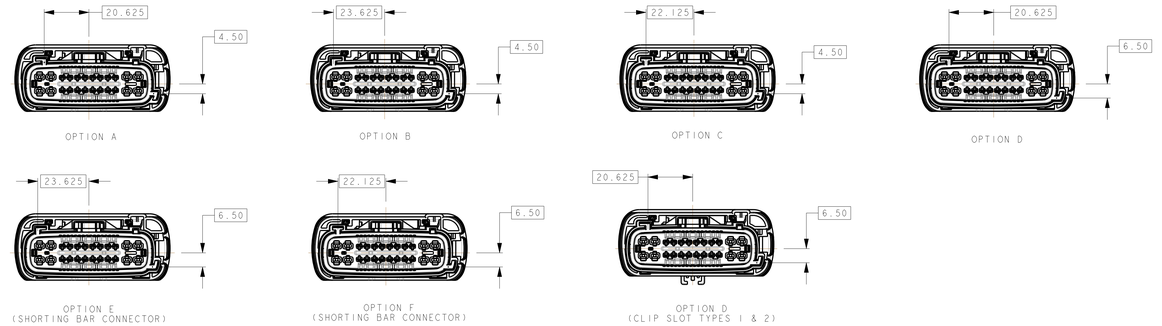
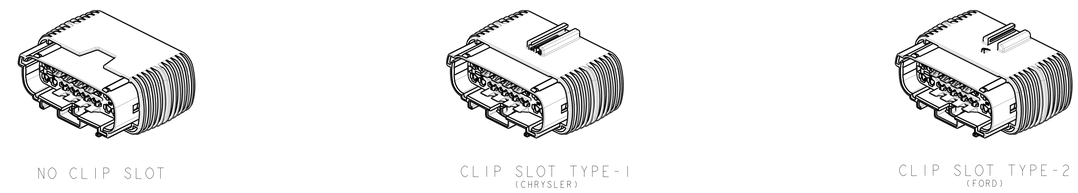
MVL PART NUMBER	MVL REV	DELPHI PART NUMBER	DELPHI REV	KEY OPTIONS (HOUSING)	COLOR	CLIP SLOT OPTIONS (SLIDER)	COMPONENTS SEE COMMON PART NUMBER CHART FOR OTHERS INCLUDED: HOUSING	SLIDING SHROUD	RETAINER	CPA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	NO. OF CIRCUITS PLUGGED	TEST METHOD SEE NOTE #2	MATING MALE CONNECTOR PART NO. REFERENCE: MVL	DELPHI
PP10000655	A	13767809	01	A	BLACK	N/A	PP10000711	F770000	PP10001817	N/A																									0	USCAR-2 Rev 5 Class 3 (125°C)	PP10000678 F552000	13672210 33511780
PP10000659	A	33511795	01	B	GRAY	N/A	PP10000712																												0		PP10000679 F652000	33511772 33511781
PP10000660	A	33511796	01	C	BROWN	N/A	PP10000713																												0		PP10000680	33511774
PP10000662	A	33511798	01	D	GREEN	N/A	PP10000714																												0		PP10000681	33511776
PP10000656	A	13795018	01	A	BLACK	N/A	PP10000711			PP10000676																									0	USCAR-2 Rev 5 Class 3 (125°C)	PP10000678	13672210
PP10000658	A	33511794	01	B	GRAY	N/A	PP10000712																												0		PP10000659	33511795
PP10000661	A	33511797	01	C	BROWN	N/A	PP10000713																												0		PP10000680 F752000	33511774 33511782
PP10000664	A	33511799	01	D	GREEN	N/A	PP10000714																												0		PP10000681 F852000	33511776 33511783
PP10000665	A	33511800	01	E	YELLOW	N/A	PP10000715																												0	USCAR-2 Rev 5 Class 1 (85°C)	PP10000682 F952000	33511778 33511784
F322000	A	33511801	01	F	YELLOW	N/A	PP10001770																												0		F252000 F062000	33511779 33511785
F622000	B	33510808	01	D	BLACK	1	PP10001773	F870000																											0	USCAR-2 Rev 5 Class 3 (125°C)	F462000	33511786
F722000	B	33510809	01	D	BLACK	2		F970000																											0		F462000	33511786
F668000	B	13780226	01	A	BLACK	N/A	PP10000711	F770000	PP10000677									X		X				X		X	X		X		X				7	USCAR-2 Rev 5 Class 3 (125°C)	F568000	13780225
F641800	A	33510810	01	A	BLACK	N/A					X	X									X	X	X											X	6		F151800	33511788
F741800	A	F741800	01	A	BLACK	N/A					X	X									X	X													4		F251800	33511789
N/A	-	33400404	01	A	BLACK	N/A				N/A								X		X		X		X	X	X	X	X	X		X		X		12			
N/A	-	33400885	01	A	BLACK	N/A																X									X		X		3			
N/A	-	33400886	01	A	BLACK	N/A													X			X									X		X		4			
N/A	-	15512769	01	A	BLACK	N/A												X		X					X	X	X	X	X	X	X				10			



