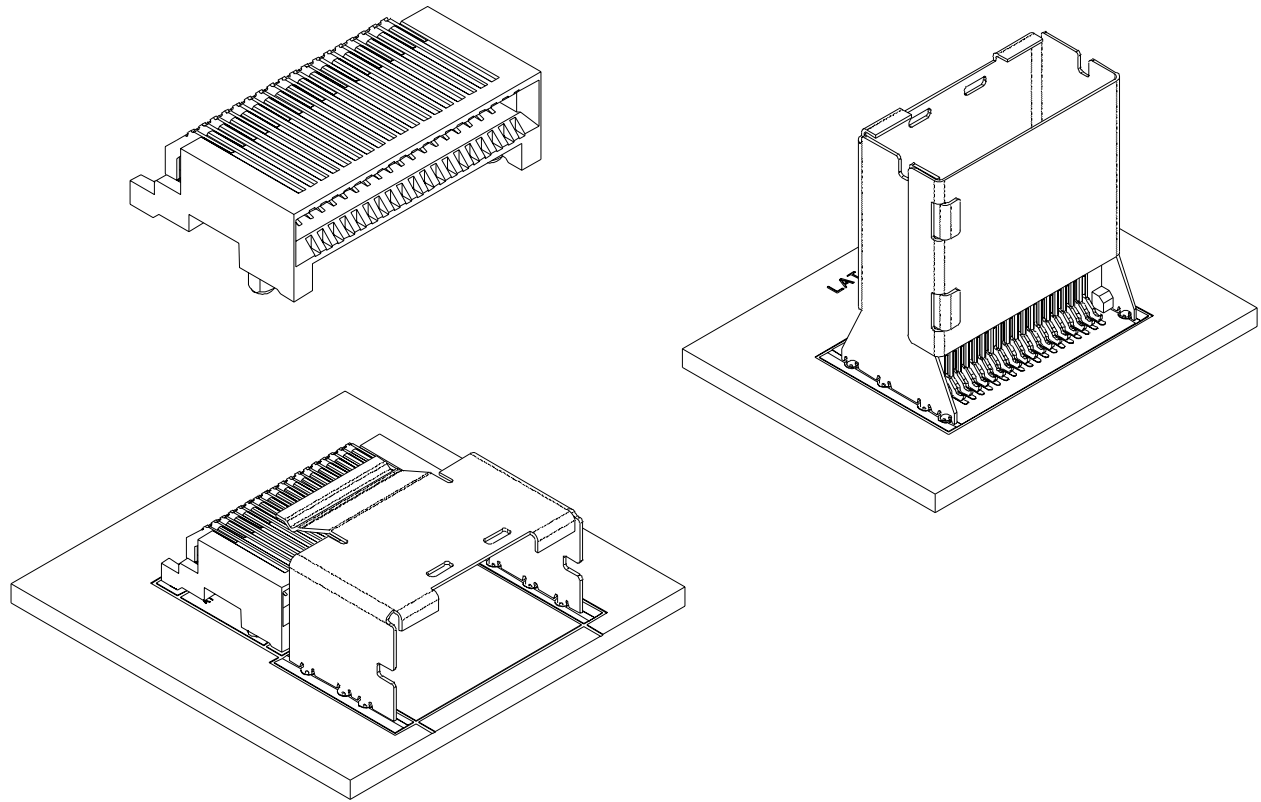




# PRODUCT SPECIFICATION

## iPass<sup>™</sup> 0.8 MM PITCH I/O CONNECTOR



### 1.0 SCOPE

This Product Specification covers the 0.8 mm centerline (pitch) printed circuit board (PCB) connector series.

REVISION: <b>2</b>	EGR/ECN INFORMATION: EC No: <b>UCP2005-0811</b> DATE: <b>2004 / 11 / 19</b>	TITLE: <b>PRODUCT SPECIFICATION iPass<sup>™</sup> I/O CONNECTOR</b>	SHEET No. <b>1 of 10</b>
DOCUMENT NUMBER: <b>PS-75586-001</b>	CREATED / REVISED BY: <b>KREGNIER</b>	CHECKED BY: <b>JLONG</b>	APPROVED BY: <b>RNELSON</b>



# PRODUCT SPECIFICATION

## 2.0 PRODUCT DESCRIPTION

### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name: iPass™ Connector Family  
Series: 75586 / 75783 / 75784

### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawing for information on dimensions, materials, plating and marking, and footprint patterns.

