
	PRODUCT SPECIFICATION		LANGUAGE ENGLISH
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1.0 Scope

This specification covers the Molex MicroCross™ - Digital Visual Interface (DVI) system which includes cable plugs and board mount receptacles (Right Angle and Vertical).

The Digital Visual Interface connector system supports both analog and digital video transmission.

This specification covers the DVI cable to board, I/O connector system with requirements as set forth by Molex Incorporated.

2.0 Product Description

The MicroCross™ DVI system is designed to meet the industry's requirements for analog and digital computer monitors. There are (2) different receptacle connectors which correspond to the video support present on the host system (mother board/graphics cards). The DVI-D (Digital) receptacle connector supports hosts systems that transmit digital video. The DVI-I (Intergrated) receptacle connector supports host systems that are enabled to transmit both analog and digital video. This is achieved by utilizing two different sets of contacts as shown in Figure 1 below:

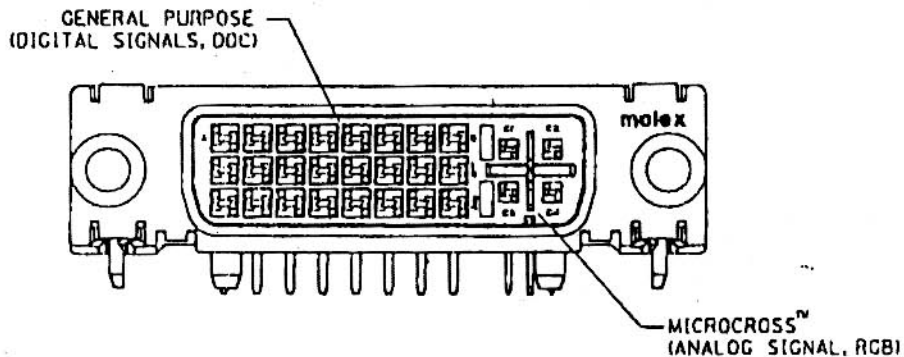


Figure 1: Two sets of contacts (DVI-I Shown)

REV	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
SHT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
REVISE ON PC ONLY								TITLE															
A								MicroCross™ - DVI I/O Plug and Receptacle Connector System															
INITIAL RELEASE PER UDT1999-1071 SCHMIDGA 99/06/03								THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION															
REV		DESCRIPTION																					
DESIGN CONTROL				STATUS				WRITTEN BY:				CHECKED BY:				APPROVED BY:				DATE: YR / MO / DAY			
UDT				M				SCHMIDGA				NELLIGAN				NELSON				99 / 07 / 05			
DOCUMENT NO.																FILE NAME				SHT NO.			
PS-74320-001																PS74320.LWP				1 OF 20			
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1. General purpose signals:

Terminals: 24 circuits on a 0.075 inch/1.91 mm grid

Signals: Includes power, grounds, digital and video signals, analog synch lines and DDC (Display Data Channel) signals.

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data 0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data 0+
3	T.M.D.S. Data2/4 Shield	11	T.M.D.S. Data 1/3 Shield	19	T.M.D.S. Data 0/5 Shield
4	T.M.D.S. Data 4-	12	T.M.D.S. Data 3-	20	T.M.D.S. Data 5-
5	T.M.D.S. Data 4+	13	T.M.D.S. 3+	21	T.M.D.S. Data 5+
6	DDC Clock	14	+5 V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	Ground (for +5V)	23	T.M.D.S. Clock+
8	No Connect	16	Hot Plug Detect	24	T.M.D.S. Clock-

Table 1: Digital-Only Connector Pin Assignments
Source: Digital Visual Interface Specification, Revision 1.0

2. MicroCross™:

a) Plug and Receptacle - I - Intergrated analog/digital - see figure 3, sheet 3

Terminals: 4 circuits on a 0.100 inch/2.54 mm grid with a crossing ground plane in between.



Signals: High frequency, 75 ohm, analog video

b) Plug and Receptacle - D - Digital Version

Terminals: A single key on the plug and corresponding slot on the receptacle.

Signals: The key is used for mechanical polarization only, it does not carry any electrical signals.

REVISE ON PC ONLY		TITLE
A	SEE SHEET 1	MiroCross™ - DVI I/O Plug and Receptacle Connector System
REV	DESCRIPTION	THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION
DOCUMENT NO. PS-74320-001		FILE NAME PS74320.LWP
		SHEET 2
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Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data 2-	9	T.M.D.S. Data 1-	17	T.M.D.S. Data 0-
2	T.M.D.S. Data 2+	10	T.M.D.S. Data 1+	18	T.M.D.S. Data 0+
3	T.M.D.S. Data 2/4 Shield	11	T.M.D.S. Data 1/3 Shield	19	T.M.D.S. Data 0/5 Shield
4	T.M.D.S. Data 4-	12	T.M.D.S. Data 3-	20	T.M.D.S. Data 5-
5	T.M.D.S. Data 4+	13	T.M.D.S. Data 3+	21	T.M.D.S. Data 5+
6	DDC Clock	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	Ground (return for +5V, HSync, and VSync)	23	T.M.D.S. Clock+
8	Analog Vertical Sync	16	Hot Plug Detect	24	T.M.D.S. Clock-
C1	Analog Red	C2	Analog Green	C3	Analog Blue
C4	Analog Horizontal Sync	C5	Analog Ground (analog R, G, & B return)		

