m
1487591	Standard USB-A to NC Assembly	0.780 – 0.830 m
1487592	Standard USB-A to NC Assembly	0.950 – 1.000 m
1487593-1	Standard USB-A to NC Assembly	2.000 m
1487593-2	Standard USB-A to NC Assembly	1.500 m
1487594-1	Standard USB-A to Mini-B Assembly	0.500 m
1487594-2	Standard USB-A to Mini-B Assembly	0.250 m
1487594-3	Standard USB-A to Mini-B Assembly	0.162 m
1487594-4	Standard USB-A to Mini-B Assembly	0.310 m
1487595-1	Standard USB-A to Mini-B Assembly	1.000 m
1487595-2	Standard USB-A to Mini-B Assembly	1.300 m
1487595-3	Standard USB-A to Mini-B Assembly	0.830 m
1487596-1	Standard USB-A to Mini-B Assembly	2.000 m
1487596-2	Standard USB-A to Mini-B Assembly	1.500 m
1487596-3	Standard USB-A to Mini-B Assembly	1.829 m
1487596-4	Standard USB-A to Mini-B Assembly	1.000 m
1487597-1	Standard USB-A to Mini-B Assembly	3.000 m
1487597-2	Standard USB-A to Mini-B Assembly	2.500 m
1487597-3	Standard USB-A to Mini-B Assembly	3.500 m
1487598-1	Standard USB-A to Mini-B Assembly	4.000 m
1487598-2	Standard USB-A to Mini-B Assembly	5.000 m
1487599	Standard USB-A to NC Assembly	0.780 – 0.830 m
1487600	Standard USB-A to NC Assembly	0.950 – 1.000 m
1487601-1	Standard USB-A to NC Assembly	2.000 m
1487601-2	Standard USB-A to NC Assembly	1.500 m
1496476-1	Standard USB-A to Mini-B Assembly	1.000 m
1496476-2	Standard USB-A to Mini-B Assembly	1.500 m
1496476-3	Standard USB-A to Mini-B Assembly	2.000 m
1496476-4	Standard USB-A to Mini-B Assembly	3.000 m
1496476-5	Standard USB-A to Mini-B Assembly	5.000 m
1496476-6	Standard USB-A to Mini-B Assembly	12"

RJ45 Over USB Series A

Stacked, Thru-Hole

Product Facts

- Meets or exceeds FCC Part 68 rules and regulations; REA PE-76; and UL 1863, Communication Circuit Accessories
 - Meets 1000 volt dielectric requirement Contact to Contact
 - 20 dB shielding effectiveness from 30 MHz to 400 MHz
 - Selectively gold plated contacts for lower cost
 - All jacks are UL 94V-0 flame retardant polyester, standard color black, unless specified otherwise
 - Listed by Underwriters Laboratories Inc., File No. E81956
 - Certified by Canadian Standards Association, File No. LR 7189A
 - Produced under a Quality Management System Certified to ISO 9001
- A copy of the certificate is available upon request



Specifications

Electrical

Current Rating — 1.5 amp max. @ 25°C, derated to 0.2 amp max. @ 70°C ambient

Voltage Rating — 150 volts AC max.

Dielectric Withstanding Voltage — 1000 VAC, RMS, 60 Hz, 1 min. Contact to Contact

Mechanical

PC Board Retention — will not dislodge from pc board when subjected to 1 lb. [4.4N] pull before soldering and 10 lb. [44N] pull after soldering

Durability — 750 mating cycles

Material and Finish

Housing — Through-hole: Polyester (wave solder compatible), UL 94V-0 rated; Surface Mount: Polyphenylene Sulfide, or High Temp Nylon, UL 94V-0 rated

RJ45/2USB Contact — 0.36 [0.014] thk. Phosphor bronze; plated 0.00127 [0.000050] gold in contact area and 0.00381 [0.000150] tin-lead on solder tails, over 0.00127 [0.000050] nickel underplate

