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SFF Committee

SFF-8654

Specification for

0.6mm 4/8X Unshielded I/O Connector

Rev 1.0 July 18, 2015

Secretariat: SFF Committee

Abstract: This specification defines the mechanical specifications and general performance requirements for the 0.6mm unshielded I/O connector that is designed for use in high speed serial interconnect applications. One such use is as a 8 lane receptacle and mating cable plug for internal SAS connections.

This specification provides a common reference for systems manufacturers, system integrators, and suppliers. This document is an internal working specification of the SFF Committee, an industry ad hoc group.

This specification is made available for public review, and written comments are solicited from readers. Comments received by the members will be considered for inclusion in future revisions of this specification.

The description of a connector in this specification does not assure that the specific component is actually available from connector suppliers. If such a connector is supplied, it must comply with this specification to achieve interoperability between suppliers.

Support: This specification is supported by the identified member companies of the SFF Committee.

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EXPRESSION OF SUPPORT BY MANUFACTURERS

The following member companies of the SFF Committee voted in favor of this industry specification:

tbd

The following member companies of the SFF Committee voted against this industry specification:

tbd

The following member companies of the SFF Committee voted to abstain on this industry specification:

tbd

The user's attention is called to the possibility that implementation to this Specification may require use of an invention covered by patent rights. By distribution of this specification, no position is taken with respect to the validity of a claim or claims or of any patent rights in connection therewith. Members of the SFF Committee which advise that a patent exists are required to provide a statement of willingness to grant a license under these rights on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain such a license.

Update History

Rev 0.1 April 29, 2014

- Initial release

Rev 0.2 April 30, 2014

- Some editing of fonts to make them consistent.

Rev 0.3 November 5, 2014

- Added Update History.
- Added “/4” to the document title in all locations throughout the document.
- Updated TABLE OF CONTENTS and lists of FIGURES and TABLES.
- Added SFF-9400 to section 2.1 Industry Documents.
- Added the four lane, 38 position, 4X text to the section 1. Scope.
- Added “8X” to existing applicable Figures and Tables in sections 3, 5, and 6.
- Added new “4X” Figures and text in section 3. General Description.
- Replaced the Cable Signal Assignment figure in section 3.1 with test referring to SFF-9400 instead for the appropriate information.
- Changed dimensions A01 and B01. Deleted dimension C14 and changed dimension C15 to become the new C14 dimension. Changed tolerances for dimensions A01, A02, B01, B02, C01, C02, and C06. Modified the descriptions for dimensions A01, A02, A03, B01, B02, and B03.
- Replaced Figure 5-5 with a drawing image rotated for easier reading and added the missing view, DETAIL A.

Rev 0.4

- Added a new updated Figure 3-4.
- Added Figure 3-6 4X Plug & 4X Receptacle Pin Assignments.

- In 4.2, added "Projected drawing views, where applicable, are shown in third-angle orthographic projection."
- In 5.1 and in 5.2, added "8X".
- In Table 5-1, modified dimension C01 and changed dimension A03 to a Reference dimension.
- In Table 5-2, modified dimension C01 and changed dimension B03 to a Reference dimension. Modified the description of B14 and modified dimension B22.
- Replaced Figure 5-5 with one rotated for portrait viewing.
- In Table 5-3, modified dimension C01 and its description.
- Added Section 5.3 along with Figure 5-6 and Table 5-4.
- Added Section 5.4 along with Figures 5-7 & 5-8, Table 5-5, Figures 5-9 & 5-10, and Table 5-6.
- Added Section 5.5 along with Figure 5-11 and Table 5-7.
- In 6.1 and in 6.2, added "8X".
- Replaced Figure 6-1 and added new Figures 6-2 & 6-3 and replaced Table 6-1. Added Figures 6-4, 6-5, & 6-6. Added new Table 6-2.
- The old Figure 6-2 is now Figure 6-7 and the image was updated.
- Added Figures 6-8, 6-9, & 6-10.
- The old Table 6-2 is now Table 6-3 and the entire Table was replaced.
- Added Figures 6-11, 6-12, & 6-13. Added new Table 6-4.
- The old Figure 6-3 is now Figure 6-14 and the image was updated.
- The old Table 6-3 is now Table 6-5 and the entire Table was replaced.
- The old Figure 6-4 is now Figure 6-15 and the image was updated.
- The old Table 6-4 is now Table 6-6 and the entire Table was replaced.
- Added Section 6.3 along with Figures 6-16, 6-17, & 6-18 and Table 6-7. Also, added Figures 6-19, 6-20, & 6-21 and Table 6-8. Added Figures 6-22, 6-23, 6-24, 6-25, & 6-26 and Table 6-9. Added Figures 6-27, 6-28, & 6-29 and Table 6-10.
- Added Section 6.4 along with Figure 6-30, Table 6-11, Figure 6-31, and Table 6-12.

Rev 1.0

- The speed characteristics and electrical considerations were removed in order to create SFF-8655.

Foreword

The development work on this specification was done by the SFF Committee, an industry group. The membership of the committee since its formation in August 1990 has included a mix of companies which are leaders across the industry.

When 2 1/2" diameter disk drives were introduced, there was no commonality on external dimensions e.g. physical size, mounting locations, connector type, and connector location, between vendors.

The first use of these disk drives was in specific applications such as laptop portable computers and system integrators worked individually with vendors to develop the packaging. The result was wide diversity, and incompatibility.

The problems faced by integrators, device suppliers, and component suppliers led to the formation of the SFF Committee as an industry ad hoc group to address the marketing and engineering considerations of the emerging new technology.

During the development of the form factor definitions, other activities were suggested because participants in the SFF Committee faced more problems than the physical form factors of disk drives. In November 1992, the charter was expanded to address any issues of general interest and concern to the storage industry. The SFF Committee became a forum for resolving industry issues that are either not addressed by the standards process or need an immediate solution.

Those companies which have agreed to support a specification are identified in the first pages of each SFF Specification. Industry consensus is not an essential requirement to publish an SFF Specification because it is recognized that in an emerging product area, there is room for more than one approach. By making the documentation on competing proposals available, an integrator can examine the alternatives available and select the product that is felt to be most suitable.

SFF Committee meetings are held during T10 weeks (see www.t10.org), and Specific Subject Working Groups are held at the convenience of the participants. Material presented at SFF Committee meetings becomes public domain, and there are no restrictions on the open mailing of material presented at committee meetings.

Most of the specifications developed by the SFF Committee have either been incorporated into standards or adopted as standards by EIA (Electronic Industries Association), ANSI (American National Standards Institute) and IEC (International Electrotechnical Commission).

If you are interested in participating or wish to follow the activities of the SFF Committee, the signup for membership and/or documentation can be found at www.sffcommittee.com/ie/join.html

The complete list of SFF Specifications which have been completed or are currently being worked on by the SFF Committee can be found at <ftp://ftp.seagate.com/sff/SFF-8000.TXT>

If you wish to know more about the SFF Committee, the principles which guide the activities can be found at <ftp://ftp.seagate.com/sff/SFF-8032.TXT>

Suggestions for improvement of this specification will be welcome. They should be sent to the SFF Committee, 14426 Black Walnut Ct, Saratoga, CA 95070.

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1. Scope

This specification defines the terminology and mechanical requirements for an eight lane or a four lane, high speed unshielded I/O connector, the mating unshielded cable plug, and the latching requirements for them based upon the 74 position and the 38 position 0.6mm pitch unshielded I/O connector interface defined herein.

1.1 Application Specific Criteria

This connector interface is capable of meeting the high speed internal I/O electrical performance requirements of T10 SAS. The connector design is ribbon cable friendly and supports blade and mainstream server designs.

2. References

2.1 Industry Documents

- ASME Y14.5 Dimensioning and Tolerancing
- EIA 364 Series Electrical Connector/Socket Test Procedures Including Environmental Classifications.
- IPC-A-610 Acceptability of Electronic Assemblies
- INCITS 519 Serial Attached SCSI - 3 (SAS-3)
- INCITS 534 Serial Attached SCSI - 4 (SAS-4)
- SFF-8410 High Speed Serial Testing for Copper Links
- SFF-8655 0.6mm 4/8X 24 Gb/s Unshielded I/O Connector
- SFF-9400 Universal 4/8X Pinouts

2.2 SFF Specifications

There are several projects active within the SFF Committee. The complete list of specifications which have been completed or are still being worked on are listed in the specification at <ftp://ftp.seagate.com/sff/SFF-8000.TXT>

2.3 Sources

Those who join the SFF Committee as an Observer or Member receive electronic copies of the minutes and SFF specifications (<http://www.sffcommittee.com/ie/join.html>).

Copies of ANSI standards may be purchased from the InterNational Committee for Information Technology Standards (<http://www.techstreet.com/incitsgate.tmp1>).

2.4 Conventions

The dimensioning conventions are described in ANSI-Y14.5, Geometric Dimensioning and Tolerancing. All dimensions are in millimeters, which are the controlling dimensional units (if inches are supplied, they are for guidance only).

The ISO convention of numbering is used i.e., the thousands and higher multiples are separated by a space and a period is used as the decimal point. This is equivalent to the English/American convention of a comma and a period.

American	French	ISO
0.6	0,6	0.6
1,000	1 000	1 000
1,323,462.9	1 323 462,9	1 323 462.9

2.5 Definitions

For the purpose of SFF Specifications, the following definitions apply:

Advanced grounding contacts: Connector contacts that make first and break last and are capable of carrying power ground return currents and performing electrostatic discharge. Other terms sometimes used to describe these features are: grounding pins, ESD contacts, grounding contacts, static drain, and pre-grounding contacts.

Alignment guides: Connector features that preposition insulators prior to electrical contact. Other terms sometimes used to describe these features are: guide pins, guide posts, blind mating features, mating features, alignment features, and mating guides

Board Termination Technologies: Surface mount single row, surface mount dual row, through hole, hybrid, straddle mount, pressfit.

Cable Termination: The attachment of wires to the termination side of a connector. Schemes commonly used in the industry are IDC (Insulation Displacement Contact), IDT (Insulation Displacement Termination), wire slots, solder, weld, crimp, braise, etc.

Contact mating sequence: Order of electrical contact during mating/unmating process. Other terms sometimes used to describe this feature are: contact sequencing, contact positioning, make first/break last, EMLB (early make late break) staggered contacts, and long pin / short pin.

Fixed: Used to describe the gender of the mating side of the connector that accepts its mate upon mating. This gender is frequently, but not always, associated with the common terminology "receptacle". Other terms commonly used are "female" and "socket connector". The term "fixed" is adopted from EIA standard terminology as the gender that most commonly exists on the fixed end of a connection, for example, on the board or bulkhead side. In this specification "fixed" is specifically used to describe the mating side gender illustrated in Figure 2-1.

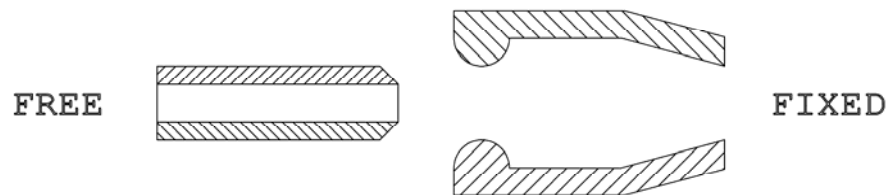
Fixed Board: A connector that uses a fixed gender mating side and a termination side suitable for any of the printed circuit board termination technologies.

Free: Used to describe the gender of the mating side of the connector that penetrates its mate upon mating. This gender is frequently, but not always, associated with the common terminology "plug". Other terms commonly used are "male" and "pin connector". The term "free" is adopted from EIA standard terminology as the gender that most commonly exists on the free end of a connection, for example, on the cable side. In this specification "free" is specifically used to describe the mating side gender illustrated in Figure 2-1.

Free Board: A connector that uses a free gender mating side and a termination side suitable for any of the printed circuit board termination technologies

Height: Distance from board surface to farthest overall connector feature

Mating side: The side of the connector that joins and separates from the mating side of a connector of opposite gender. Other terms commonly used in the industry are mating interface, separable interface and mating face.



Note: The fixed gender is used on the device side except in the case of wire termination.

FIGURE 2-1 MATING SIDE GENDER DEFINITION

Offset: An alignment shift from the center line of the connector

Optional: This term describes features which are not required by the SFF Specification. However, if any feature defined by the SFF Specification is implemented, it shall be done in the same way as defined by the Specification. Describing a feature as optional in the text is done to assist the reader. If there is a conflict between text and tables on a feature described as optional, the table shall be accepted as being correct.

Reserved: Where this term is used for defining the signal on a connector pin its actual function is set aside for future standardization. It is not available for vendor specific use. Where this term is used for bits, bytes, fields and code values; the bits, bytes, fields and code values are set aside for future standardization. The default value shall be zero. The originator is required to define a Reserved field or bit as zero, but the receiver should not check Reserved fields or bits for zero.

Right Angle: A connector design for use with printed circuit board assembly technology where the mating direction is parallel to the plane of the printed circuit board

Single sided termination: A cable termination assembly style and a connector design style where only one side of the connector is accessible when attaching wires. This style frequently has IDC termination points that point in the same direction.

Straight: A connector design for use with printed circuit board assembly technology where the mating direction is perpendicular to the plane of the printed circuit board

Surface mount: A connector design and a printed circuit board design style where the connector termination points do not penetrate the printed circuit board and are subsequently soldered to the printed circuit board

Termination side: The side of the connector opposite the mating side that is used for permanently attaching conductors to the connector. Due to pin numbering differences between mating side genders the termination side shall always be specified in conjunction with a mating side of a specific gender. Other terms commonly used in the industry are: back end, non-mating side, footprint, pc board side, and post side

Through hole: A connector design and a printed circuit board design style where the connector termination points penetrates the printed circuit board and are subsequently soldered to the printed circuit board.

*** Editor's Note: For the following figures, Figure 2-2, Figure 2-3, Figure 2-4, and Figure 2-5, the references to FIXED and FREE are reversed since these figures were the only Figures available from the SFF document template. If/when these are changed, the wording in the surrounding paragraphs will need to also be updated accordingly. ***

Wipe (Contact Location): The contact location has two components: direction of mating and direction of contact pitch. In the direction of mating, the Free contact location must be a minimum of 0.05 mm from either end of the Fixed contact mating interface after mating and latching.

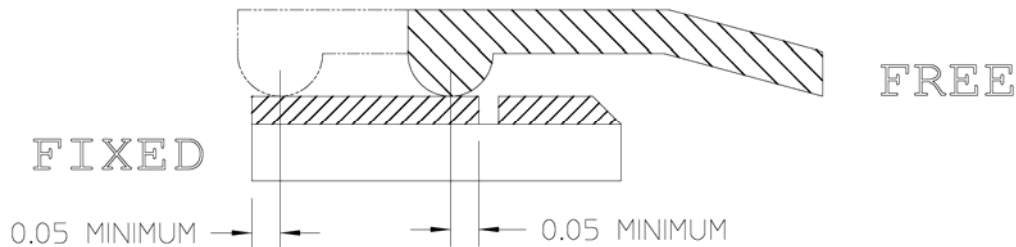


FIGURE 2-2 DIRECTION OF MATING

In the direction of contact pitch, the Free contact shall have no less than 50% of the available mating width in contact with the Fixed contact and there shall be a minimum clearance to the adjacent Fixed contact. The minimum clearance to the adjacent Fixed contact shall be 0.075 mm for interfaces with a pitch of at least 0.70 mm. For pitches less than 0.70 mm, the minimum clearance should be reviewed on a case by case basis to insure that a shorting condition does not exist.

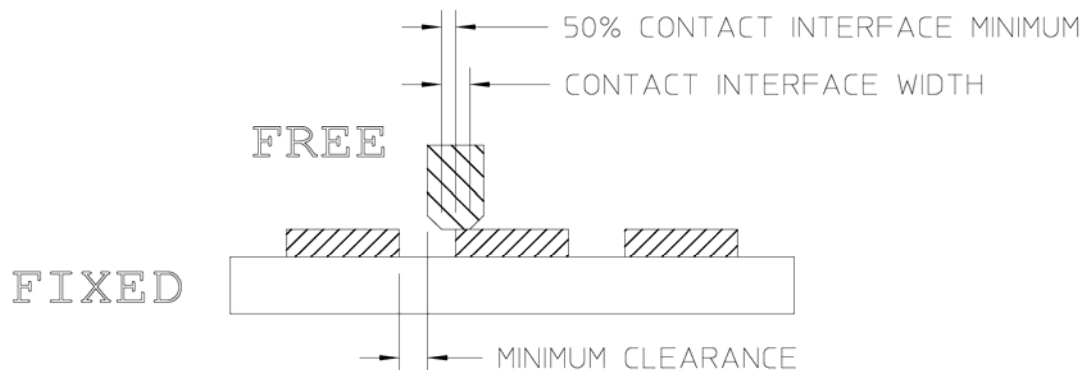


FIGURE 2-3 DIRECTION OF CONTACT

Wipe (Minimum Effective Contact): The distance that the Free contact moves along the Fixed contact without losing electrical connection.

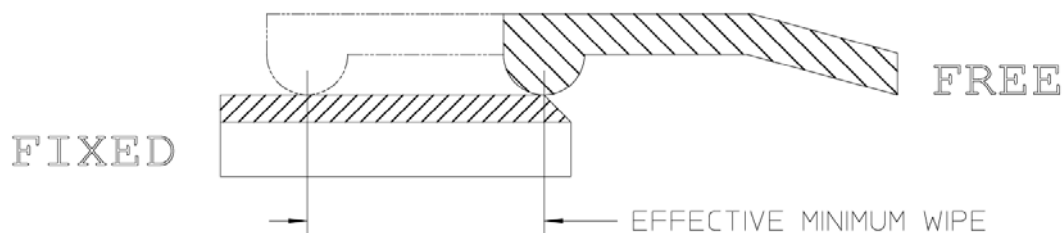


FIGURE 2-4 CONTINUOUS CONTACT

A split or interrupted contact surface (i.e. a contact interface with a pre-pad) is allowable so long as the gap does not allow for the Free contact to make contact

with a non-conductive surface.

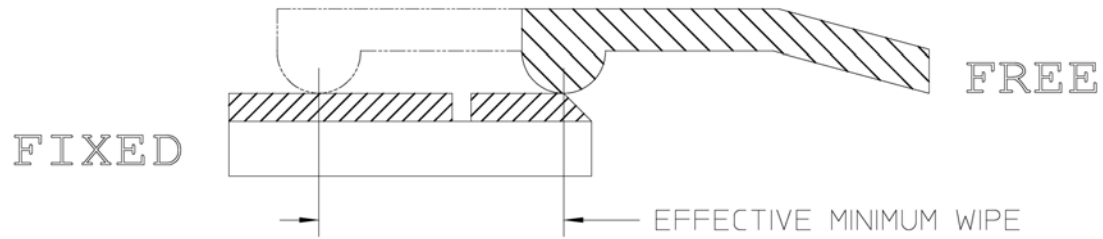


FIGURE 2-5 SPLIT CONTACT

The minimum effective wipe is dependent on the finish of the contact interface. Tin-Tin interfaces shall have a minimum effective wipe of 2.00 mm. Gold-Gold interfaces shall have a minimum effective wipe of 0.40 mm.

3. General Description

The connector system specification defines a right angle receptacle connector (fixed) and a straight receptacle connector (fixed), the mating plug assembly (free) which can be a straight plug version or a right angle plug version, and the latching mechanism.

The design of this connector system reduces the footprint and form factor, and improves signal integrity, especially NEXT and FEXT performance. The mating plug is designed to work with ribbon type cables and provide easy routing of cables and better air flow for cooling in typical blade and mainstream server designs.

Figure 3-1 below represents a typical 8X straight plug to right angle receptacle configuration of this connector system.

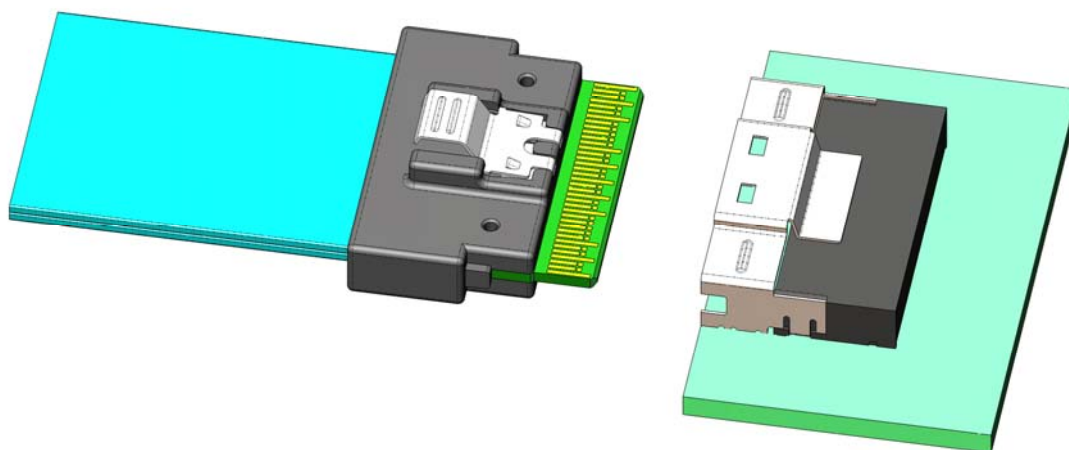


FIGURE 3-1 TYPICAL 8X APPLICATION VIEW

Figure 3-2 below represents an alternative application view consisting of an 8X right angle plug to straight or vertical receptacle configuration of this connector system.

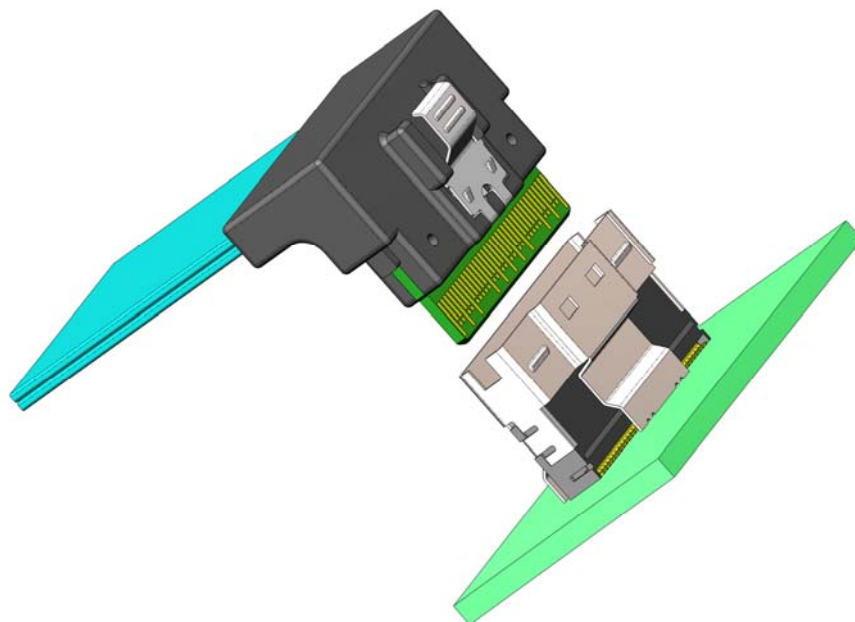


FIGURE 3-2 ALTERNATIVE 8X APPLICATION VIEW

Figure 3-3 Typical 4X Application View below represents a typical 4X straight plug to right angle receptacle configuration of this connector system.

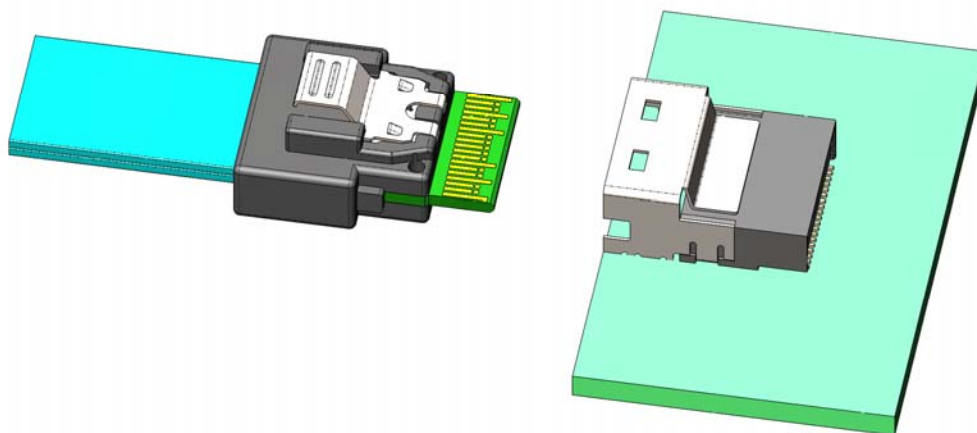


FIGURE 3-3 TYPICAL 4X APPLICATION VIEW

Figure 3-4 Alternative 4X Application View below represents an alternative application view consisting of an 4X right angle plug to straight or vertical receptacle configuration of this connector system.

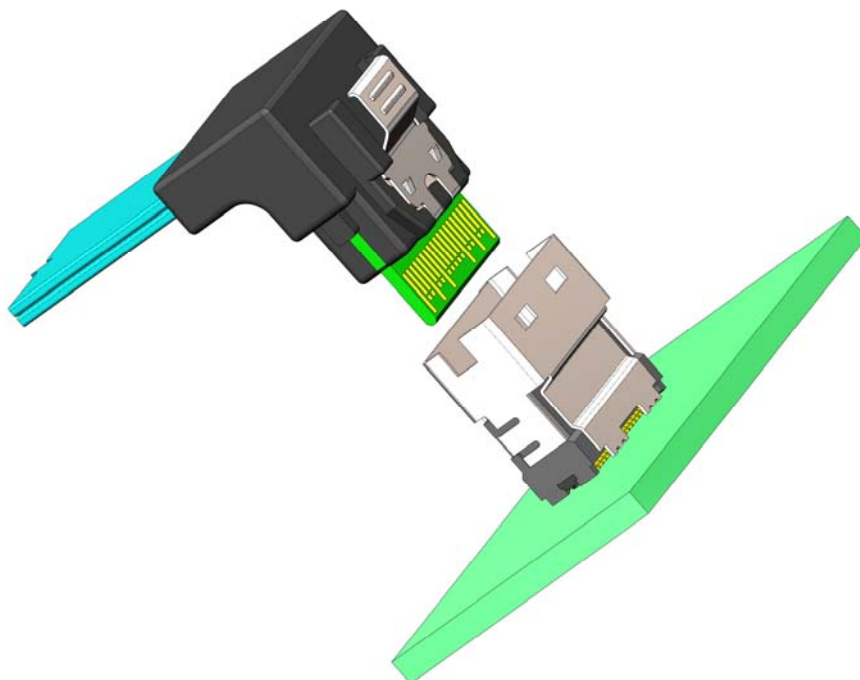


FIGURE 3-4 ALTERNATIVE 4X APPLICATION VIEW

3.1 Signal Assignments

Refer to document SFF-9400 for the possible pinout signal assignments for both the 74 position (8X version) and the 38 position (4X version) cable and connector pinouts.