Table 2: Combined Analog and Digital Connector Pin Assignments
Source: Digital Visual Interface, Revision 1.0

Additional general specifications are:

Plug:

- LFH (Low Force Helix) style contacts
- fully shielded RFI/EMI can
- grounding detents on mating shell
- solder tails for cable termination
- positive retention jackscrew: thread 4-40 UNC-2A

Receptacle:

- high cycle, dual beam, LFH shrouded contacts
- polarization achieved by a "D" shaped housing/shield
- single piece shield with integral ground leg
- shield protrudes for ESD considerations
- solder tails for thru hole board mount
- plastic retention pegs
- jackposts: thread 4-40 UNC-2A&B. In order for the threads in the shield not to be stripped while assembling the jackposts, it is recommended the jackposts be started by hand or a low setting on the torque driver be used for the first few turns.

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2.1 Product Drawing Numbers

2.1.1 Receptacle:

The DVI receptacle is for systems which support digital video (DVI-D) or both analog and digital video (DVI-I).

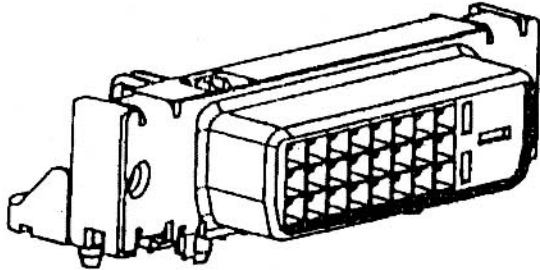


Figure 2
Right Angle DVI-D version
(Digital)

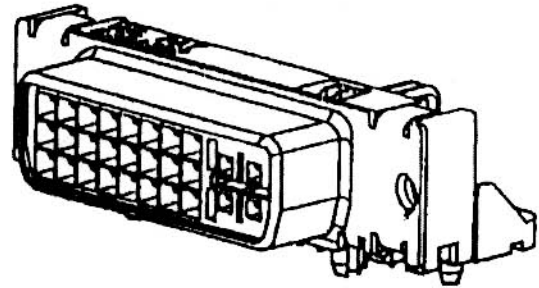


Figure 3:
Right Angle DVI-I version
Intergrated(Analog/Digital)



Figure 4:
Jackpost

Receptacle Sales Drawings:

Description	Sales Drawing Number
Right Angle DVI-I version	SD-74320-001
Vertical DVI-I version	SD-74320-002
Right Angle DVI-D version	SD-74320-003
Vertical DVI-I version	SD-74320-004
Right Angle DVI-D Forklock version ...	SD-74320-009
Jackposts	SD-71781-****

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2.1.2 DVI Plug

The DVI plug is for systems which use analog or digital video. The analog DVI plug shown below supports analog video transmission from the host to the display.

