



**CONNECTORS, ELECTRICAL,
RECTANGULAR, MICROMINIATURE,
(FOR REMOVABLE POWER CONTACTS)**

BASED ON TYPE MMCSA

ESCC Detail Specification No. 3401/093

Issue 1	December 2019
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DCR No.	CHANGE DESCRIPTION

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4.7.2 Measurements and Inspections on Completion of Endurance Tests

1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for Electrical, Rectangular, Microminiature Connectors (for removable power contacts), based on type MMCSA.

It shall be read in conjunction with:

- ESCC Generic Specification No. [3401](#), Connectors, Electrical, Rectangular and Circular.
- ESCC Detail Specification No. [3401/092](#), Connectors, Electrical, Rectangular, Microminiature, with Non Removable Power Contacts, based on Type MMCS.
- ESCC Detail Specification No. [3401/094](#), Contacts, Electrical, Power, Crimp and Accessories (for [3401/093](#) Connectors) based on type MMCSA
- ESCC Detail Specification No. [3401/032](#), Accessories for Connectors, Microminiature [3401/029](#), [3401/077](#) and Connector Savers [3401/041](#).

the requirements of which are supplemented herein.

1.2 COMPONENT TYPE VARIANTS AND RANGE OF COMPONENTS

The component type variants and range of components applicable to this specification are as given in Table 1(a).

1.3 MAXIMUM RATINGS

The maximum ratings which shall not be exceeded at any time during use or storage, applicable to the components specified herein, are given in Table 1(b).

1.4 PARAMETER DERATING INFORMATION

The derating information applicable to the components specified herein is shown in Figure 1.

1.5 PHYSICAL DIMENSIONS

The physical characteristics of the components specified herein are shown in Figure 2.

1.6 CONTACT ARRANGEMENTS

Contact arrangements are shown in Figure 3.

TABLE 1(a) – COMPONENT TYPE VARIANTS AND RANGE OF COMPONENTS

Variant Number	Description (Notes 1, 2)	Mateable Connectors (ESCC Component Number) (Notes 3, 4)	Weight Max (g) (Note 5)
01	MMCSA, Pigtail Connector with D-Click Latch Posts: Plug (for Removable Female Power Contacts) (Note 6) or Receptacle (for Removable Male Power Contacts), 4 & 8 Way	340109303B	7.8 (4 Way)
			11 (8 Way)
02	MMCSA, Pigtail Connector without mounting/locking hardware: Plug (for Removable Female Power Contacts) (Note 6) or Receptacle (for Removable Male Power Contacts), 4 & 8 Way	340109302B 340109201B 340109203B 340109205B	6.4 (4 Way)
			9.6 (8 Way)
03	MMCSA, Pigtail Connector with D-Click Latch Springs: Plug (for Removable Female Power Contacts) (Note 6) or Receptacle (for Removable Male Power Contacts), 4 & 8 Way (Note 7)	340109301B 340109202B 340109204B 340109206B	7.1 (4 Way)
			10.3 (8 Way)

NOTES:

1. Contacts and terminations are not included and shall be procured separately. See ESCC Detail Specification No. [3401/094](#) for all compatible contact and termination options.
2. The available configurations of each of the above Variants also include various mounting and locking types; see Figure 2 and Para. 4.5.2.1 for details.
3. The full ESCC Component Numbers of the mateable connectors will also include all the appropriate characteristic codes for each referenced Variant.
4. In accordance with this specification or ESCC Detail Specification No. [3401/092](#).
5. The specified maximum weight applies only to the connector and the included hardware where applicable, without contacts and without optional accessories.
6. Includes optional plug connector locking clip (see Figure 2.8), when required.
7. Includes optional latch spring securing pieces (see Figure 2.9), when required.

TABLE 1(b) - MAXIMUM RATINGS

Characteristic	Symbol	Maximum Rating	Unit	Remarks
Working Voltage	U_R	250	Vrms	Note 1 See Figure 1
Operating Temperature Range	T_{op}	-55 to +200	°C	-
Storage Temperature Range	T_{stg}	-55 to +200	°C	-

NOTES:

- Between each contact, and contacts and shell, when fitted.

FIGURE 1 - PARAMETER DERATING INFORMATION

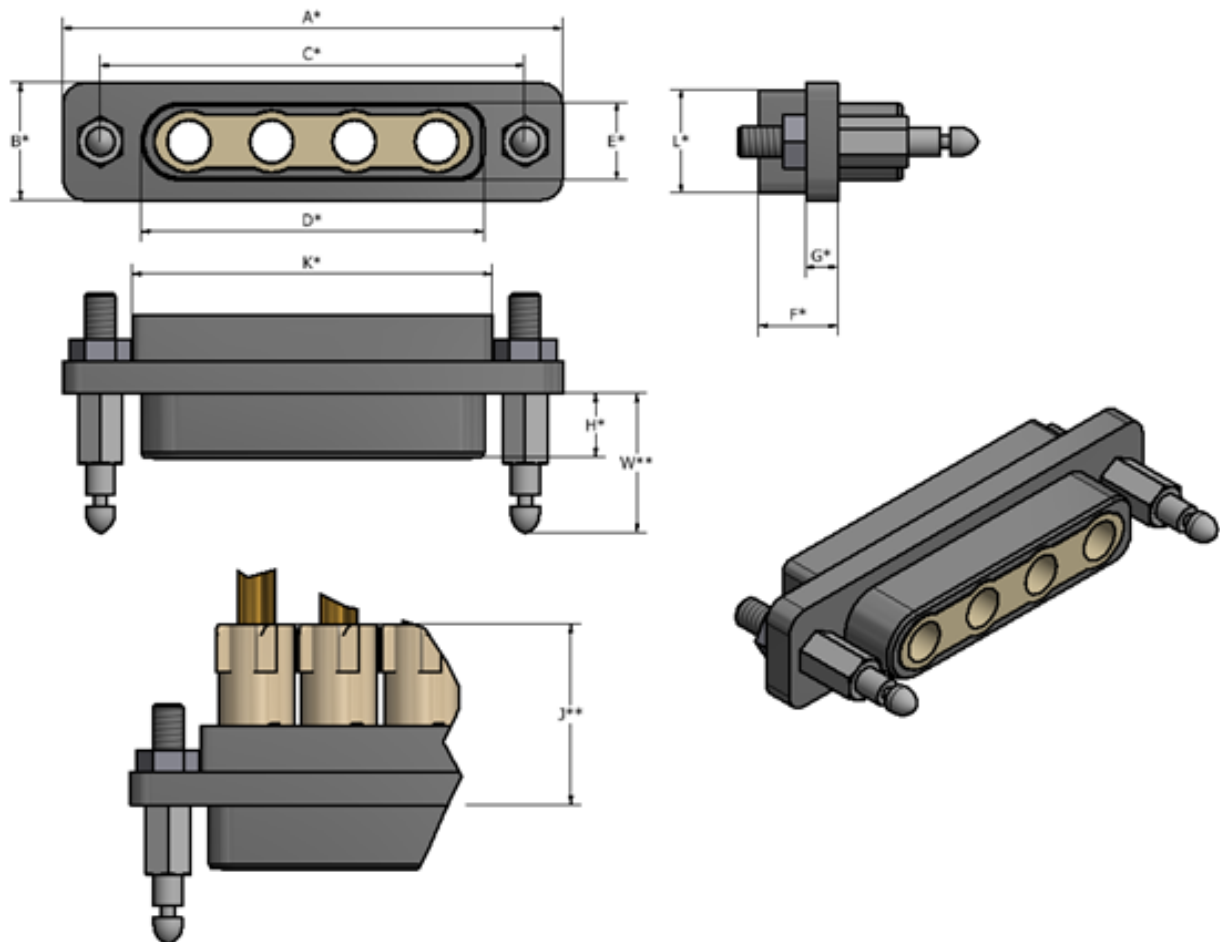
FIGURE 1(a) – WORKING VOLTAGE VERSUS ALTITUDE



FIGURE 2 - PHYSICAL DIMENSIONS

FIGURE 2.1.1 – VARIANT 01 – MMCSA, PIGTAIL CONNECTOR WITH D-CLICK LATCH POSTS, PLUG (FOR REMOVABLE FEMALE POWER CONTACTS), 4 & 8 WAY