### 2.3 SAFETY AGENCY APPROVALS

UL file: E29179 (Recognition Pending)  
CSA file: 310648 (Recognition Pending)

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

### 3.1 MOLEX DOCUMENTS

AS-75586-001 Application Specification  
PK-75586-002 Packaging Specification  
PK-75783-001 Packaging Specification  
SD-75586-001 iPass™ Right Angle  
SD-75783-001 iPass™ Right Angle with Shell  
SD-75784-001 iPass™ Vertical with Shell  
SMES-152 Solderability

### 3.2 INDUSTRY DOCUMENTS

EIA 364 Series Electrical Connector Test Procedures Including Environmental Classifications with Test Procedures  
EIA 364-1000 Environmental Test Methodology for Assessing the Performance of Connectors and Sockets Used in Business Office Applications

## 4.0 QUALIFICATION

Laboratory condition and sample selection are in accordance with EIA 364

<u>REVISION:</u> <b>2</b>	<u>EGR/ECN INFORMATION:</u> EC No: <b>UCP2005-0811</b> DATE: <b>2004 / 11 / 19</b>	<u>TITLE:</u> <b>PRODUCT SPECIFICATION iPass™ I/O CONNECTOR</b>	<u>SHEET No.</u> <b>2 of 10</b>
<u>DOCUMENT NUMBER:</u> <b>PS-75586-001</b>	<u>CREATED / REVISED BY:</u> <b>KREGNIER</b>	<u>CHECKED BY:</u> <b>JLONG</b>	<u>APPROVED BY:</u> <b>RNELSON</b>



# PRODUCT SPECIFICATION

## 5.0 RATINGS

### 5.1 VOLTAGE

30 Volts AC (RMS)/DC Max.

### 5.2 CURRENT

0.5 Amps Max.

### 5.3 TEMPERATURE

Operating: - 40°C to + 85°C

Nonoperating: - 55°C to + 105°C

### 5.4 DURABILITY

Level 1 – 25 cycles

Level 2 – 250 cycles (connector only)

Note: Level 1 is typical of internal cabling applications. Level 2 is typical of external cabling applications.

<u>REVISION:</u> <b>2</b>	<u>EGR/ECN INFORMATION:</u> EC No: <b>UCP2005-0811</b> DATE: <b>2004 / 11 / 19</b>	<u>TITLE:</u> <b>PRODUCT SPECIFICATION iPass™ I/O CONNECTOR</b>	<u>SHEET No.</u> <b>3 of 10</b>
<u>DOCUMENT NUMBER:</u> <b>PS-75586-001</b>	<u>CREATED / REVISED BY:</u> <b>KREGNIER</b>	<u>CHECKED BY:</u> <b>JLONG</b>	<u>APPROVED BY:</u> <b>RNELSON</b>



# PRODUCT SPECIFICATION

## 6.0 PERFORMANCE

### 6.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Bulk Resistance</b> (Low Level)	Mate connectors: apply a maximum voltage of <b>20 mV</b> and a current of <b>100 mA</b> . (See Illustration of actual measurement)	<b>30 milliohms</b> MAXIMUM [initial]
2	<b>Insulation Resistance</b>	Unmate & unmount connectors: apply a voltage of <b>500 VDC</b> between adjacent terminals and between terminals to ground.	<b>1000 Megohms</b> MINIMUM
3	<b>Dielectric Withstanding Voltage</b>	Unmate connectors: apply a voltage of <b>{two times the rated voltage plus 1000 volts}</b> VAC for <b>1</b> minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < <b>5 mA</b>
4	<b>Capacitance</b>	Measure between adjacent terminals at <b>1 MHz</b> .	<b>1.0 picofarads</b> MAXIMUM
5	<b>Inductance</b>		<b>8.0 nanohenry</b> Maximum
6	<b>Temperature Rise</b> (via Current Cycling)	Mate connectors: measure the temperature rise at the rated current after <b>96</b> hours  ( <b>45</b> minutes ON and <b>15</b> minutes OFF per hour).  Testing as required	Temperature rise: <b>+30°C</b> MAXIMUM

