

**PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION**

**Part Number:** [0022053201](#)  
**Status:** **Active**  
**Description:** 2.54mm (.100") Pitch KK® Solid Header, Right Angle, with Friction Lock, 20 Circuits, Tin (Sn) Plating

**Documents:**

[3D Model](#) [Product Specification PS-10-07 \(PDF\)](#)  
[Drawing \(PDF\)](#) [RoHS Certificate of Compliance \(PDF\)](#)

**Agency Certification**

CSA LR19980  
 UL E29179

**General**

Product Family PCB Headers  
 Series [7478](#)  
 Application Wire-to-Board  
 Product Name KK®

**Physical**

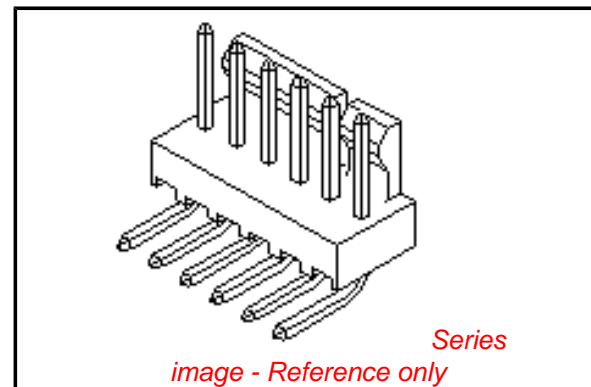
Breakaway No  
 Circuits (Loaded) 20  
 Circuits (maximum) 20  
 Color - Resin Natural (White)  
 Durability (mating cycles max) 25  
 Flammability 94V-0  
 Glow-Wire Compliant No  
 Lock to Mating Part Yes  
 Material - Metal Brass  
 Material - Plating Mating Tin  
 Material - Resin Nylon  
 Number of Rows 1  
 Orientation Right Angle  
 PC Tail Length (in) 0.141 In  
 PC Tail Length (mm) 3.58 mm  
 PCB Locator No  
 PCB Retention None  
 PCB Thickness Recommended (in) 0.062 In  
 PCB Thickness Recommended (mm) 1.60 mm  
 Packaging Type Bag  
 Pitch - Mating Interface (in) 0.100 In  
 Pitch - Mating Interface (mm) 2.54 mm  
 Polarized to Mating Part Yes  
 Polarized to PCB Yes  
 Shrouded Partial  
 Stackable Yes  
 Temperature Range - Operating 0°C to +75°C  
 Termination Interface: Style Through Hole

**Electrical**

Current - Maximum per Contact 4A  
 Voltage - Maximum 250V

**Solder Process Data**

Duration at Max. Process Temperature (seconds) 5  
 Lead-free Process Capability Wave Capable (TH only)  
 Max. Cycles at Max. Process Temperature 1



**EU RoHS**

**ELV and RoHS  
Compliant**  
**REACH SVHC**  
 Not Reviewed  
**Halogen-Free  
Status**

**China RoHS**



**Need more information on product  
environmental compliance?**

Email [productcompliance@molex.com](mailto:productcompliance@molex.com)  
 For a multiple part number RoHS Certificate of Compliance, [click here](#)

Please visit the [Contact Us](#) section for any non-product compliance questions.

**Search Parts in this Series**

[7478Series](#)

**Mates With**

[2695](#) , [6471](#) , [7880](#) , [4455](#) , [7720](#)

Process Temperature max. C

235

**Material Info**

Old Part Number

A-7478-20A102

**Reference - Drawing Numbers**

Product Specification

PS-10-07

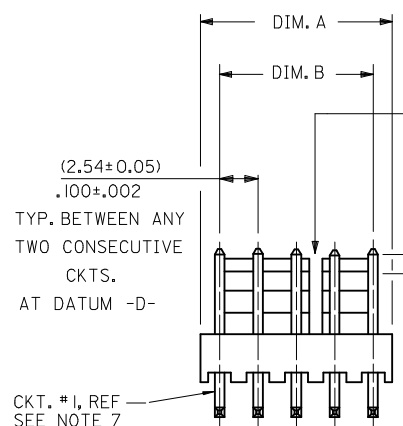
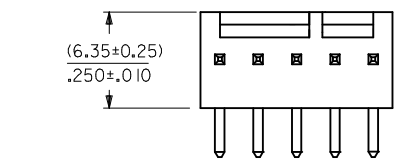
Sales Drawing