EXAMPLE: 4 WAY



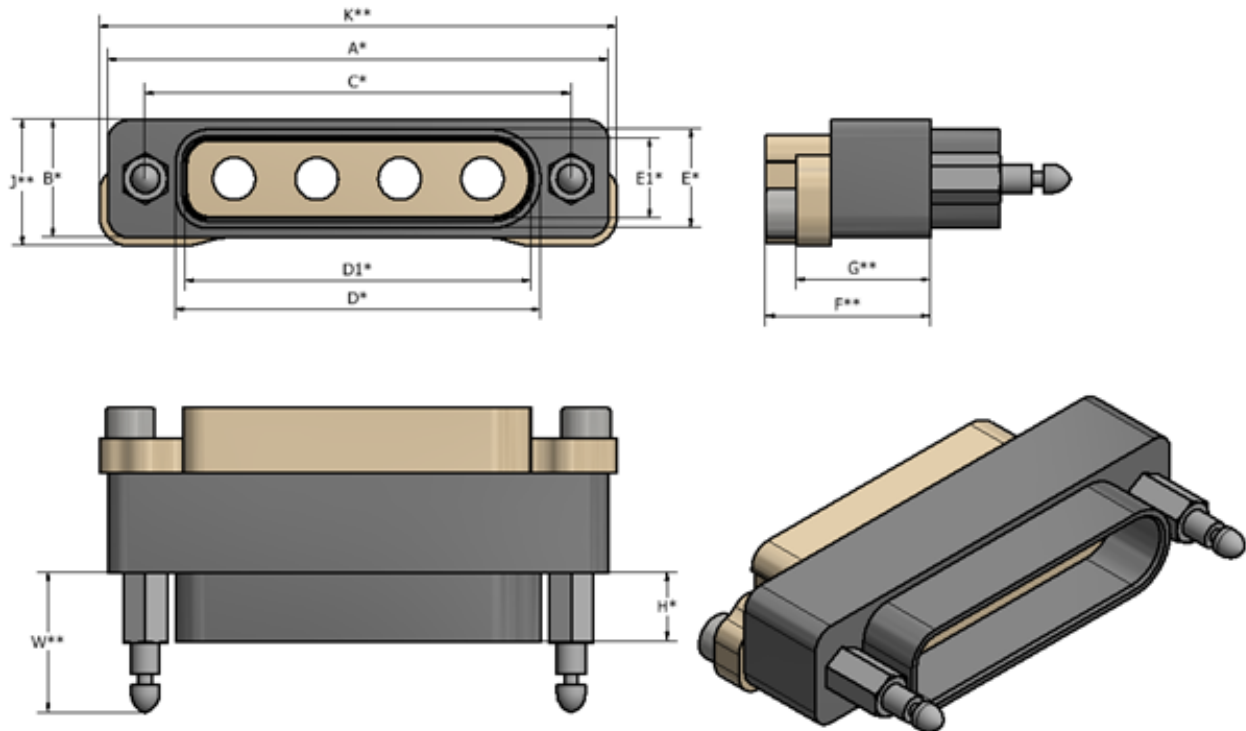
Ways	Dimensions (mm)												
	A	B	C		D	E	F	G	H	J (6)	K	L	W
	Max	Max	Min	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
4	36.39	8.63	30.81	30.91	24.96	5.72	5.81	2.49	4.72	13.37	26.3	7.6	10.33
8	60.39	8.63	54.81	54.91	48.96	5.72	5.81	2.49	4.72	12.43	50.3	7.6	10.33

NOTES:

1. Dimensions with a single asterisk (*) may be checked during the Manufacturer's internal processing. Dimensions with a double asterisk (**) shall be checked after assembly of the connector.
2. Torque for D-Click latch posts: 0.34 to 0.4Nm.
3. For the contacts' position in the shell (when fitted), see Figure 2.5.
4. Standard D-Click latch posts are shown above (see Para. 4.5.2.1(c), code P) which are also suitable for front panel mounting (with maximum panel thickness 2.5mm). See Figure 2.7 for alternative D-Click latch posts for rear panel mounting options (see Para. 4.5.2.1(c), codes P1 to P5).
5. For front and rear panel mounting, see Figure 2.6 for the panel cut-outs.
6. When fitted with contacts.

FIGURE 2.1.2 – VARIANT 01 – MMCSA, PIGTAIL CONNECTOR WITH D-CLICK LATCH POSTS, RECEPTACLE (FOR REMOVABLE MALE POWER CONTACTS), 4 & 8 WAY

EXAMPLE: 4 WAY



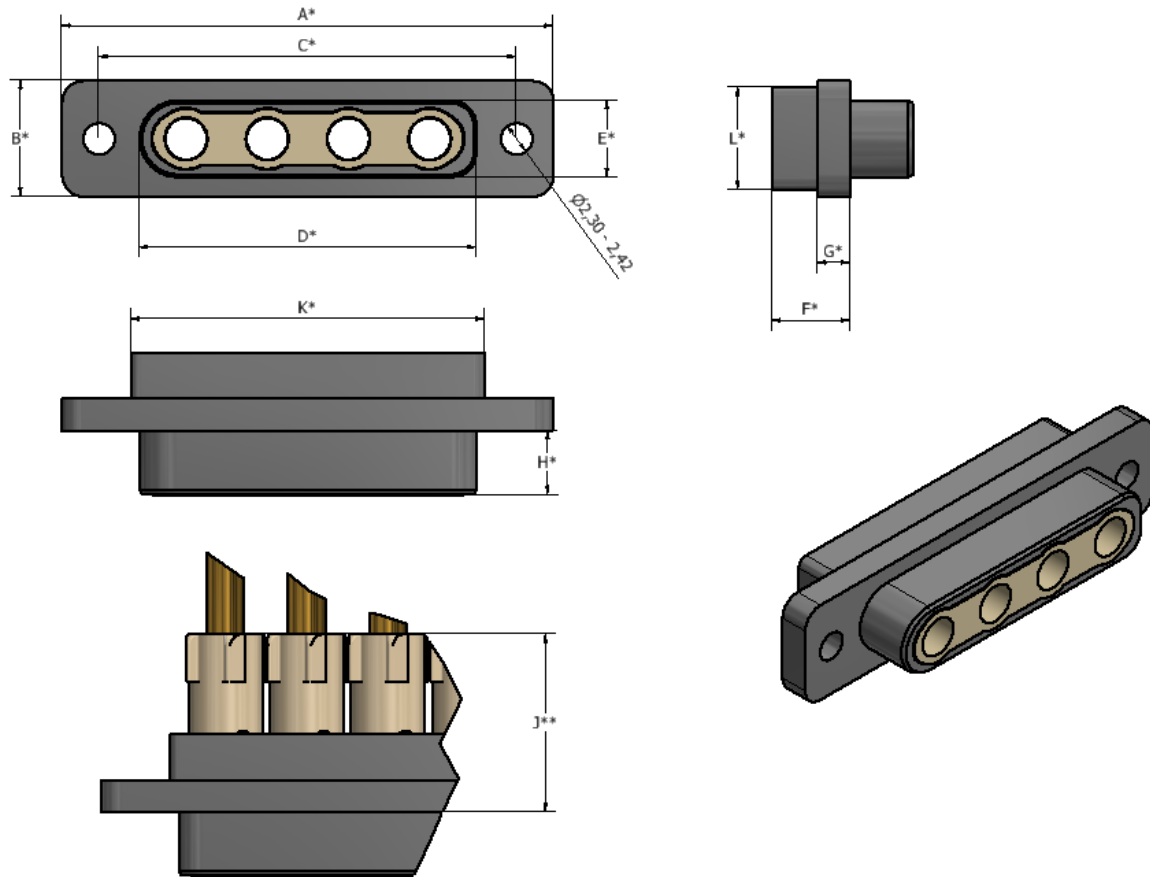
Ways	Dimensions (mm)													
	A	B	C		D	D1	E	E1	F	G	H	J	K	W
	Max	Max	Min	Max	Max	Min	Max	Min	Max	Max	Max	Max	Max	Max
4	36.39	8.63	30.81	30.91	26.51	25.04	7.22	5.75	12.5	10	5.05	9.33	37.6	10.33
8	60.39	8.63	54.81	54.91	50.51	49.04	7.22	5.75	12.5	10	5.05	9.33	61.6	10.33

NOTES:

1. Dimensions with a single asterisk (*) may be checked during the Manufacturer's internal processing. Dimensions with a double asterisk (**) shall be checked after assembly of the connector.
2. Torque for D-Click latch posts: 0.34 to 0.4Nm.
3. Torque for 2-56 UNC hex-hole body screws: 0.2 to 0.25Nm.
4. For the contacts' position in the shell (when fitted), see Figure 2.5.
5. Standard D-Click latch posts are shown above (see Para. 4.5.2.1(c), code P). See Figure 2.7 for alternative D-Click latch posts for rear panel mounting options (see Para. 4.5.2.1(c), codes P1 to P5).
6. For rear panel mounting, see Figure 2.6 for the panel cut-outs.