3.2 Pin Assignments

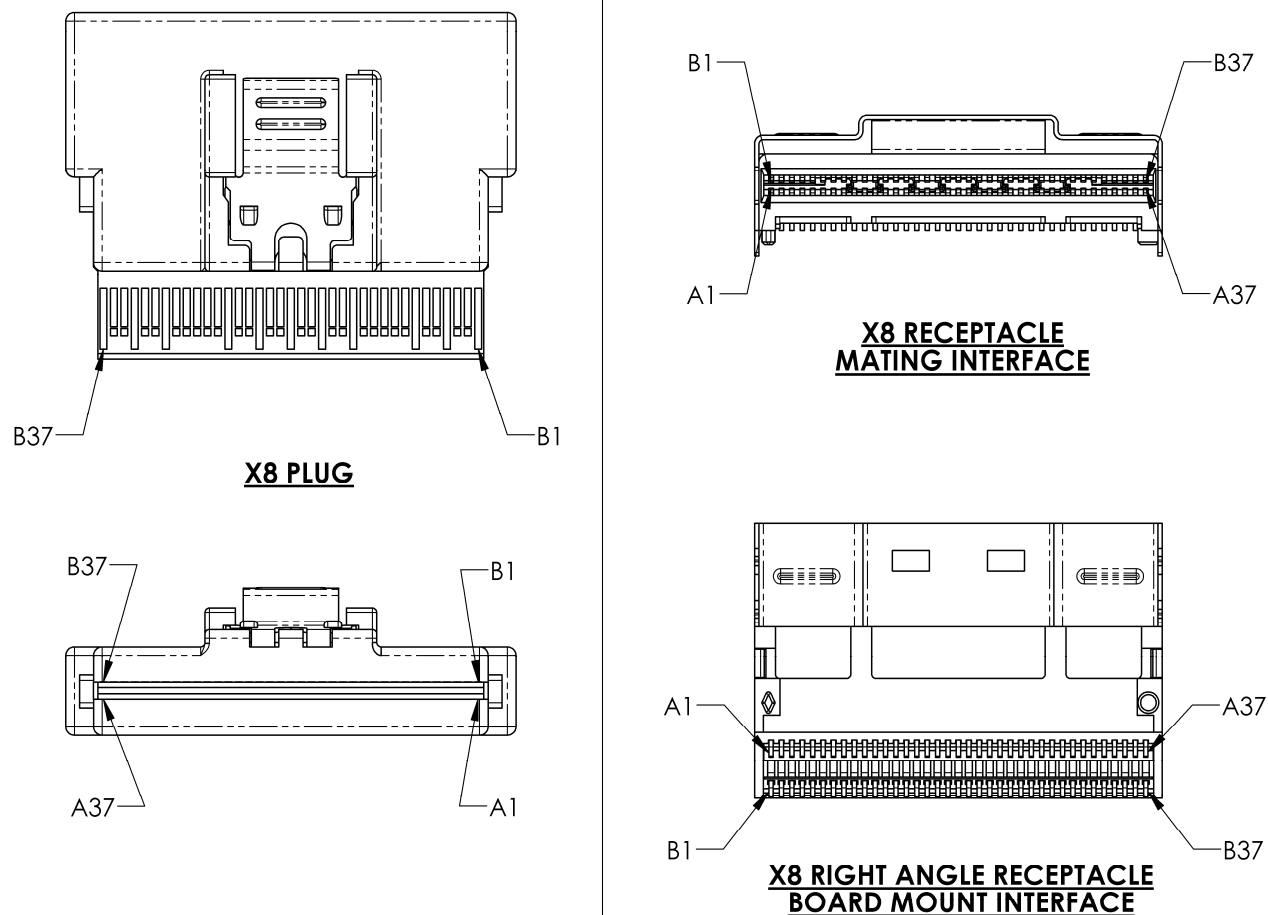


FIGURE 3-5 8X PLUG & 8X RECEPTACLE PIN ASSIGNMENTS

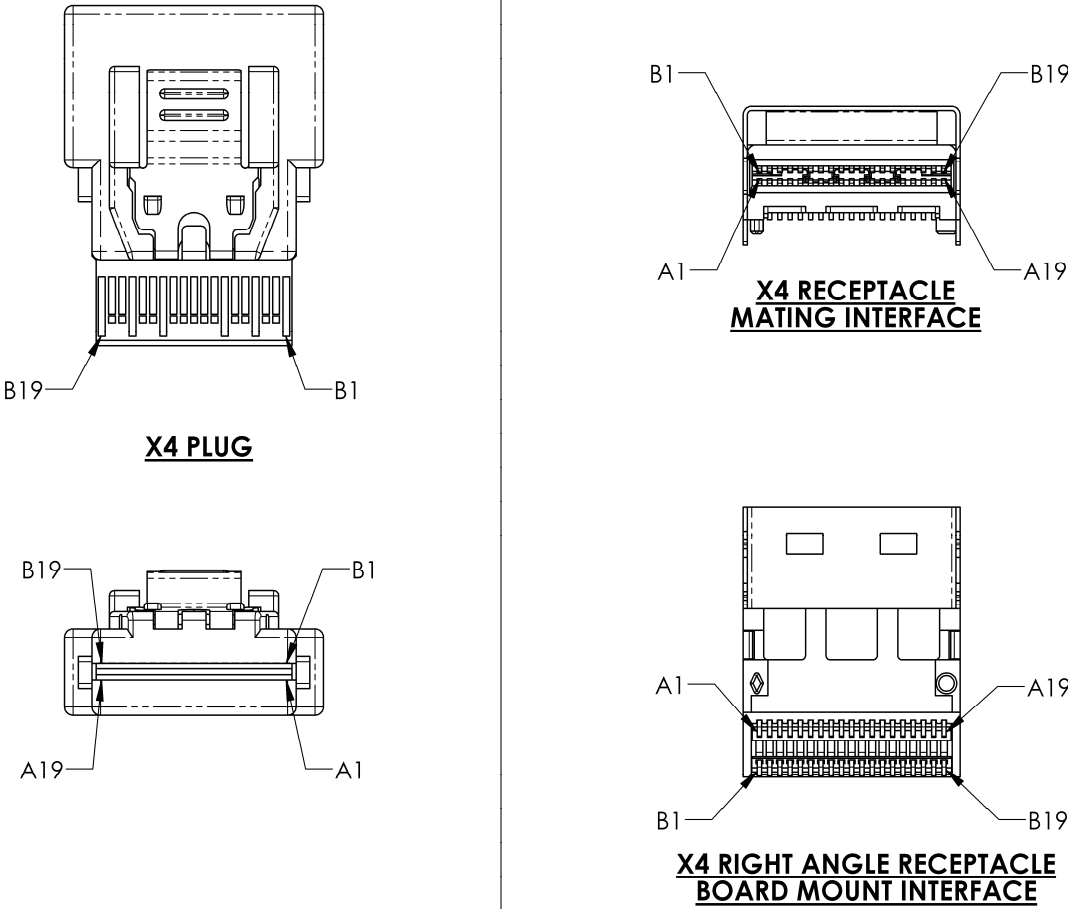


FIGURE 3-6 4X PLUG & 4X RECEPTACLE PIN ASSIGNMENTS

4. Mechanical Specifications

4.1 Datums

*** Editor’s Note: Add a figure (or figures) representing the datums used in this connector system here. ***

Datum	Description
A	Top Surface of Paddle Card
B	Free (Plug) Cable Connector Stop
C	Centerline of the Paddle Card / Mating Interface
D	Leading Edge of Third Mate Contacts on Paddle Card

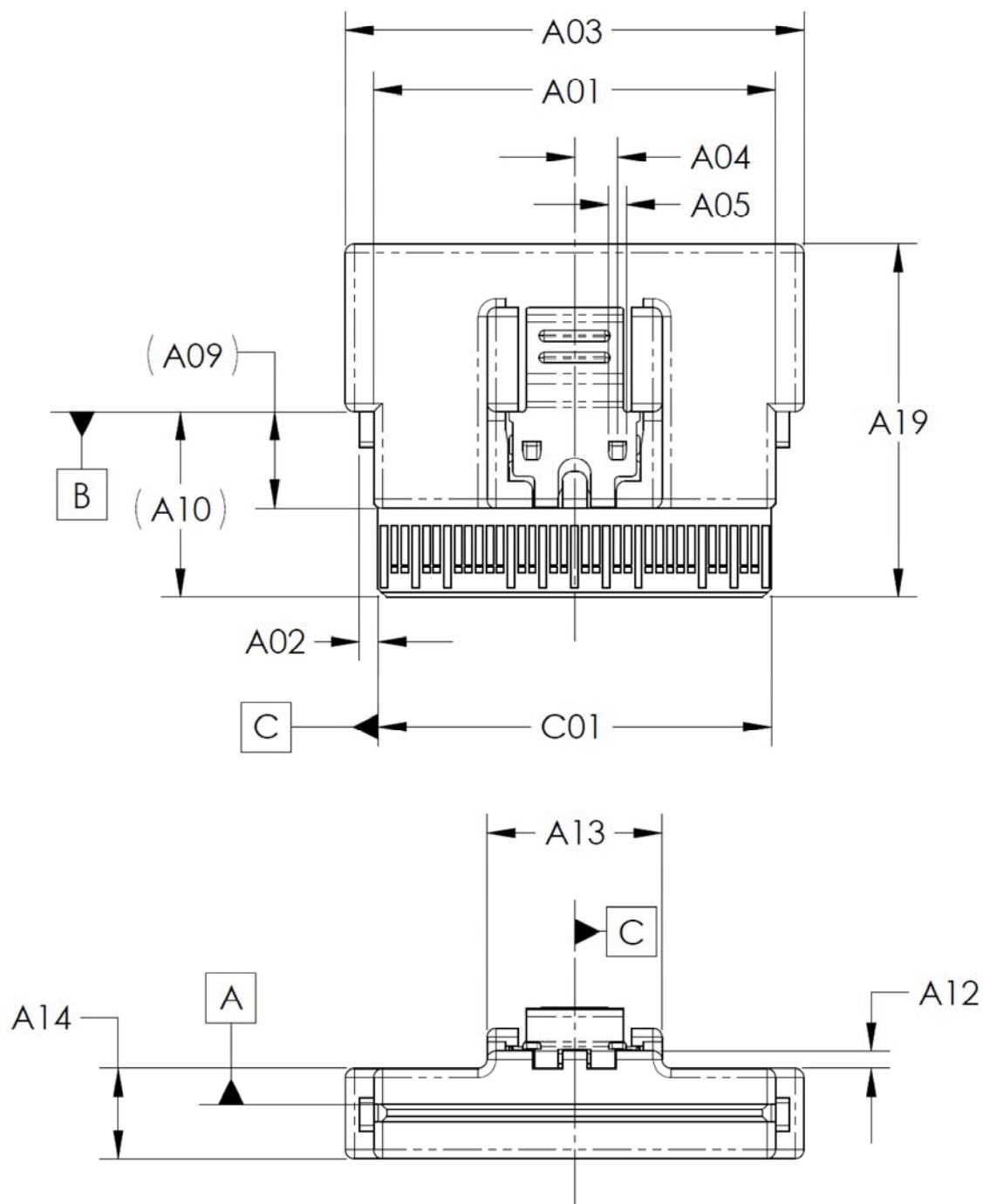
*** Editor’s Note: Add any additional definitions of the datums here. ***

4.2 General Tolerances

Unless otherwise specified, the units of all linear dimensions are in millimeters (mm). All width dimensions, where applicable, are centered. Projected drawing views, where applicable, are shown in third-angle orthographic projection.

5. Plug Requirements

5.1 8X Plug Configurations



- [A] DATUM 'A' - TOP SURFACE OF PADDLE CARD
- [B] DATUM 'B' - FREE (PLUG) CABLE CONNECTOR STOP
- [C] DATUM 'C' - PADDLE CARD / MATING INTERFACE CENTERLINE

FIGURE 5-1 8X STRAIGHT PLUG

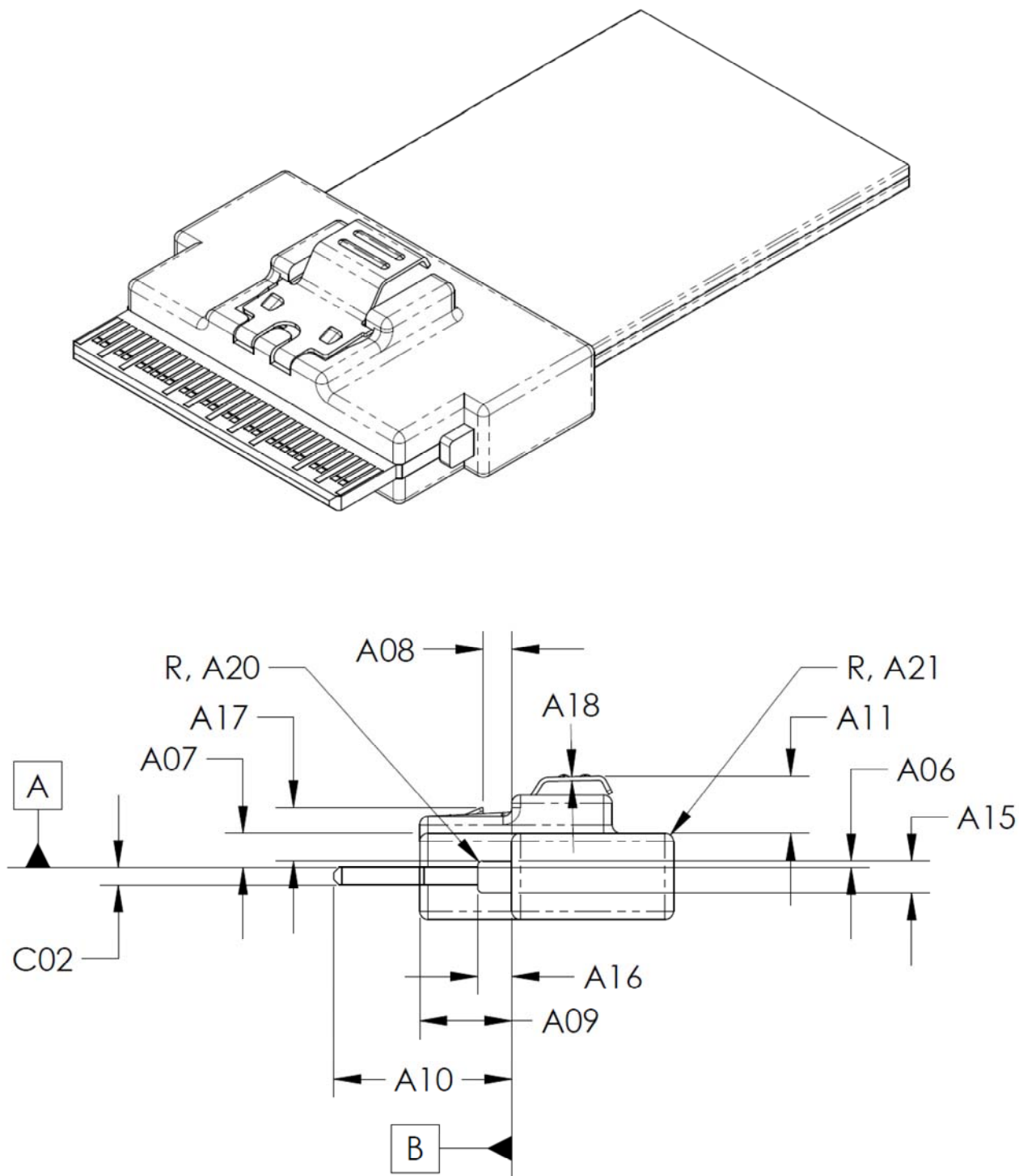
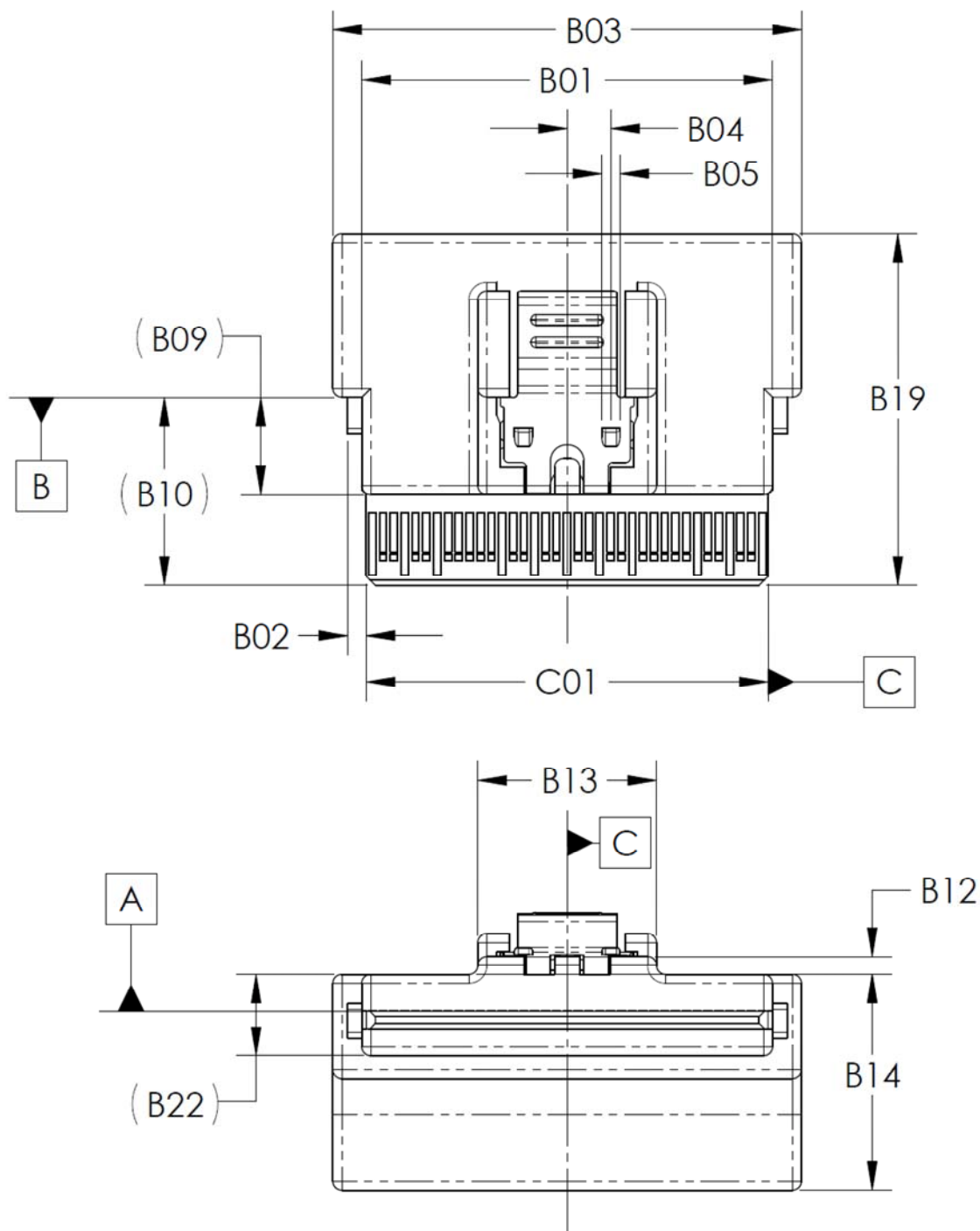


FIGURE 5-2 8X STRAIGHT PLUG (2)

TABLE 5-1 FREE 8X STRAIGHT PLUG CABLE CONNECTOR DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
C01	Interface Width	22.40	+/- 0.05
C02	Paddle Card Thickness	1.00	+/- 0.08
A01	Plug Body Front Width	22.95	+0 / -0.15
A02	Anti-Rotation Rib Height	0.80	Minimum
A03	Plug Body Rear Width	25.95	REF.
A04	Plug Datum C to Latch Tab Center	2.42	+/- 0.10
A05	Latch Tab Width	1.00	+/- 0.10
A06	Datum A to Anti-Rotation Rib Top Surface	0.40	+/- 0.05
A07	Datum A to Top of Plug	2.03	+/- 0.05
A08	Plug Datum B to Latch Tab	1.70	+/- 0.10
A09	Plug Datum B to Body Front Surface	5.40	+/- 0.10
A10	Plug Datum B to Edge of Paddle Card	10.45	Basic
A11	Plug Top Surface to Latch	3.36	Maximum
A12	Plug Key Surface	1.00	+/- 0.05
A13	Latch Body Width	9.90	+/- 0.15
A14	Plug Body Thickness	5.10	+/- 0.10
A15	Anti-Rotation Rib Width	1.90	+/- 0.05
A16	Datum B to End of Anti-Rotation Rib	2.00	+/- 0.05
A17	Latch Tab Height (when free)	3.14	Minimum
A17	Latch Tab Height (when tab is pressed)	2.88	Maximum
A18	Latch Tab Thickness	0.25	+/- 0.05
A19	Plug Length	19.95	Maximum
A20	Radius	0.30	REF.
A21	Radius	0.50	REF.



- [A] DATUM 'A' - TOP SURFACE OF PADDLE CARD
- [B] DATUM 'B' - FREE (PLUG) CABLE CONNECTOR STOP
- [C] DATUM 'C' - PADDLE CARD / MATING INTERFACE CENTERLINE

FIGURE 5-3 8X RIGHT ANGLE PLUG

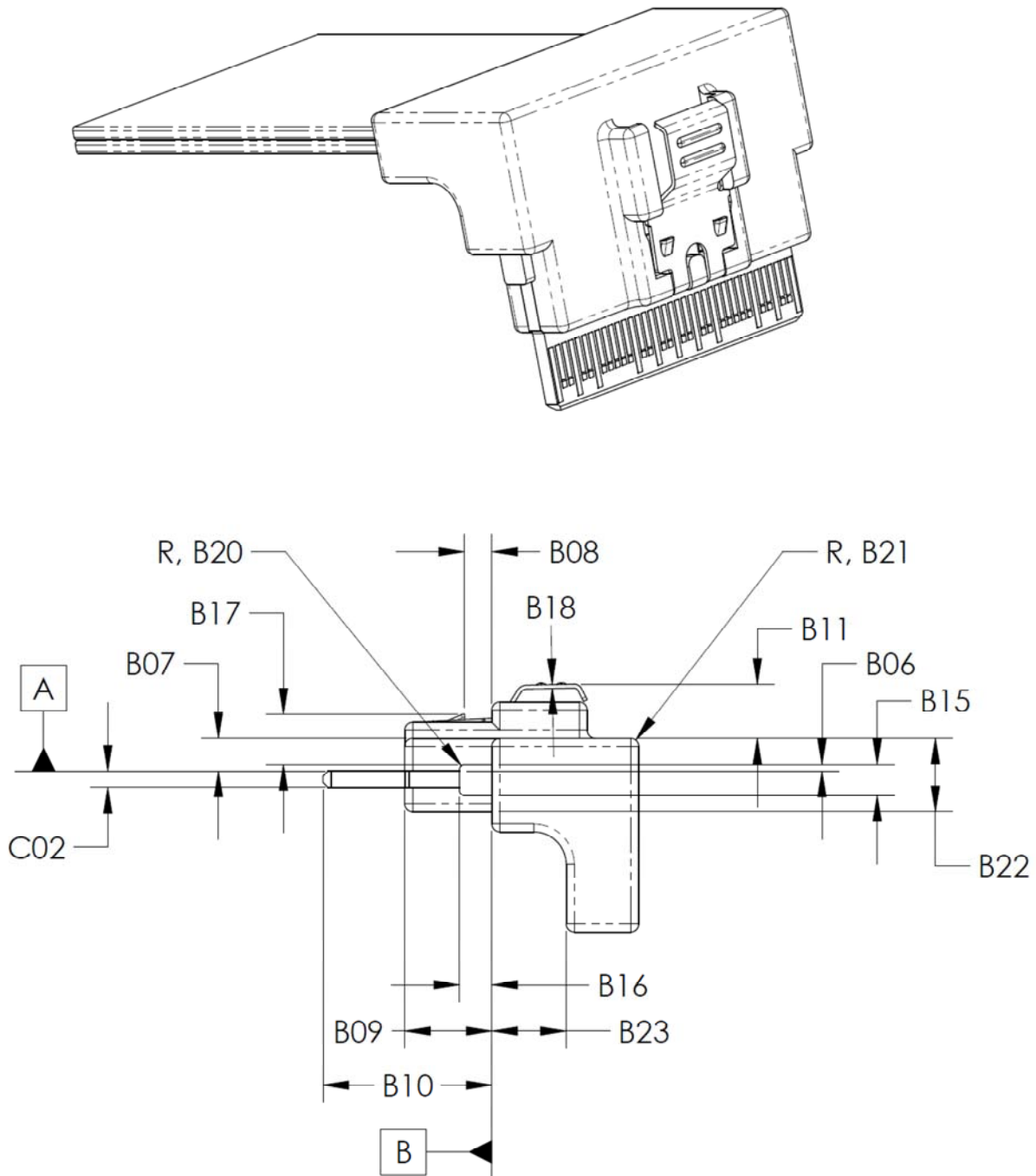


FIGURE 5-4 8X RIGHT ANGLE PLUG (2)

TABLE 5-2 FREE 8X RIGHT ANGLE PLUG CABLE CONNECTOR DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
C01	Interface Width	22.40	+/- 0.05
C02	Paddle Card Thickness	1.00	+/- 0.08
B01	Plug Body Front Width	22.95	+0 / -0.15
B02	Anti-Rotation Rib Height	0.80	Minimum
B03	Plug Body Rear Width	25.95	REF.
B04	Plug Datum C to Latch Tab Center	2.42	+/- 0.10
B05	Latch Tab Width	1.00	+/- 0.10
B06	Datum A to Anti-Rotation Rib Top Surface	0.40	+/- 0.05
B07	Datum A to Top of Plug	2.03	+/- 0.05
B08	Plug Datum B to Latch Tab	1.70	+/- 0.10
B09	Plug Datum B to Body Front Surface	5.40	+/- 0.10
B10	Plug Datum B to Edge of Paddle Card	10.45	Basic
B11	Plug Top Surface to Latch	3.36	Maximum
B12	Plug Key Surface	1.00	+/- 0.05
B13	Latch Body Width	9.90	+/- 0.15
B14	Plug Body Thickness (Including Bend)	12.00	+/- 0.10
B15	Anti-Rotation Rib Width	1.90	+/- 0.05
B16	Datum B to End of Anti-Rotation Rib	2.00	+/- 0.05
B17	Latch Tab Height (when free)	3.14	Minimum
B17	Latch Tab Height (when free)	2.88	Maximum
B18	Latch Tab Thickness	0.25	+/- 0.05
B19	Plug Length	19.55	Maximum
B20	Radius	0.30	REF.
B21	Radius	0.50	REF.
B22	Plug Body Top Surface to Shroud Bottom Surface	5.10	+/- 0.10
B23	Plug Datum B to Body Bend Front Surface	4.60	+/- 0.10