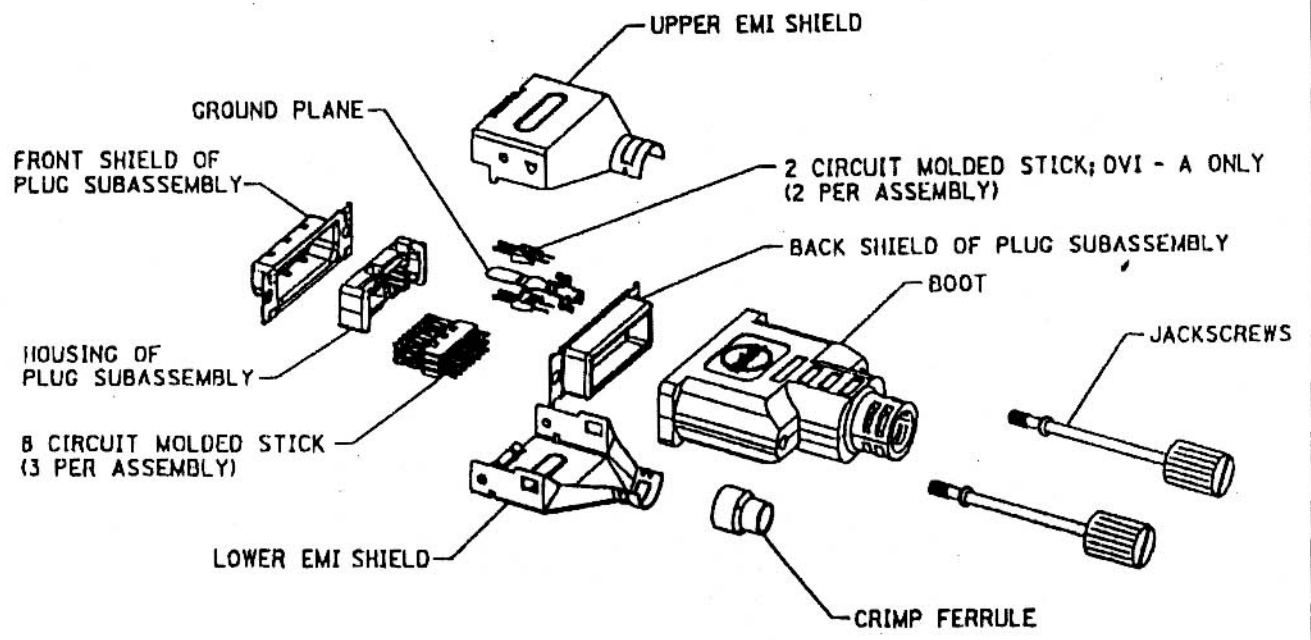


Figure 5:
Analog Version

DVI Plug Sales Drawings (Analog version):

Description	Sales Drawing Number
Subassembly	SD-74383-002
8 ckt Molded Stick	SD-71196-001
2 ckt Molded Stick	SDA-71197-9***
Ground Plane	SD-71198-100*
EMI Shield Kit	SDMS-71245-2000
Crimp Ferrules	SD-73772-000
Boot	SD-74382-001
Jackscrew with cap	SD-71757-0002

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REV	DESCRIPTION		
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2.1.3

The digital DVI plug shown below supports digital video transmission from the host to the display.

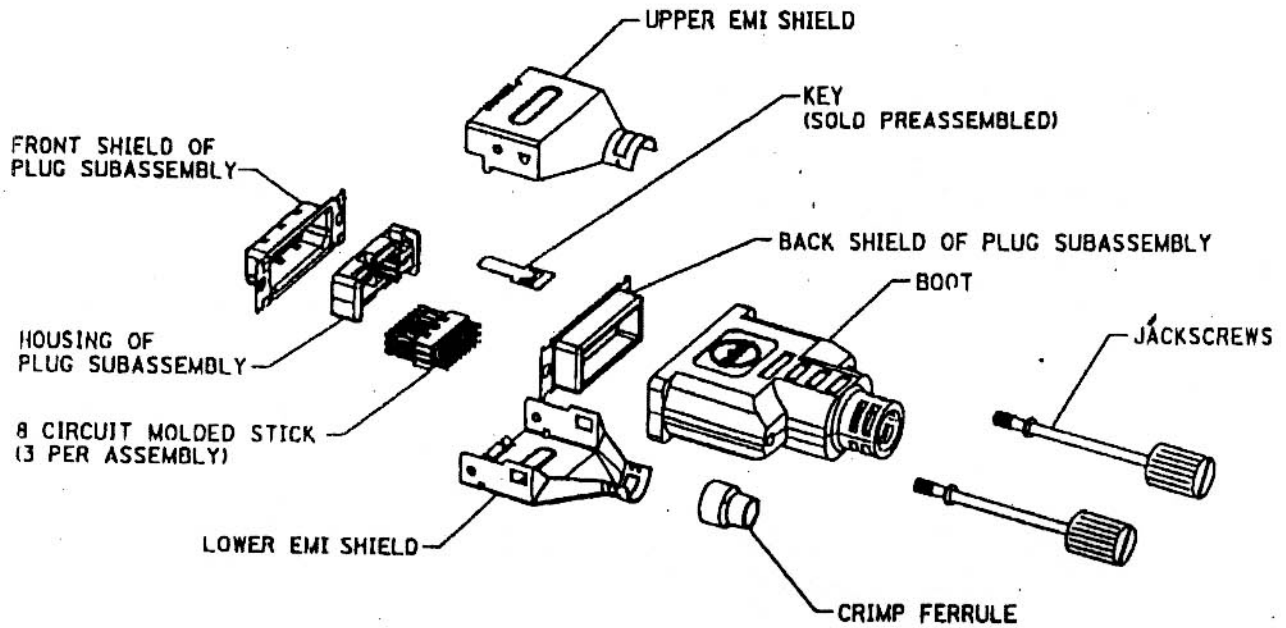


Figure 6: Digital Version

DVI Plug Sales Drawings (Digital Version):

Description	Sales Drawing Number
Subassembly	SD-74383-001
8 ckt Molded Stick	SD-71196-001
2 ckt Molded Stick	SDA-71197-9***
EMI Shield Kit	SDMS-71245-2000
Crimp Ferrules	SD-73772-000
Boot	SD-74381-001
Jackscrew with cap	SD-71757-0002

