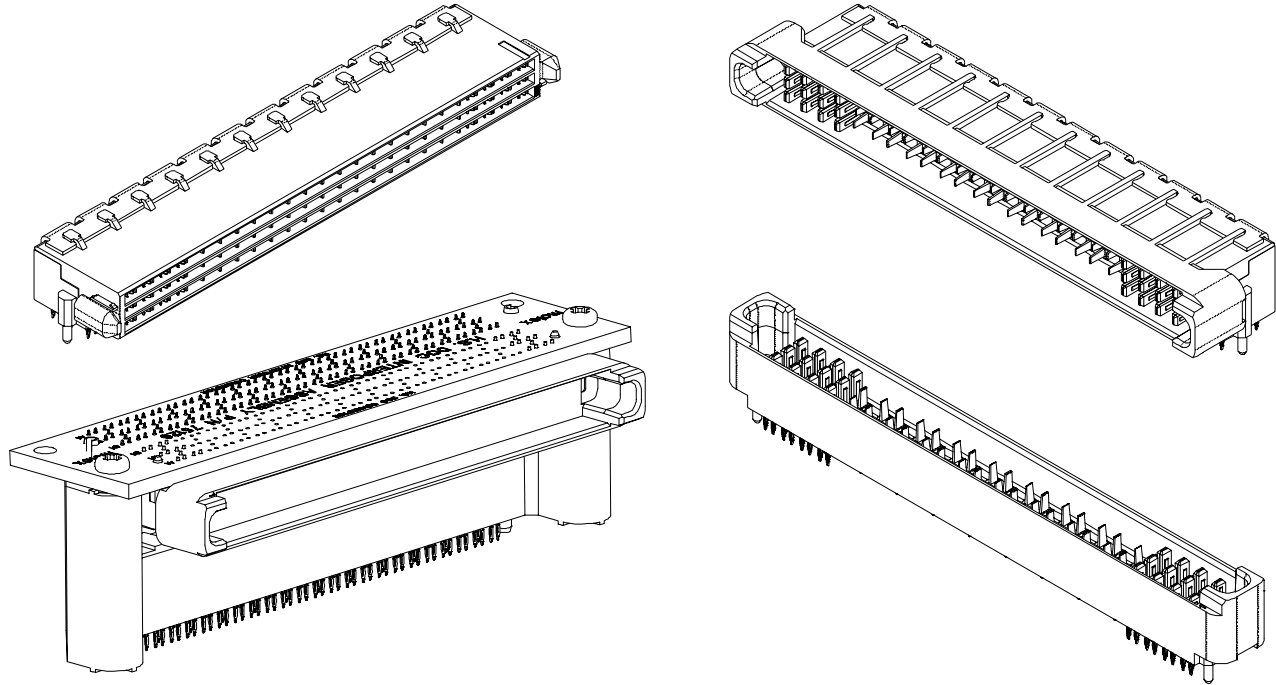




# TEST SUMMARY

## HIGH SPEED DOCKING CONNECTOR



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# TEST SUMMARY

## HIGH SPEED DOCKING CONNECTOR

### 1.0 SCOPE

This Product Specification is intended to define the mechanical, electrical and environmental requirements for the High Speed Docking connector system. The interface consists of differential pair signal lines over-molded in plastic and surrounded by a plated plastic housing. The signal contact pairs are on a column-to-column pitch of 3.50 mm pitch and a row-to-row pitch of 2.46mm. There are also dedicated lines for power, power return and detect.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBERS

- High Speed Docking Connector
- 75018 – Fixed Connector (mates with 75019)
- 75019 – Floating Connector (mates with 75018, 75126 & 75140)
- 75126 – Interposer (mates with 75019)
- 75140 – Vertical Fixed Connector (mates with 75019)

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

(see appropriate sales drawings for information)

#### 2.3 PRODUCT SPECIFICATION TITLE AND DOCUMENT NUMBER

Title: 75018 & 75019 Product Specification High Speed Docking Connector  
 Document Number: PS-75018-001

### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

EIA 364-1000.

### 4.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with EIA-364.

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## 5.0 PERFORMANCE RESULTS

### 5.1 ELECTRICAL CHARACTERIZATION

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	ACTUAL
1	Contact Resistance (Low Level)	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. (Measurement locations in Section 7.0)	30 milliohms MAXIMUM [initial]	25.5 milliohms
2	Dielectric Withstanding Voltage	Unmate connectors: apply a voltage of 500 VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < 5 mA	Pass
3	Temperature Rise (via Current Cycling)	Mate connectors: measure the temperature rise at the rated current after: 96 hours (45 minutes ON and 15 minutes OFF per hour).	Temperature rise: +30°C MAXIMUM	+10°C
4	Impedance (differential pair)	Mate connectors: rise time of 100 ps (10/90)	100 ± 10% ohms	Row A: 95.4 ohms Row B: 101.0 ohms Row C: 104.3 ohms
5	Bandwidth (differential pair)	Mate connectors: including launches	Average: 10 Gbps	Row A: 14.6 Gbps Row B: 10.2 Gbps Row C: 8.0 Gbps
6	Cross-talk (NEXT) (differential pair)	Mate connectors: rise time of 50/100/150 ps (10/90), all adjacent pairs driven	50ps - <0.8% 100ps - <0.7% 150ps - <0.6%	50ps - <0.8% 100ps - <0.7% 150ps - <0.6%
7	Cross-talk (FEXT) (differential pair)	Mate connectors: rise time of 150 ps (10/90), all adjacent pairs driven	<0.5%	<0.5%
8	Impedance (single ended)	Mate connectors: rise time of 1 ns	50 ± 10% ohms	Row A: 50.8 ohms Row B: 50.8 ohms Row C: 54.5 ohms
9	Bandwidth (single ended)	Mate connectors: including launches	<3.125 Gbps	Row A: 9.7 Gbps Row B: 9.7 Gbps Row C: 7.8 Gbps
10	Cross-talk (NEXT) (single ended)	Mate connectors: rise time of 1 ns, within a pair	<4%	<3%
11	Cross-talk (FEXT) (single ended)	Mate connectors: rise time of 1 ns, within a pair	<1%	<1%
12	Differential Skew (within pair)	Mate connectors:	<1 ps	<1 ps
13	Propagation Delay	Mate connectors: calculated using group delay	A to A' <130 ps B to B' <185 ps C to C' <240 ps	A to A' 127.0 ps B to B' 176.4 ps C to C' 234.6 ps
14	Plated Housing Resistivity		< 2 milliohms / cm	< 2 milliohms / cm
15	Differential Insertion Loss (DP)	Mate connectors: -3db	Average: 5GHz	Row A: 7.3 GHz Row B: 5.1 GHz Row C: 4.0 GHz
16	Differential Insertion Loss (SE)	Mate connectors: -3db	Average: 4GHz	Row A: 4.8 GHz Row B: 4.9 GHz Row C: 3.9 GHz