5.2 8X Plug Paddle Card

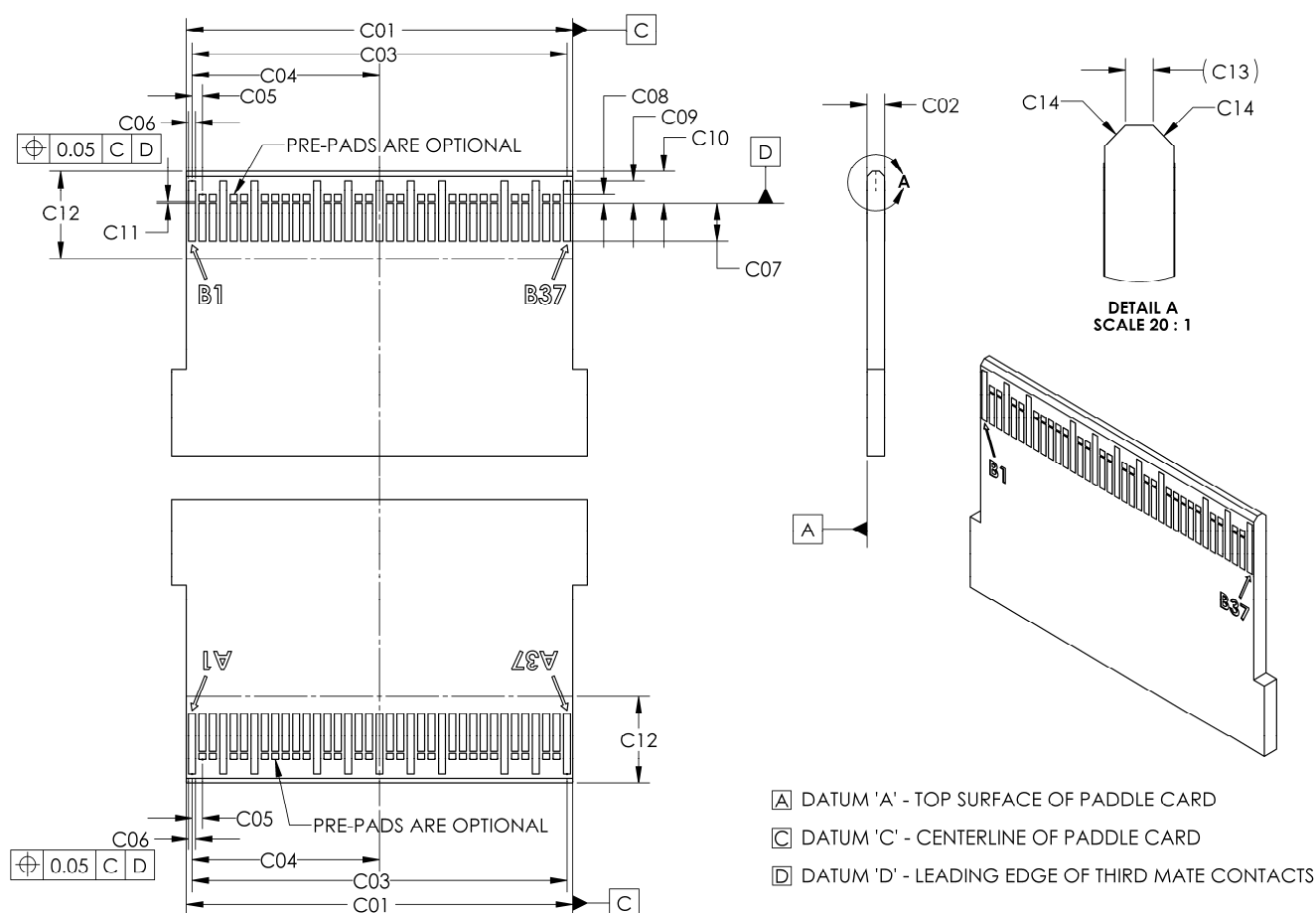


FIGURE 5-5 8X PLUG PADDLE CARD

TABLE 5-3 8X PLUG PADDLE CARD DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
C01	Interface Width	22.40	+/- 0.05
C02	Paddle Card Thickness	1.00	+/- 0.08
C03	First to Last Pad Centers	21.60	Basic
C04	Card Center to Outer Pad Center	10.80	Basic
C05	Pad Center to Center (Pitch)	0.60	Basic
C06	Pad Width	0.40	+/- 0.025
C07	Pad Length - Third Mate	2.20	Minimum
C08	Third Mate to Second Mate	0.50	+/- 0.05
C09	Third Mate to First Mate	1.30	+/- 0.05
C10	Third Mate Pad to Card Edge	1.85	+/- 0.10
C11	Third Mate Pad to Second Mate Pad	0.10	+/- 0.05
C12	Component Keep Out Area	5.05	Minimum
C13	Lead-in Flat	0.40	REF.
C14	Lead-in Chamfer x45 degrees	0.30	+/- 0.05

5.3 Stamped Metal Latch for 8X and 4X Plugs

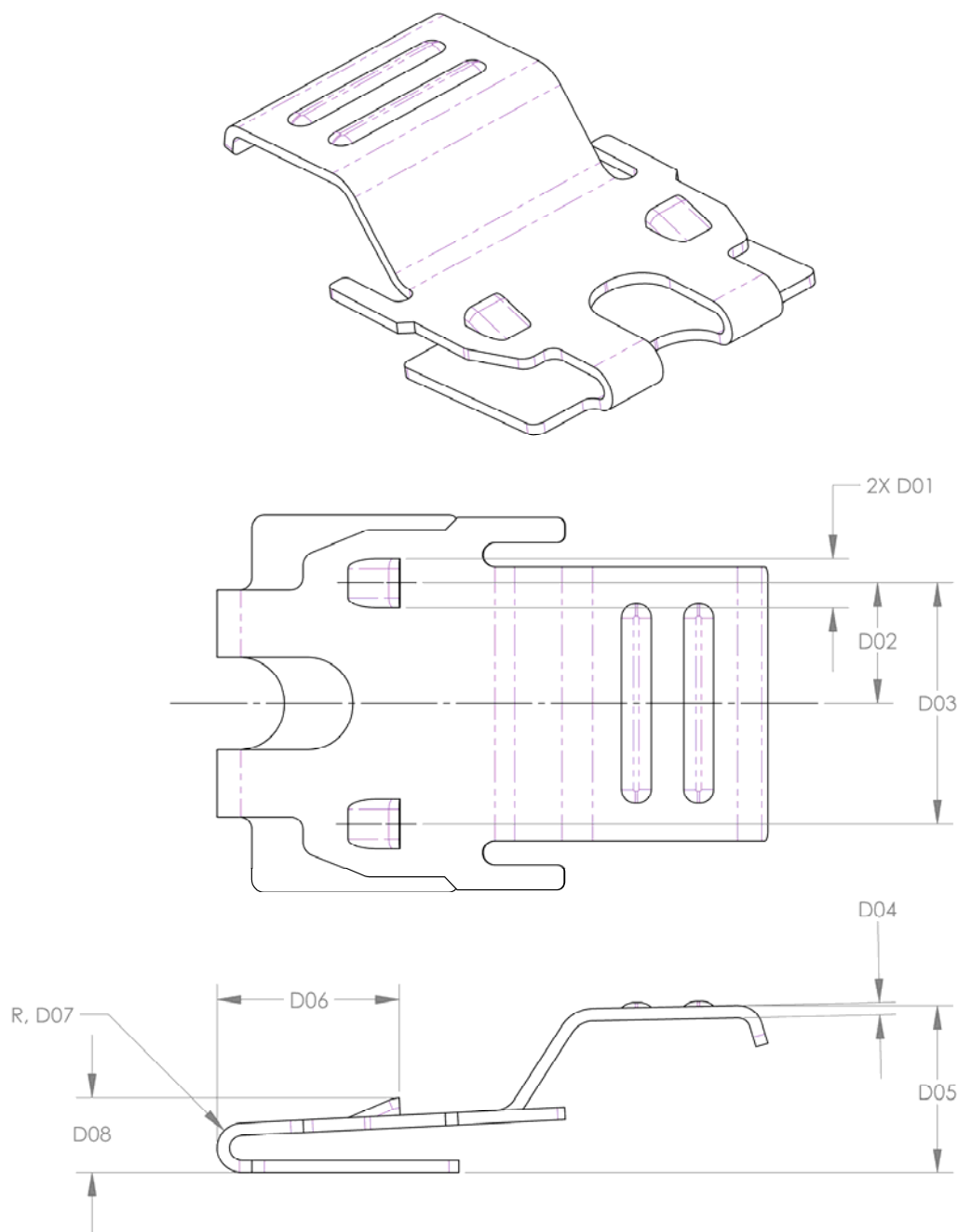
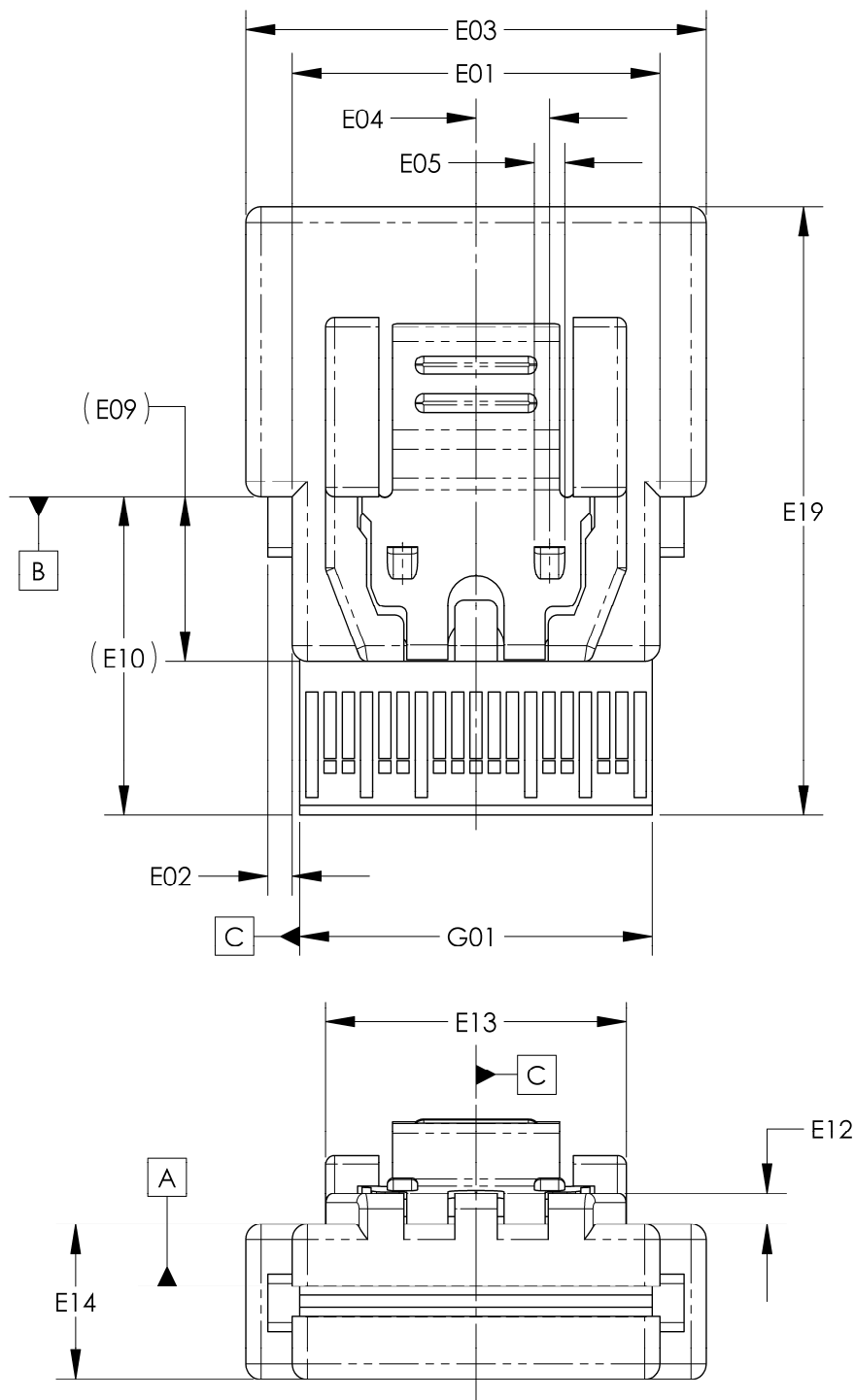


FIGURE 5-6 8X/4X METAL LATCH

TABLE 5-4 8X/4X METAL LATCH DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
D01	Latch Tab Width	1.00	+/- 0.10
D02	Latch Center to Latch Tab Center	2.42	+/- 0.10
D03	Latch Tab Center to Latch Tab Center	4.84	+/- 0.10
D04	Latch Thickness	0.25	+/- 0.05
D05	Latch Height	3.36	Maximum
D06	Latch Front to Latch Tab Stop	3.65	+/- 0.10
D07	Radius	0.25	REF.
D08	Latch Tab Height	1.51	Minimum

5.4 4X Plug Configurations



- A DATUM 'A' - TOP SURFACE OF PADDLE CARD
- B DATUM 'B' - FREE (PLUG) CABLE CONNECTOR STOP
- C DATUM 'C' - PADDLE CARD / MATING INTERFACE CENTERLINE

FIGURE 5-7 4X STRAIGHT PLUG

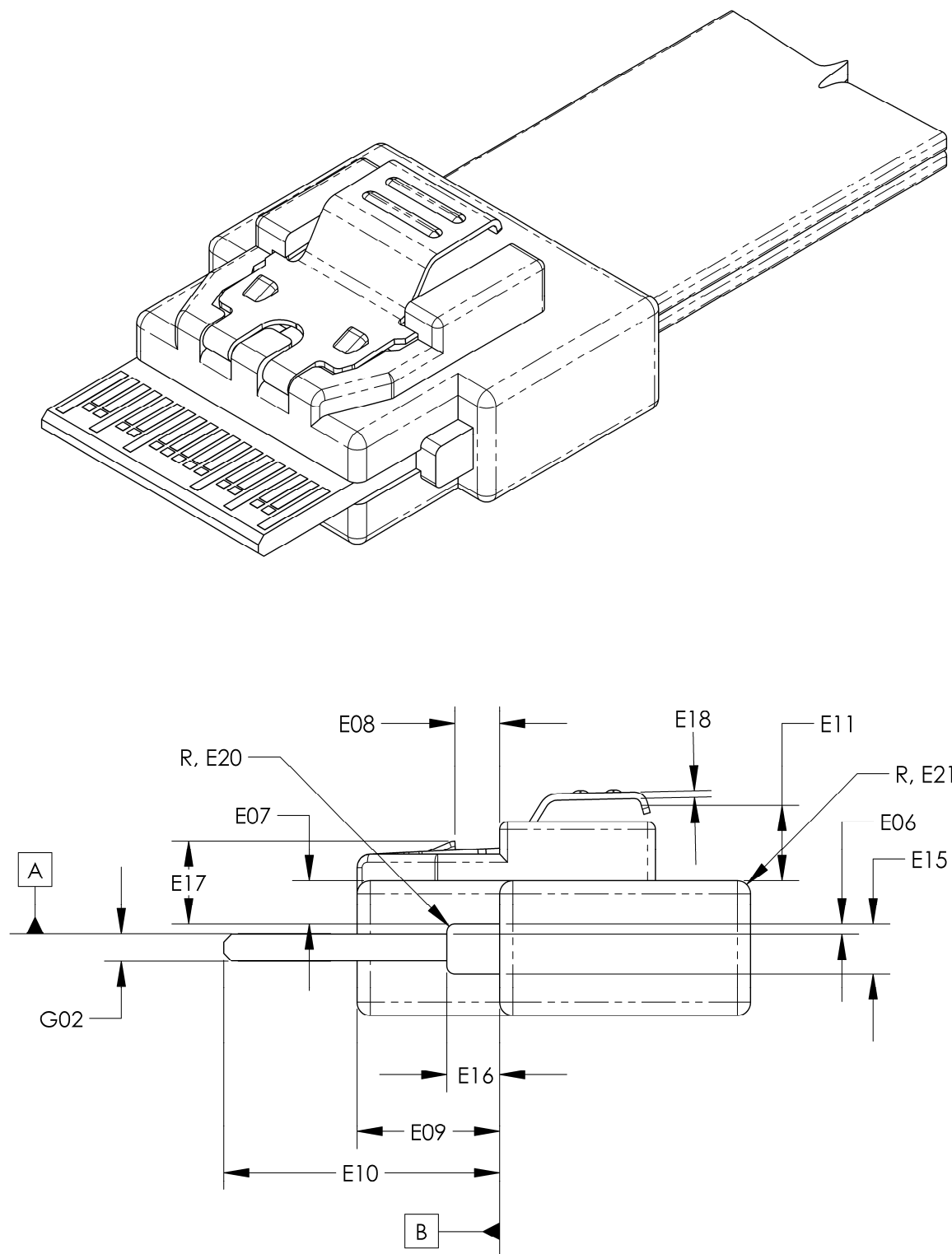
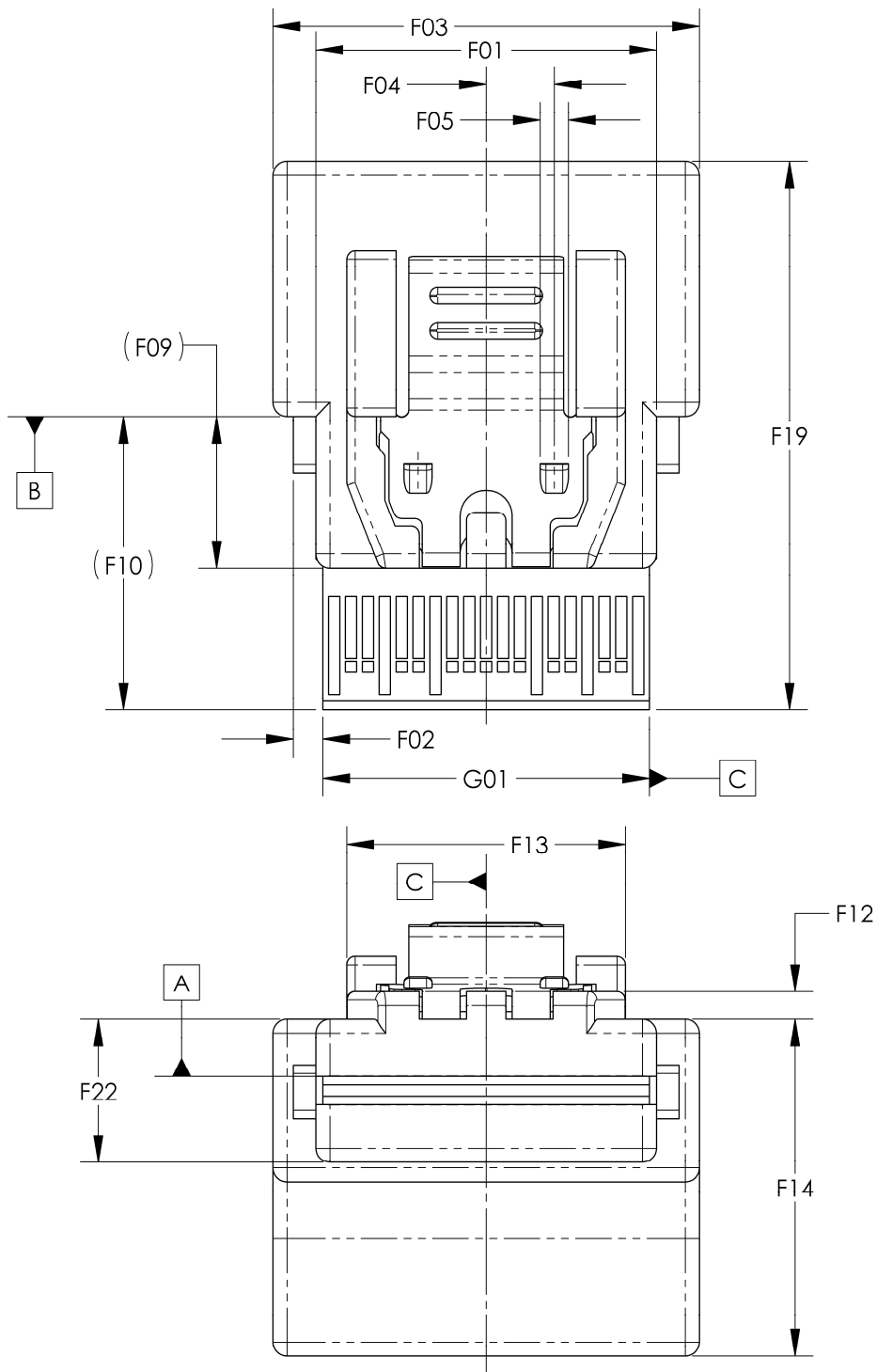


FIGURE 5-8 4X STRAIGHT PLUG (2)

TABLE 5-5 FREE 4X STRAIGHT PLUG CABLE CONNECTOR DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
G01	Interface Width	11.60	+/- 0.05
G02	Paddle Card Thickness	1.00	+/- 0.08
E01	Plug Body Front Width	12.15	+0 / -0.15
E02	Plug Stop Height	0.80	Minimum
E03	Plug Body Rear Width	15.15	REF.
E04	Plug Datum C to Latch Tab Center	2.42	+/- 0.10
E05	Latch Tab Width	1.00	+/- 0.10
E06	Datum A to Anti-Rotation Rib Top Surface	0.40	+/- 0.05
E07	Datum A to Top of Plug	2.03	+/- 0.05
E08	Plug Datum B to Latch Tab	1.70	+/- 0.10
E09	Plug Datum B to Body Front Surface	5.40	+/- 0.10
E10	Plug Datum B to Edge of Paddle Card	10.45	Basic
E11	Plug Top Surface to Latch	3.36	Maximum
E12	Plug Key Surface	1.00	+/- 0.05
E13	Latch Body Width	9.90	+/- 0.15
E14	Plug Body Thickness	5.10	+/- 0.10
E15	Anti-Rotation Rib Width	1.90	+/- 0.05
E16	Datum B to End of Anti-Rotation Rib	2.00	+/- 0.05
E17	Latch Tab Height (when free)	3.14	Minimum
E17	Latch Tab Height (when tab is pressed)	2.88	Maximum
E18	Latch Tab Thickness	0.25	+/- 0.05
E19	Plug Length	19.95	Maximum
E20	Radius	0.30	REF.
E21	Radius	0.50	REF.