REVISE ON PC ONLY		TITLE	MiroCross™ - DVI I/O Plug and Receptacle Connector System	
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REV		THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION		
DESCRIPTION		DOCUMENT NO.	FILE NAME	SHEET
		PS-74320-001	PS74320.LWP	6
ES-40000-3996 REV. A SHEET 4 95/MAR/10 EC U5-0926 DCBRD03.SAM				



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2.2 Dimensions, Materials, Plating, and Markings
2.2.1 Board Layout

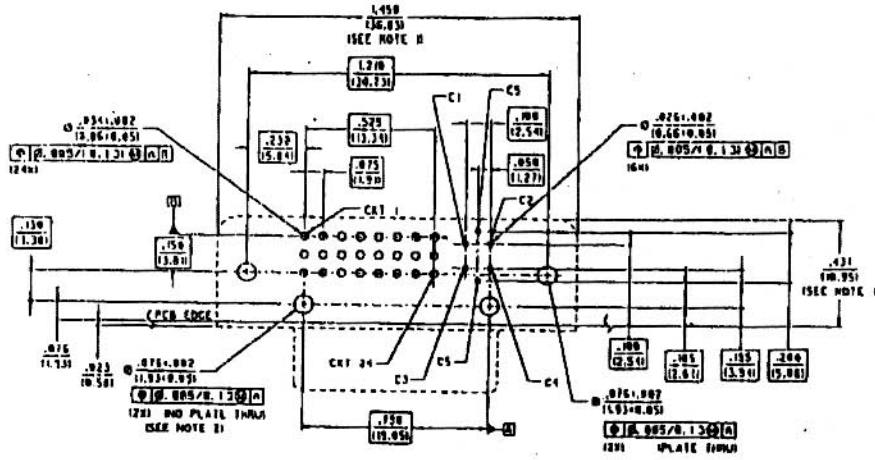
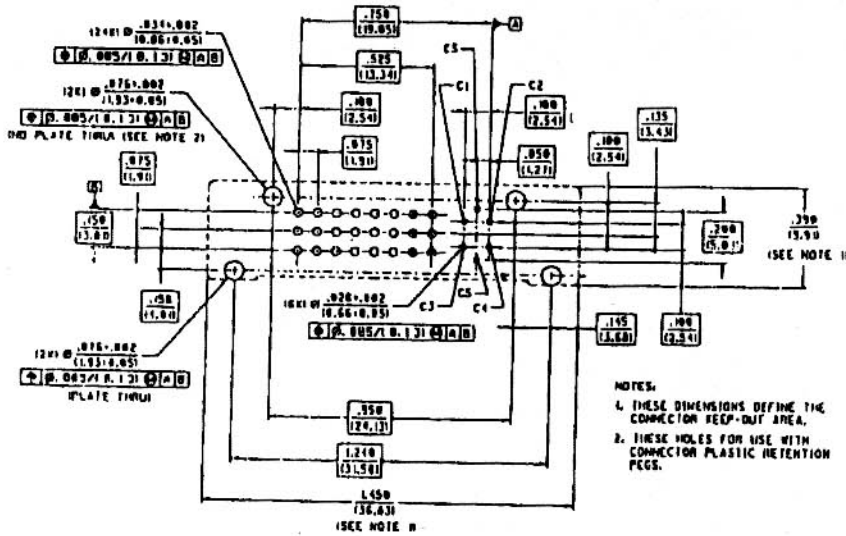


Figure 7: Recommended PCB Layout for Right Angle Receptacle



NOTES:
1. THESE DIMENSIONS DEFINE THE CONNECTOR KEEP-OUT AREA.
2. THESE HOLES FOR USE WITH CONNECTOR PLASTIC RETENTION PEGS.

Figure 8: Recommended PCB Layout for Vertical DVI-I Receptacle

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REV	DESCRIPTION		
DOCUMENT NO. PS-74320-001		FILE NAME PS74320.LWP	SHEET 7
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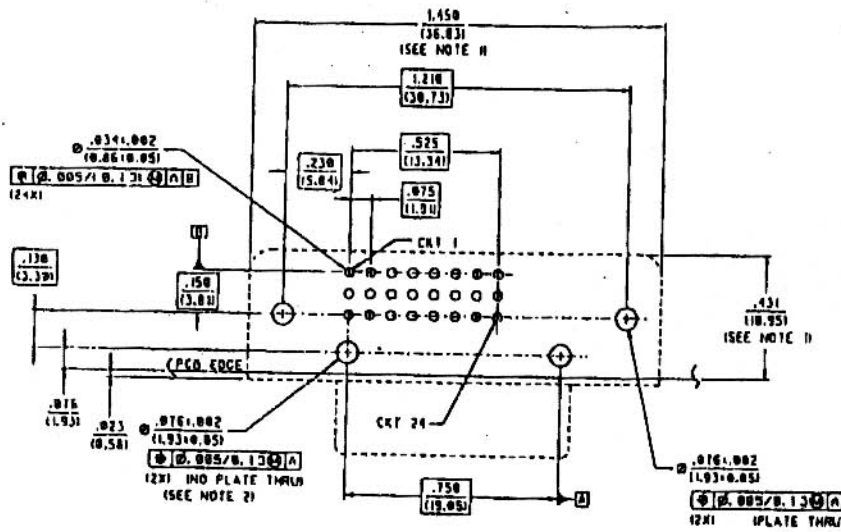