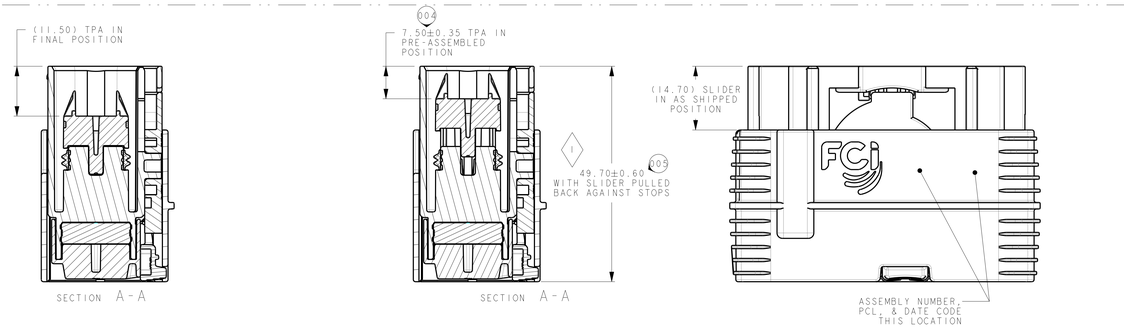
POLARIZATION OPTIONS

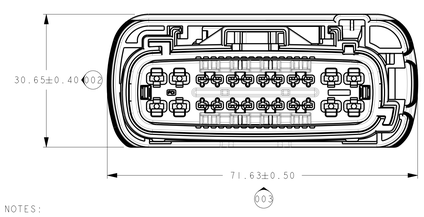
ACTUAL SIZE VIEWS

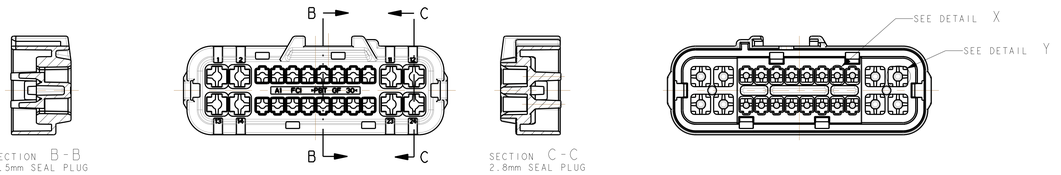
BASIC DIMENSIONS SHOWN ARE FOR REFERENCE ONLY



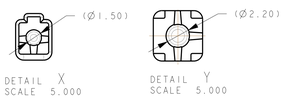
CLIP SLOT OPTIONS ON SLIDING SHROUD SCALE 1:1







EXEMPLARY VIEWS: RETAINER WITH PLUGGED 1.5MM & 2.8MM CAVITIES



NOTES:

1) MAXIMUM TEMPERATURE CLASS:
   CLASS III (125°C)

2) CONFORMS TO TEST METHOD AS SHOWN IN CHART WITH THE FOLLOWING EXCEPTION(S):

   - USCAR-2 REV 5 - SECTION 5.4.7 (AUDIBLE CLICK)