RJ45/1USB Contact — Gold flash plating on contact area and 0.00254 [0.000100] tin on solder tails, over 0.00127 [0.000050] nickel underplate

Technical Documents

Application Specifications

114-02048

114-6040

Product Specifications

108-01163

108-01163-1

108-01163-3

108-01163-4

108-01163-7

No. of Ports	Part Number	Positions/Contacts	LEDs	Shielded	Performance	Panel Stops	Inverted	Ground Options
RJ45/1USB	1775855-1	8/8	Without	Yes	Cat 3	Without	No	PCB
RJ45/2USB	1116151-2	8/8	With	Yes	Cat 3	Without	No	PCB
RJ45/2USB	1116151-3	8/8	Without	Yes	Cat 3	Without	No	PCB
RJ45/2USB	1116640-2	8/8	With	Yes	Cat 3	Without	No	PCB

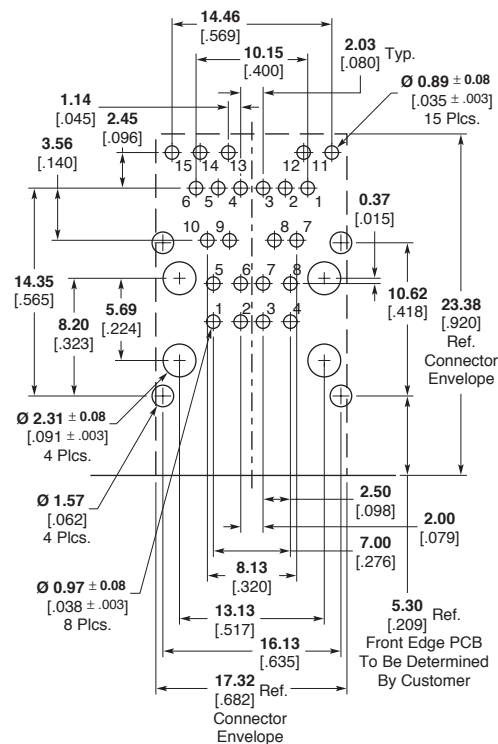
Note: Consult Tyco Electronics Customer Drawing for additional Part Numbers.

MAG45 Modular Jacks with Integrated Magnetics Over Stacked USB Series A

**Stacked, Thru-Hole
USB/RJ45
(10/100 Base-T or Gigabit)**

Product Facts

- USB/RJ45 with integrated magnetics
- 10/100 or Gigabit applications
- Stacked USB type A included
- UL Recognized
- Available with LEDs
- IEEE 802.3 & ANSI X3.263 Compliant
- USB 2.0 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
- Your Tyco Electronics Sales Representative or one of the Product Information Centers listed below are also available to assist



PCB Footprint

USB/RJ45*

	10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
	✓	No	✓	No

*multiple LED colors with and without resistors available.

10/100	10/100 RoHS Compliant	Gigabit	Gigabit RoHS Compliant
1620004-1	6620004-1	1368162-1	6368162-1
1620002-1	6620002-1	1368472-1	6368472-1
1368532-1	6368532-1	1620009-1	6620009-1

IEEE Over Stacked USB Series A

Stacked, DIP Type

Part Number
1775813

Material and Finish

Housing/Cover/Frame —

High temperature thermoplastic,
UL94V-0, color black

Contacts —

Shield — Brass with 100µ" min. nickel plating overall, tin hot dipped on solder area:

USB Contact — Phosphor bronze with gold flash plating on contact area, 150µ" bright tin plating on solder tail area, 50µ" min. nickel underplating overall;

USB Shell — Phosphor bronze with 120µ" min. bright tin plating overall, 50µ" min. nickel underplating overall;

USB Clip — Stainless steel;