- [A] DATUM 'A' - TOP SURFACE OF PADDLE CARD
- [B] DATUM 'B' - FREE (PLUG) CABLE CONNECTOR STOP
- [C] DATUM 'C' - PADDLE CARD / MATING INTERFACE CENTERLINE

FIGURE 5-9 4X RIGHT ANGLE PLUG

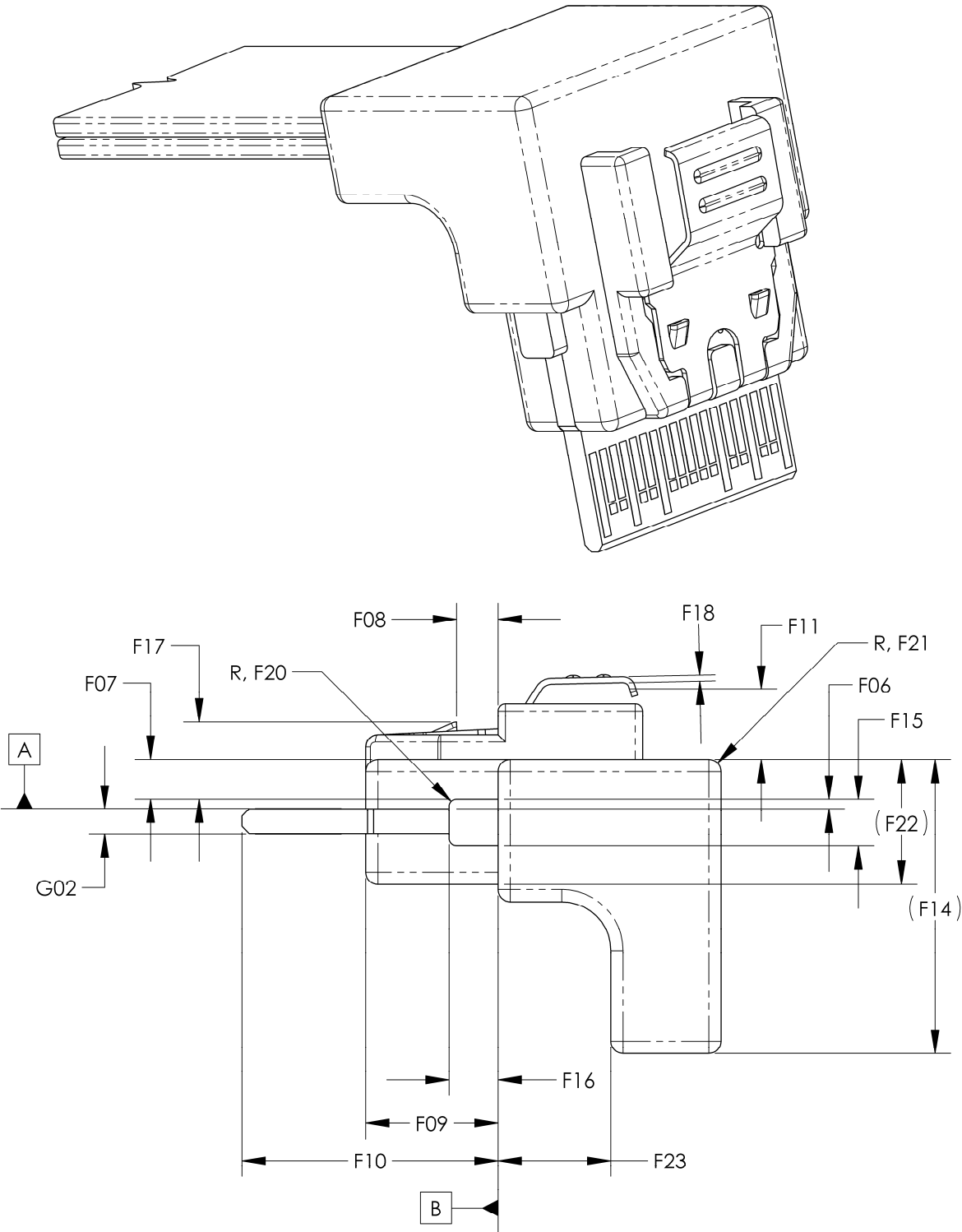


FIGURE 5-10 4X RIGHT ANGLE PLUG (2)

TABLE 5-6 FREE 4X RIGHT ANGLE PLUG CABLE CONNECTOR DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
G01	Interface Width	11.60	+/- 0.05
G02	Paddle Card Thickness	1.00	+/- 0.08
F01	Plug Body Front Width	12.15	+0 / -0.15
F02	Plug Stop Height	0.80	Minimum
F03	Plug Body Rear Width	15.15	REF.
F04	Plug Datum C to Latch Tab Center	2.42	+/- 0.10
F05	Latch Tab Width	1.00	+/- 0.10
F06	Datum A to Anti-Rotation Rib Top Surface	0.40	+/- 0.05
F07	Datum A to Top of Plug	2.03	+/- 0.05
F08	Plug Datum B to Latch Tab	1.70	+/- 0.10
F09	Plug Datum B to Body Front Surface	5.40	+/- 0.10
F10	Plug Datum B to Edge of Paddle Card	10.45	Basic
F11	Plug Top Surface to Latch	3.36	Maximum
F12	Plug Key Surface	1.00	+/- 0.05
F13	Latch Body Width	9.90	+/- 0.15
F14	Plug Body Thickness (Including Bend)	12.00	+/- 0.10
F15	Anti-Rotation Rib Width	1.90	+/- 0.05
F16	Datum B to End of Anti-Rotation Rib	2.00	+/- 0.05
F17	Latch Tab Height (when free)	3.14	Minimum
F17	Latch Tab Height (when free)	2.88	Maximum
F18	Latch Tab Thickness	0.25	+/- 0.05
F19	Plug Length	19.55	Maximum
F20	Radius	0.30	REF.
F21	Radius	0.50	REF.
F22	Plug Body Top Surface to Shroud Bottom Surface	5.10	+/- 0.10
F23	Plug Datum B to Body Bend Front Surface	4.60	+/- 0.10

5.5 4X Plug Paddle Card

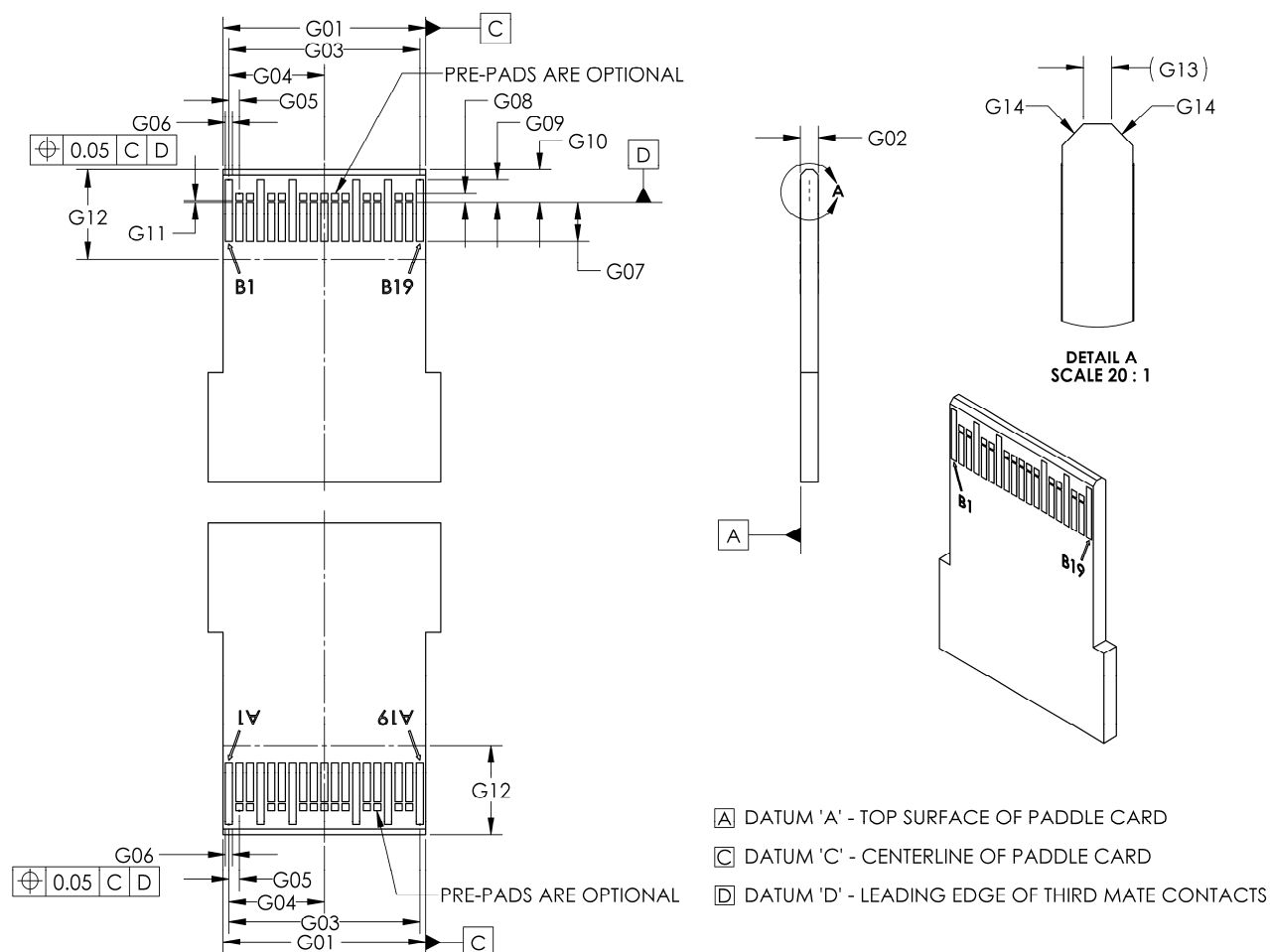


FIGURE 5-11 4X PLUG PADDLE CARD DIMENSIONS

TABLE 5-7 4X PADDLE CARD DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
G01	Paddle Card Width	11.60	+/- 0.05
G02	Paddle Card thickness	1.00	+/- 0.08
G03	First to Last Pad Center	10.80	Basic
G04	Card Center to Outer Pad Center	5.40	Basic
G05	Pad Center to Center (Pitch)	0.60	Basic
G06	Pad Width	0.40	+/- 0.025
G07	Pad length- Third Mate	2.20	Minimum
G08	Third Mate to Second Mate	0.50	+/- 0.05
G09	Third Mate to First Mate	1.30	+/- 0.05
G10	Third Mate Pad to Card Edge	1.85	+/- 0.10
G11	Third Mate Pad to Second Mate Pad	0.10	+/- 0.05
G12	Component keep Out Area	5.05	Minimum
G13	Lead-in Flat	0.40	REF.
G14	Lead-in Chamfer x45 degrees	0.30	+/- 0.05

6. Receptacle Connector Requirements

6.1 8X Receptacle Connector Configurations

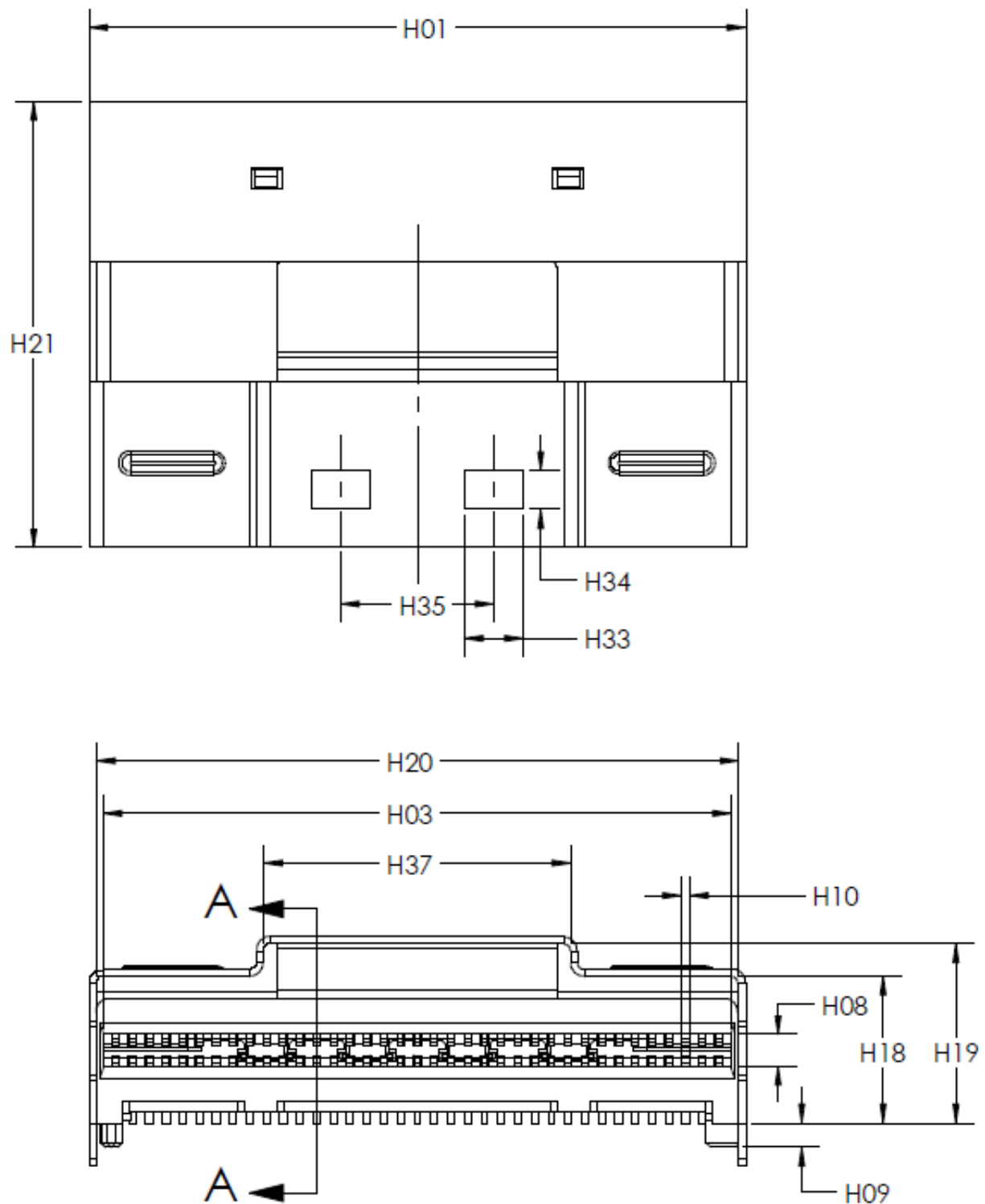


FIGURE 6-1 8X RIGHT ANGLE CONNECTOR WITH LATCH RETENTION

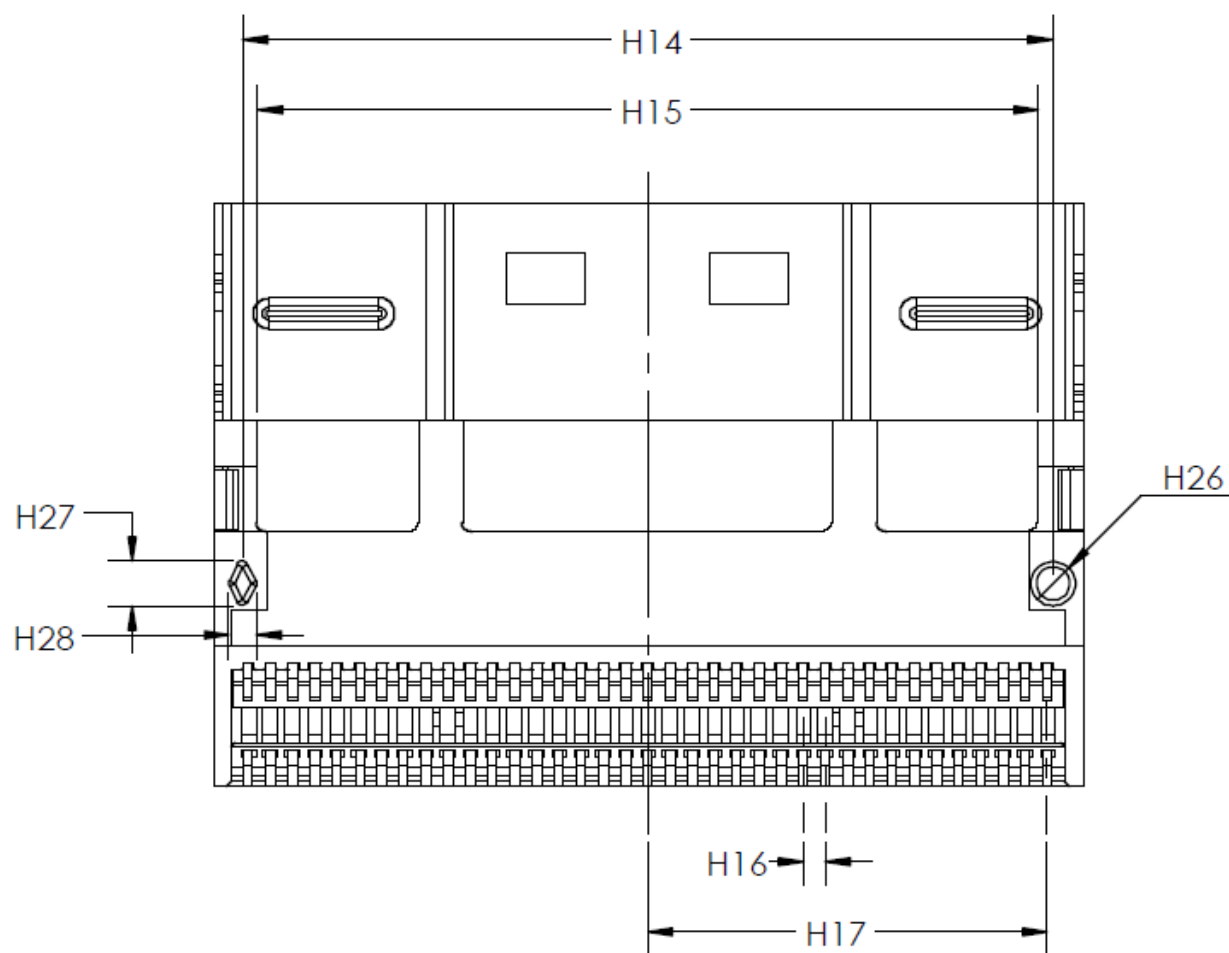
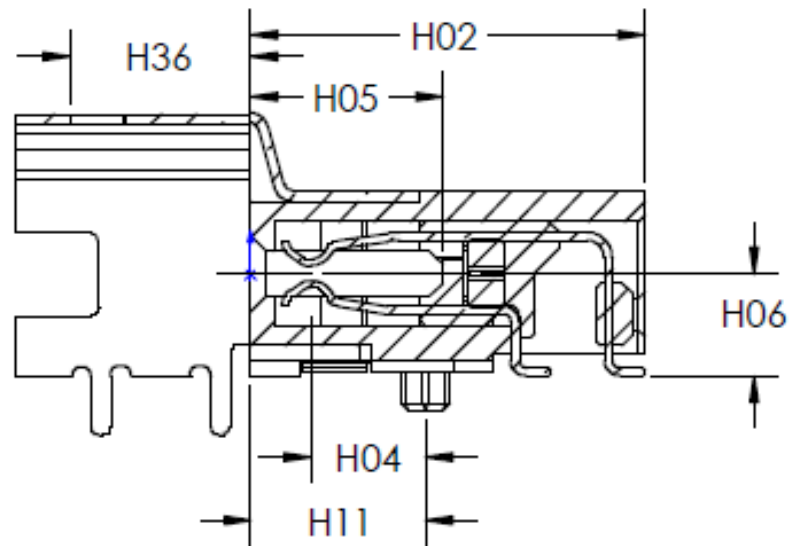


FIGURE 6-2 8X RIGHT ANGLE CONNECTOR WITH LATCH RETENTION (2)



SECTION A-A

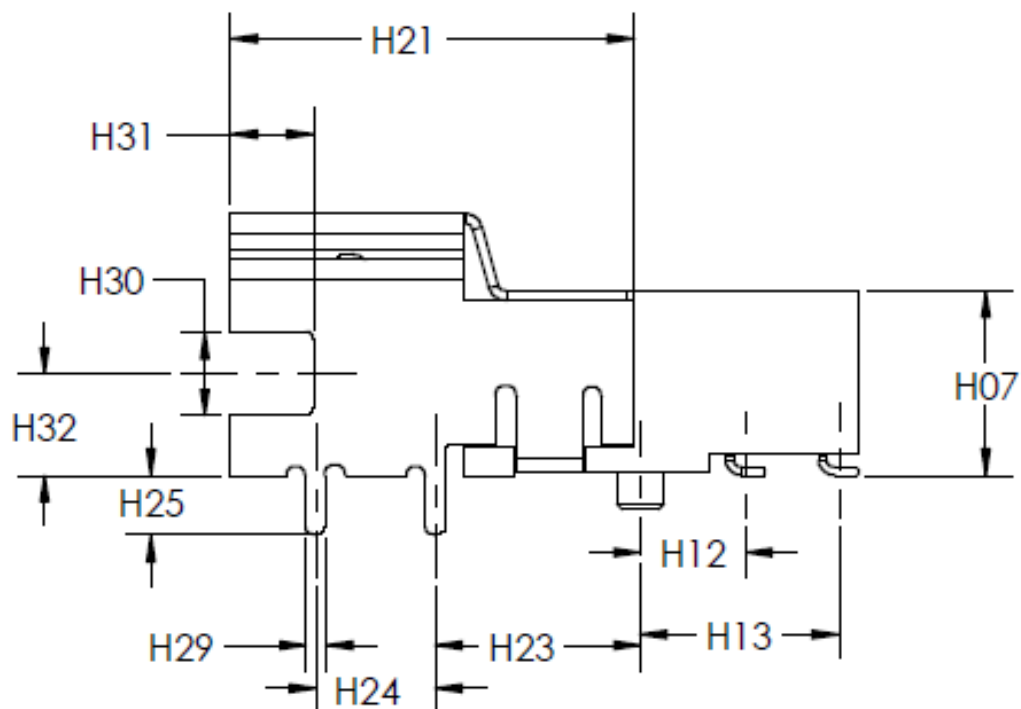


FIGURE 6-3 8X RIGHT ANGLE CONNECTOR WITH LATCH RETENTION (3)

TABLE 6-1 8X RIGHT ANGLE RECEPTACLE CONNECTOR DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
H01	Receptacle Width	23.50	+/- 0.10
H02	Receptacle Length	9.90	+/- 0.10
H03	Card Slot Width	22.48	+/- 0.03
H04	Peg to Contact Centerline	2.90	+/- 0.075
H05	Card Slot Depth	4.70	MIN
H06	PCB to Card Slot Centerline	2.57	Basic
H07	Receptacle Height from PCB	4.64	+/- 0.10
H08	Card Slot Height	1.14	MIN
H09	Peg length	0.85	+/- 0.10
H10	Contact Zone	0.385	MAX
H11	Front Face to Peg	4.40	+/- 0.05
H12	Peg to Row A	2.65	+/- 0.05
H13	Peg to Row B	5.00	+/- 0.05
H14	Peg to Peg	21.90	+/- 0.05
H15	Leg to Leg	21.10	+/- 0.10
H16	Contact Pitch	0.60	Basic
H17	Centerline to Last Contact	10.80	Basic
H18	Inner Latch Shroud Height	5.20	+0.00/-0.20
H19	Inner Latch Shroud Height at Latching Bracket	6.35	+/- 0.05
H20	Inner Latch Shroud Width	23.00	+0.08/-0.02
H21	Latch Shroud Depth	10.15	+/- 0.10
H22	Overall Receptacle and Latch Shroud Length	15.80	+/- 0.10
H23	Peg to First Latch Shroud Solder Pin	5.15	+/- 0.08
H24	First Latch Shroud Solder Pin to Second Pin	3.00	+/- 0.05
H25	Latch Shroud Solder Pin Height	1.50	+/- 0.10
H26	Peg Diameter	1.20	+/- 0.03
H27	Diamond Peg Height	1.20	+/- 0.03
H28	Diamond Peg Width	0.75	+/- 0.05
H29	Latch Shroud Solder Pin Width	0.50	+0.00/-0.06
H30	Anti-Rotation Rib Slot Width	2.10	+/- 0.05
H31	Anti-Rotation Rib Slot Depth	2.08	+/- 0.05
H32	Anti-Rotation Rib Slot Height	2.57	+/- 0.05
H33	Latch Slot Length	2.13	+/- 0.10
H34	Latch Slot Width	1.40	+0.10/-0.00
H35	Latch Slot Spacing	5.48	+/- 0.10
H36	Latch Slot to Receptacle Distance	4.55	+/- 0.10
H37	Inner Latch Width at Latch Bracket	11.00	+/- 0.10

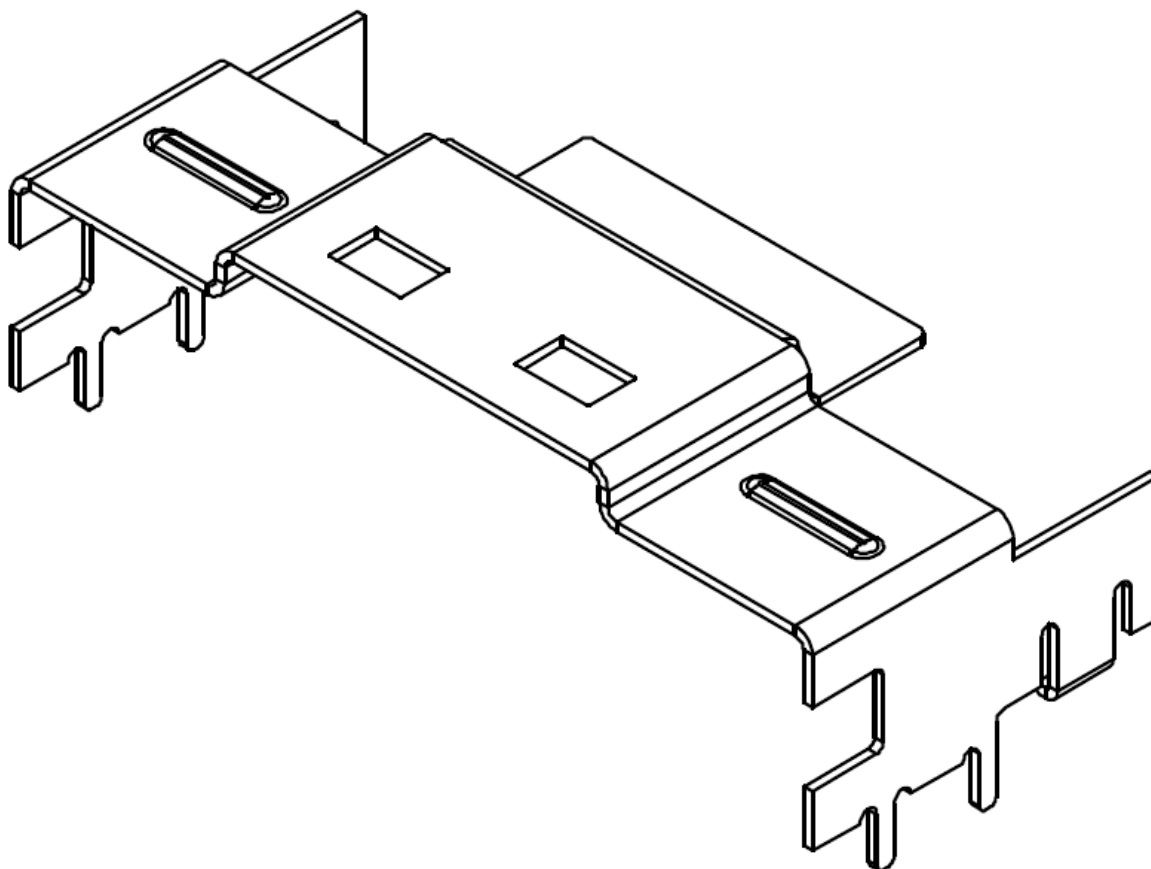


FIGURE 6-4 8X RIGHT ANGLE CONNECTOR LATCH RETENTION SHROUD

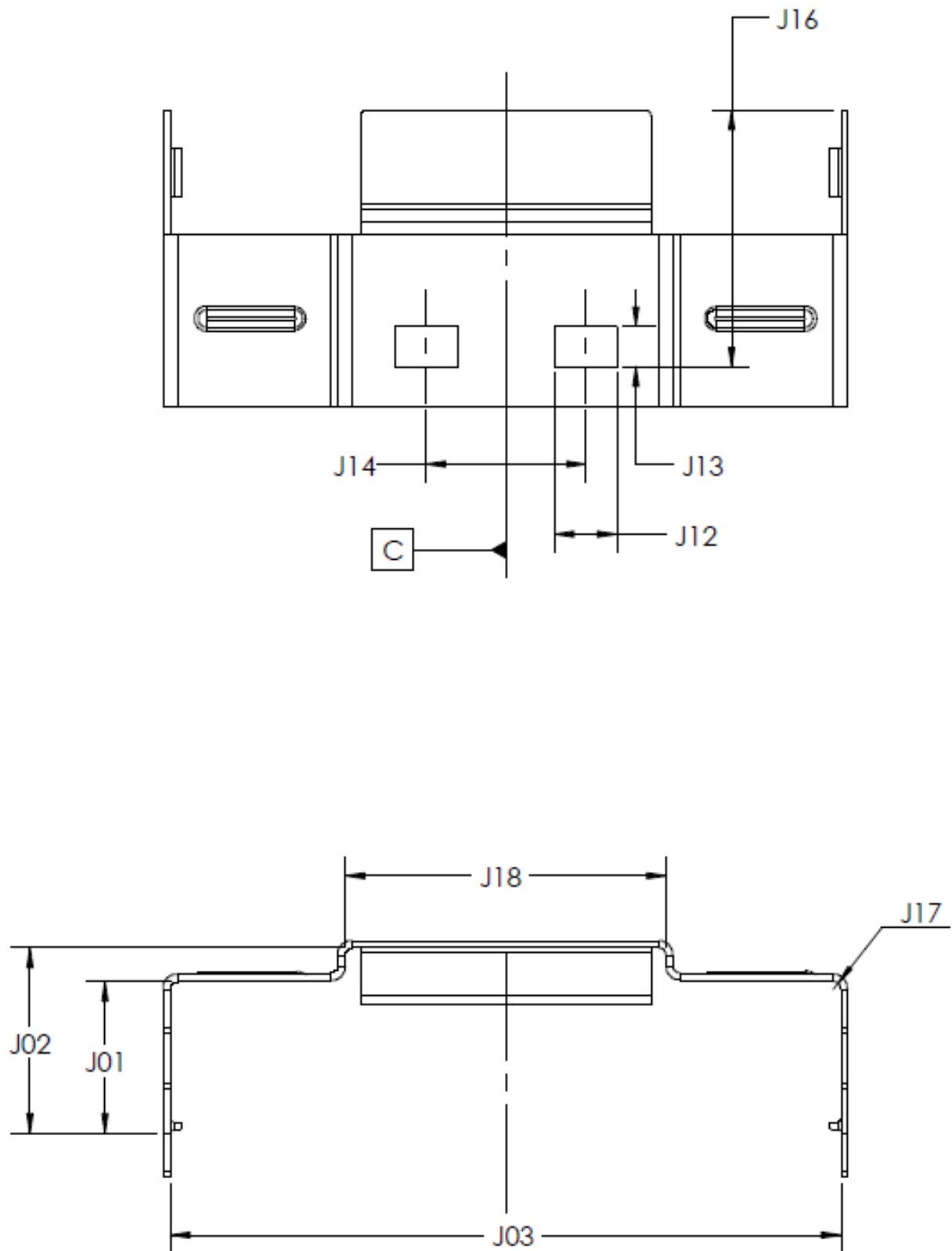


FIGURE 6-5 8X RIGHT ANGLE CONNECTOR LATCH RETENTION SHROUD (2)