FIGURE 2.2.1 – VARIANT 02 – MMCSA, PIGTAIL CONNECTOR WITHOUT MOUNTING/LOCKING HARDWARE, PLUG (FOR REMOVABLE FEMALE POWER CONTACTS), 4 & 8 WAY

EXAMPLE: 4 WAY



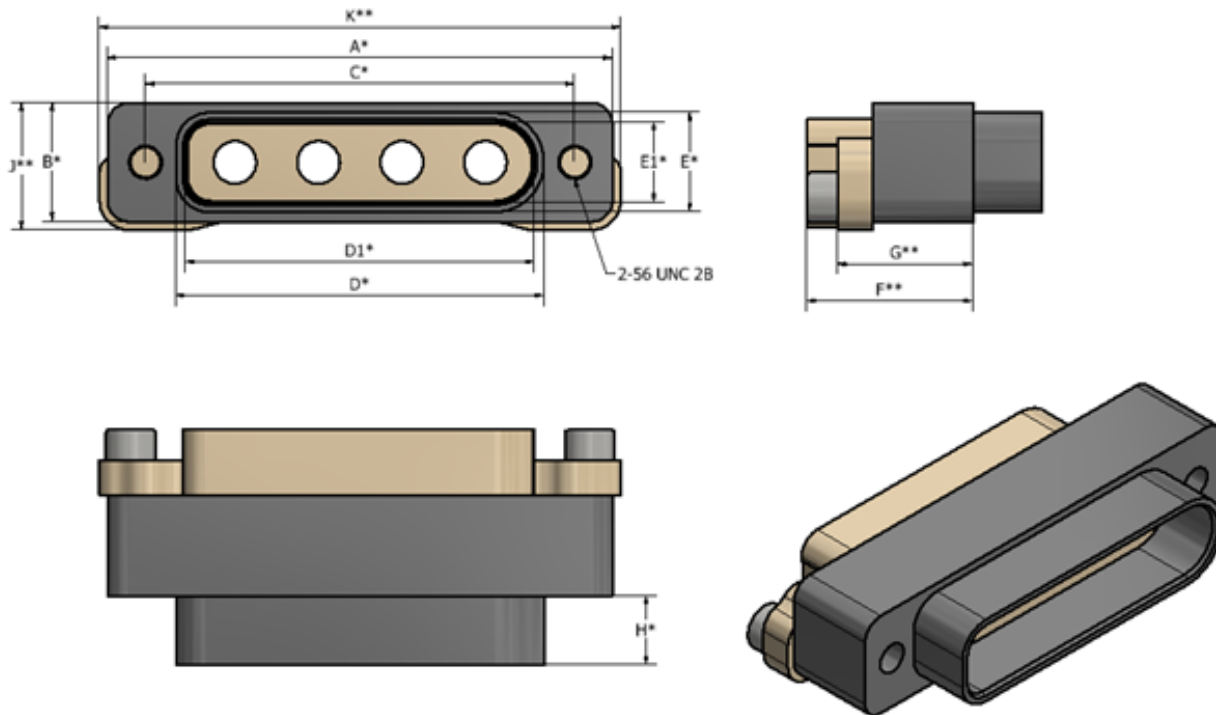
Ways	Dimensions (mm)											
	A	B	C		D	E	F	G	H	J (5)	K	L
	Max	Max	Min	Max	Max	Max	Max	Max	Max	Max	Max	Max
4	36.39	8.63	30.81	30.91	24.96	5.72	5.81	2.49	4.72	13.37	26.3	7.6
8	60.39	8.63	54.81	54.91	48.96	5.72	5.81	2.49	4.72	13.37	50.3	7.6

NOTES:

1. Dimensions with a single asterisk (*) may be checked during the Manufacturer's internal processing. Dimensions with a double asterisk (**) shall be checked after assembly of the connector.
2. Mounting/locking hardware to be selected from ESCC Detail Specification No. [3401/032](#).
3. For the contacts' position in the shell (when fitted), see Figure 2.5.
4. For front and rear panel mounting, see Figure 2.6 for the panel cut-outs.
5. When fitted with contacts.

FIGURE 2.2.2 – VARIANT 02 – MMCSA, PIGTAIL CONNECTOR WITHOUT MOUNTING/LOCKING HARDWARE, RECEPTACLE (FOR REMOVABLE MALE POWER CONTACTS), 4 & 8 WAY

EXAMPLE: 4 WAY



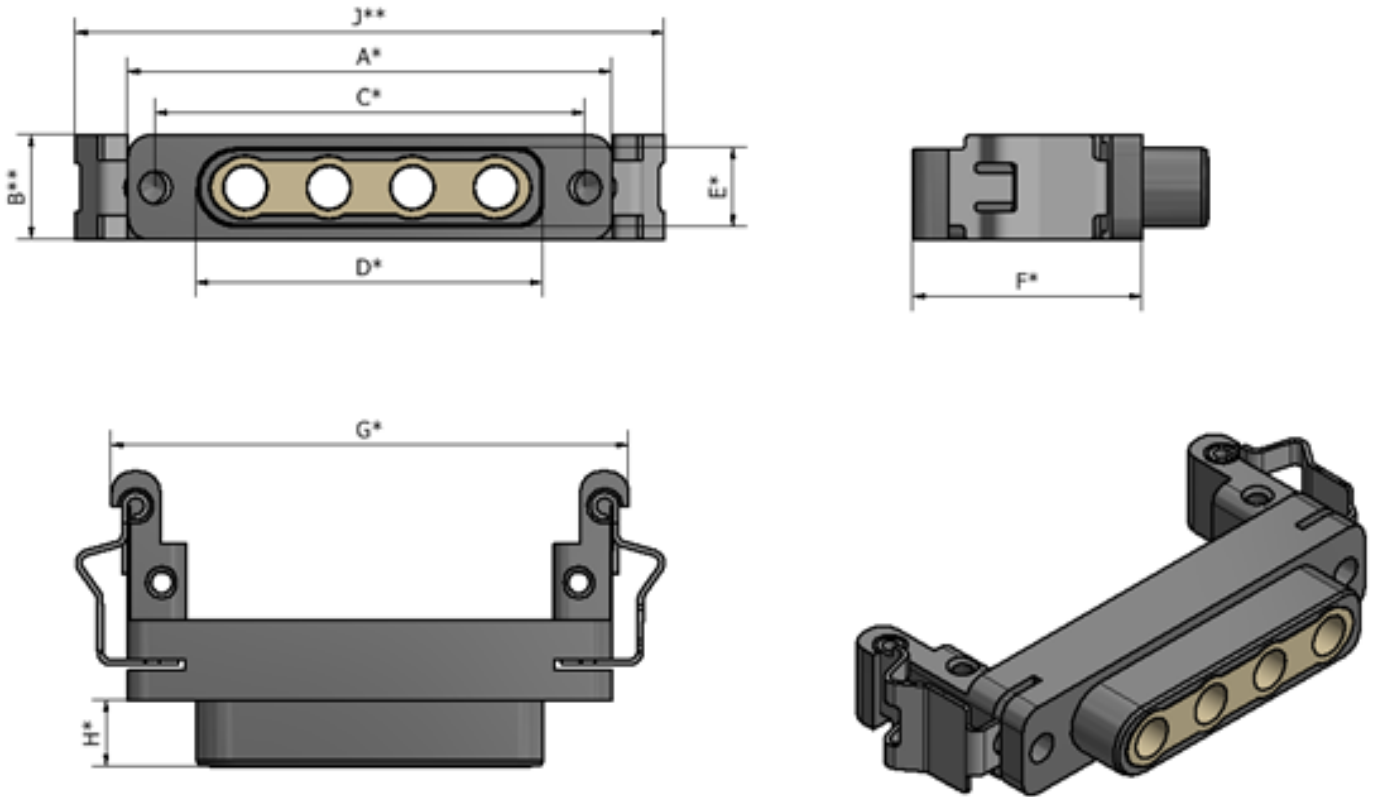
Ways	Dimensions (mm)												
	A	B	C		D	D1	E	E1	F	G	H	J	K
	Max	Max	Min	Max	Max	Min	Max	Min	Max	Max	Max	Max	Max
4	36.39	8.63	30.81	30.91	26.51	25.04	7.22	5.75	12.5	10	5.05	9.33	37.6
8	60.39	8.63	54.81	54.91	50.51	49.04	7.22	5.75	12.5	10	5.05	9.33	61.6

NOTES:

1. Dimensions with a single asterisk (*) may be checked during the Manufacturer's internal processing. Dimensions with a double asterisk (**) shall be checked after assembly of the connector.
2. Mounting/locking hardware to be selected from ESCC Detail Specification No. [3401/032](#).
3. Mounting/locking torque for threaded insert: 0.44 to 0.48Nm
4. Torque for 2-56 UNC hex-hole body screws: 0.2 to 0.25Nm.
5. For the contacts' position in the shell (when fitted), see Figure 2.5.
6. For rear panel mounting, see Figure 2.6 for the panel cut-outs.