REVISION: <b>2</b>	EGR/ECN INFORMATION: EC No: <b>UCP2005-0811</b> DATE: <b>2004 / 11 / 19</b>	TITLE: <b>PRODUCT SPECIFICATION</b> <b>iPass™ I/O CONNECTOR</b>	SHEET No. <b>4 of 10</b>
DOCUMENT NUMBER: <b>PS-75586-001</b>	CREATED / REVISED BY: <b>KREGNIER</b>	CHECKED BY: <b>JLONG</b>	APPROVED BY: <b>RNELSON</b>



# PRODUCT SPECIFICATION

## 6.2 SIGNAL INTEGRITY REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Return Loss	Frequency range 50MHz to 7.5GHz Frequency range 7.5GHz to 15GHz • 2.5dB at 15GHz	10 dB $10 - 25\log_{10}(f / 7.5\text{GHz})$ dB
2	Differential Impedance	Rise-time of 25ps (20-80%)	$100 \pm 10$ ohms
3	Insertion Loss	Frequency range 50 MHz to 10 GHz	0.13 dB at 1.25GHz 0.25 dB at 2.50GHz 0.50 dB at 5.00GHz
4	Propagation Delay	Frequency from 1GHz to 15 GHz	$\leq 60$ ps
5	Crosstalk	NEXT, FEXT for adjacent pairs within a row NEXT, FEXT for adjacent pairs across rows *Measured at 25ps 20-80% rise-time  PCIe application specific RMS sum $\sqrt{[Tx\_NEXT^2 + 2*(Rx\_FEXT)^2]}$ *FEXT is measured at 45ps 20-80% rise-time	$\leq 2\%$ $\leq 2\%$  $\leq 5\%$
6	Isolation	Frequency range 50MHz to 15GHz Measure near-end and far-end isolation - Adjacent pairs within a row - Adjacent pairs across rows	30 dB
7	Differential Skew (Within Pair)	Mate plug to receptacle	$<1$ ps
8	Bandwidth	Mate plug to receptacle, include launches	Average: 10 Gbps

REVISION: <b>2</b>	EGR/ECN INFORMATION: EC No: UCP2005-0811 DATE: 2004 / 11 / 19	TITLE: <b>PRODUCT SPECIFICATION iPass™ I/O CONNECTOR</b>	SHEET No. <b>5 of 10</b>
DOCUMENT NUMBER: <b>PS-75586-001</b>	CREATED / REVISED BY: <b>KREGNIER</b>	CHECKED BY: <b>JLONG</b>	APPROVED BY: <b>RNELSON</b>