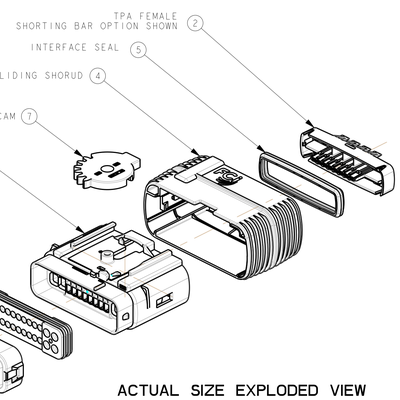
3) CONNECTOR MAY BE USED WITH THE FOLLOWING RANGE OF WIRE SIZES AND/TYPES:
   -APEX 150 TERMINALS:
      -SIZE: 22 GAGE- 16 GAGE- 1.50mm MIN O.D. TO 2.41mm MAX O.D.
      -TYPE: TXL (MILI23-A / MS-8288)
   ALTERNATIVELY:
      -SIZE: 0.5mm² TO 1.5mm² / 1.40mm MIN O.D. TO 2.40mm MAX O.D.
      -TYPE: FLR2X (125°C PE-X) or FLRYW (125°C PVC)
            (STRUCTURE & PROPERTIES ACC. ISO6722)
   -APEX 2.8 TERMINALS:
      -SIZE: 18 GAGE- 12 GAGE- 1.90mm MIN O.D. TO 3.35mm MAX O.D.
      -TYPE: TXL (MILI23-A / MS-8288)
   ALTERNATIVELY:
      -SIZE: 0.75mm² TO 3.0mm² / 1.70mm MIN O.D. TO 3.20mm MAX O.D.
      -TYPE: FLR2X (125°C PE-X) or FLRYW (125°C PVC)
            (STRUCTURE & PROPERTIES ACC. ISO6722)
   -CONTACT MVL ENGINEERING REGARDING USE OF OTHER WIRE SIZES AND/OR TYPES

4) CONNECTOR MAY BE USED WITH THE FOLLOWING TERMINALS:
   -MVL APEX150 AND APEX 2.8 WITH WIRE SIZES DEFINED IN NOTE 3.
   SEE MVL DRAWINGS J54009 AND CI5004 FOR SPECIFIC PART NUMBERS AND CRIMPING REQUIREMENTS.
   -CONTACT MVL ENGINEERING REGARDING USE OF COMPATIBLE NON MVL TERMINALS

5) ANNUAL QUALITY REQUIREMENTS:
   IT IS PERMISSIBLE TO PERFORM CONTINUOUS CONFORMANCE PER MVL SPECIFICATION #AQA-001 INSTEAD OF ANNUAL LAYOUT AND ANNUAL PV REQUIREMENTS OF QS-9000 SECTION 2 AND SAE/USCAR-2 REV 4. FOR TERMINAL TO CONNECTOR AND TPA TO CONNECTOR ONLY.

6) FEMALE CONNECTORS EQUIPPED WITH OPTIONAL CLIPSLOT CAN ONLY BE MATED TO MALE CONNECTORS WITHOUT CLIPSLOT FEATURE. KEY OPTION D IS TO BE USED FOR FEMALE CONNECTORS WITH CLIPSLOT FEATURES AND THEIR MALE COUNTERPARTS.
   -CONTACT MVL ENGINEERING FOR SPECIFIC PACKAGING REQUIREMENTS WHEN USING THESE CONFIGURATIONS.

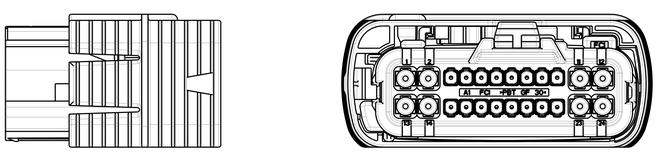
7) QUALITY ASSURANCE REQUIREMENTS SPC DATA REQUIRED 1



ACTUAL SIZE EXPLODED VIEW

APLICABLE COMPONENTS					
SUPPLIER PART NO.	SUPPLIER NAME	DELPHI PART NO.	DESCRIPTION	PLATING/ MATERIAL	GRIP SIZE
54001625	MVL	13613157	APEX 150 TERMINAL	TIN	16,18
54002000	MVL	13624983	APEX 150 TERMINAL	TIN	20,22
54001627	MVL	13779834	APEX 150 TERMINAL	GOLD	16,18
54002002	MVL	13725913	APEX 150 TERMINAL	GOLD	20,22
54001208	MVL	15422738	APEX 2.8 TERMINAL	TIN	12
54001400	MVL	10762803	APEX 2.8 TERMINAL	TIN	14,16
54001800	MVL	10757690	APEX 2.8 TERMINAL	TIN	18
54240002	MVL	13770939	APEX 150 2.8mm SEAL PLUG - FEMALE	PA66 GF35	
54241629	MVL	13613164	APEX 150 UNIVERSAL SEAL PLUG	PA66 GF35	
54200010	MVL	13768145	DOUBLE X-MAS TREE CLIP W/FORWARD STOP	PA66	FOR CLIP SLOT TYPE 1
15-002775	ITW	15451401	SINGLE X-MAS TREE CLIP	PA66	
1437839-1	TYCO	10763674	DOUBLE X-MAS TREE CLIP (UNIVERSAL)	PA66	