Figure 9: Recommended PCB Layout for Right Angle DVI-D Receptacle

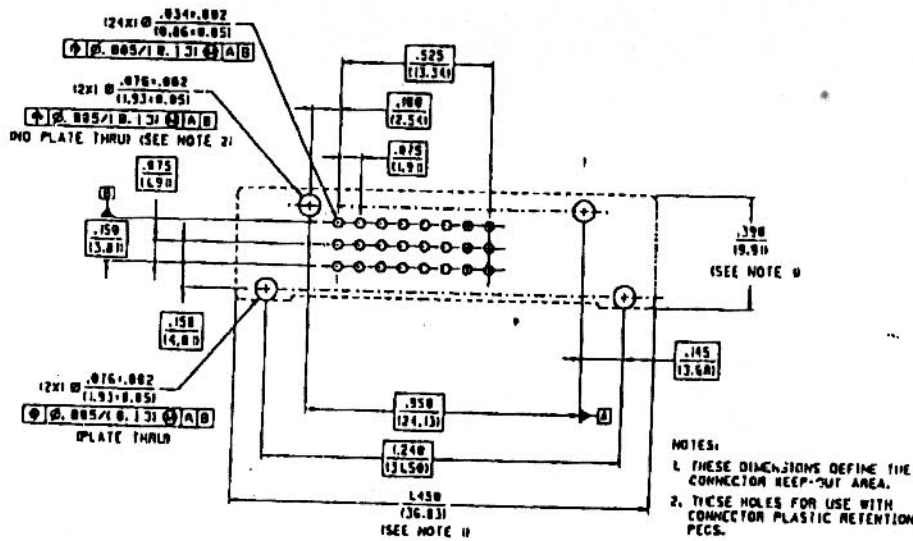


Figure 10: Recommended PCB Layout for Vertical DVI-D Receptacle

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DOCUMENT NO.		FILE NAME	SHEET	
PS-74320-001		PS74320.LWP	8	
ES-40000-3996 REV. A SHEET 4 95/MAR/10. EC U5-0926 DCBRD03.SAM				



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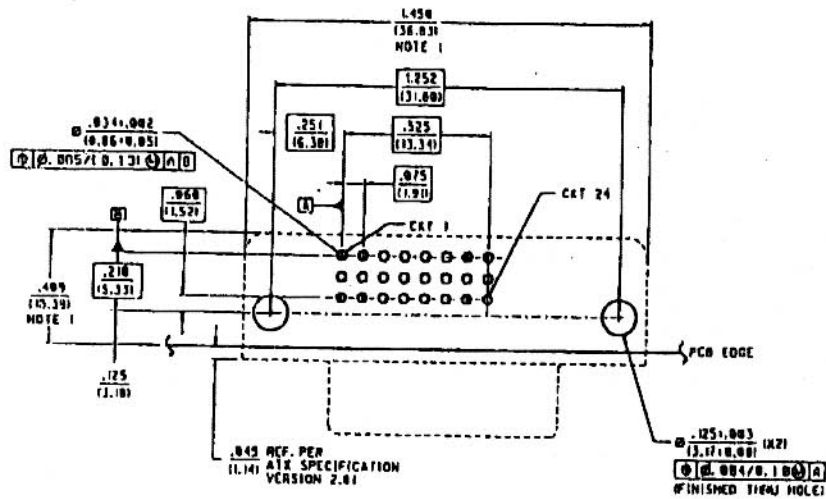