SDA-7478

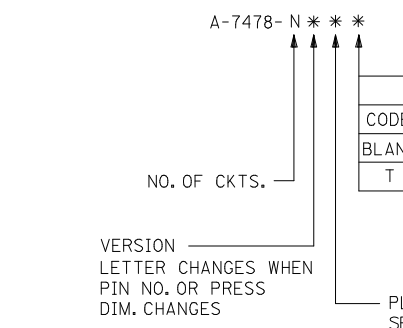
This document was generated on 04/09/2010

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	13	12	11	10	9	8	7	6	5	4	3	2	1
J	28	(71.12 / 70.61) 2.800 / 2.780	(68.58 ± 0.25) 2.700 ± .010	4 , 5 24 , 25									
	27	(68.58 / 68.07) 2.700 / 2.680	(66.04 ± 0.25) 2.600 ± .010	4 , 5 24 , 25									
	26	(66.04 / 65.53) 2.600 / 2.580	(63.50 ± 0.25) 2.500 ± .010	4 , 5 20 , 21									
	25	(63.50 / 62.99) 2.500 / 2.480	(60.96 ± 0.25) 2.400 ± .010	4 , 5 20 , 21									
I	24	(60.96 / 60.45) 2.400 / 2.380	(58.42 ± 0.25) 2.300 ± .010	4 , 5 20 , 21									
	23	(58.42 / 57.96) 2.300 / 2.282	(55.88 ± 0.23) 2.200 ± .009	4 , 5 20 , 21									
	22	(55.88 / 55.42) 2.200 / 2.182	(53.34 ± 0.23) 2.100 ± .009	4 , 5 16 , 17									
H	21	(53.34 / 52.88) 2.100 / 2.082	(50.80 ± 0.23) 2.000 ± .009	4 , 5 16 , 17									
	20	(50.80 / 50.34) 2.000 / 1.982	(48.26 ± 0.23) 1.900 ± .009	4 , 5 16 , 17									
	19	(48.26 / 47.80) 1.900 / 1.882	(45.72 ± 0.23) 1.800 ± .009	4 , 5 16 , 17									
G	18	(45.72 / 45.31) 1.800 / 1.784	(43.18 ± 0.20) 1.700 ± .008	4 , 5 12 , 13									
	17	(43.18 / 42.77) 1.700 / 1.684	(40.64 ± 0.20) 1.600 ± .008	4 , 5 12 , 13									
	16	(40.64 / 40.23) 1.600 / 1.584	(38.10 ± 0.20) 1.500 ± .008	4 , 5 12 , 13									
F	15	(38.10 / 37.69) 1.500 / 1.484	(35.56 ± 0.20) 1.400 ± .008	4 , 5 12 , 13									
	14	(35.56 / 35.20) 1.400 / 1.386	(33.02 ± 0.18) 1.300 ± .007	4 , 5 8 , 9									
	13	(33.02 / 32.66) 1.300 / 1.286	(30.48 ± 0.18) 1.200 ± .007	4 , 5 8 , 9									
E	12	(30.48 / 30.12) 1.200 / 1.186	(27.94 ± 0.18) 1.100 ± .007	4 , 5 8 , 9									
	11	(27.94 / 27.58) 1.100 / 1.086	(25.40 ± 0.18) 1.000 ± .007	4 , 5 8 , 9									
	10	(25.40 / 25.04) 1.000 / .986	(22.86 ± 0.15) .900 ± .006	4 , 5									
	9	(22.86 / 22.50) .900 / .886	(20.32 ± 0.15) .800 ± .006	4 , 5									
D	8	(20.32 / 19.96) .800 / .786	(17.78 ± 0.15) .700 ± .006	4 , 5									
	7	(17.78 / 17.42) .700 / .686	(15.24 ± 0.13) .600 ± .005	4 , 5									
	6	(15.24 / 14.88) .600 / .586	(12.70 ± 0.13) .500 ± .005	4 , 5									
C	5	(12.70 / 12.40) .500 / .488	(10.16 ± 0.13) .400 ± .005	NONE									
	4	(10.16 / 9.86) .400 / .388	(7.62 ± 0.13) .300 ± .005	NONE									
	3	(7.62 / 7.32) .300 / .288	(5.08 ± 0.10) .200 ± .004	NONE									
B	2	(5.08 / 4.78) .200 / .188	(2.54 ± 0.05) .100 ± .002	NONE									



