

PLEASE CHECK [WWW.MOLEX.COM](http://WWW.MOLEX.COM) FOR LATEST PART INFORMATION

**Part Number:** [0022053131](#)  
**Status:** **Active**  
**Description:** 2.54mm (.100") Pitch KK® Solid Header, Right Angle, with Friction Lock, 13 Circuits, Tin (Sn) Plating

**Documents:**  
[3D Model](#)  
[Drawing \(PDF\)](#)

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

**Agency Certification**

|     |         |
|-----|---------|
| CSA | LR19980 |
| UL  | E29179  |

**General**

|                |                      |
|----------------|----------------------|
| Product Family | PCB Headers          |
| Series         | <a href="#">7478</a> |
| Application    | Wire-to-Board        |
| Product Name   | KK®                  |

**Physical**

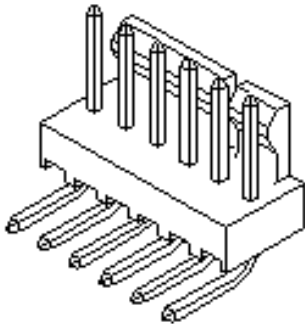
|                                |                 |
|--------------------------------|-----------------|
| Breakaway                      | No              |
| Circuits (Loaded)              | 13              |
| Circuits (maximum)             | 13              |
| Color - Resin                  | Natural (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                      |



*Series  
image - Reference only*

**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           |
| <b>Material Info</b>               |               |
| Old Part Number                    | A-7478-13A102 |
| <b>Reference - Drawing Numbers</b> |               |
| Packaging Specification            | PK-7478-001   |
| Product Specification              | PS-10-07      |
| Sales Drawing                      | SDA-7478      |

This document was generated on 04/27/2010

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10 9 8 7 6 5 4 3 2 1

NOTES:

1. MATERIAL: NYLON, UL94V-0, COLOR: WHITE
2. 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.
3. PARTS CONFORM TO PRODUCT SPECIFICATION PS-10-07.
4. PACKAGING INFORMATION: SEE LEGEND.
5. PARTS ARE STACKABLE END TO END ON (2.54)/.100 CENTERS.
6. PIN PUSH OUT FORCE: 2 LBS. MIN.
7. CIRCUIT ONE DESIGNATION IS USED TO DEFINE VOID LOCATION.  
CIRCUIT ONE MAY OR MAY NOT LINE UP WITH CIRCUIT ONE ON THE MATING HOUSING.
8. THIS PART CONFORMS TO CLASS B REQUIREMENTS OF COSMETIC SPECIFICATION PS-45499-002.

(6.35±0.25)  
.250±.010

DIM. A

DIM. B

(2.54±0.05)  
.100±.002  
TYP. BETWEEN ANY  
TWO CONSECUTIVE  
CKTS.  
AT DATUM -D-

CKT. #1, REF  
SEE NOTE 7

SLOTS LOCATED  
BETWEEN CIRCUITS  
(SEE CHART)

(1.3)  
.05  
CENTERLINE OF PIN IN AREA SHOWN  
NOT TO VARY FROM CENTERLINE  
OF PIN AT DATUM -D- BY MORE  
THAN (0.20)/.008 IN ANY DIRECTION

GROOVE MAY BE PRESENT  
ON 2-6 CIRCUIT PARTS  
(BOTH SIDES).

(1.07±0.15)  
.042±.006 TYP.  
AT DATUM -D-

(8.18±0.25)  
.322±.010

DIM. L  
TYP. REF.

(3.18±0.25)  
.125±.010

DIM. X  
TYP. (±0.38)  
±.015

DIM. Y (±0.30)  
TYP. ±.012

DIM. R

(3.25)  
.128 REF.

DIM. Z  
TYP. REF.

-E-

CENTERLINE OF PIN IN AREA SHOWN  
NOT TO VARY FROM CENTERLINE OF  
PIN AT DATUM -E- BY MORE THAN  
(0.13)/.005 IN ANY DIRECTION

A-7478-N\*\*\*

NO. OF CKTS.

VERSION  
LETTER CHANGES WHEN  
PIN NO. OR PRESS  
DIM. CHANGES

PLATING  
SEE NOTE 2

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

(2.54±0.05)  
.100±.002 TYP.  
NON-ACCUM.

(1.02±0.05)  
.040±.002  
DIA. HOLE TYP.