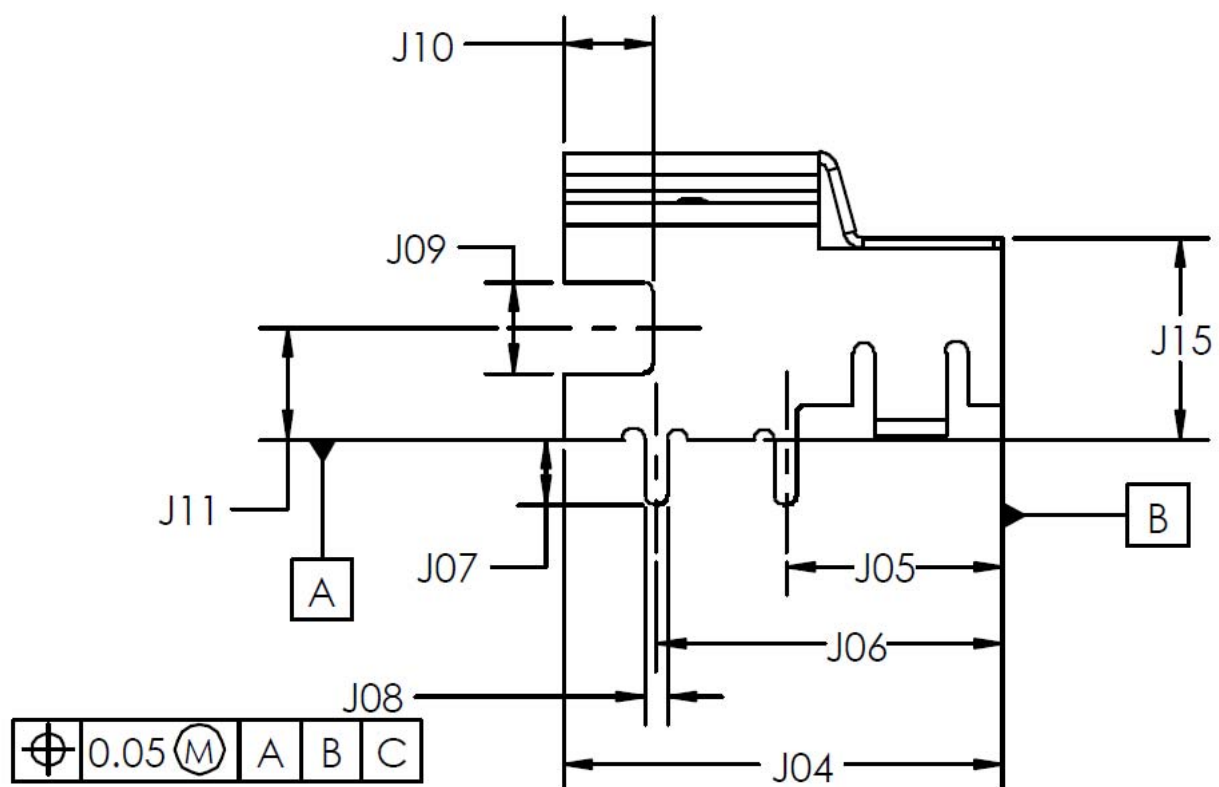


FIGURE 6-6 8X RIGHT ANGLE CONNECTOR LATCH RETENTION SHROUD (3)

TABLE 6-2 8X RIGHT ANGLE CONNECTOR LATCH RETENTION SHROUD DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
J01	Inner Latch Shroud Height	5.20	+0.20/-0.00
J02	Inner Latch Shroud Height at Latching Bracket	6.35	+/- 0.05
J03	Inner Latch Shroud Width	23.00	+0.08/-0.02
J04	Latch Shroud Overall Depth	10.15	+/- 0.10
J05	Back to First Latch Shroud Solder Pin	5.00	Basic
J06	Back to Second Latch Shroud Solder Pin	8.00	Basic
J07	Latch Shroud Solder Pin Height	1.50	+/- 0.10
J08	Shroud Solder Pin Width	0.50	+0.00/-0.06
J09	Anti-Rotation Rib Slot Width	2.10	+/- 0.05
J10	Anti-Rotation Rib Slot Depth	2.08	+/- 0.05
J11	Anti-Rotation Rib Slot Height	2.57	+/- 0.05
J12	Latch Slot Length	2.13	+/- 0.10
J13	Latch Slot Width	1.40	+0.10/-0.00
J14	Latch Slot Spacing	5.48	+/- 0.10
J15	Latch Shroud Height at the Back	4.64	REF.
J16	Latch Slot to Back	8.80	+0.10/-0.00
J17	Bend Radius	0.25	+/- 0.05
J18	Inner Latch Width at Latch Bracket	11.00	+/- 0.10

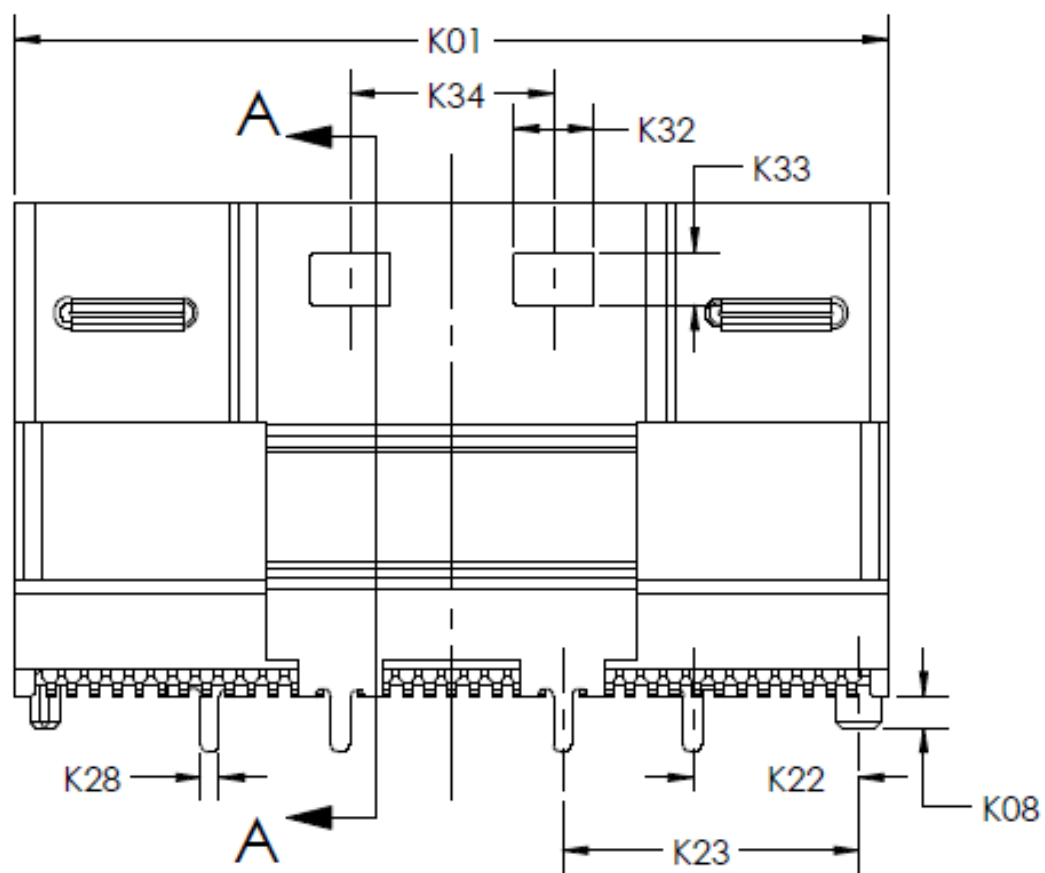
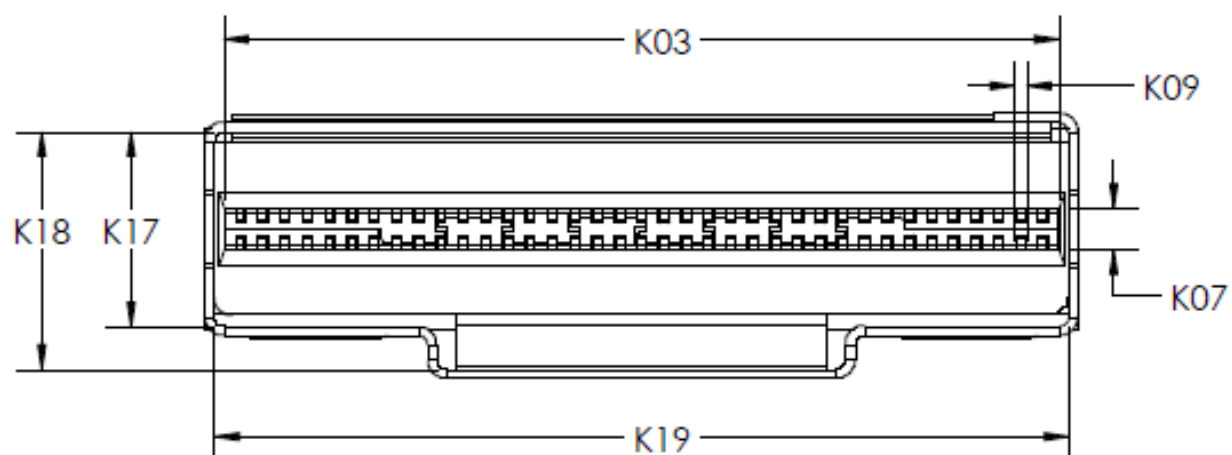


FIGURE 6-7 8X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION

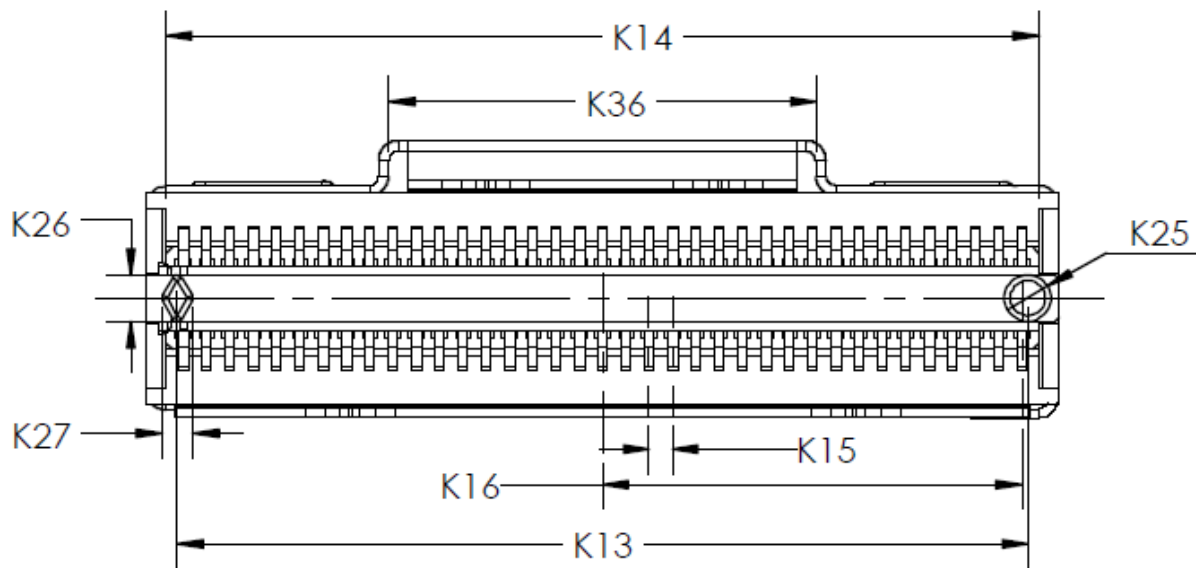


FIGURE 6-8 8X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION (2)

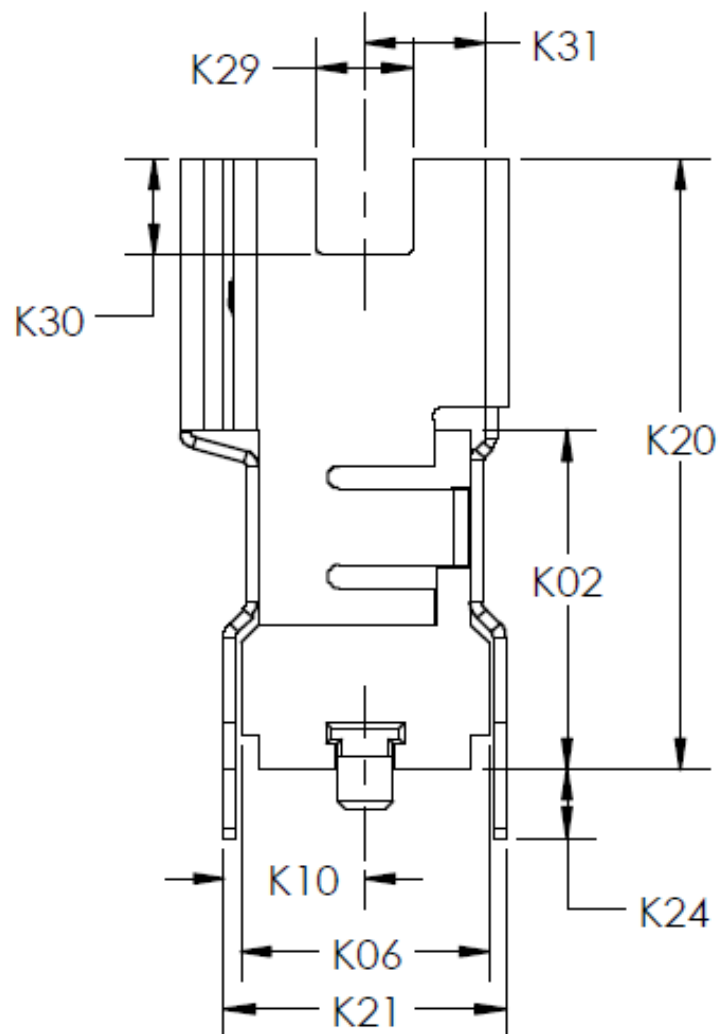
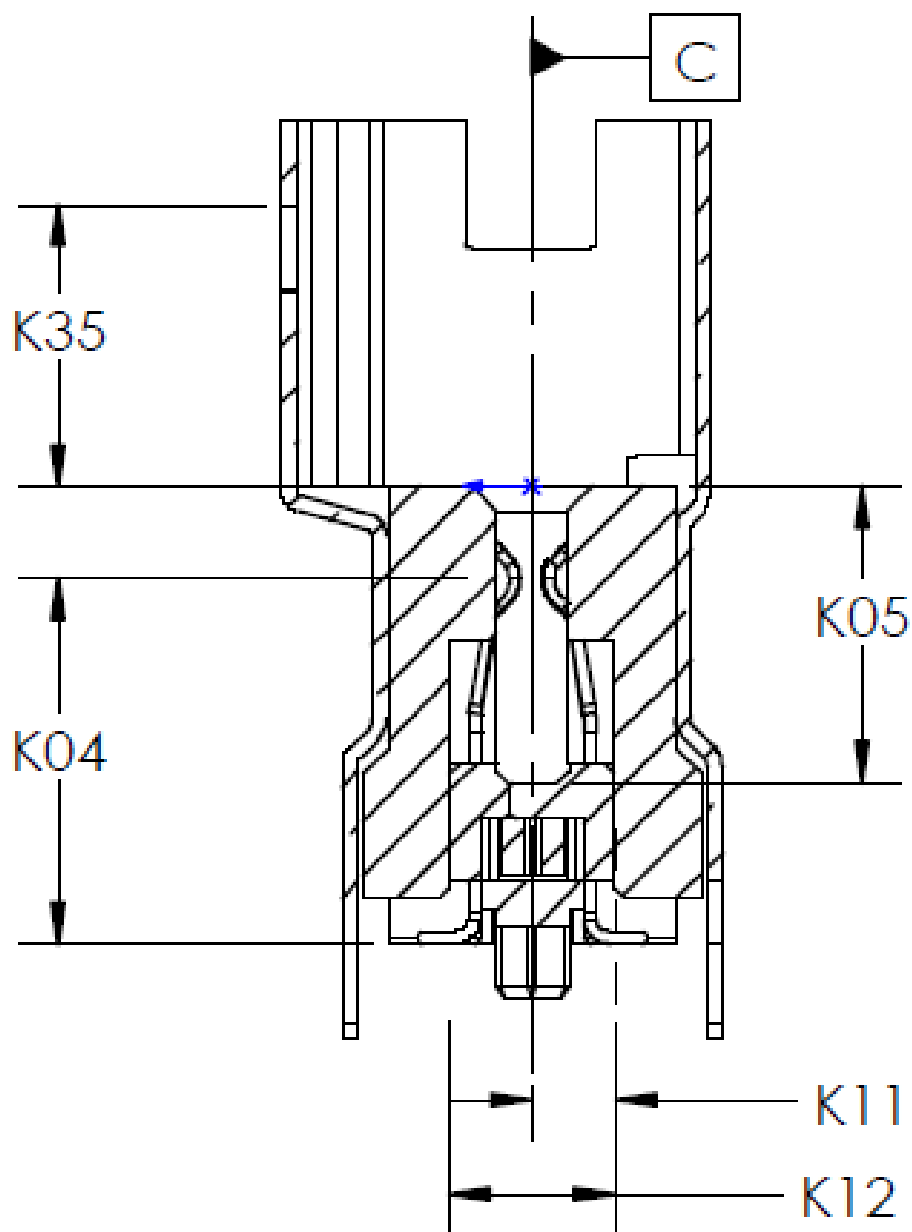


FIGURE 6-9 8X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION (3)



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FIGURE 6-10 8X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION (4)

TABLE 6-3 8X STRAIGHT VERTICAL RECEPTACLE CONNECTOR DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
K01	Receptacle Width	23.50	+/- 0.10
K02	Receptacle Height from PCB	7.40	+/- 0.10
K03	Card Slot Width	22.48	+/- 0.03
K04	PCB to Contact Centerline	5.90	+/- 0.10
K05	Card Slot Depth	4.70	MIN
K06	Receptacle Thickness	5.44	+/- 0.05
K07	Card Slot Height	1.14	MIN
K08	Peg length	0.85	+/- 0.10
K09	Contact Zone	0.385	MAX
K10	Front Face to Peg at Base	3.07	+/- 0.04
K11	Peg to Row A	1.34	+/- 0.05
K12	Row A to Row B	2.68	+/- 0.05
K13	Peg to Peg	21.90	+/- 0.05
K14	Leg to Leg	22.48	+/- 0.05
K15	Contact Pitch	0.60	Basic
K16	Centerline to Last Contact	10.80	Basic
K17	Inner Latch Shroud Height	5.20	+0.00/-0.20
K18	Inner Latch Shroud Height at Latching Bracket	6.35	+/- 0.05
K19	Inner Latch Shroud Width	23.00	+0.08/-0.02
K20	Latch Shroud Height from PCB	13.30	+/- 0.10
K21	Latch Shroud and Receptacle Thickness at Base	6.14	+/- 0.08
K22	Peg to First Latch Shroud Solder Pin	4.45	+/- 0.08
K23	Peg to Second Latch Shroud Solder Pin	7.95	+/- 0.08
K24	Latch Shroud Solder Pin Height	1.50	+/- 0.10
K25	Peg Diameter	1.20	+/- 0.03
K26	Diamond Peg Height	1.20	+/- 0.03
K27	Diamond Peg Width	0.75	+/- 0.05
K28	Latch Shroud Solder Pin Width	0.50	+0.00/-0.06
K29	Anti-Rotation Rib Slot Width	2.10	+/- 0.05
K30	Anti-Rotation Rib Slot Depth	2.08	+/- 0.05
K31	Anti-Rotation Rib Slot Height from Inner Wall	2.62	+/- 0.05
K32	Latch Slot Length	2.13	+/- 0.10
K33	Latch Slot Width	1.40	+0.10/-0.00
K34	Latch Slot Spacing	5.48	+/- 0.10
K35	Latch Slot to Receptacle Distance	4.55	+/- 0.10
K36	Inner Latch Width at Latch Bracket	11.00	+/- 0.10

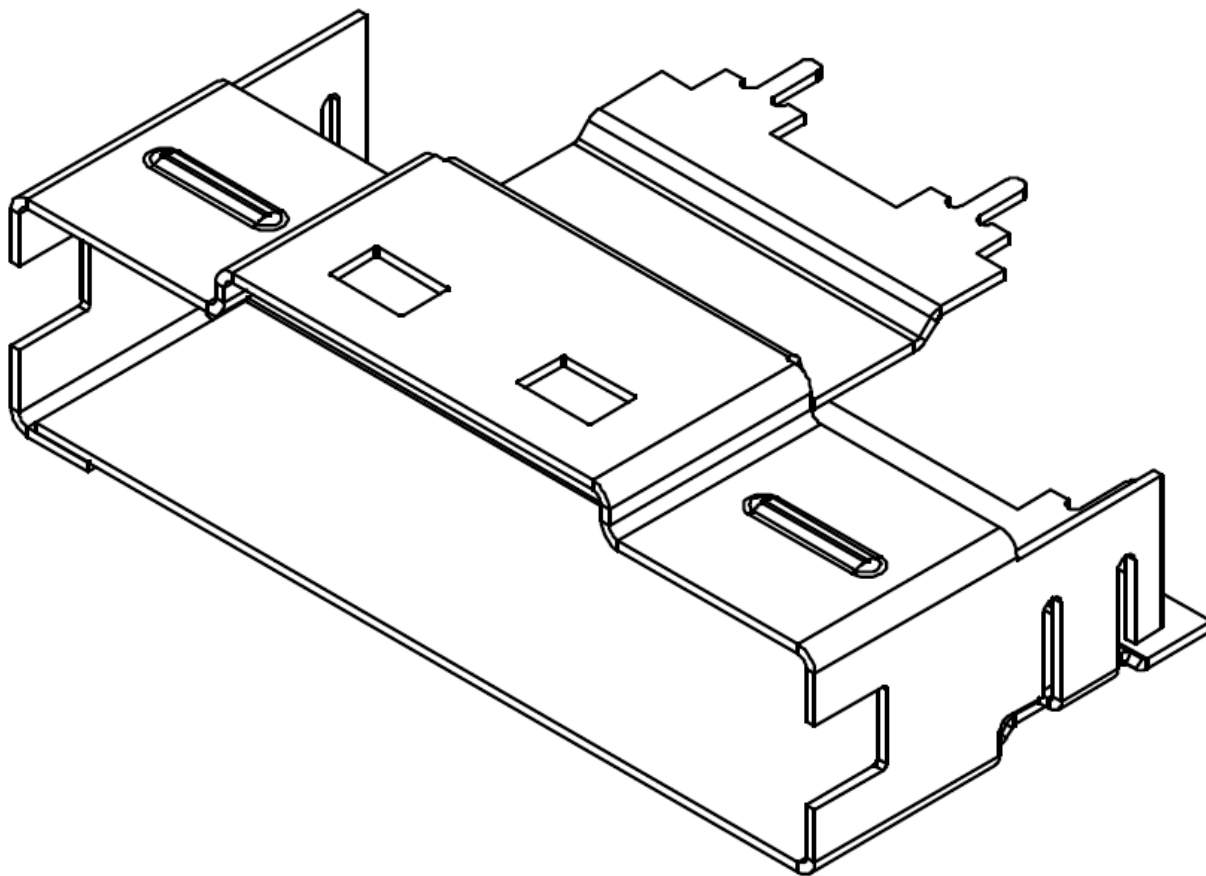


FIGURE 6-11 8X STRAIGHT VERTICAL CONNECTOR LATCH RETENTION SHROUD

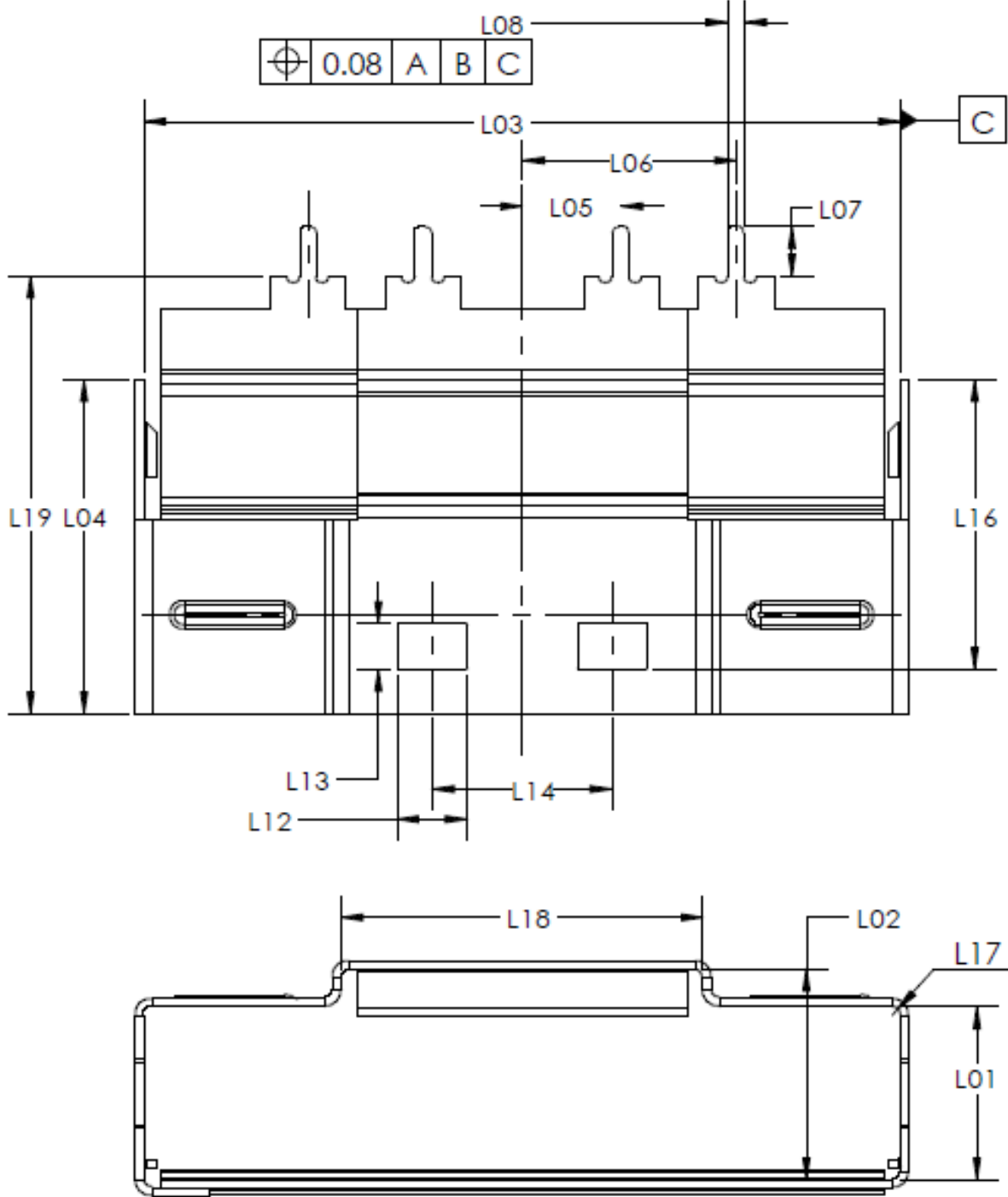


FIGURE 6-12 8X STRAIGHT VERTICAL CONNECTOR LATCH RETENTION SHROUD (2)