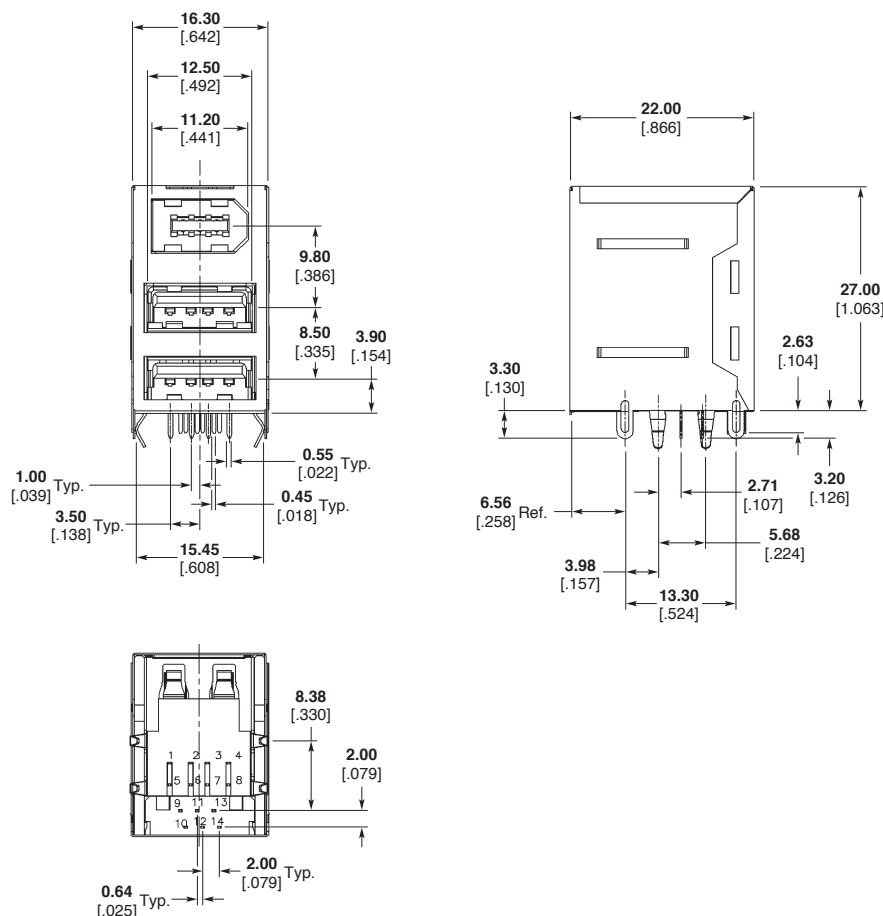
IEEE1394 Shell — Phosphor bronze with 100μ" min. nickel plating overall;

IEEE1394 Contact — Phosphor bronze with 15u" min. gold plating on

contact area, 150 μ " min. bright tin plating on solder tail area, 50 μ " min. nickel underplating overall.

Recommended PCB Thickness —

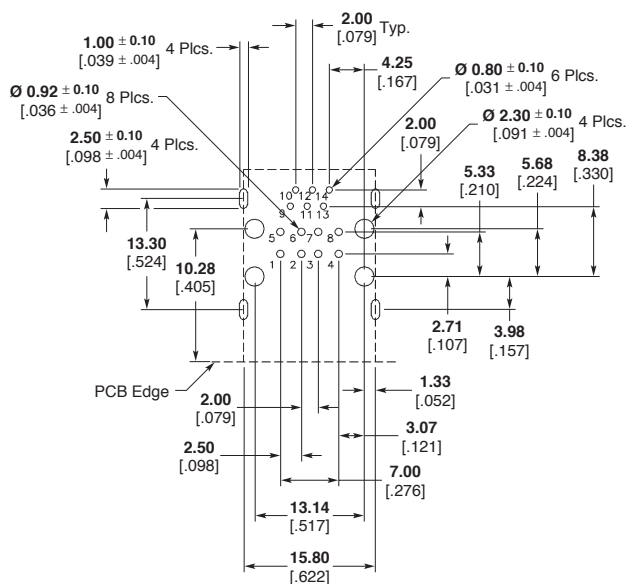
1.57 [.062]



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