CTKT. #1, REF SEE NOTE 7



SECONDARY OPERATIONS	
CODE	PACKAGE
BLANK	BULK PK-7478-001
T	TUBE PER PK-44743-001

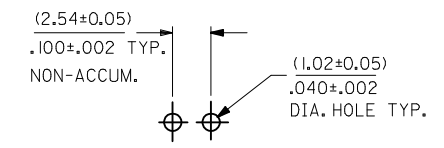
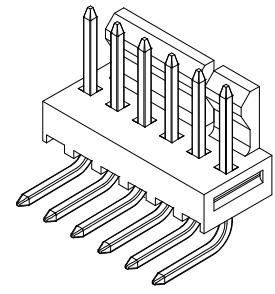
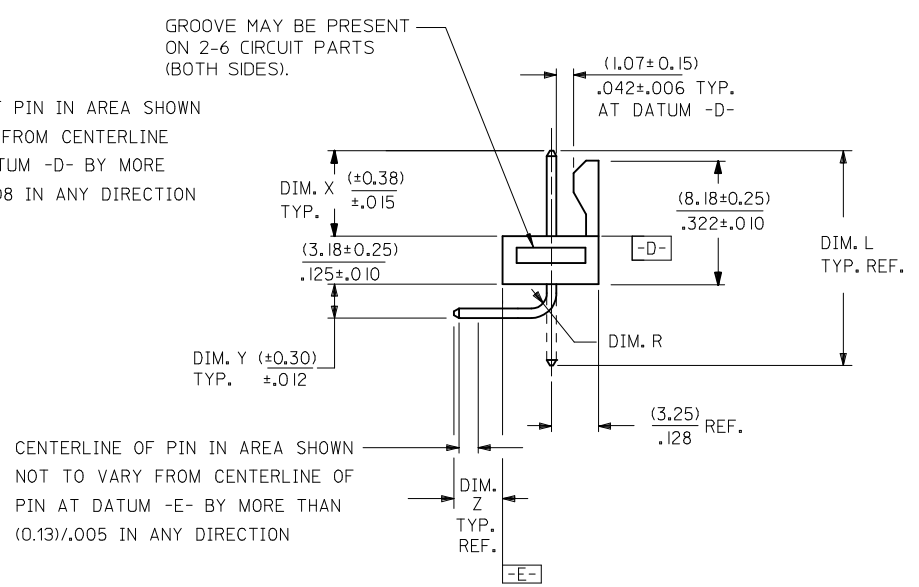
PLATING SEE NOTE 2

7	Y4
6	W1
5	Y8
4	Y7
3	Y9
2	Y9
1	Z
SHT	REV

ADD GROOVE	EC NO: UCP2009-0785	2008/12/29
DRWN:MKIPPER	2009/01/30	
CHKD:SSOUSEK	2009/01/30	
APPR:FSMITH	2009/01/30	
REV	DESCRIPTION	QUALITY SYMBOLS
		▽=0
		▽=0
Z		

NOTES:




- MATERIAL: NYLON, UL94V-0, COLOR: WHITE
- FINISH:
  - (102) - OVERALL TIN: (0.00508)/.000200 MIN., OVERALL COPPER UNDERPLATE: (0.00254)/.000100 MIN.
  - (154) - OVERALL TIN: (0.00254)/.000100 MIN., OVERALL NICKEL UNDERPLATE: (0.00127)/.000050 MIN.
  - (501) - OVERALL GOLD: (0.00051)/.000020 MIN., OVERALL NICKEL UNDERPLATE: (0.00076)/.000030 MIN.
  - (503) - OVERALL GOLD: (0.00076)/.000030 MIN., OVERALL NICKEL UNDERPLATE: (0.00127)/.000050 MIN.
  - (531) - OVERALL GOLD: (0.00038)/.000015 MIN., OVERALL NICKEL UNDERPLATE: (0.00076)/.000030 MIN.
- PARTS CONFORM TO PRODUCT SPECIFICATION PS-10-07.
- PACKAGING INFORMATION: SEE LEGEND.
- PARTS ARE STACKABLE END TO END ON (2.54)/.100 CENTERS.
- PIN PUSH OUT FORCE: 2 LBS. MIN.
- CIRCUIT ONE DESIGNATION IS USED TO DEFINE VOID LOCATION. CIRCUIT ONE MAY OR MAY NOT LINE UP WITH CIRCUIT ONE ON THE MATING HOUSING.
- THIS PART CONFORMS TO CLASS B REQUIREMENTS OF COSMETIC SPECIFICATION PS-45499-002.



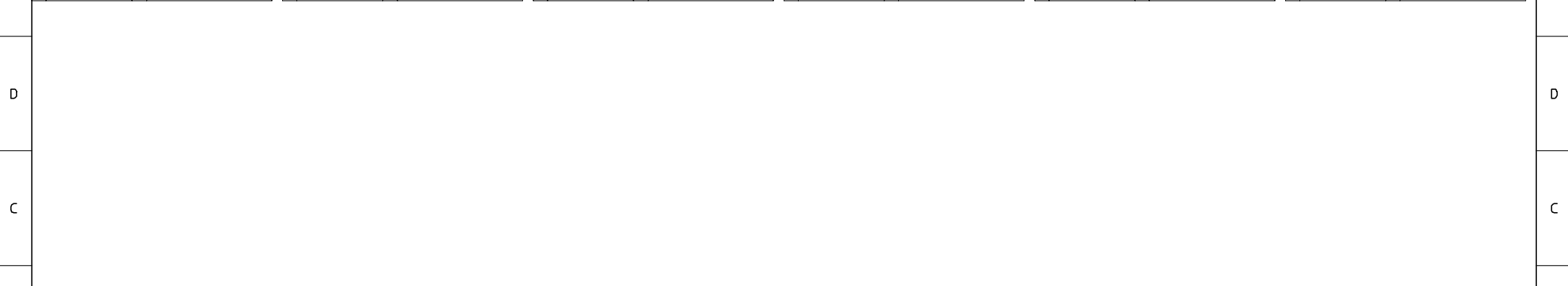
RECOMMENDED P.C. BOARD HOLE LAYOUT

GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE		SCALE	DESIGN UNITS	THIRD ANGLE PROJECTION	
		MM/IN		4:1	INCH		
4 PLACES ± --- ± ---		DRAWN BY DATE		TITLE			
3 PLACES ± --- ± .010		GUZIC 1987/07/30		FRICTION LOCK HEADER ASY			
2 PLACES ± 0.25 ± .015		CHECKED BY DATE		.100 CL BENT SQ PINS			
1 PLACE ± 0.38 ± ---		PATEL 1987/07/30		7478 SERIES DWG			
ANGULAR ± 1/2°		APPROVED BY DATE		MOLEX INCORPORATED			
		LENZ 1987/07/30		DOCUMENT NO. SDA-7478			
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		MATERIAL NO. SEE CHART		SHEET NO. 1 OF 7			
		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION					