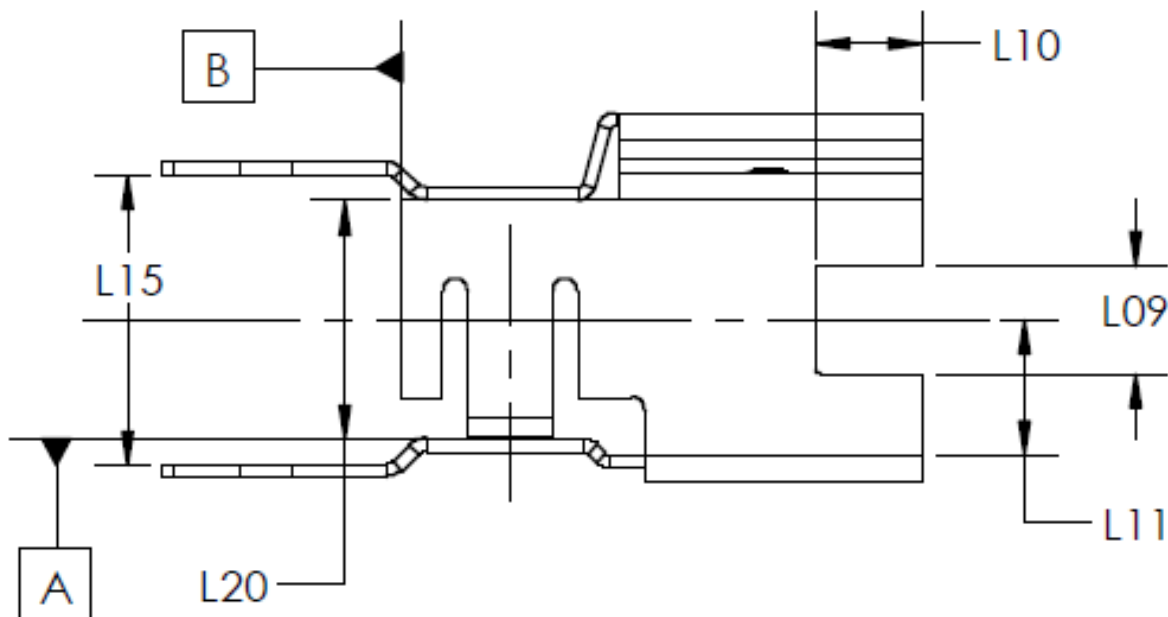


FIGURE 6-13 8X STRAIGHT VERTICAL CONNECTOR LATCH RETENTION SHROUD (3)

TABLE 6-4 8X STRAIGHT VERTICAL CONNECTOR LATCH RETENTION SHROUD DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
L01	Inner Latch Shroud Height	5.20	+0.20/-0.00
L02	Inner Latch Shroud Height at Latching Bracket	6.35	+/- 0.05
L03	Inner Latch Shroud Width	23.00	+0.08/-0.02
L04	Latch Shroud Depth to Back	10.15	+/- 0.10
L05	Centerline to First Latch Shroud Solder Pin	3.00	Basic
L06	Centerline to Second Latch Shroud Solder Pin	6.50	Basic
L07	Latch Shroud Solder Pin Height	1.50	+/- 0.10
L08	Shroud Solder Pin Width	0.50	+0.00/-0.06
L09	Anti-Rotation Rib Slot Width	2.10	+/- 0.05
L10	Anti-Rotation Rib Slot Depth	2.08	+/- 0.05
L11	Anti-Rotation Rib Slot Height	2.57	+/- 0.05
L12	Latch Slot Length	2.13	+/- 0.10
L13	Latch Slot Width	1.40	+0.10/-0.00
L14	Latch Slot Spacing	5.48	+/- 0.10
L15	Latch Shroud Height at the Back	4.64	REF.
L16	Latch Slot to Back	8.80	+0.10/-0.00
L17	Bend Radius	0.25	+/- 0.05
L18	Inner Latch Width at Latch Bracket	11.00	+/- 0.10
L19	Latch Shroud Height from PCB	13.30	+/- 0.10

6.2 8X Receptacle Connector Footprints

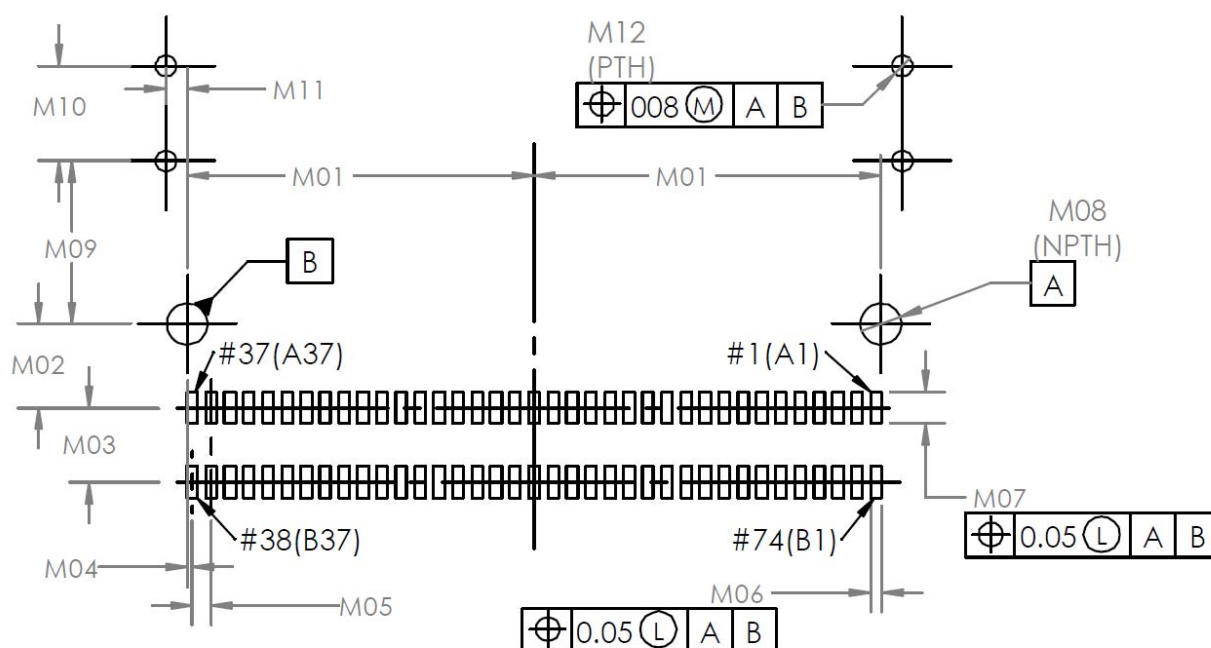


FIGURE 6-14 8X RIGHT ANGLE RECEPTACLE CONNECTOR FOOTPRINT

TABLE 6-5 8X RIGHT ANGLE RECEPTACLE FOOTPRINT DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
M01	Locating Hole to Centerline	10.95	+/- 0.025
M02	Locating Hole to Row A	2.65	Basic
M03	Row A to Row B	2.35	Basic
M04	Locating Hole to Outer Pad Center	0.15	Basic
M05	Pad Pitch	0.60	Basic
M06	Pad Width	0.35	+/- 0.03
M07	Pad Length	1.00	+/- 0.03
M08	Locating Hole Diameter	1.30	+/- 0.05
M09	Locating Hole to First Solder Pin Hole	5.15	Basic
M10	First Solder Pin to Second Pin Hole	3.00	Basic
M11	Locating Hole to Solder Pin Holes	0.68	Basic
M12	Solder Pin Hole Diameter	0.66	+/- 0.05

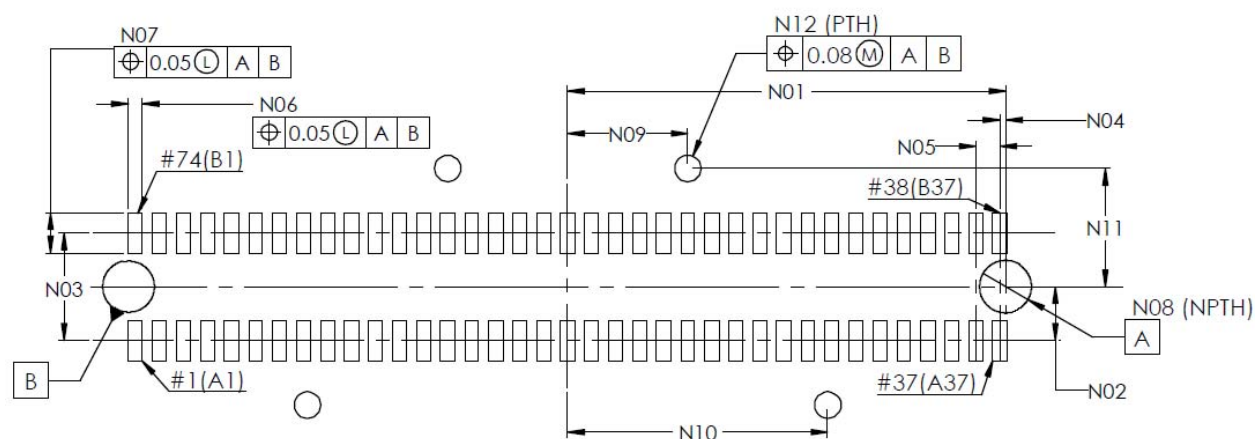


FIGURE 6-15 8X STRAIGHT VERTICAL RECEPTACLE CONNECTOR FOOTPRINT

TABLE 6-6 8X STRAIGHT VERTICAL RECEPTACLE FOOTPRINT DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
N01	Locating Hole to Centerline	10.95	+/- 0.025
N02	Locating Hole to Row A	2.65	Basic
N03	Row A to Row B	2.35	Basic
N04	Locating Hole to Outer Pad Center	0.15	Basic
N05	Pad Pitch	0.60	Basic
N06	Pad Width	0.35	+/- 0.03
N07	Pad Length	1.00	+/- 0.03
N08	Locating Hole Diameter	1.30	+/- 0.05
N09	Centerline to First Solder Pin Hole	3.00	Basic
N10	Centerline to Second Pin Hole	6.50	Basic
N11	Locating Hole to Solder Pin Holes	0.68	Basic
N12	Solder Pin Hole Diameter	0.66	+/- 0.05

6.3 4X Receptacle Connector Configurations

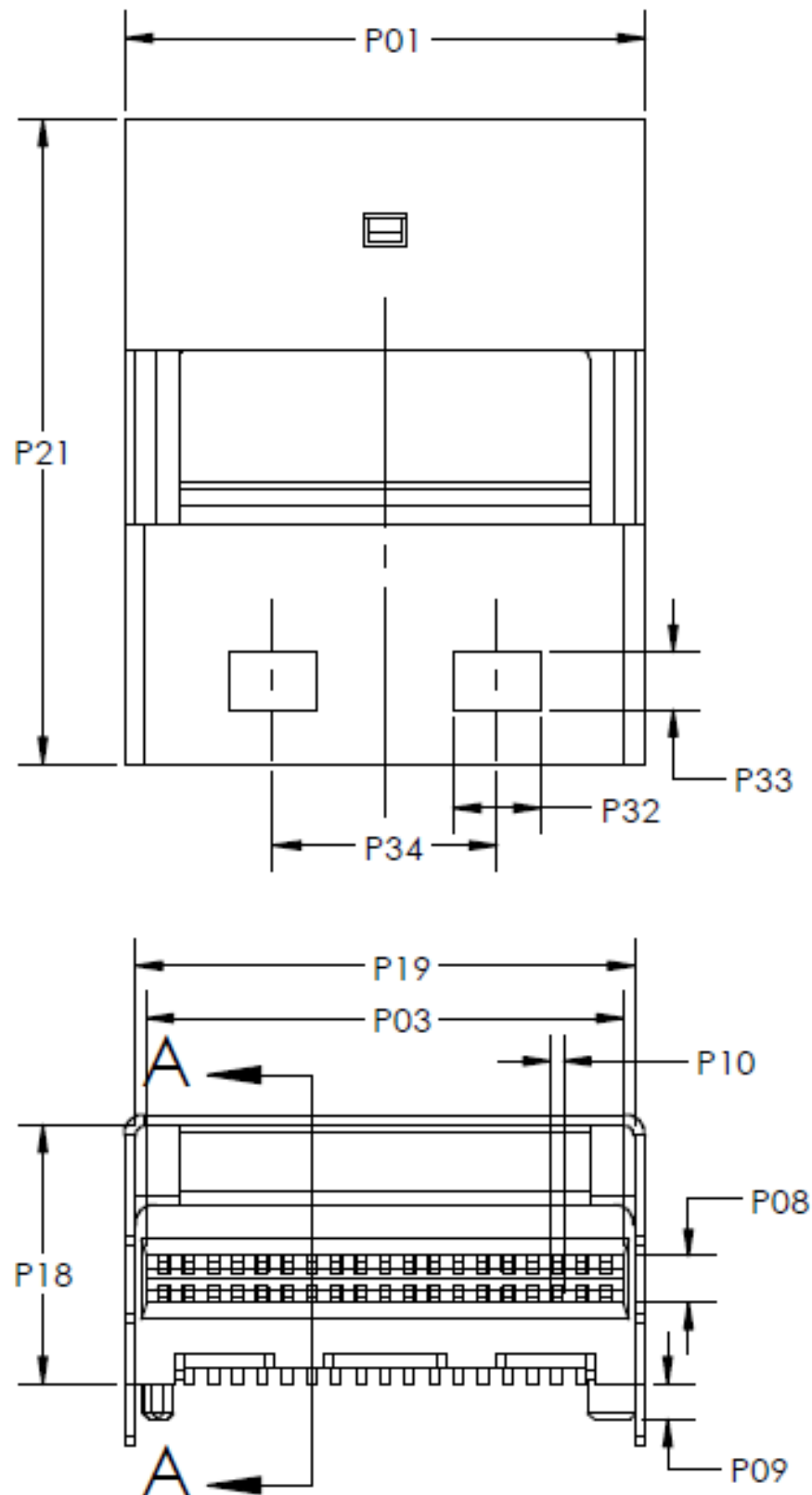


FIGURE 6-16 4X RIGHT ANGLE CONNECTOR WITH LATCH RETENTION

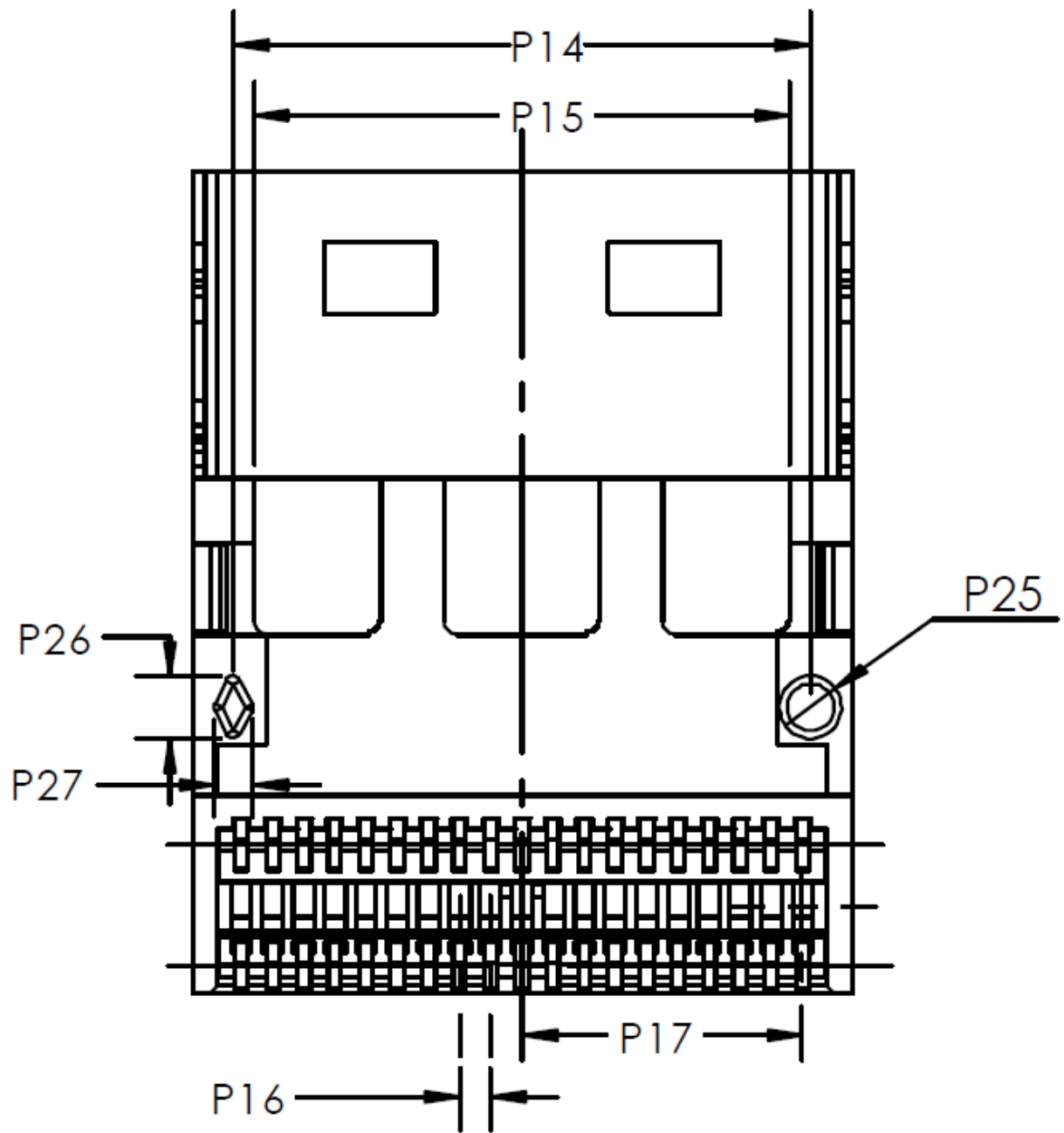
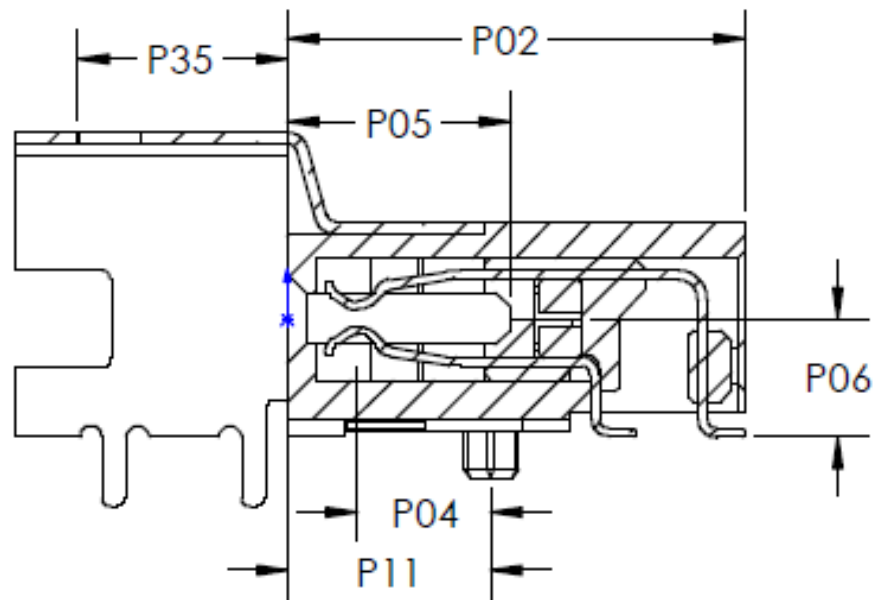


FIGURE 6-17 4X RIGHT ANGLE CONNECTOR WITH LATCH RETENTION (2)



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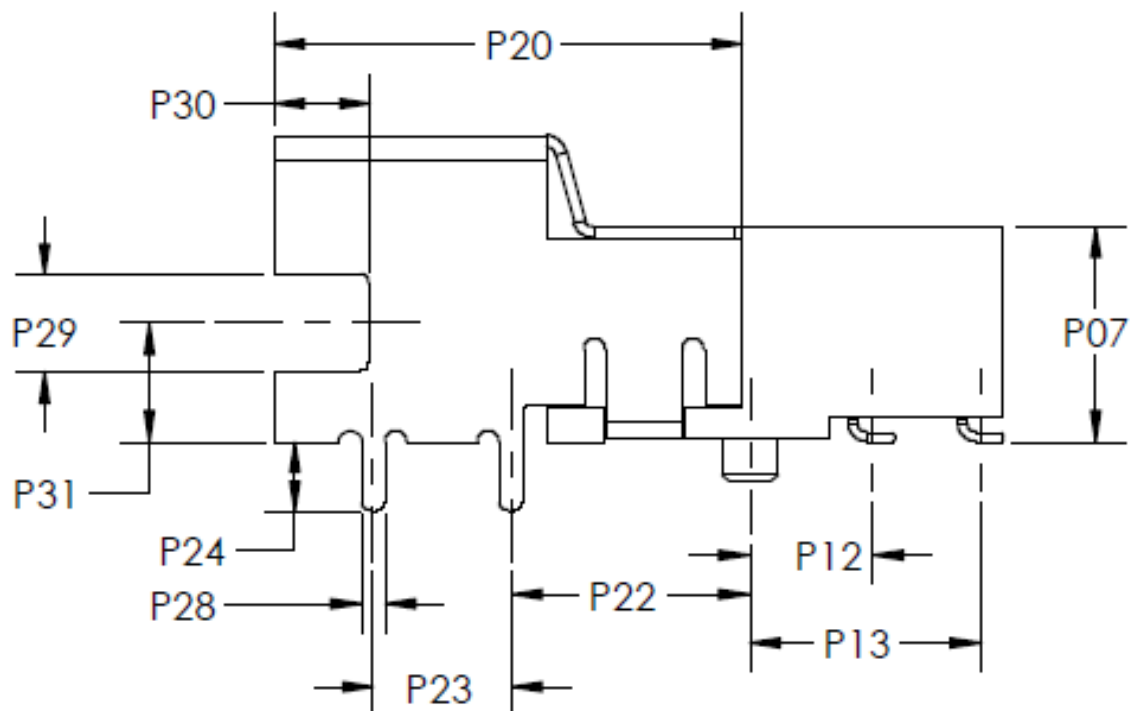


FIGURE 6-18 4X RIGHT ANGLE CONNECTOR WITH LATCH RETENTION (3)

TABLE 6-7 4X RIGHT ANGLE CONNECTOR WITH LATCH RETENTION DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
P01	Receptacle Width	12.70	+/- 0.10
P02	Receptacle Length	9.90	+/- 0.10
P03	Card Slot Width	11.68	+/- 0.03
P04	Peg to Contact Centerline	2.90	+/- 0.075
P05	Card Slot Depth	4.70	MIN
P06	PCB to Card Slot Centerline	2.57	Basic
P07	Receptacle Height from PCB	4.64	+/- 0.10
P08	Card Slot Height	1.14	MIN
P09	Peg length	0.85	+/- 0.10
P10	Contact Zone	0.385	MAX
P11	Front Face to Peg	4.40	+/- 0.05
P12	Peg to Row A	2.65	+/- 0.05
P13	Peg to Row B	5.00	+/- 0.05
P14	Peg to Peg	11.10	+/- 0.05
P15	Leg to Leg	10.30	+/- 0.10
P16	Contact Pitch	0.60	Basic
P17	Centerline to Last Contact	5.40	Basic
P18	Inner Latch Shroud Height	6.35	+/- 0.05
P19	Inner Latch Shroud Width	12.20	+0.08/-0.02
P20	Latch Shroud Depth	10.15	+/- 0.10
P21	Overall Receptacle and Latch Shroud Length	15.80	+/- 0.10
P22	Peg to First Latch Shroud Solder Pin	5.15	+/- 0.08
P23	First Latch Shroud Solder Pin to Second Pin	3.00	+/- 0.05
P24	Latch Shroud Solder Pin Height	1.50	+/- 0.10
P25	Peg Diameter	1.20	+/- 0.03
P26	Diamond Peg Height	1.20	+/- 0.03
P27	Diamond Peg Width	0.75	+/- 0.05
P28	Latch Shroud Solder Pin Width	0.50	+0.00/-0.06
P29	Anti-Rotation Rib Slot Width	2.10	+/- 0.05
P30	Anti-Rotation Rib Slot Depth	2.08	+/- 0.05
P31	Anti-Rotation Rib Slot Height	2.57	+/- 0.05
P32	Latch Slot Length	2.13	+/- 0.10
P33	Latch Slot Width	1.40	+0.10/-0.00
P34	Latch Slot Spacing	5.48	+/- 0.10
P35	Latch Slot to Receptacle Distance	4.55	+/- 0.10