# PRODUCT SPECIFICATION

## 6.3 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Connector Mate &amp; Un-mate Forces</b> (Module only, 68 ckt)	Mate and un-mate connector (male to female) at a rate of <b>25 mm (1 inch)</b> per min.	<b>85 N MAX</b> insertion force & <b>17 N MIN</b> withdrawal force
2	<b>Terminal Retention Force</b>	Axial pullout force on the terminal in the housing at a rate of <b>25 mm (1 in)</b> per min.	<b>4.5 N</b> MINIMUM retention force
3	<b>Durability</b>	Mate connectors up to <b>250</b> 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) No Visual Damage
4	<b>Durability</b> (Pre-conditioning)	Mate connectors <b>5</b> cycles at a maximum rate of <b>10</b> cycles per minute. Test per EIA 364-09	No physical damage
5	<b>Normal Force</b>	Apply a perpendicular force.	<b>0.49 N, (50 grams)</b> MINIMUM normal force
6	<b>Vibration</b> (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	<b>10</b> milliohms MAXIMUM (change from initial) & Discontinuity < <b>1</b> microsecond
7	<b>Shock</b> (Mechanical)	Mate connectors and shock at <b>50 g's</b> with ½ sine wave (11 milliseconds) shocks in the ±X,±Y,±Z axes ( <b>18</b> shocks total).	<b>10</b> milliohms MAXIMUM (change from initial) & Discontinuity < <b>1</b> microsecond
8	<b>Reseating</b>	Mate connectors <b>5</b> cycles at a maximum rate of <b>10</b> cycles per minute. Test per EIA 364-09	No physical damage
9	<b>Plug Mate &amp; Un-mate Forces</b> (Active Latch, 68 ckt)	Mate and un-mate connector (male to female) at a rate of <b>25 mm (1 inch)</b> per min.	<b>85 N MAX</b> mating force & <b>17 N MIN</b> un-mating force
10	<b>Plug Mate &amp; Un-mate Forces</b> (Passive Latch,68 ckt)	Mate and un-mate connector (male to female) at a rate of <b>25 mm (1 inch)</b> per min.	<b>85 N MAX</b> mating force & <b>17 N MIN</b> un-mating force
11	<b>Mandrel Test</b> (Gorilla Test)	Mate connector and load cable with <b>44 N, (10#)</b> and rotate about axis on fixture <b>10</b> cycles	<b>10</b> milliohms MAXIMUM (change from initial) & Discontinuity < <b>1</b> microsecond
12	<b>Latitudinal Load</b> (68 ckt)	Mate connector and load module with latitudinal load until open circuit	<b>50 N</b> MINIMUM
13	<b>Longitudinal Load</b> (68 ckt)	Mate connector and load module with longitudinal load (sheer & peel)	Peel: <b>15 N</b> MINIMUM Sheer: <b>150 N</b> MINIMUM
14	<b>Shell Retention</b> (Side)	Mate connector and load cable with load	<b>35 N</b> MINIMUM
15	<b>Shell Retention</b> (Toward latch)	Mate connector and load cable with load	<b>35 N</b> MINIMUM

REVISION: <b>2</b>	EGR/ECN INFORMATION: EC No: <b>UCP2005-0811</b> DATE: <b>2004 / 11 / 19</b>	TITLE: <b>PRODUCT SPECIFICATION</b> <b>iPass™ I/O CONNECTOR</b>	SHEET No. <b>6 of 10</b>
DOCUMENT NUMBER: <b>PS-75586-001</b>	CREATED / REVISED BY: <b>KREGNIER</b>	CHECKED BY: <b>JLONG</b>	APPROVED BY: <b>RNELSON</b>



# PRODUCT SPECIFICATION

## 6.4 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Shock</b> (Thermal)	Per EIA 364-32 Test Condition 1 (10 cycles with the exception of exposure times)	<b>10</b> milliohms MAXIMUM (change from initial)
2	<b>Thermal Aging</b>	Mate connectors: expose to 1500 hours at 90°±2°C. Test per EIA-364-17, Method A, Test Condition 3	<b>10</b> milliohms MAXIMUM (change from initial)
3	<b>Thermal Aging</b> (Pre-conditioning)	Mate connectors: expose to 500 hours at 90°±2°C. Test per EIA-364-17, Method A, Test Condition 3.	<b>10</b> milliohms MAXIMUM (change from initial)
4	<b>Humidity</b> (Cyclic)	Cycle connectors between 25 °C ± 3 °C at 80% RH and 65 °C ± 3 °C at 50% RH. Ramp times should be 0.5 hour and dwell should be 1.0 hour per EIA 364-31.	<b>10</b> milliohms MAXIMUM (change from initial)
5	<b>Solderability</b>	Per SMES-152	Solder Coverage: 95% MINIMUM
6	<b>SMT Process Compatibility</b> (Pb Free)	<b>Ramp-Up</b> Average Rate                    3° C/second max <b>Preheat</b> Temperature Min                150° C Temperature Max                200° C Time:                                60-180 seconds <b>Time maintained above</b> Temperature                    217° C Time:                                60-120 seconds <b>Peak</b> Classification Temperature    ****° C <b>Time within 5° C of actual Peak Temperature</b> Time:                                20-40 seconds <b>Ramp-Down</b> Average Rate                    6° C/second max <b>Cycle Duration, 25° C to Peak Temperature</b> Time:                                8 minutes max  See Section 10.0 for Molex Connector Only Test Profile	Dimensional: Conformance to Sales Drawing Requirements  Visual No Damage