COMMON PART NUMBER CHART ONE EACH INCLUDED IN ASSEMBLY			
ITEM	MVL P/N	DESCRIPTION	MATERIAL
2	PP10001319	TPA	PBT GF30
5	PP10001603	RING SEAL	SILICONE
6	PP10001599	MATT SEAL	SILICONE
7	PP10001727	GEAR CAM	PBT GF30



ECN NO.	ZONE	CHANGE DESCRIPTION
13-00492	CHART	ECO A22258 - ADDED P/N'S 33400885, 33400886 & 15513769. COMMON PARTS & COLUMNS REMOVED FROM MAIN P/N CHART AND ADDED P/N'S TO COMMON P/N CHART. ADDED COLUMN FOR NUMBER OF CIRCUITS PLUGGED IN THE CHART
12-01618	CHART	ADDED P/N 33400404
12-01172	CHART	ADDED F934000 TO PP10000656, F044000 TO PP10000658, F144000 TO PP10000661, F244000 TO PP10000664
796/10	CHART, NOTES	ADDED P/N'S AND 1MM/20W PINOUTS F640800 & F740800; ALTERNATIVE WIRES (FLR2X & FLRYW) ADDED AT NOTE #3
10458	NOTES	REMOVED USCAR-2 EXCEPTIONS FOR POLARIZATION & MOUNTING FEATURE
10172	NOTES CHART	KEY D WAS J FOR P/N'S F622000 & F722000) (CLIP SLOT 1&2) , REVISED NOTE #6, ADDED NOTE #7
	NOTES CHART	REMOVED P/N'S F422000 & F522000 (KEYS G & H) AND RELATED VIEWS.
	H-6	ADDED DIAMOND TO DIMENSION #005
10066	CHART	CLIP SLOT AND HOUSING NUMBER REVISED FOR F668000
10049	CHART	REPLACED RETAINER NUMBER FOR PART NUMBER F668000
9459	-	REPLACED FORMAT, DRAWING NUMBER PCC0377483 WAS PC10377483
	CHART	REVISED MATING MALE CONNECTOR PART NUMBERS
	CHART	ADDED PART NUMBER F668000, ADDED INFO TO "TEST METHOD"
	H-5	(14.70) WAS (4.70±0.60 (R00))
	-	REVISED DRAWING LAYOUT
	NOTES	REVISED NOTE #2, #3 , #4 AND #6
	D-15	ADDED APP COMP CHART
9451	-	RELEASED

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PRODUCT SPEC.	PACKAGING SPEC.	APPLICATION SPEC.	
APEX 150		-	
TOLERANCES ±0.3 ±0.20 ±2°	MATERIAL: SEE CHART	SURFACE FINISH -	
COMPONENT № PCC0377514	COLOUR: SEE CHART		
DO NOT MEASURE DRAWING	TOOL NO. -	ECO Loc. Code AN	

	DATE	NAME
CREATED BY	2004/05/05	Frank MOLLER
MODIFIED BY	2004/06/09	Carlos DUNN
CHECKED BY	2004/06/09	Mark MAJOR
APPROVED BY	2004/06/09	Bob CUE

FILE NAME PCC0377483

DELPHI

DELPHI PRODUCT SECTOR (PSC) ARCHITECTURE NEW; #1

3RD ANGLE

DIMENSION IN MILLIMETERS

CAD SYSTEM PTC Pro/E

IMLSO A0

APPROVAL LEVEL

TITLE 24-WAY FEMALE ASSEMBLY

PROJECT 24-WAY HYBRID SEALED

ECR NO. AM-50171 CAT. NO.

DOCUMENT UNDER PSC CONTROL NO MODIFICATION ALLOWED OUTSIDE

DRAWING NUMBER PCC0377483

REV. L

STATE SERIAL RELEASED

SHEET 1 OF 1

PART NUMBER See Table

REV.

SCALE 2:1