FIGURE 2.3.1 – VARIANT 03 – MMCSA, PIGTAIL CONNECTOR WITH D-CLICK LATCH SPRINGS, PLUG (FOR REMOVABLE FEMALE POWER CONTACTS), 4 & 8 WAY

EXAMPLE: 4 WAY



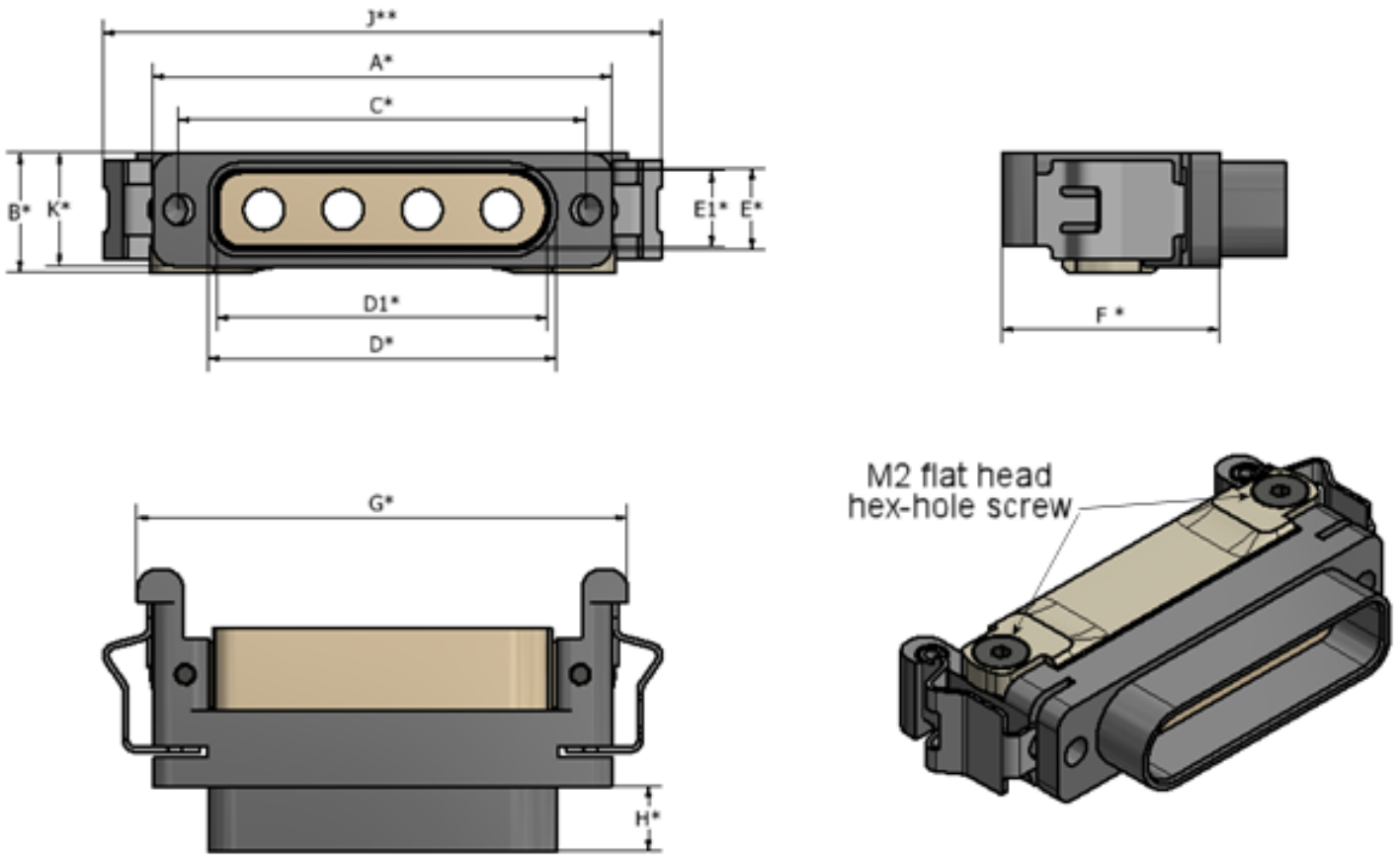
Ways	Dimensions (mm)										
	A	B	C		D	E	F	G	H	J	K
	Max	Max	Min	Max	Max	Max	Max	Max	Max	Max	Max
4	34.9	7.61	30.81	30.91	24.96	5.72	16.68	37.3	4.72	43	7.61
8	58.9	7.61	54.81	54.91	48.96	5.72	16.68	61.3	4.72	67	7.61

NOTES:

1. Dimensions with a single asterisk (*) may be checked during the Manufacturer's internal processing. Dimensions with a double asterisk (**) shall be checked after assembly of the connector.
2. For the contacts' position in the shell (when fitted), see Figure 2.5.

FIGURE 2.3.2 – VARIANT 03 – MMCSA, PIGTAIL CONNECTOR WITH D-CLICK LATCH SPRINGS, RECEPTACLE (FOR REMOVABLE MALE POWER CONTACTS), 4 & 8 WAY

EXAMPLE: 4 WAY



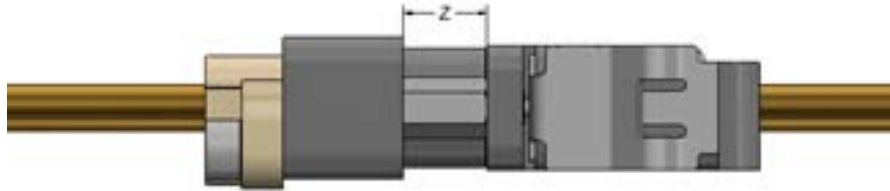
Ways	Dimensions (mm)												
	A	B	C		D	D1	E	E1	F	G	H	J	K
	Max	Max	Min	Max	Max	Min	Max	Min	Max	Max	Max	Max	Max
4	34.9	9.26	30.81	30.91	26.51	25.04	7.22	5.75	16.68	37.3	5.05	43	8.63
8	58.9	9.26	54.81	54.91	50.51	49.04	7.22	5.75	16.68	61.3	5.05	67	8.63

NOTES:

1. Dimensions with a single asterisk (*) may be checked during the Manufacturer's internal processing. Dimensions with a double asterisk (**) shall be checked after assembly of the connector.
2. Torque for M2 flat head hex-hole body screws: 0.15 to 0.2Nm.
3. For the contacts' position in the shell (when fitted), see Figure 2.5.

FIGURE 2.4 – MATED CONNECTOR DIMENSIONS

EXAMPLE

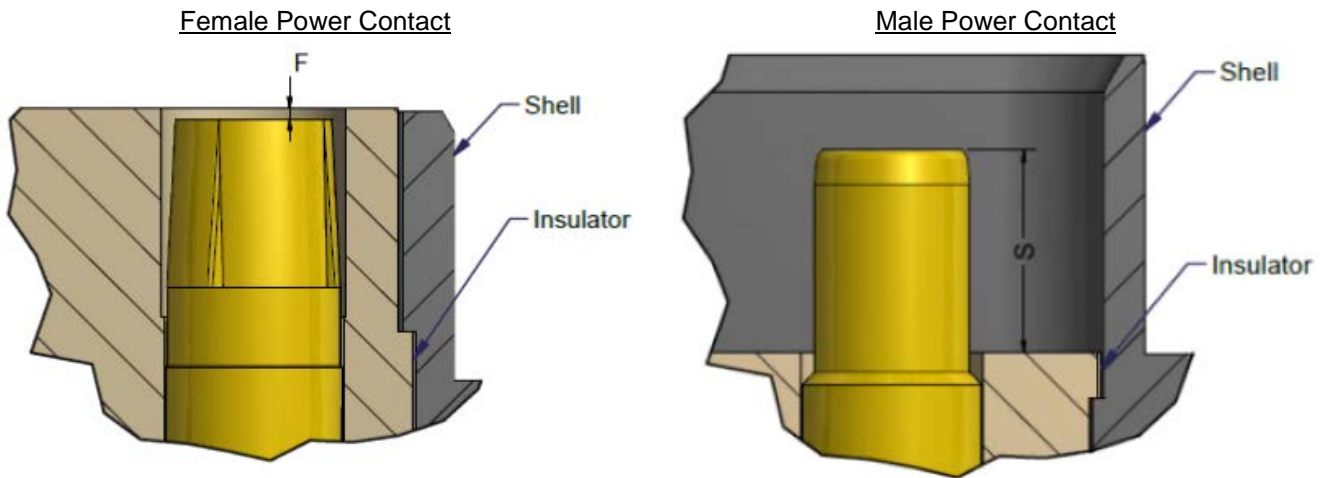


Symbol	Dimensions (mm)		Remarks
	Min	Max	
Z	5.49		When mating Variants 01, 03 using D-Click latch posts/springs (Note 1), or when mating Variant 02 using hardware per ESCC No. 3401/032