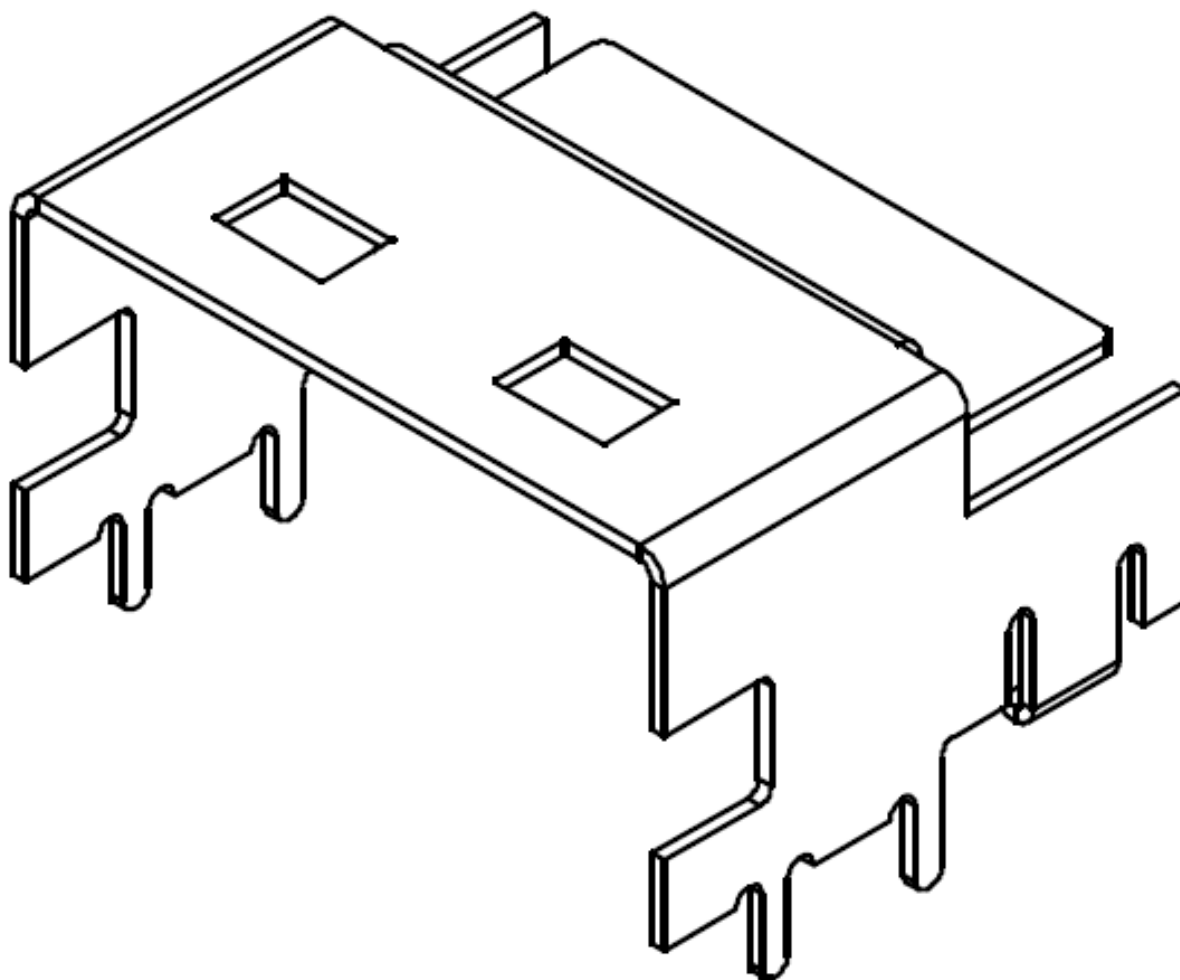


FIGURE 6-19 4X RIGHT ANGLE CONNECTOR LATCH RETENTION SHROUD

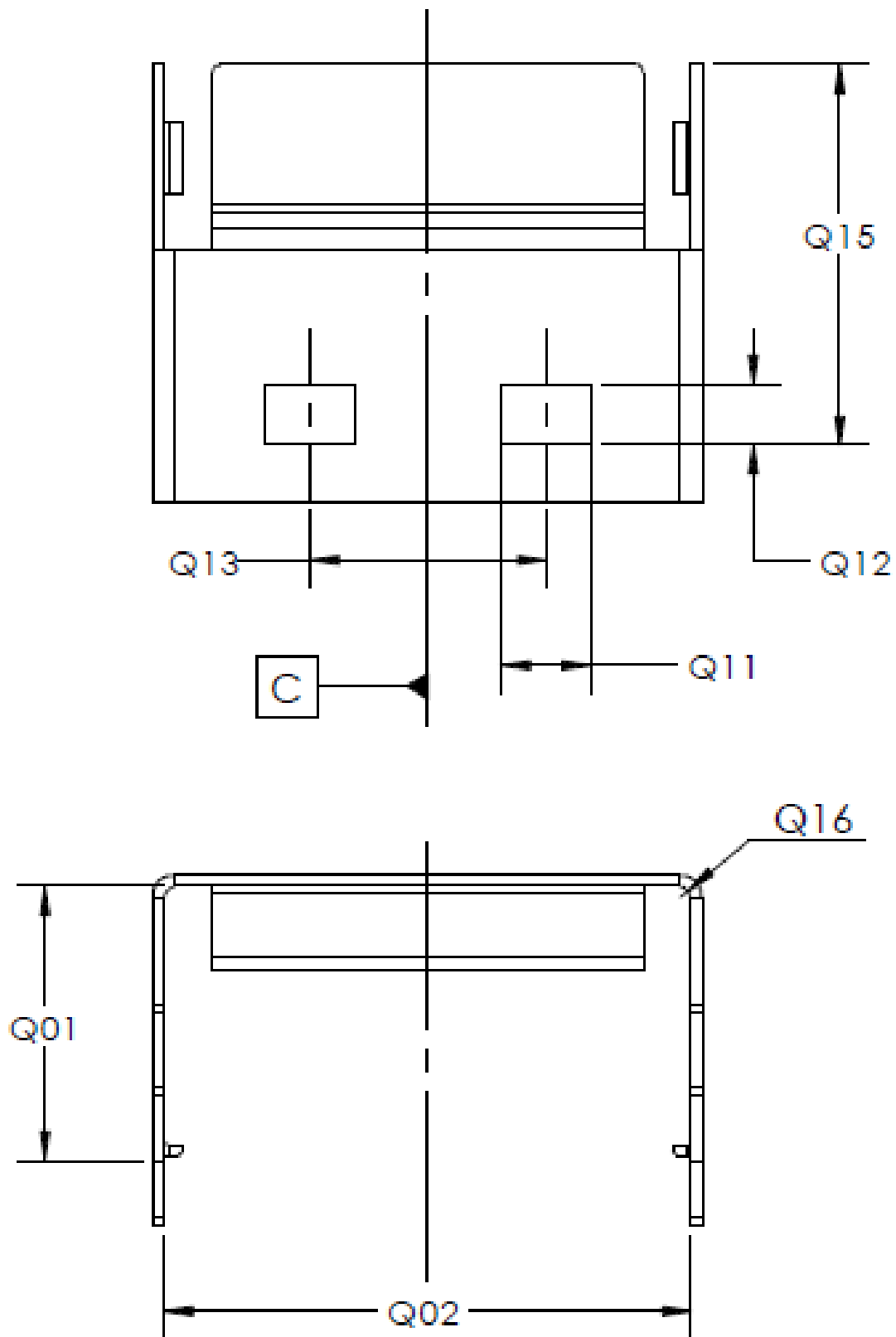


FIGURE 6-20 4X RIGHT ANGLE CONNECTOR LATCH RETENTION SHROUD (2)

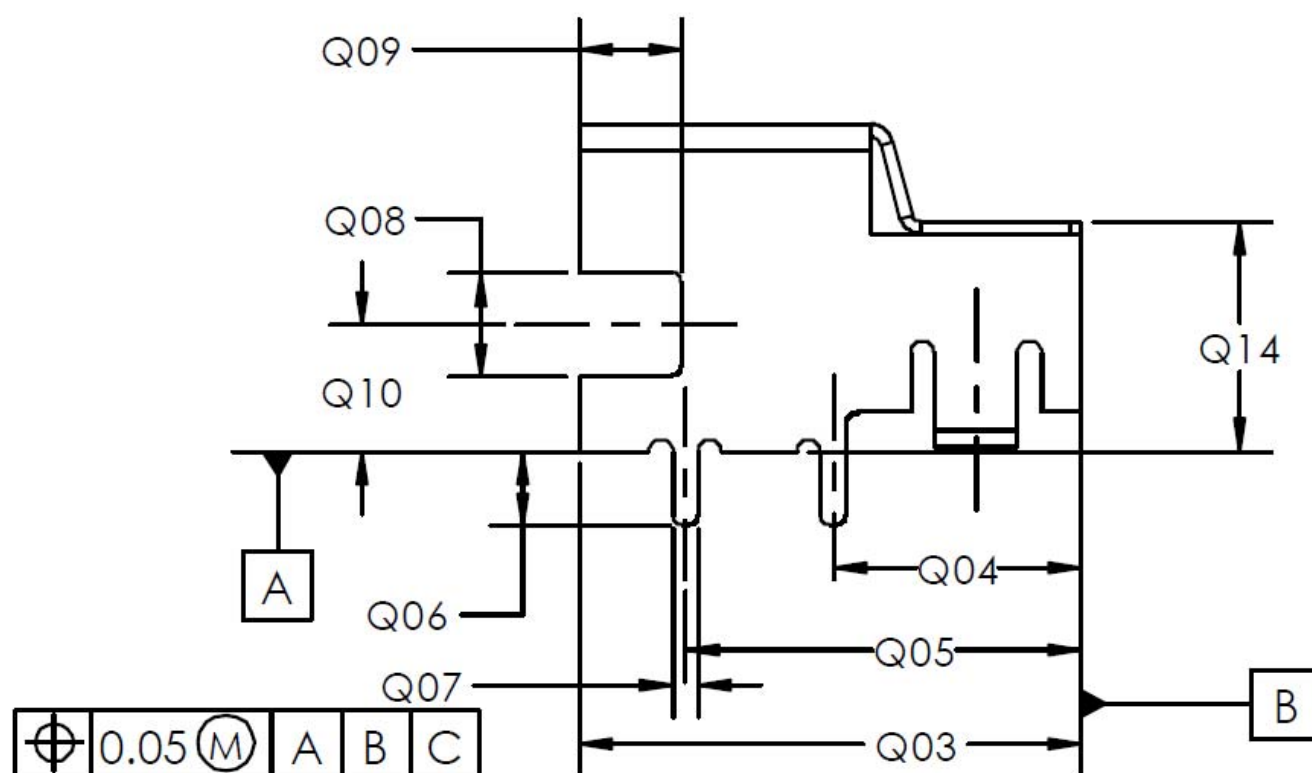


FIGURE 6-21 4X RIGHT ANGLE CONNECTOR LATCH RETENTION SHROUD (3)

TABLE 6-8 4X RIGHT ANGLE CONNECTOR LATCH RETENTION SHROUD DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
Q01	Inner Latch Shroud Height	6.35	+/- 0.05
Q02	Inner Latch Shroud Width	12.20	+0.08/-0.02
Q03	Latch Shroud Overall Depth	10.15	+/- 0.10
Q04	Back to First Latch Shroud Solder Pin	5.00	Basic
Q05	Back to Second Latch Shroud Solder Pin	8.00	Basic
Q06	Latch Shroud Solder Pin Height	1.50	+/- 0.10
Q07	Shroud Solder Pin Width	0.50	+0.00/-0.06
Q08	Anti-Rotation Rib Slot Width	2.10	+/- 0.05
Q09	Anti-Rotation Rib Slot Depth	2.08	+/- 0.05
Q10	Anti-Rotation Rib Slot Height	2.57	+/- 0.05
Q11	Latch Slot Length	2.13	+/- 0.10
Q12	Latch Slot Width	1.40	+0.10/-0.00
Q13	Latch Slot Spacing	5.48	+/- 0.10
Q14	Latch Shroud Height at the Back	4.64	REF.
Q15	Latch Slot to Back	8.80	+0.10/-0.00
Q16	Bend Radius	0.25	+/- 0.05

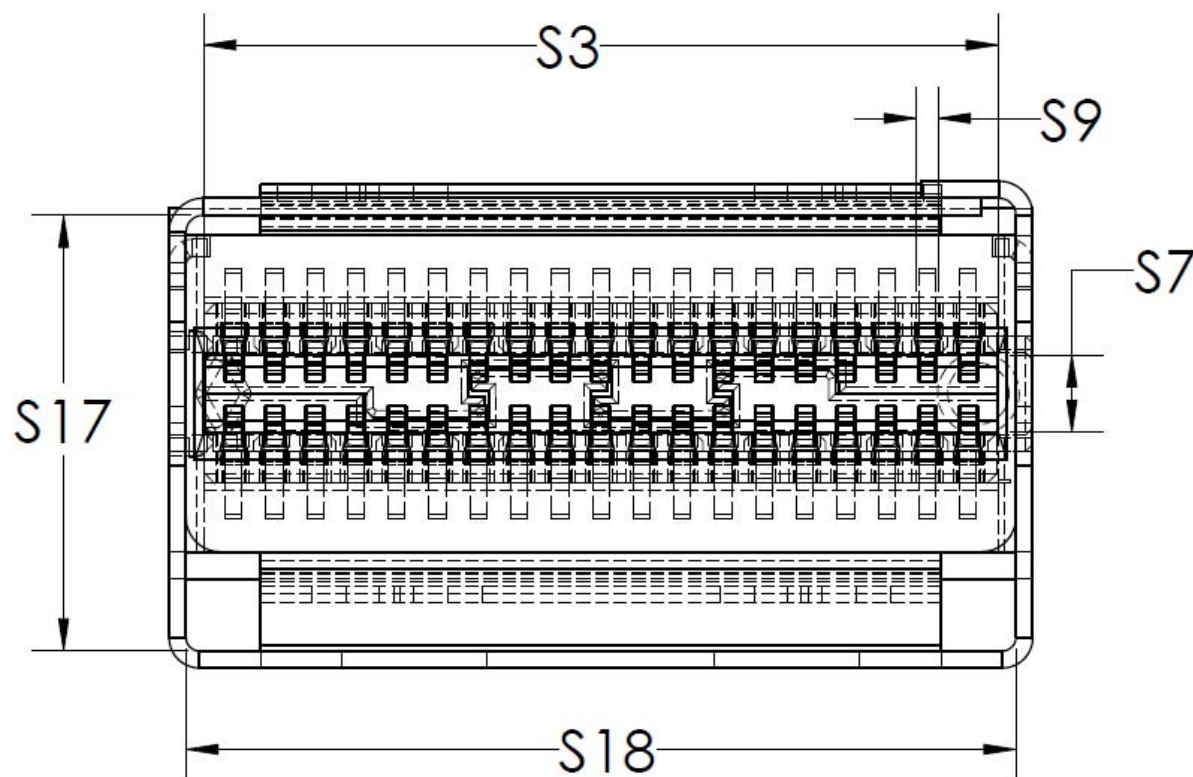


FIGURE 6-22 4X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION

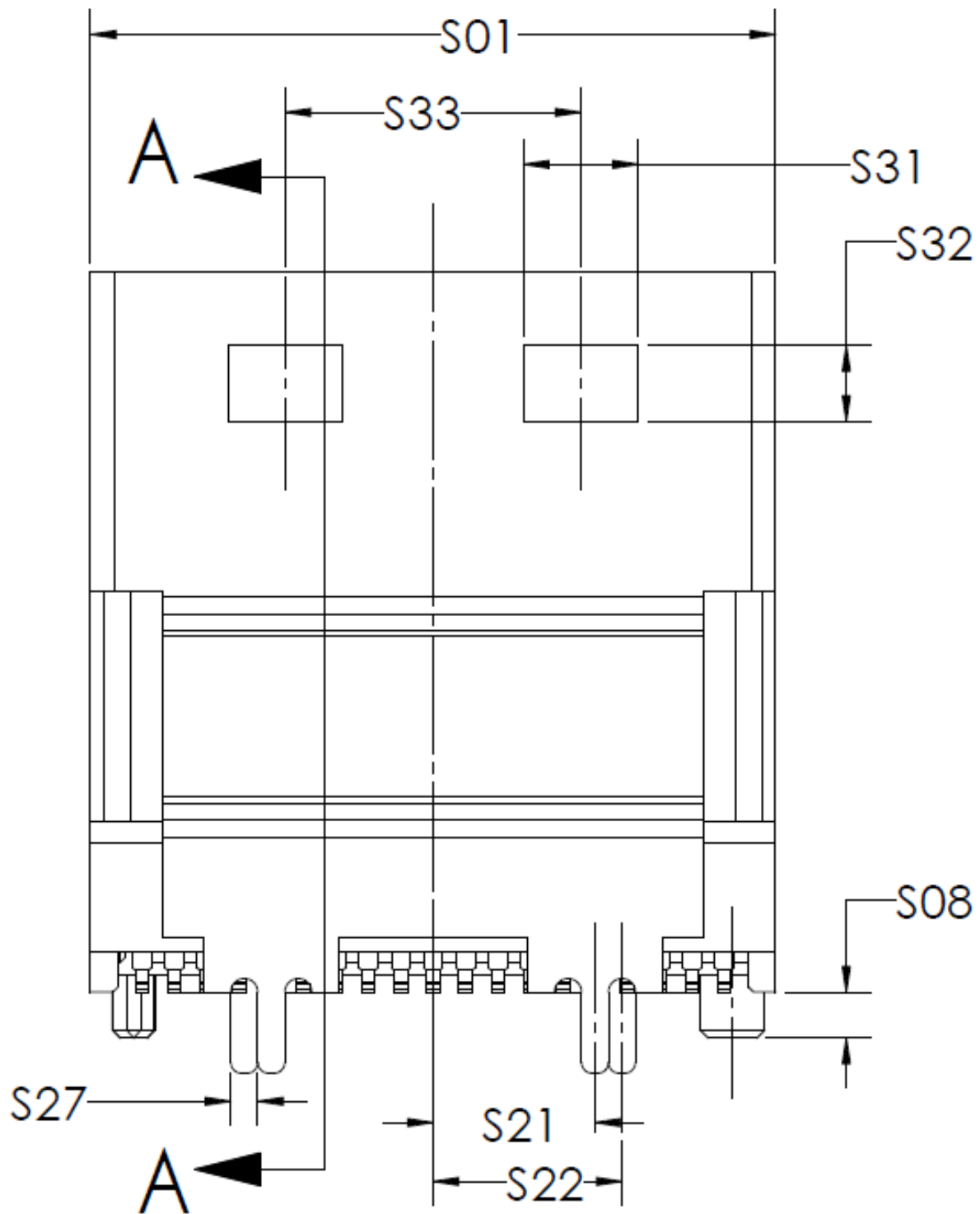


FIGURE 6-23 4X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION (2)

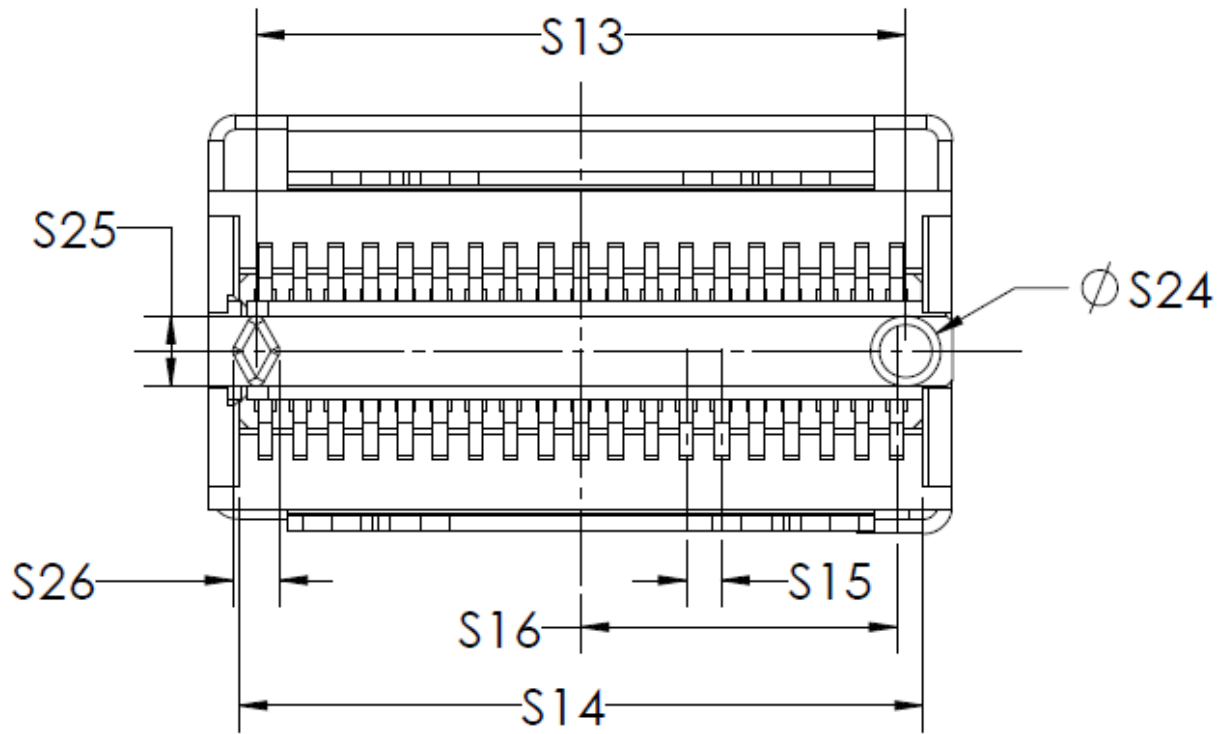


FIGURE 6-24 4X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION (3)

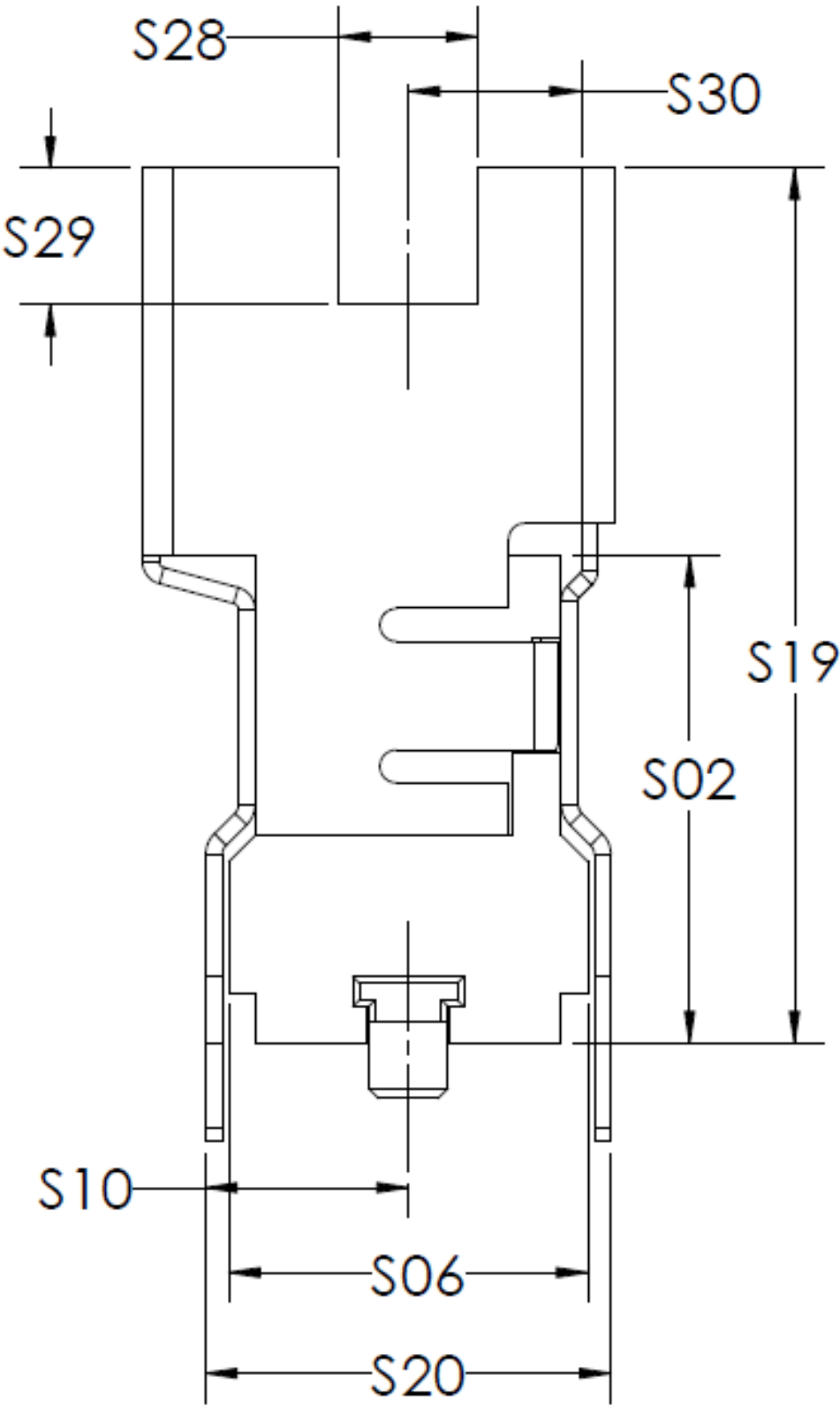
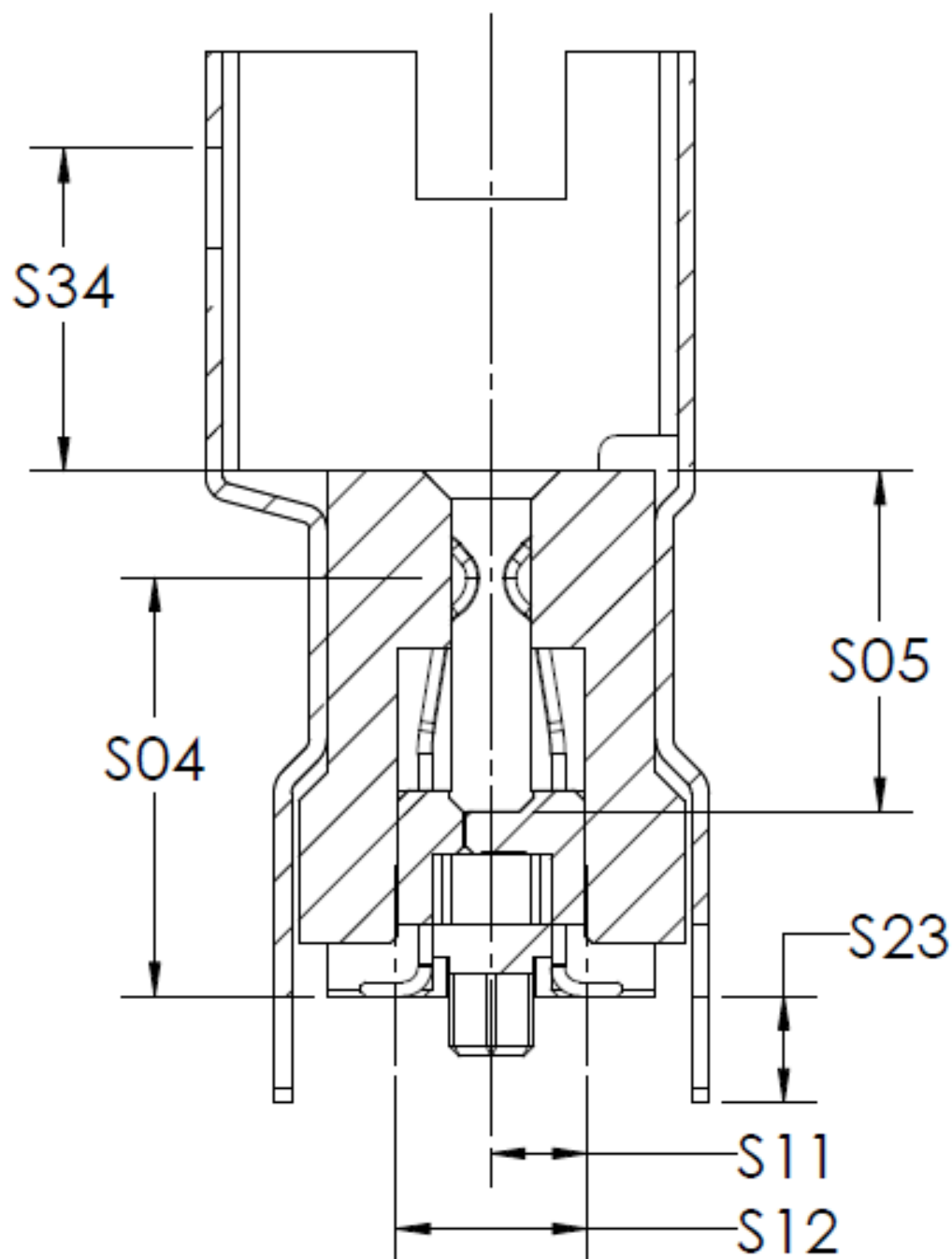