REVISION: <b>2</b>	EGR/ECN INFORMATION: EC No: <b>UCP2005-0811</b> DATE: <b>2004 / 11 / 19</b>	TITLE: <b>PRODUCT SPECIFICATION iPass™ I/O CONNECTOR</b>	SHEET No. <b>7 of 10</b>
DOCUMENT NUMBER: <b>PS-75586-001</b>	CREATED / REVISED BY: <b>KREGNIER</b>	CHECKED BY: <b>JLONG</b>	APPROVED BY: <b>RNELSON</b>



# PRODUCT SPECIFICATION

## 7.0 TEST SEQUENCES/GROUPS

### 7.1 EIA Test Sequence

Test Description	Eia-364-1000.01 Test Sequences			
	1	2	3	7
LLCR or Contact Resistance (6.1.1)	1, 4, 6	1, 4, 6, 8	1,4,6	2,4
Dielectric Withstanding Voltage (6.1.3)				1,5
Durability (6.3.3)				3
Durability (pre-conditioning) (6.3.4)	2	2	2	
Mechanical Vibration (6.3.6)			5	
Thermal Shock (6.4.1)		3		
Temperature Life (6.4.2)	3			
Temperature Life (pre-conditioning) (6.4.3)			3	
Cyclic Humidity (6.4.4)		5		
Reseating (6.3.8)	5	7		

Test Description	Additional Test Sequences				
	1	2	3	4	5
Temperature Rise (6.1.6)	1				
Mating Force (6.3.1)		1			
Un-mating Force (6.3.1)		2			
Normal Force (6.3.5)			1		
Terminal Retention (6.3.2)			2		
Plug Mating Force – Active Latch (6.3.9)		3			
Plug Un-mating Force – Active Latch (6.3.9)		4			
Plug Mating Force – Passive Latch (6.3.10)		5			
Plug Un-mating Force–Passive Latch (6.3.10)		6			
Mandrel Test (6.3.11)				1	
Latitudinal Load (6.3.12)					1
Longitudinal Load (6.3.13)					2
Shell Retention – Side (6.3.14)				2	
Shell Retention – Toward Latch (6.3.15)				3	

Test Description	High Speed Test Sequences				
	1	2	3	4	5
Impedance (6.2.2)	1				
Bandwidth (6.2.8)	2				
Cross-talk (6.2.5)		1			
Skew – within pair (6.2.7)					1
Propagation Delay (6.2.4)					2
Insertion Loss / Return Loss (6.2.1., 6.2.3)		2		2	
Isolation (6.2.6)			1		

REVISION: <b>2</b>	EGR/ECN INFORMATION: EC No: <b>UCP2005-0811</b> DATE: <b>2004 / 11 / 19</b>	TITLE: <b>PRODUCT SPECIFICATION iPass™ I/O CONNECTOR</b>	SHEET No. <b>8 of 10</b>
DOCUMENT NUMBER: <b>PS-75586-001</b>	CREATED / REVISED BY: <b>KREGNIER</b>	CHECKED BY: <b>JLONG</b>	APPROVED BY: <b>RNELSON</b>





# PRODUCT SPECIFICATION

## 8.0 PACKAGING

### 8.1 METHOD

8.1.1 Product shall be packaged in tape and reel per the packaging specification as called out on the applicable assembly print.