NOTES:

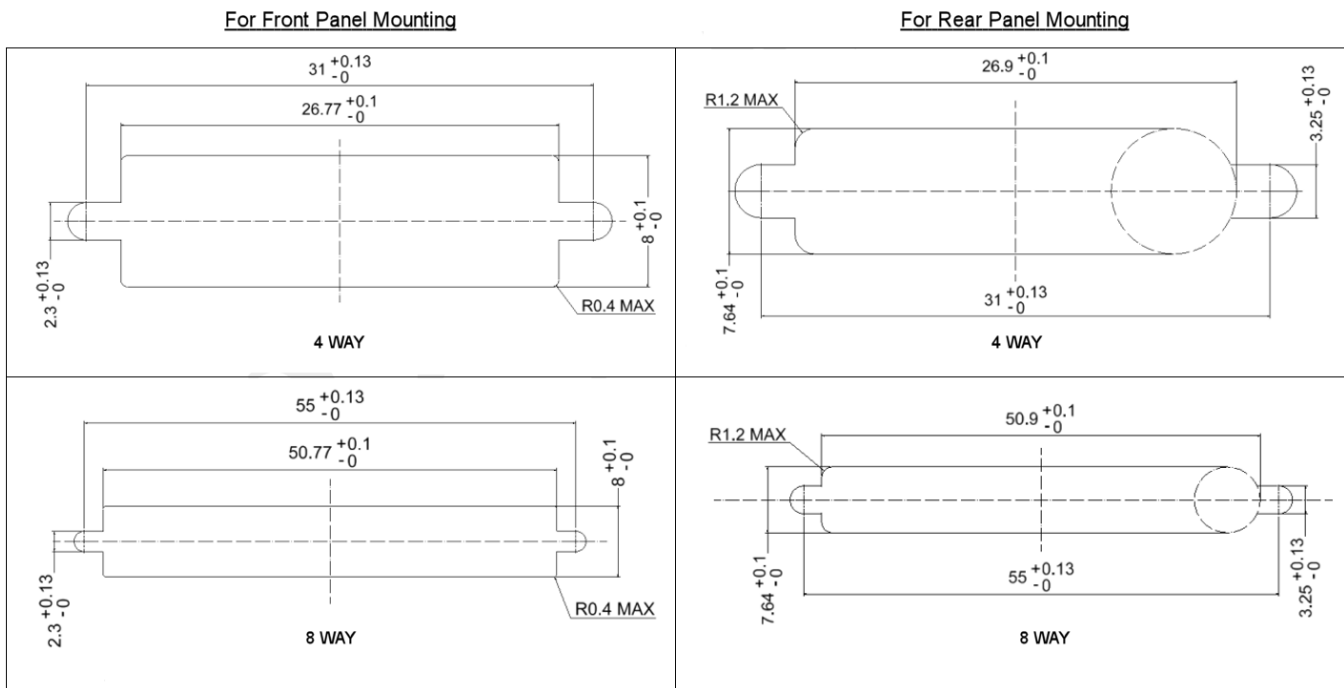
1. The connector with the D-Click latch post shall be mated with its mating half until a click is heard from each latch spring of the other connector.

FIGURE 2.5 – CONTACT POSITION



Symbol	Dimensions (mm)		Remarks
	Min	Max	
F	0.1	0.3	Female Power Contact
S	4.1	4.4	Male Power Contact

FIGURE 2.6 - PANEL CUT-OUT



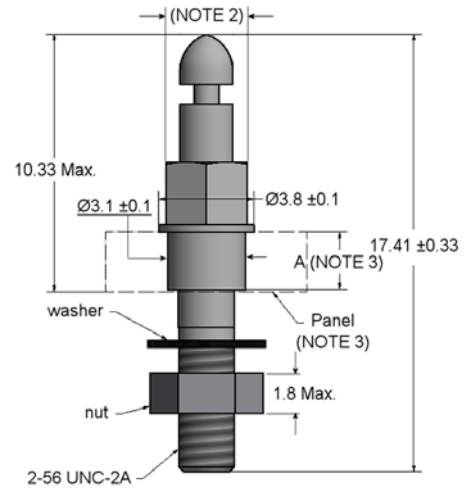
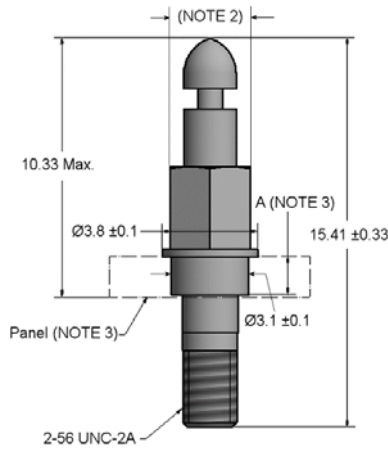
NOTES:

1. All dimensions in mm.
2. Rear panel mounting is suitable for Variants 01, 02. Maximum rear panel thickness: 0.8mm to 2.6mm (see Figure 2.7).
3. Front panel mounting is only suitable for Variant 01 and 02 plug connectors (for removable female power contacts) (see Figure 2.1.1 & 2.2.1). Maximum front panel thickness: 2.5mm.
4. See Figure 2.10 for recommended spacing between panel mounted connectors with D-Click latch posts (Variant 01).

FIGURE 2.7 - D-CLICK LATCH POSTS FOR REAR PANEL MOUNTING

FOR VARIANT 01 RECEPTACLE CONNECTORS

FOR VARIANT 01 PLUG CONNECTORS

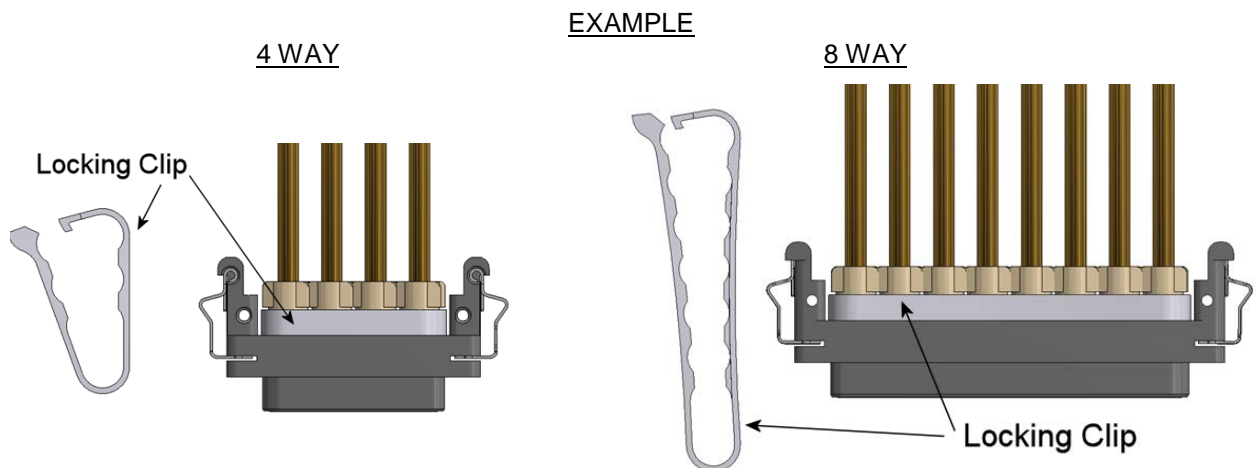


NOTES:

1. All dimensions in mm.
2. Hex 3.2mm
3. 5 rear panel thickness options are available, see Para. 4.5.2.1(c), codes P1 to P5. Dimension A is dependent on rear panel thickness T as follows:

Symbol	Dimensions (mm)									
	Nominal Rear Panel Thickness T (-0, +0.2)									
	T = 0.8		T = 1.2		T = 1.6		T = 2		T = 2.4	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A	0.65	0.75	1.05	1.15	1.45	1.55	1.85	1.9	2.25	2.35

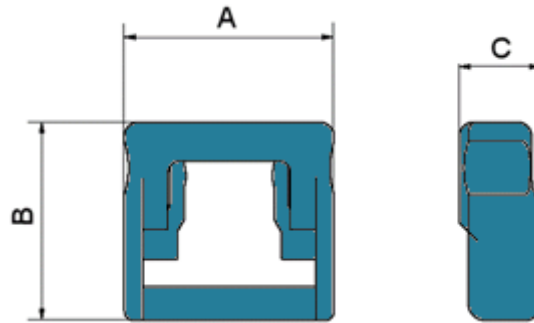
FIGURE 2.8 – PLUG CONNECTOR LOCKING CLIP



NOTES:

1. Locking clip maximum weight: 4 Way: 0.34g, 8 Way: 0.64g.
2. The locking clip provides a single use securing part that prevents any unwanted unlocking of installed female contacts (for Variants 01, 02, 03 plug connectors). See Para. 4.5.2.1(b).

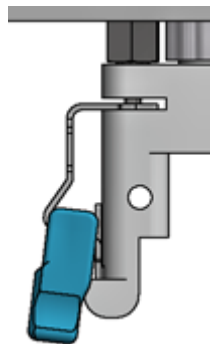
FIGURE 2.9 – LATCH SPRING SECURING PIECES



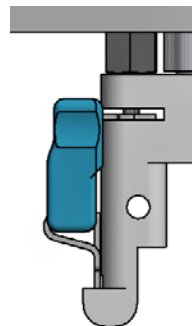
Symbol	Dimensions (mm)	
	Min	Max
A	9.1	9.35
B	8.6	8.85
C	3.5	3.8

NOTES:

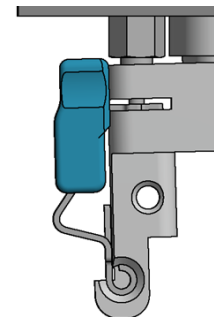
1. Securing piece maximum weight: 0.5g per pair.
2. 2 optional securing pieces are supplied with each connector (Variant 03 only) when required. The securing pieces prevent accidental demating. They can only be fitted and locked if connectors are mated properly, as shown below:



Latch spring is unlocked

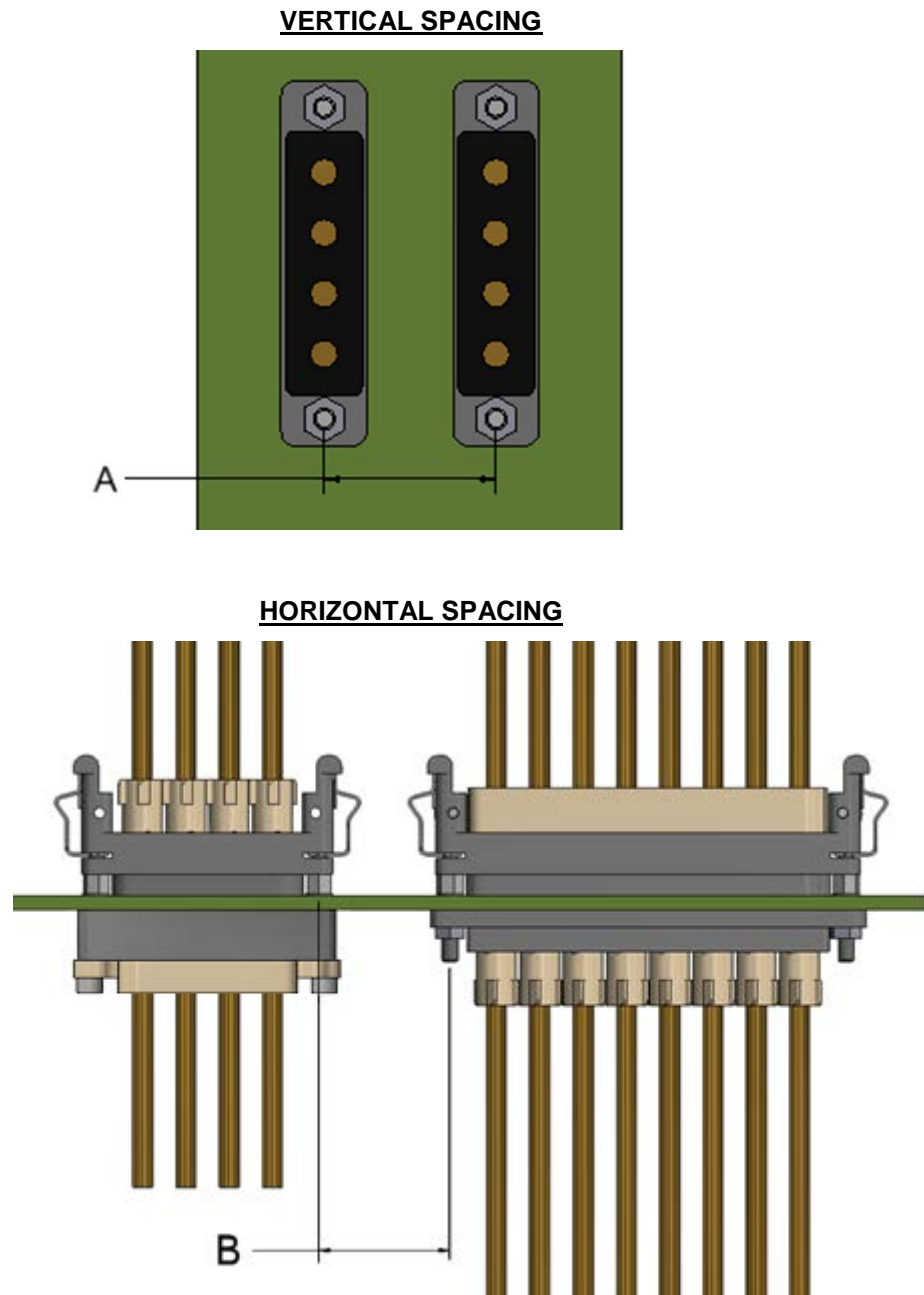


Latch spring is locked and secure

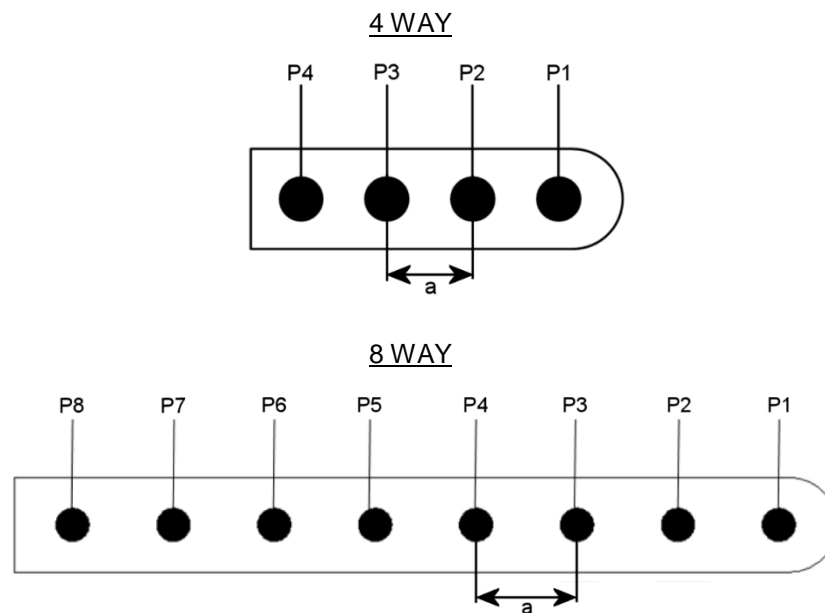


The securing piece cannot be inserted: indicates "bad mating"

FIGURE 2.10 - VERTICAL AND HORIZONTAL RECOMMENDED SPACING FOR CONNECTORS WITH D-CLICK LATCH POSTS (VARIANT 01)



Symbol	Dimensions (mm)	Remarks
	BSC	
A	12.5 minimum	when latch spring securing pieces are not used
	15.5 minimum	when latch spring securing pieces are used; see Figure 2.9
B	18 minimum	when using the specific de-mating tool
	27 minimum	when not using the specific de-mating tool

FIGURE 3 - CONTACT ARRANGEMENTS**FRONT VIEW OF CONNECTOR****NOTES:**

1. Contact position shall be referenced relative to the shape of the connector shell.
2. Contact spacing (all contacts): $a = 6\text{mm BSC}$.