FIGURE 6-25 4X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION (4)



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FIGURE 6-26 4X STRAIGHT VERTICAL CONNECTOR WITH LATCH RETENTION (5)

TABLE 6-9 4X STRAIGHT VERTICAL RECEPTACLE CONNECTOR DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
S01	Receptacle Width	12.70	+/- 0.10
S02	Receptacle Height from PCB	7.40	+/- 0.10
S03	Card Slot Width	11.68	+/- 0.03
S04	PCB to Contact Centerline	5.90	+/- 0.10
S05	Card Slot Depth	4.70	MIN
S06	Receptacle Thickness	5.44	+/- 0.05
S07	Card Slot Height	1.14	MIN
S08	Peg length	0.85	+/- 0.10
S09	Contact Zone	0.385	MAX
S10	Front Face to Peg at Base	3.07	+/- 0.04
S11	Peg to Row A	1.34	+/- 0.05
S12	Row A to Row B	2.68	+/- 0.05
S13	Peg to Peg	11.10	+/- 0.05
S14	Leg to Leg	11.68	+/- 0.05
S15	Contact Pitch	0.60	Basic
S16	Centerline to Last Contact	5.40	Basic
S17	Inner Latch Shroud Height at Latching Bracket	6.40	+/- 0.05
S18	Inner Latch Shroud Width	12.20	+0.08/-0.02
S19	Latch Shroud Height from PCB	13.30	+/- 0.10
S20	Latch Shroud and Receptacle Thickness at Base	6.14	+/- 0.08
S21	Centerline to First Latch Shroud Solder Pin	3.00	+/- 0.08
S22	Centerline to Second Latch Shroud Solder Pin	3.50	+/- 0.08
S23	Latch Shroud Solder Pin Height	1.50	+/- 0.10
S24	Peg Diameter	1.20	+/- 0.03
S25	Diamond Peg Height	1.20	+/- 0.03
S26	Diamond Peg Width	0.75	+/- 0.05
S27	Latch Shroud Solder Pin Width	0.50	+0.00/-0.06
S28	Anti-Rotation Rib Slot Width	2.10	+/- 0.05
S29	Anti-Rotation Rib Slot Depth	2.08	+/- 0.05
S30	Anti-Rotation Rib Slot Height from Inner Wall	2.62	+/- 0.05
S31	Latch Slot Length	2.13	+/- 0.10
S32	Latch Slot Width	1.40	+0.10/-0.00
S33	Latch Slot Spacing	5.48	+/- 0.10
S34	Latch Slot to Receptacle Distance	4.55	+/- 0.10

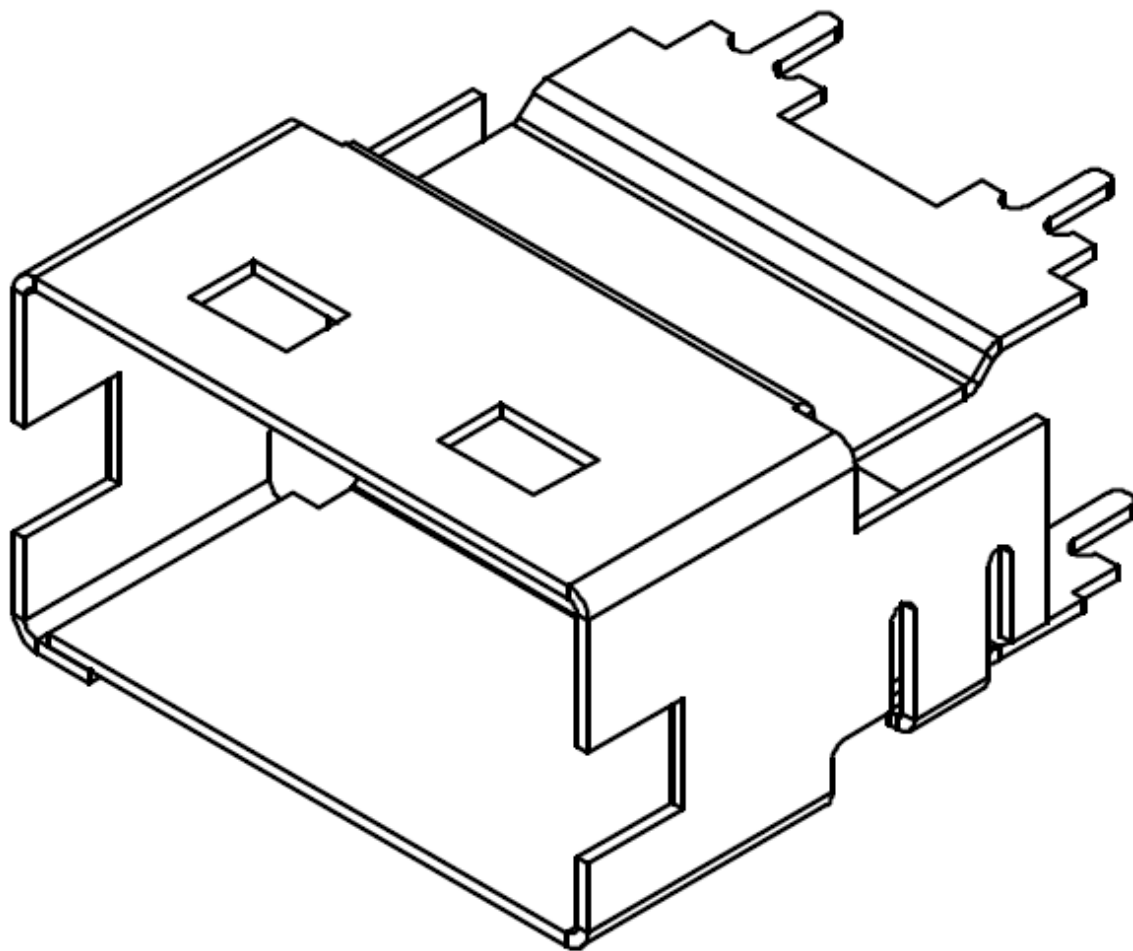


FIGURE 6-27 4X STRAIGHT VERTICAL CONNECTOR LATCH RETENTION SHROUD

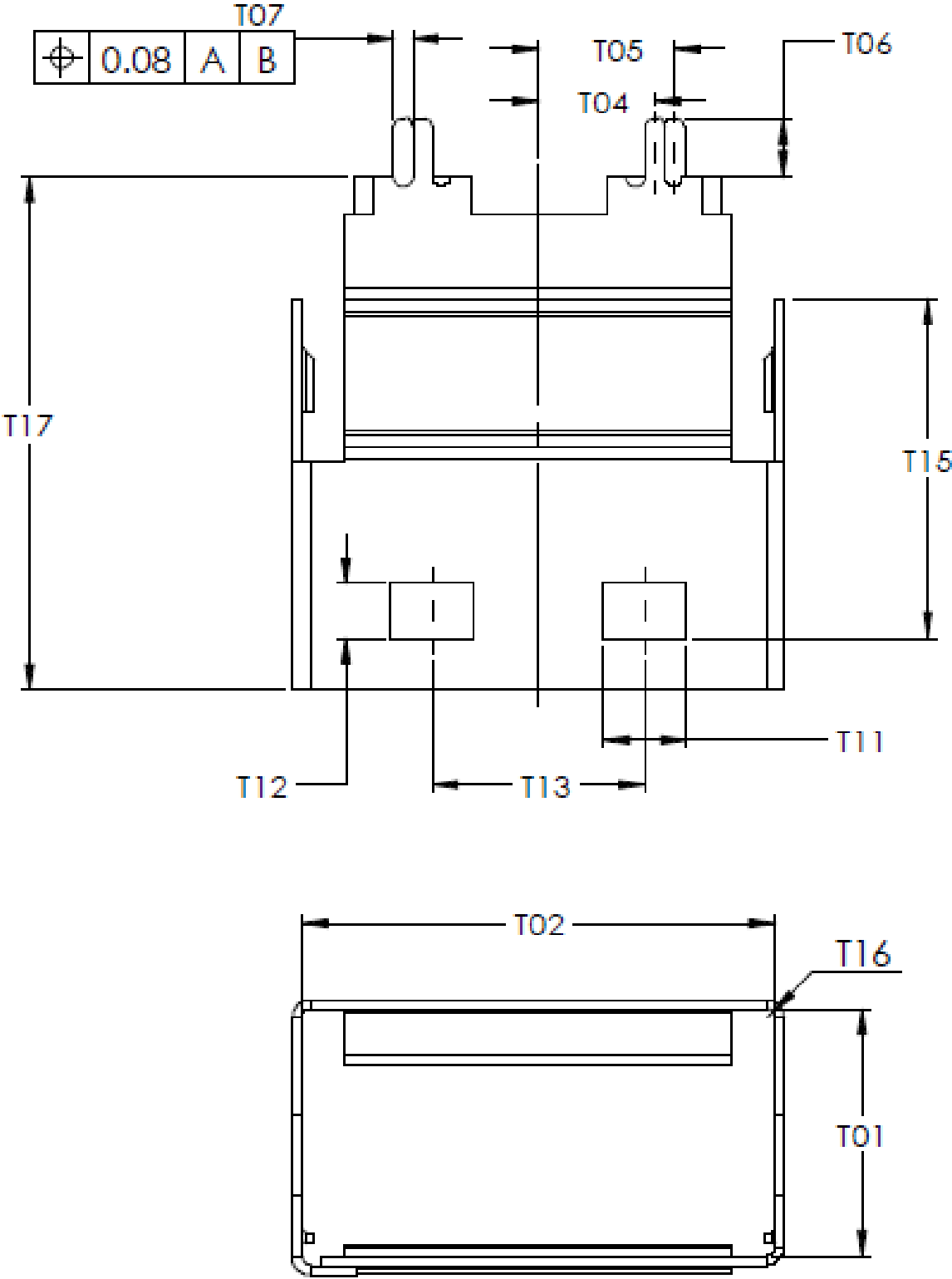


FIGURE 6-28 4X STRAIGHT VERTICAL CONNECTOR LATCH RETENTION SHROUD (2)

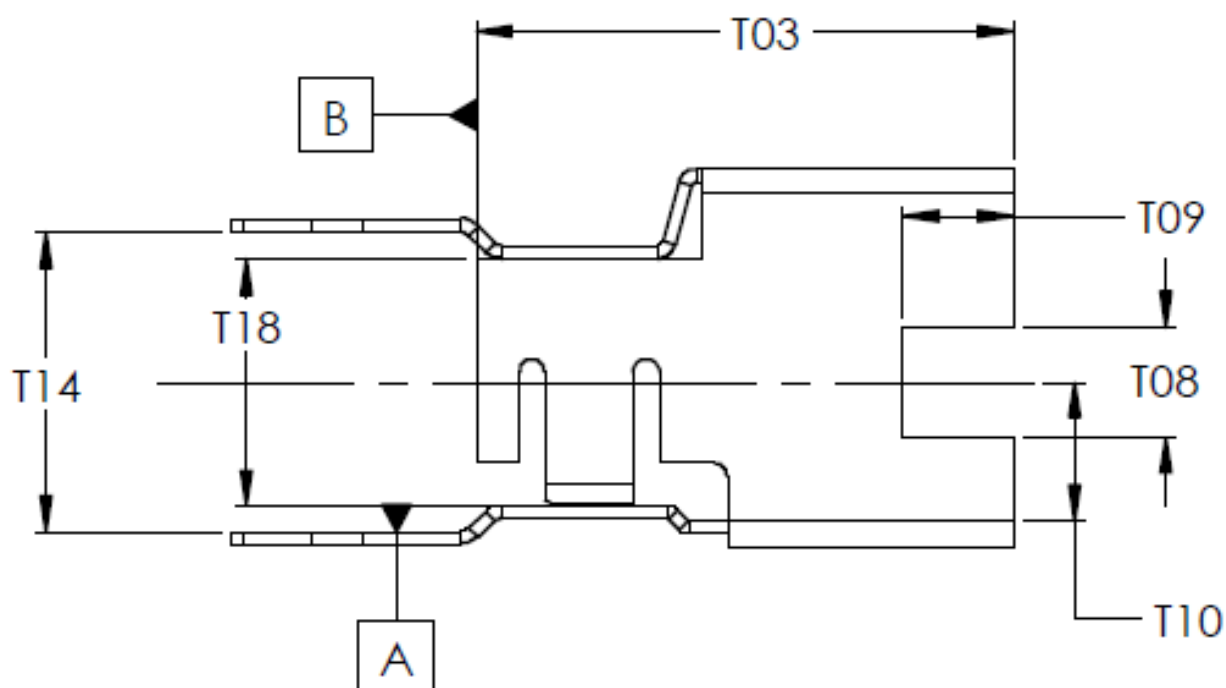


FIGURE 6-29 4X STRAIGHT VERTICAL CONNECTOR LATCH RETENTION SHROUD (3)

TABLE 6-10 4X STRAIGHT VERTICAL CONNECTOR LATCH SHROUD DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
T01	Inner Latch Shroud Height at Latching Bracket	6.40	+/- 0.05
T02	Inner Latch Shroud Width	12.20	+0.08/-0.02
T03	Latch Shroud Depth to Back	10.15	+/- 0.10
T04	Centerline to First Latch Shroud Solder Pin	3.00	Basic
T05	Centerline to Second Latch Shroud Solder Pin	3.50	Basic
T06	Latch Shroud Solder Pin Height	1.50	+/- 0.10
T07	Shroud Solder Pin Width	0.50	+0.00/-0.06
T08	Anti-Rotation Rib Slot Width	2.10	+/- 0.05
T09	Anti-Rotation Rib Slot Depth	2.08	+/- 0.05
T10	Anti-Rotation Rib Slot Height	2.57	+/- 0.05
T11	Latch Slot Length	2.13	+/- 0.10
T12	Latch Slot Width	1.40	+0.10/-0.00
T13	Latch Slot Spacing	5.48	+/- 0.10
T14	Latch Shroud Height at the Back	5.64	REF.
T15	Latch Slot to Back	8.80	+0.10/-0.00
T16	Bend Radius	0.25	+/- 0.05
T17	Latch Shroud Height from PCB	13.30	+/- 0.10

6.4 4X Receptacle Connector Footprints

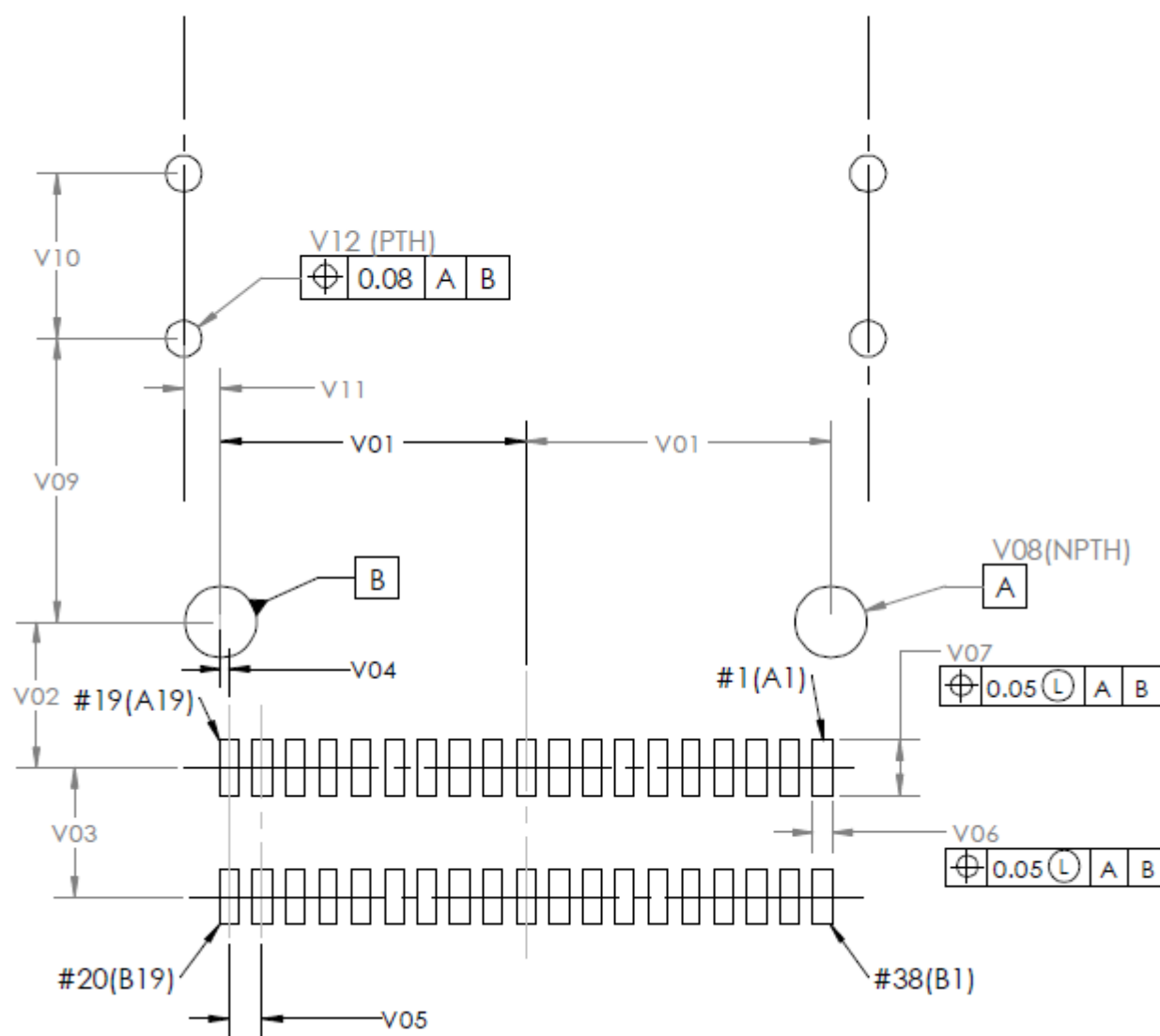


FIGURE 6-30 4X RIGHT ANGLE RECEPTACLE CONNECTOR FOOTPRINT

TABLE 6-11 4X RIGHT ANGLE RECEPTACLE CONNECTOR FOOTPRINT DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
V01	Locating Hole to Centerline	5.55	+/- 0.025
V02	Locating Hole to Row A	2.65	Basic
V03	Row A to Row B	2.35	Basic
V04	Locating Hole to Outer Pad Center	0.15	Basic
V05	Pad Pitch	0.60	Basic
V06	Pad Width	0.35	+/- 0.03
V07	Pad Length	1.00	+/- 0.03
V08	Locating Hole Diameter	1.30	+/- 0.05
V09	Locating Hole to First Solder Pin Hole	5.15	Basic
V10	First Solder Pin to Second Pin Hole	3.00	Basic
V11	Locating Hole to Solder Pin Holes	0.68	Basic

V12	Solder Pin Hole Diameter	0.66	+/- 0.05
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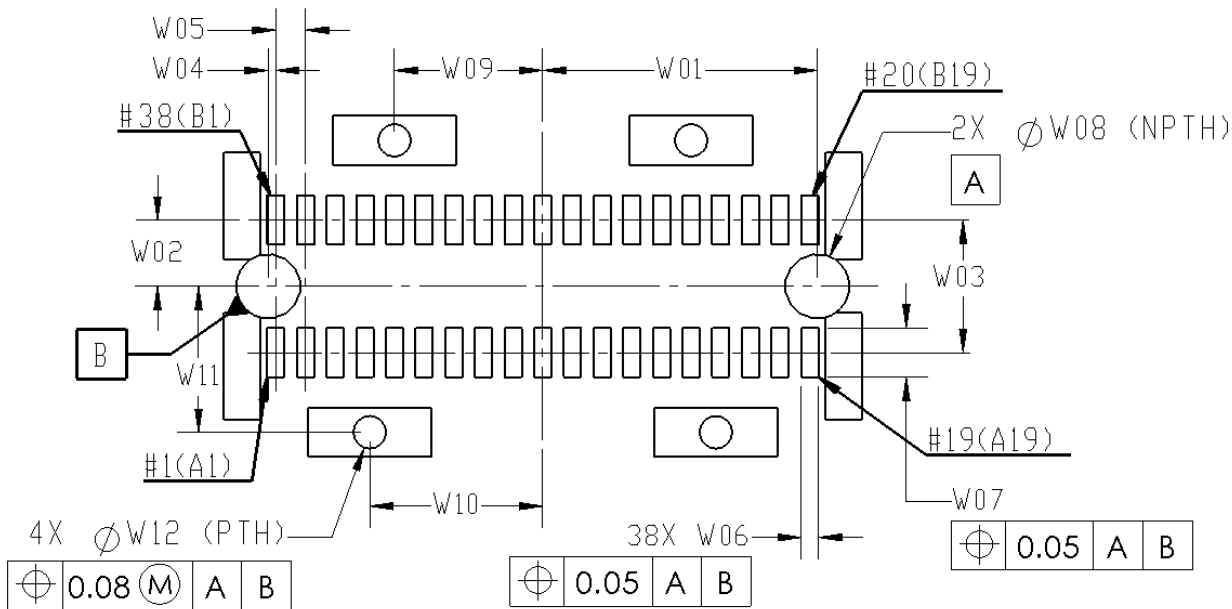


FIGURE 6-31 4X STRAIGHT VERTICAL RECEPTACLE CONNECTOR FOOTPRINT

TABLE 6-12 4X STRAIGHT VERTICAL RECEPTACLE CONNECTOR FOOTPRINT DIMENSIONS

Designator	Description	Dimension (mm)	Tolerance
W01	Locating Hole to Centerline	5.55	+/- 0.025
W02	Locating Hole to Row A	2.65	Basic
W03	Row A to Row B	2.35	Basic
W04	Locating Hole to Outer Pad Center	0.15	Basic
W05	Pad Pitch	0.60	Basic
W06	Pad Width	0.35	+/- 0.03
W07	Pad Length	1.00	+/- 0.03
W08	Locating Hole Diameter	1.30	+/- 0.05
W09	Centerline to First Solder Pin Hole	3.00	Basic
W10	Centerline to Second Pin Hole	3.50	Basic
W11	Locating Hole to Solder Pin Holes	0.68	Basic
W12	Solder Pin Hole Diameter	0.66	+/- 0.05

7. Performance Requirements

7.1 EIA 364 TS-1000 Requirements

This specification conforms to the test sequences as defined in EIA 364 TS-1000.

TABLE 7-1 EIA 364 TS-1000 REQUIREMENTS

Parameter	Requirement
Rated Durability Cycles	250
Field Life (3, 5, 7, or 10 years)	10 years
Field Temperature (57, 60, 65, 75, or 85C)	65C degrees
Test Group 4 Option	1B
Plating Type (Precious / Non-Precious)	Precious
Surface Treatment (Lubricated or Non-	Manufacturer to specify

Lubricated)

7.2 Electrical Performance Requirements

TABLE 7-2 ELECTRICAL REQUIREMENTS AND TEST CONDITIONS

Parameter	Requirement	Test Conditions
Current	0.5 A/contact	
Voltage	30 V AC/contact	
Low Level Contact Resistance	20 milliohms maximum for signal contacts (initial)	EIA 364-6: 320 mV DC, 10 mA
Insulation Resistance	1e3 MegaOhm Minimum between adjacent contacts	EIA 364-21: 100 V DC
Dielectric Withstanding	No defect between adjacent contacts	300 V DC for 1 minute hold

7.3 Mechanical Performance Requirements

TABLE 7-3 MECHANICAL REQUIREMENTS AND TEST CONDITIONS

Parameter	Requirement	Test Conditions
Mating Force	TBD? N maximum	EIA 364-13
Un-mating Force	TBD? N maximum	EIA 364-13
Vibration	No damage No discontinuity longer than 1 microsecond allowed 20 milliohms maximum change from initial (baseline) contact resistance	EIA 364-28
Mechanical Shock	No damage 20 milliohms maximum change from initial (baseline) contact resistance	EIA 364-27

7.4 Environmental Performance Requirements

TABLE 7-4 ENVIRONMENTAL REQUIREMENTS AND TEST CONDITIONS

Parameter	Requirement	Test Conditions
Storage Temperature	-20C to +85C degrees	
Humidity	80% RH Maximum	