	13	12	11	10	9	8	7	6	5	4	3	2	1				
J	ENG. NO.	PIN NO.	DIM. L	DIM. X	DIM. Z	DIM. Y	DIM. W	DIM. R	ENG. NO.	PIN NO.	DIM. L	DIM. X	DIM. Z	DIM. Y	DIM. W	DIM. T	J
	A-7478-NA102	2766-41(I102)	(18.69) .736	(6.60) .260	(3.58) .141	(3.05) .120	90°	(1.17) .046									
	A-7478-NA50I	2766-41(I50I)	(18.69) .736	(6.60) .260	(3.58) .141	(3.05) .120	90°	(1.17) .046									
I	A-7478-NA50IT	2766-41(I50IT)	(18.69) .736	(6.60) .260	(3.58) .141	(3.05) .120	90°	(1.17) .046									I
	A-7478-NA102T	2766-41(I102T)	(18.69) .736	(6.60) .260	(3.58) .141	(3.05) .120	90°	(1.17) .046									
H																	H
G																	G
F																	F
E																	E
D																	D
C																	C

B	ADD A-7478-NA102T EC NO: UCP2006-1815 DRAWN:ADER 2006/02/06 CHKD:AEI/HAG 2006/02/06 APPR:FSM/TH 2006/02/09	QUALITY SYMBOLS  = 0.010  = 0.020	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE		SCALE	DESIGN UNITS	THIRD ANGLE PROJECTION		TITLE <b>FRICTION LOCK HEADER ASY .100 CL BENT SQ PINS 7478 SERIES DWG</b>	DOCUMENT NO. <b>SDA-7478</b>	SHEET NO. <b>2 OF 7</b>
			mm	INCH	IN/MM	---	INCH	DRAWN BY <b>GUZIK</b>	DATE <b>1987/07/10</b>				
A	Y9		4 PLACES ± --- ± ---		DRAWN BY		---	INCH			MATERIAL NO. <b>SEE CHART</b>		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION
			3 PLACES ± --- ± ---		CHECKED BY								
			2 PLACES ± --- ± ---		PATEL								
			1 PLACE ± --- ± ---		APPROVED BY								
			ANGULAR ± --- °		LENZ								
					DATE								
					1987/07/10								