2**APPLICABLE DOCUMENTS**

The following documents form part of this specification and shall be read in conjunction with it:

- (a) ESCC Generic Specification No. [3401](#), Connectors, Electrical, Circular and Rectangular.
- (b) ESCC Detail Specification No. [3401/092](#), Connectors, Electrical, Rectangular, Microminiature, with Non Removable Power Contacts, based on Type MMCS.
- (c) ESCC Detail Specification No. [3401/094](#), Contacts, Electrical, Power, Crimp and Accessories (for [3401/093](#) Connectors) based on type MMCSA
- (d) ESCC Detail Specification No. [3401/032](#), Accessories for Connectors, Microminiature [3401/029](#), [3401/077](#) and Connector Savers [3401/041](#).
- (e) ECSS-Q-ST-70-26, Crimping of high-reliability electrical connections (replaces PSS-01-726).

3**TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS**

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESCC Basic Specification No. [21300](#) shall apply.

4 REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the connectors specified herein are stated in this specification and ESCC Generic Specification No. 3401. Deviations from the Generic Specification, applicable to this specification only, are listed in Para. 4.2.

Deviations from the applicable Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirements and do not affect the components' reliability, are listed in the appendices attached to this specification.

4.2 DEVIATIONS FROM GENERIC SPECIFICATION

4.2.1 Deviations from Special In-Process Controls

(a) Solderability: Not applicable.

4.2.2 Deviations from Final Production Tests - Chart II(a)

(a) Para. 9.9, Seal Test: Not applicable.

(b) Para. 9.5, Magnetism Level: Not applicable.

4.2.3 Deviations from Burn-in and Electrical Measurements - Chart III

None (Chart III is not applicable).

4.2.4 Deviations from Qualification Tests - Chart IV

(a) Para. 9.9, Seal Test: Not applicable.

(b) Para. 9.11, Vibration: Measurements and inspections shall be performed in accordance with Table 6 herein.

(c) Para. 9.12, Shock or Bump: Measurements and inspections shall be performed in accordance with Table 6 herein.

(d) Para. 9.16, Rapid Change of Temperature: Measurements and inspections shall be performed in accordance with Table 6 herein.

(e) Para. 9.18, Endurance: Measurements and inspections shall be performed in accordance with Table 6 herein.

(f) Para. 9.21, High Temperature Storage: Measurements and inspections shall be performed in accordance with Table 6 herein.

(g) Para. 9.24, Jackscrew Retention: Not applicable.

(h) Para. 9.29, Oversize Pin Exclusion: Not applicable.

(i) Para. 9.30, Probe Damage: Not applicable.

(j) Para. 9.31, Solderability: Not applicable.

4.2.5 Deviations from Lot Acceptance Tests - Chart V

(a) Para. 9.9, Seal Test: Not applicable.

(b) Para. 9.16, Rapid Change of Temperature: Measurements and inspections shall be performed in accordance with Table 6 herein.

(c) Para. 9.18, Endurance: Measurements and inspections shall be performed in accordance with Table 6 herein.

(d) Para. 9.29, Oversize Pin Exclusion: Not applicable.

(e) Para. 9.30, Probe Damage: Not applicable.

4.3 MECHANICAL REQUIREMENTS

4.3.1 Dimension Check
See Figures 2 and 3.

4.3.2 Weight
See Table 1(a).

4.3.3 Contact Capability
As specified in ESCC Detail Specification No. [3401/094](#).

4.3.4 Contact Retention (in Insert)
As specified in ESCC Detail Specification No. [3401/094](#).

4.3.5 Mating and Unmating Forces

Variant Number	Mating Force (N) (1)	Unmating Force (N) (1)	
	Max	Min	Max
01, 02, 03	7.5	0.85	7.5

NOTES:

1. The mating and unmating forces are per contact.

4.3.6 Insert Retention (in Shell)
Maximum load: 50N applied from the mating side to the rear side.

4.3.7 Contact Insertion and Withdrawal Forces
As specified in ESCC Detail Specification No. [3401/094](#).

4.3.8 Engagement and Separation Forces
As specified in ESCC Detail Specification No. [3401/094](#).

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the components specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

- (a) Shell: Aluminium alloy, nickel plated 15µm minimum.
- (b) Contacts and terminations: As specified in ESCC Detail Specification No. [3401/094](#).
- (c) Insert: glass fibre-filled liquid crystal polymer or PEEK.
- (d) Insulating parts and plug connector locking clip: PEEK with 30% reinforced glass fibre.
- (e) Interfacial seals: silicone-base rubber.
- (f) D-Click latch springs: Beryllium-copper alloy, nickel plated 4µm minimum.
- (g) D-Click latch posts and other hardware: Passivated stainless steel.
- (h) Latch spring securing piece: PEEK+PTFE with 30% reinforced carbon fibre.

4.5 MARKING

4.5.1 General

The marking of all components delivered to this specification shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and the following paragraphs.

Each component or the component's primary package shall be marked in respect of:

- (a) The ESCC qualified components symbol (for ESCC qualified components only).
- (b) The ESCC Component Number (see Para. 4.5.2).
- (c) Traceability Information.

4.5.2 The ESCC Component Number

The ESCC Component Number shall be constituted as follows:

Example: 340109301B4LP

- Detail Specification Reference: 3401093
- Component Type Variant Number: 01 (as required; see Table 1(a))
- Testing Level: B
- Characteristic code: Shell Size (4): 4 Way (as required)
- Characteristic code: Connector and Contact Type (L): Plug with locking clip (as required)
- Characteristic code: Mounting/Locking Type (P): Standard D-Click latch posts (as required)
- Characteristic code:

4.5.2.1 *Characteristics Codes*

Characteristics to be codified as part of the ESCC Component Number shall be as follows:

(a) Shell Size

Shell size shall be indicated by a code for the quantity of contacts as follows:

Quantity of Contacts	Code
4 Way	4
8 Way	8

(b) Connector and Contact Type

The connector and contact type shall be indicated by the following codes:

Connector Type	Contact Type	Code
Plug	Removable Female Power Contacts	S
Plug with Locking Clip (1)	Removable Female Power Contacts	L
Receptacle	Removable Male Power Contacts	P

NOTES:

1. Each connector is supplied with a one, single use, plug connector locking clip (see Figure 2.8). Additional clips are available per ESCC Detail Specification No. 3401/094.

(c) **Mounting/Locking Type**

The mounting and/or locking type shall be indicated by the following codes (see Figure 2):

Mounting/Locking Details	Compatible Variant Number	Code
Standard D-Click latch posts	01	P
D-Click latch posts for rear panel mounting with nominal Panel thickness: T = 0.8mm	01	P1
D-Click latch posts for rear panel mounting with nominal Panel thickness: T = 1.2mm	01	P2
D-Click latch posts for rear panel mounting with nominal Panel thickness: T = 1.6mm	01	P3
D-Click latch posts for rear panel mounting with nominal Panel thickness: T = 2mm	01	P4
D-Click latch posts for rear panel mounting with nominal Panel thickness: T = 2.4mm	01	P5
Without mounting/locking hardware	02	B
D-Click latch springs	03	DC
D-Click latch springs with latch spring securing pieces (1)	03	DCS

NOTES:

- Each connector is supplied with two latch spring securing pieces (see Figure 2.9).

4.5.3 Traceability Information

Traceability information shall be marked in accordance with the requirements of ESCC Basic Specification No. 21700.

4.6 ELECTRICAL MEASUREMENTS

4.6.1 Electrical Measurements at Room Temperature

The parameters to be measured in respect of electrical characteristics are scheduled in Table 2. Unless otherwise specified, the measurements shall be performed at $T_{amb} = +22 \pm 3^{\circ}C$.

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE

No.	Characteristic	Symbol	ESCC 3401 Test Method	Test Condition	Limits		Unit
					Min	Max	
1	Insulation Resistance	R_i	Para. 9.1.1.1	1500Vdc	5000	-	$M\Omega$
2	Voltage Proof Leakage Current	I_L	Para. 9.1.1.2	1000Vrms	-	2	mA

TABLES 3, 4 AND 5

Not applicable.