### 8.2 REQUIREMENTS

8.2.1 Packaging shall meet the requirements and be tested per the Molex specification PK-75586-002 or PK-75783-001

## 9.0 GAGES AND FIXTURES

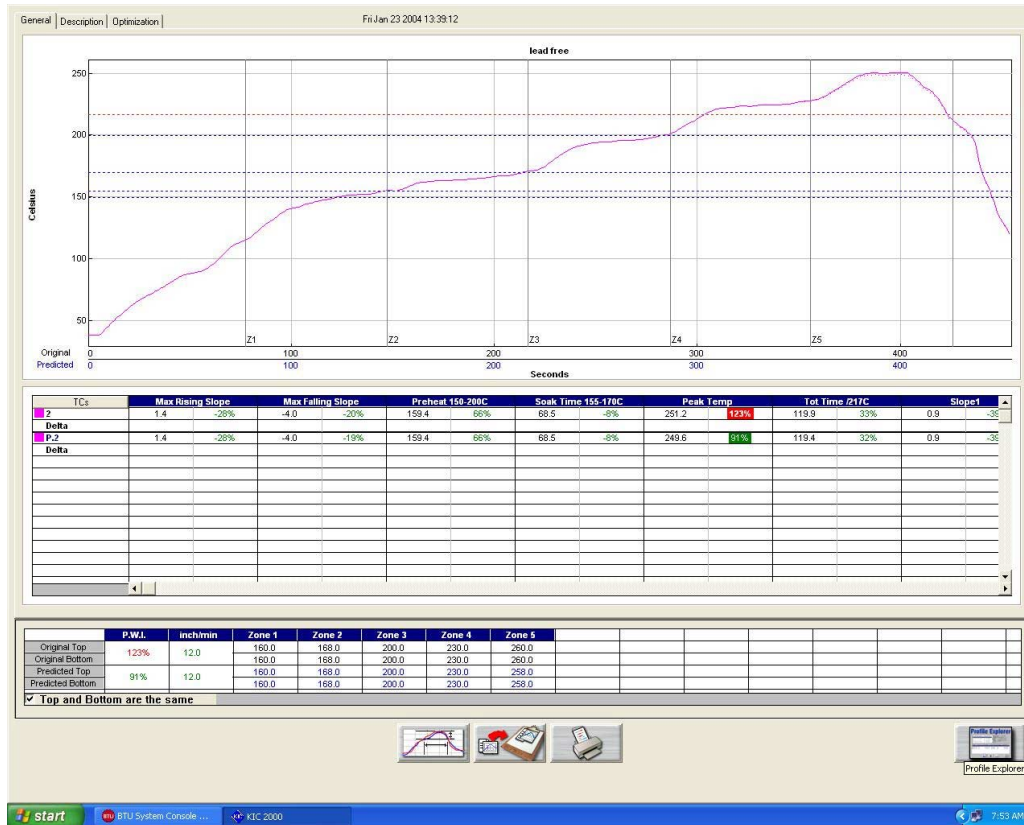
<u>REVISION:</u> <b>2</b>	<u>EGR/ECN INFORMATION:</u> <u>EC No:</u> <b>UCP2005-0811</b> <u>DATE:</u> <b>2004 / 11 / 19</b>	<u>TITLE:</u> <b>PRODUCT SPECIFICATION iPass™ I/O CONNECTOR</b>	<u>SHEET No.</u> <b>9 of 10</b>
<u>DOCUMENT NUMBER:</u> <b>PS-75586-001</b>	<u>CREATED / REVISED BY:</u> <b>KREGNIER</b>	<u>CHECKED BY:</u> <b>JLONG</b>	<u>APPROVED BY:</u> <b>RNELSON</b>



# PRODUCT SPECIFICATION

## 10.0 OTHER INFORMATION

### 10.1 MOLEX CONNECTOR ONLY TEST PROFILE



### 10.2 INVERTED SMT APPLICATION

See AS-75586-001 Application Specification for inverted SMT application. Glue must be used on the locating pegs to hold the part while inverted through the reflow process

REVISION: <b>2</b>	ECR/ECN INFORMATION: EC No: <b>UCP2005-0811</b> DATE: <b>2004 / 11 / 19</b>	TITLE: <b>PRODUCT SPECIFICATION iPass<sup>™</sup> I/O CONNECTOR</b>	SHEET No. <b>10 of 10</b>
DOCUMENT NUMBER: <b>PS-75586-001</b>	CREATED / REVISED BY: <b>KREGNIER</b>	CHECKED BY: <b>JLONG</b>	APPROVED BY: <b>RNELSON</b>