Figure 11: Recommended PCB Layout for Right Angle DVI-D Fork Lock Receptacle

2.2.3 Panel cut-out

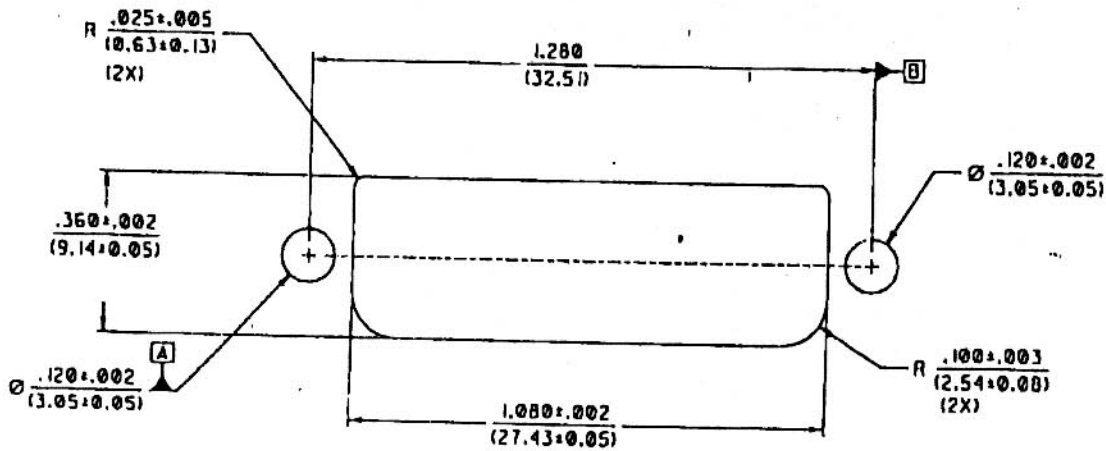
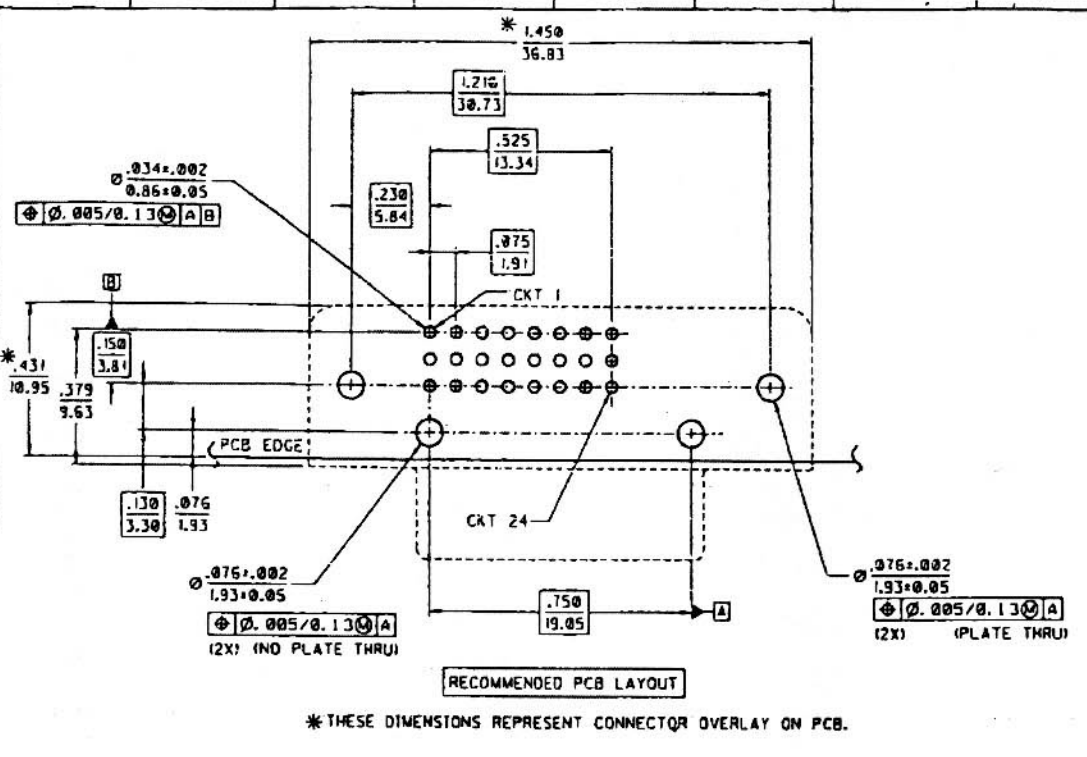