4.7 ENVIRONMENTAL AND ENDURANCE TESTS (CHARTS IV AND V OF ESCC GENERIC SPECIFICATION No. 3401)

4.7.1 Measurements and Inspections on Completion of Environmental Tests

The parameters to be measured and inspections to be performed on completion of environmental testing shall be those specified in Table 6. Unless otherwise specified, these measurements shall be performed at $T_{amb} = +22 \pm 3^{\circ}\text{C}$.

4.7.2 Measurements and Inspections on Completion of Endurance Tests

The parameters to be measured and inspections to be performed on completion of endurance testing shall be those specified in Table 6. Unless otherwise specified, these measurements shall be performed at $T_{amb} = +22 \pm 3^{\circ}\text{C}$.

TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTING

No.	ESCC Generic Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
01	Wiring	Para. 9.10	Contact Resistance (Low Level Current)	ESCC 3401/094	R_{cl}	ESCC 3401/094		
02	Vibration	Para. 9.11	Initial Measurements Coupling screw(s) Unlocking Torque (2) Contact Resistance (Low Level Current) Contact Resistance (Rated Current) During Testing Monitor contacts for discontinuities Final Measurements Full Engagement Coupling screw(s) Unlocking Torque Drift (2) Voltage Proof Leakage Current Insulation Resistance Contact Resistance Drift (Low Level Current) Contact Resistance Drift (Rated Current) Visual Examination	- ESCC 3401/094 ESCC 3401/094 ESCC 3401/094 - - Table 2 Table 2 ESCC 3401/094 ESCC 3401/094 ESCC 3401	T_{qe} R_{cl} R_{cr} - $\Delta T_{qe}/T_{qe}$ I_L R_i ΔR_{cl} ΔR_{cr} -	Record value Record values Record values ESCC 3401/094 -25 +25 - Table 2 Table 2 - ESCC 3401/094 ESCC 3401/094 - -	%	

No.	ESCC Generic Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
03	Shock or Bump	Para. 9.11	<p>Initial Measurements Coupling screw(s) Unlocking Torque (2) Contact Resistance (Low Level Current) Contact Resistance (Rated Current)</p> <p>During Testing Monitor contacts for discontinuities</p> <p>Final Measurements Full Engagement Coupling screw(s) Unlocking Torque Drift (2) Voltage Proof Leakage Current Insulation Resistance Contact Resistance Drift (Low Level Current) Contact Resistance Drift (Rated Current) Visual Examination</p>	<p>-</p> <p>ESCC 3401/094</p> <p>ESCC 3401/094</p> <p>ESCC 3401/094</p> <p>-</p> <p>-</p> <p>Table 2</p> <p>Table 2</p> <p>ESCC 3401/094</p> <p>ESCC 3401/094</p> <p>ESCC 3401</p>	<p>T_{qe}</p> <p>R_{cl}</p> <p>R_{cr}</p> <p>-</p> <p>ΔT_{qe}/T_{qe}</p> <p>I_L</p> <p>R_I</p> <p>ΔR_{cl}</p> <p>ΔR_{cr}</p> <p>-</p>	<p>Record value</p> <p>Record values</p> <p>Record values</p> <p>ESCC 3401/094</p> <p>-25</p> <p>-</p> <p>Table 2</p> <p>Table 2</p> <p>ESCC 3401/094</p> <p>ESCC 3401/094</p> <p>-</p> <p>-</p>	<p>+</p> <p>Table 2</p> <p>-</p> <p>-</p> <p>-</p>	<p>%</p>
04	Climatic Sequence	Para. 9.13	<p>Dry Heat Insulation Resistance</p> <p>Low Air Pressure Voltage Proof Leakage Current</p> <p>Damp Heat Insulation Resistance</p> <p>Final Measurements External Visual Inspection Insulation Resistance Voltage Proof Leakage Current</p>	<p>At T_{amb} = +200°C, Table 2</p> <p>250V</p> <p>Table 2</p> <p>ESCC 3401</p> <p>Table 2</p> <p>Table 2</p>	<p>R_I</p> <p>I_L</p> <p>R_I</p> <p>-</p> <p>R_I</p> <p>I_L</p>	<p>1000</p> <p>-</p> <p>100</p> <p>-</p> <p>Table 2</p> <p>-</p>	<p>-</p> <p>5</p> <p>-</p> <p>-</p> <p>-</p> <p>Table 2</p>	<p>MΩ</p> <p>mA</p> <p>MΩ</p>
05	Plating Thickness	Para. 9.14	Plating thickness	ESCC 3401	-	ESCC 3401/094		-
06	Joint Strength	Para. 9.15	-	-	-	ESCC 3401		-

No.	ESCC Generic Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
07	Rapid Change of Temperature	Para. 9.16	Initial Measurements External Visual Inspection Insulation Resistance Voltage Proof Leakage Current Contact Resistance (Low Level Current) Contact Resistance (Rated Current) During Testing Monitor contacts for discontinuities Final Measurements Visual Examination Insulation Resistance Voltage Proof Leakage Current Contact Resistance Drift (Low Level Current) Contact Resistance Drift (Rated Current)	ESCC 3401 Table 2 Table 2 ESCC 3401/094 ESCC 3401/094 ESCC 3401/094 ESCC 3401 Table 2 Table 2 ESCC 3401/094 ESCC 3401/094	- R_i I_L R_{cl} R_{cr} - - R_i I_L ΔR_{cl} ΔR_{cr}	- Table 2 Table 2 Record values Record values ESCC 3401/094 - - Table 2 - - Table 2 ESCC 3401/094 ESCC 3401/094		
08	Contact Retention (in Insert)	Para. 9.17 and Para. 4.3.4 herein	Contact axial displacement	ESCC 3401	-	ESCC 3401		
09	Endurance	Para. 9.18	Initial Measurements Mating and Unmating Forces Contact Resistance (Low Level Current) Contact Resistance (Rated Current) Final Measurements Visual Examination Mating and Unmating Forces Contact Resistance Drift (Low Level Current) Contact Resistance Drift (Rated Current) Insulation Resistance Voltage Proof Leakage Current	- ESCC 3401/094 ESCC 3401/094 - - ESCC 3401/094 ESCC 3401/094 Table 2 Table 2	F R_{cl} R_{cr} - F ΔR_{cl} ΔR_{cr} R_i I_L	Para. 4.3.5 Record Values Record Values - - Para. 4.3.5 ESCC 3401/094 ESCC 3401/094 Table 2 - - Table 2		
10	Permanence of Marking	Para. 9.19	-	-	-	-		-
11	Mating and Unmating Forces	Para. 9.20	Force	-	F	Para. 4.3.5		

No.	ESCC Generic Spec. No. 3401		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
12	High Temperature Storage	Para. 9.21	Initial Measurements Contact Resistance (Low Level Current) Contact Resistance (Rated Current) Final Measurements Visual Examination Mating and Unmating Forces Contact Resistance Drift (Low Level Current) Contact Resistance Drift (Rated Current) Insulation Resistance Voltage Proof Leakage Current Contact Retention (In Insert)	ESCC 3401/094 ESCC 3401/094 - - ESCC 3401/094 ESCC 3401/094 Table 2 Table 2 ESCC 3401	R _{cl} R _{cr} - F ΔR _{cl} ΔR _{cr} R _i I _L -	Record Values Record Values - Para. 4.3.5 ESCC 3401/094 ESCC 3401/094 Table 2 - - Table 2 Para. 4.3.4		
13	Corrosion	Para. 9.22	Visual Examination	ESCC 3401	-	-	-	
14	Insert Retention (in Shell)	Para. 9.23 and Para. 0 herein	Visual Examination	ESCC 3401	-	ESCC 3401		-
15	High Temperature Measurements	Para. 9.25	Insulation Resistance	At T _{amb} = +125°C, Table 2	R _i	500	-	MΩ
16	Overload Test	Para. 9.26	Internal Temperature Contact Resistance (Rated Current) Insulation Resistance Voltage Proof Leakage Current	- ESCC 3401/094 Table 2 Table 2	T R _{cr} R _i I _L	- ESCC 3401/094 Table 2 - - Table 2	°C	
17	Maintenance Ageing	Para. 9.27	Contact Insertion and Withdrawal Forces Visual Examination Contact Retention (In Insert)	ESCC 3401 ESCC 3401 ESCC 3401	- - -	Para. 4.3.7 ESCC 3401 Para. 4.3.4		
18	Engagement and Separation Forces	Para. 9.28 and Para. 4.3.8 herein	Force	Para. 4.3.8	F	Para. 4.3.8		

NOTES:

1. The tests in this Table refer to either Chart IV or V and shall be used as applicable.
2. Not applicable to connectors with D-Click latch posts/springs (Variants 01, 03).