	13	12	11	10	9	8	7	6	5	4	3	2	1	
	A-7478-NA102		A-7478-NA501		A-7478-NA501T		A-7478-NA102T							
J	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.
	22-05-3021	* A-7478-2A102	22-12-2024	* A-7478-2A501	50-29-1710	A-7478-2A501T	50-34-8500	A-7478-2A102T						
	22-05-3031	* A-7478-3A102	22-12-2034	* A-7478-3A501	50-29-1711	A-7478-3A501T	50-34-8501	A-7478-3A102T						
	22-05-3041	* A-7478-4A102	22-12-2044	* A-7478-4A501	50-29-1705	A-7478-4A501T	50-34-8502	A-7478-4A102T						
I	22-05-3051	* A-7478-5A102	22-12-2054	* A-7478-5A501	50-29-1712	A-7478-5A501T								
	22-05-3061	* A-7478-6A102	22-12-2064	* A-7478-6A501	50-29-1713	A-7478-6A501T								
	22-05-3071	* A-7478-7A102	22-12-2074	* A-7478-7A501	50-29-1714	A-7478-7A501T								
	22-05-3081	* A-7478-8A102	22-12-2084	* A-7478-8A501	50-29-1715	A-7478-8A501T								
	22-05-3091	* A-7478-9A102	22-12-2094	* A-7478-9A501	50-29-1716	A-7478-9A501T								
H	22-05-3101	* A-7478-10A102	22-12-2104	* A-7478-10A501	50-29-1717	A-7478-10A501T								
	22-05-3111	* A-7478-11A102	22-12-2114	* A-7478-11A501	50-29-1718	A-7478-11A501T								
	22-05-3121	* A-7478-12A102	22-12-2124	* A-7478-12A501	50-29-1719	A-7478-12A501T								
	22-05-3131	* A-7478-13A102	22-12-2134	* A-7478-13A501	50-29-1720	A-7478-13A501T								
	22-05-3141	* A-7478-14A102	22-12-2144	* A-7478-14A501	50-29-1721	A-7478-14A501T								
	22-05-3151	* A-7478-15A102	22-12-2154	* A-7478-15A501	50-29-1722	A-7478-15A501T								
G	22-05-3161	* A-7478-16A102	22-12-2164	* A-7478-16A501	50-29-1723	A-7478-16A501T								
	22-05-3171	* A-7478-17A102	22-12-2174	* A-7478-17A501	50-29-1724	A-7478-17A501T								
	22-05-3181	* A-7478-18A102	22-12-2184	* A-7478-18A501	50-29-1725	A-7478-18A501T								
	22-05-3191	* A-7478-19A102	22-12-2194	* A-7478-19A501	50-29-1726	A-7478-19A501T								
	22-05-3201	* A-7478-20A102	22-12-2204	* A-7478-20A501	50-29-1727	A-7478-20A501T								
	22-05-3211	* A-7478-21A102	22-12-2214	* A-7478-21A501	50-29-1728	A-7478-21A501T								
F	22-05-3221	* A-7478-22A102	22-12-2224	* A-7478-22A501	50-29-1729	A-7478-22A501T								
	22-05-3231	* A-7478-23A102	22-12-2234	* A-7478-23A501	50-29-1730	A-7478-23A501T								
	22-05-3241	* A-7478-24A102	22-12-2244	* A-7478-24A501	50-29-1731	A-7478-24A501T								
	22-05-3251	* A-7478-25A102	22-12-2254	* A-7478-25A501	50-29-1732	A-7478-25A501T								
	22-05-3261	* A-7478-26A102	22-12-2264	* A-7478-26A501	50-29-1733	A-7478-26A501T								
E	22-05-3271	* A-7478-27A102	22-12-2274	* A-7478-27A501	50-29-1734	A-7478-27A501T								
	22-05-3281	* A-7478-28A102	22-12-2284	* A-7478-28A501	50-29-1735	A-7478-28A501T								



ADD P/N'S FCC NO. UCP2006-1815 DRAWN/ADDER CHKD: AELHAG APPR: FSM TH Y9	DESCRIPTION REVISION 2006/02/06 2006/02/06 2006/02/09	QUALITY SYMBOLS 	GENERAL TOLERANCES (UNLESS SPECIFIED) <table border="1"> <tr> <th></th> <th>mm</th> <th>INCH</th> </tr> <tr> <td>4 PLACES</td> <td>± ---</td> <td>± ---</td> </tr> <tr> <td>3 PLACES</td> <td>± ---</td> <td>± ---</td> </tr> <tr> <td>2 PLACES</td> <td>± ---</td> <td>± ---</td> </tr> <tr> <td>1 PLACE</td> <td>± ---</td> <td>± ---</td> </tr> <tr> <td colspan="3">ANGULAR ± --- °</td> </tr> </table>		mm	INCH	4 PLACES	± ---	± ---	3 PLACES	± ---	± ---	2 PLACES	± ---	± ---	1 PLACE	± ---	± ---	ANGULAR ± --- °			DIMENSION STYLE IN/MM	SCALE ---	DESIGN UNITS INCH	THIRD ANGLE PROJECTION
			mm	INCH																					
		4 PLACES	± ---	± ---																					
		3 PLACES	± ---	± ---																					
2 PLACES	± ---	± ---																							
1 PLACE	± ---	± ---																							
ANGULAR ± --- °																									
DRAWN BY GUZIK			DATE 1987/07/10	TITLE FRICTION LOCK HEADER ASY .100 CL BENT SQ PINS 7478 SERIES DWG.																					
CHECKED BY PATEL			DATE 1987/07/10	MOLEX INCORPORATED																					
APPROVED BY LENZ			DATE 1987/07/10	MATERIAL NO. SEE CHART	DOCUMENT NO. SDA-7478	SHEET NO. 3 OF 7																			