Figure 12: Recommended Panel Cutout for Receptacle Connector

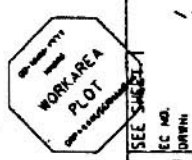
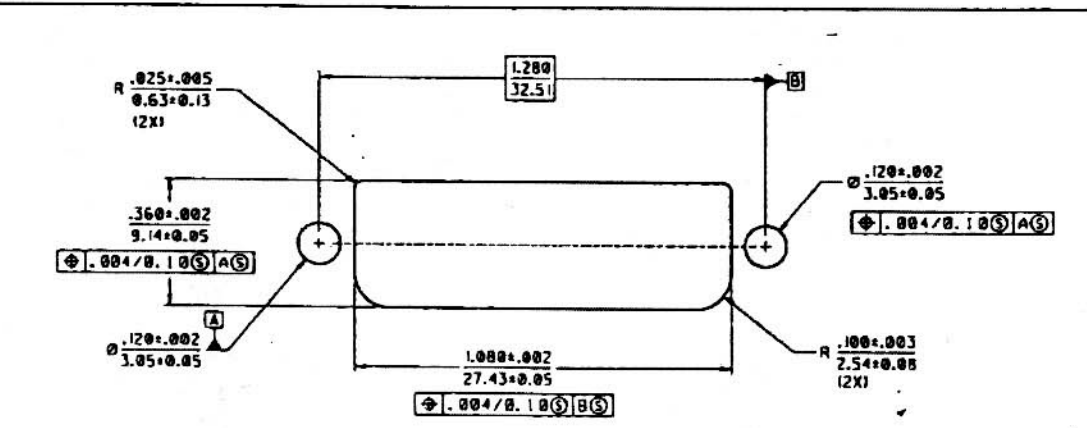
REVISE ON PC ONLY		TITLE	MiroCross™ - DVI I/O Plug and Receptacle Connector System	
A	SEE SHEET 1			
REV	DESCRIPTION	THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION		
DOCUMENT NO.		FILE NAME	SHEET	
PS-74320-001			PS74320.LWP	9
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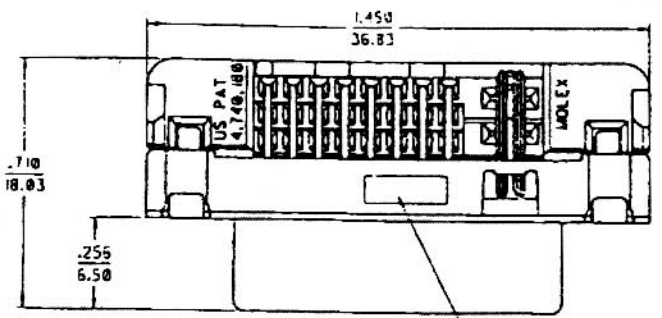
PLATING OPTIONS:

PLATING OPTION #1:
 OUTER SHIELD -- 150u"/(3.75um) MIN. BRIGHT TIN OVER 50u"/(1.27um) MIN. NICKEL OVER COPPER FLASH.
 .075"/(1.9mm) CONTACTS -- 30u"/(0.75um) MIN. SELECT GOLD AND 100u"/(2.50um) MIN. SELECT TIN/LEAD OVER 50u"/(1.27um) MIN. NICKEL OVERALL.

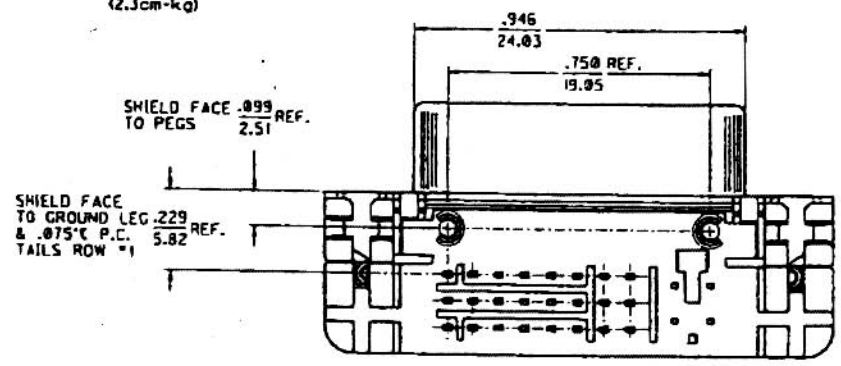
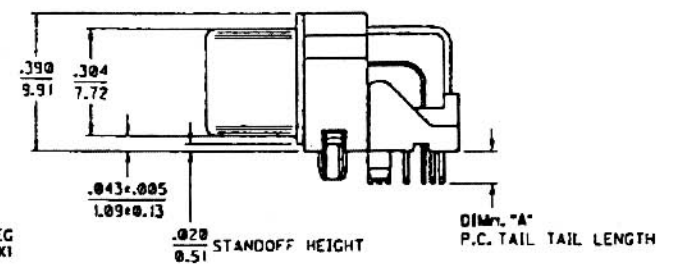
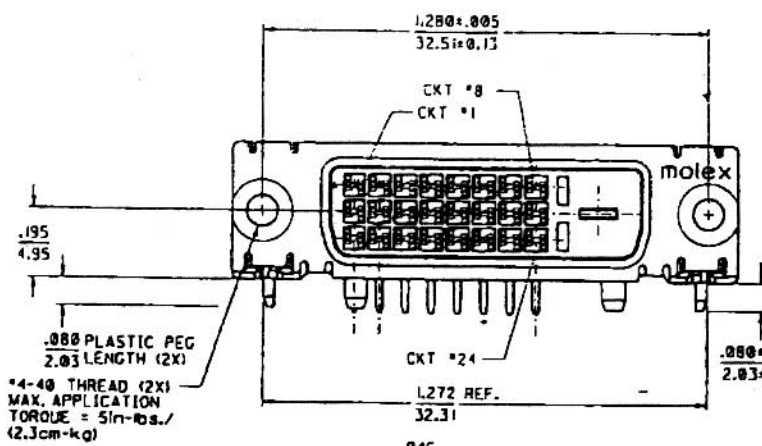
PLATING OPTION #2:
 OUTER SHIELD -- 150u"/(3.75um) MIN. BRIGHT TIN OVER 50u"/(1.27um) MIN. NICKEL OVER COPPER FLASH.
 .075"/(1.9mm) CONTACTS -- SELECT GOLD FLASH AND 100u"/(2.50um) MIN. SELECT TIN/LEAD OVER 50u"/(1.27um) MIN. NICKEL OVERALL.