Note: High-speed electrical characterization is for 4.74mm centerline right angle product mated in an in-line orientation. Contact your Molex Representative for additional information.

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## 5.2 MECHANICAL CHARACTERIZATION

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	ACTUAL
1	<b>Connector Mate and Unmate Forces</b>	Mate and unmate connector (male to female) at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	<b>80 N (18 lbf)</b> MAX. insertion force <b>20 N (4.5 lbf)</b> MIN. withdrawal force	<b>40.5 N (9.1 lbf)</b> insertion force & <b>13.8 N (3.1 lbf)</b> withdrawal force
2	<b>Durability</b>	Mate connectors up 100 cycles, at a maximum rate of <b>10</b> cycles per minute. Test per EIA-364-09.	<b>10</b> milliohms MAXIMUM (change from initial)	Ave.: <b>0.23</b> milliohms Max.: <b>1.51</b> milliohms
3	<b>Durability (pre-conditioning)</b>	Mate connectors 5 cycles, at a maximum rate of <b>10</b> cycles per minute. Test per EIA-364-09.	no physical damage	Pass
4	<b>Vibration (Random)</b>	Mate connectors and vibrate per EIA 364-28, test condition VII.	<b>10</b> milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond	Ave.: <b>1.40</b> milliohms Max.: <b>5.4</b> milliohms Discontinuity < 1 microsecond
5	<b>Normal Force</b>	Apply a perpendicular force.	<b>0.49 N (50 grams)</b> MINIMUM	<b>0.56 N (56.8 grams)</b> MINIMUM
6	<b>Compliant Pin Insertion into PCB</b>	Apply an axial insertion force on the terminal at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch).	<b>35 N (7.9 lbf)</b> MAXIMUM insertion force Per compliant pin	<b>17.35 N (3.9 lbf)</b> insertion force Per compliant pin
7	<b>Compliant Pin Retention into PCB</b>	Apply an axial extraction force on the terminal at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch).	<b>9 N (2 lbf)</b> MINIMUM retention force Per compliant pin	<b>9.78 N (2.2 lbf)</b> retention force Per compliant pin
8	<b>Reseating</b>	Mate connectors 5 cycles, at a maximum rate of <b>10</b> cycles per minute. Test per EIA-364-09.	no physical damage	Pass

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## 5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	ACTUAL
1	<b>Fretting Corrosion (Thermal Shock)</b>	Mate connectors: expose for 10 cycles between -55°C and 85°C; dwell 0.5 hours at each temperature. Test per EIA-364-32, Condition 1	<b>10 milliohms</b> MAXIMUM (change from initial)	Ave.: <b>0.8</b> milliohms Max.: <b>3.1</b> milliohms
2	<b>Temperature Life (Thermal Aging)</b>	Mate connectors: expose to 1500 hours at 90°C ± 2°C. Test per EIA-364-17, Method A, Test Condition 4.	<b>10 milliohms</b> MAXIMUM (change from initial)	Ave.: <b>1.0</b> milliohms Max.: <b>6.0</b> milliohms
3	<b>Temperature Life (pre-conditioning)</b>	Mate connectors: expose to 500 hours at 90°C ± 2°C. Test per EIA-364-17, Method A, Test Condition 4.	<b>10 milliohms</b> MAXIMUM (change from initial)	Ave.: <b>0.97</b> milliohms Max.: <b>6.2</b> milliohms
4	<b>Cyclic Humidity</b>	Mate connectors: 10 cycles (10 days) between 25°C at 80%RH and 65°C at 50%RH. Test per EIA-364-31, Method III, Test Condition B.	<b>10 milliohms</b> MAXIMUM (change from initial)	Ave.: <b>0.57</b> milliohms Max.: <b>4.06</b> milliohms
5	<b>Thermal Disturbance</b>	Mate connectors: 10 cycles between 15°C and 85°C. Temperature ramp should be 2°C per minute with 5-minute dwell minimum.	<b>10 milliohms</b> MAXIMUM (change from initial)	Ave.: <b>0.49</b> milliohms Max.: <b>3.25</b> milliohms
6	<b>Mixed Flowing Gas</b>	Mate connectors: expose to Class II environment for 14 days. Test per EIA-364-65.	<b>10 milliohms</b> MAXIMUM (change from initial, 2% allowed above 10 milliohms but below 50 milliohms)	Ave.: <b>1.8</b> milliohms Max.: <b>26.6</b> milliohms No. above 10 milliohms: <b>2</b>

## 6.0 FIXTURES AND TEST EQUIPMENT

## 7.0 OTHER INFORMATION

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