REV	DESCRIPTION	QUALITY SYMBOLS	GENERAL TOLERANCES: UNLESS SPECIFIED		SCALE 4 : 1	DESIGN UNITS <input type="checkbox"/> MM <input checked="" type="checkbox"/> INCH	THIRD ANGLE PROJECTION <input type="checkbox"/> FIRST ANGLE <input checked="" type="checkbox"/> THIRD ANGLE	DIMENSIONS: <input type="checkbox"/> DIM INCH <input checked="" type="checkbox"/> DIM MM	SHT	REV
			MIN	INCH						
		MAJOR	4 PLACES	±0.	±.	DRAWN BY & DATE	TITLE: DVI - I			
		CRITICAL	3 PLACES	±0.	±.010	MOSULLIV 99/02/12	RIGHT ANGLE			
			2 PLACES	±0.25	±.	CHECKED BY & DATE	RECTANGLE CONNECTOR			
			1 PLACE	±0.	±.	MOSULLIV 99/02/12	MOLEX INCORPORATED			
						APPROVED BY & DATE	MATERIAL NO. SEE CHART			
						HELLIGAN 99/02/15	DRAWING NO. SD-74320-003			
						CAD FILENAME	SHEET NO. 2			
							THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.			



- NOTES:
1. MATERIALS:
SHIELD -- DEEP DRAW STEEL.
HOUSING -- GLASS FILLED POLYMER, NATURAL (WHITE), UL 94V-0.
TAIL ALIGNER -- GLASS FILLED POLYMER, NATURAL (WHITE), UL 94V-0.
CONTACTS -- COPPER ALLOY.
MICROCROSS GROUND -- COPPER ALLOY.
 2. PLATING: SEE SHEET 2
 3. PRODUCT CONFORMS TO MOLEX PRODUCT SPECIFICATION NUMBER PS-74320-001. REFER TO THIS SPECIFICATION FOR SPACING ON A P.C.B. OF TWO OR MORE CONNECTORS WHEN USING A CABLE OR AN ADAPTER ASSEMBLY.
 4. SEE SHEET 2 FOR RECOMMENDED PANEL CUT-OUT AND P.C.B. LAYOUT.
 5. PARTS WILL BE PACKAGED IN TRAYS.
 6. PRODUCT CONFORMS TO ODWG (DVI) SPECIFICATION. REFER TO THIS SPECIFICATION FOR CONNECTOR MATING DIMENSIONS.
 7. RECOMMENDED MOUNTING HARDWARE IS MOLEX P/N 71781-0001.



PART NUMBER	DIMN 'A'	PLATING OPTION
74320-4000	.092/2.34	1
74320-4001	.050/L27	1
74320-4004	.092/2.34	2
74320-4005	.050/L27	2



REVISOR: BER
LC NO. D012000-0410
DRW: SCHMIDGA 99/02/08
CHK: SCHMIDGA 99/01/05
APPR: NELSON 99/01/05

QUALITY SYMBOLS	GENERAL TOLERANCES (UNLESS SPECIFIED)	SCALE	DESIGN UNITS
MAJOR MINOR CRITICAL	MIL INCH	4:1	MIL INCH
1 PLACE ±0.	MIL INCH		
2 PLACES ±0.	MIL INCH		
3 PLACES ±0.005	MIL INCH		
4 PLACES ±0.0005	MIL INCH		
5 PLACES ±0.00005	MIL INCH		
6 PLACES ±0.000005	MIL INCH		
7 PLACES ±0.0000005	MIL INCH		
8 PLACES ±0.00000005	MIL INCH		
9 PLACES ±0.000000005	MIL INCH		
10 PLACES ±0.0000000005	MIL INCH		

THIRD ANGLE PROJECTION	TITLE	DIMENSIONS:	INCH ONLY	MIL ONLY	SHT	REV
<input type="checkbox"/> THIRD ANGLE PROJECTION	DVI - DIGITAL RIGHT ANGLE RECEPTACLE CONNECTOR	<input type="checkbox"/> DIM INCH <input type="checkbox"/> DIM MIL	<input type="checkbox"/> INCH ONLY <input type="checkbox"/> MIL ONLY	<input type="checkbox"/> SHT <input type="checkbox"/> REV		
	MOLEX INCORPORATED					
	CAD FILENAME	MATERIAL NO. SEE CHART	DRAWING NO. SD-74320-003	SHEET NO. 1 OF 2		
	DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.				