RECOMMENDED P.C. BOARD HOLE LAYOUT

| GENERAL TOLERANCES<br>(UNLESS SPECIFIED) |       |
|------------------------------------------|-------|
| mm                                       | INCH  |
| 4 PLACES ±---                            | ±---  |
| 3 PLACES ±---                            | ±.010 |
| 2 PLACES ±0.25                           | ±.015 |
| 1 PLACE ±0.38                            | ±---  |
| ANGULAR ±1/2°                            |       |

| QUALITY SYMBOLS |  |
|-----------------|--|
| ▽=0             |  |
| ▽=0             |  |

| DIMENSION STYLE |            |
|-----------------|------------|
| MM/IN           |            |
| DRAWN BY        | DATE       |
| GUZIC           | 1987/07/30 |
| CHECKED BY      | DATE       |
| PATEL           | 1987/07/30 |
| APPROVED BY     | DATE       |
| LENZ            | 1987/07/30 |

| SCALE | DESIGN UNITS | THIRD ANGLE PROJECTION |
|-------|--------------|------------------------|
| 4:1   | INCH         |                        |

| TITLE                                                               |  |
|---------------------------------------------------------------------|--|
| FRICTION LOCK HEADER ASY<br>.100 CL BENT SQ PINS<br>7478 SERIES DWG |  |

| MOLEX INCORPORATED |              |
|--------------------|--------------|
| MATERIAL NO.       | DOCUMENT NO. |
| SEE CHART          | SDA-7478     |

| SHEET NO. |  |
|-----------|--|
| 1 OF 7    |  |

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| 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.                                                                           | J                                                     |                               |                                       |  |                          |  |              |                      |                        |  |    |      |          |      |                                                                                                     |  |                |       |       |            |                |       |            |      |  |  |  |                |       |       |            |                                                        |  |  |  |  |               |       |             |      |  |  |  |                |  |      |            |                                                                                                                               |  |  |  |  |                                                      |  |           |  |
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| I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 22-05-3051                                            | * A-7478-5A102                | 22-12-2054                            | * A-7478-5A501  | 50-29-1712               | A-7478-5A501T                                        |                                                                                                     |                      |                        |          |            |                                                                                                                               |          |                                                                                    | I                                                     |                               |                                       |  |                          |  |              |                      |                        |  |    |      |          |      |                                                                                                     |  |                |       |       |            |                |       |            |      |  |  |  |                |       |       |            |                                                        |  |  |  |  |               |       |             |      |  |  |  |                |  |      |            |                                                                                                                               |  |  |  |  |                                                      |  |           |  |
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| H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 22-05-3101                                            | * A-7478-10A102               | 22-12-2104                            | * A-7478-10A501 | 50-29-1717               | A-7478-10A501T                                       |                                                                                                     |                      |                        |          |            |                                                                                                                               |          |                                                                                    | H                                                     |                               |                                       |  |                          |  |              |                      |                        |  |    |      |          |      |                                                                                                     |  |                |       |       |            |                |       |            |      |  |  |  |                |       |       |            |                                                        |  |  |  |  |               |       |             |      |  |  |  |                |  |      |            |                                                                                                                               |  |  |  |  |                                                      |  |           |  |
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| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                       |                               |                                       |                 |                          |                                                      |                                                                                                     |                      |                        |          |            |                                                                                                                               |          | A                                                                                  |                                                       |                               |                                       |  |                          |  |              |                      |                        |  |    |      |          |      |                                                                                                     |  |                |       |       |            |                |       |            |      |  |  |  |                |       |       |            |                                                        |  |  |  |  |               |       |             |      |  |  |  |                |  |      |            |                                                                                                                               |  |  |  |  |                                                      |  |           |  |
| <table><tr><td rowspan="8">ADD P/N'S<br/>EC NO: UCP2006-1815<br/>DRW:ADERR<br/>CHKD: AELHAG<br/>APPR:FSM TH<br/>Y9</td><td rowspan="8">DESCRIPTION<br/>2006/02/06<br/>2006/02/06<br/>2006/02/09</td><td rowspan="8">QUALITY SYMBOLS<br/>▽=0<br/>▽=0</td><td colspan="2">GENERAL TOLERANCES (UNLESS SPECIFIED)</td><td colspan="2">DIMENSION STYLE<br/>IN/MM</td><td>SCALE<br/>---</td><td>DESIGN UNITS<br/>INCH</td><td colspan="2" rowspan="8"> THIRD ANGLE PROJECTION</td></tr><tr><td>mm</td><td>INCH</td><td>DRAWN BY</td><td>DATE</td><td colspan="2" rowspan="3">TITLE<br/>FRICTION LOCK HEADER ASY<br/>.100 CL BENT SQ PINS<br/>7478 SERIES DWG.<br/> MOLEX INCORPORATED</td></tr><tr><td>4 PLACES ± ---</td><td>± ---</td><td>GUZIK</td><td>1987/07/10</td></tr><tr><td>3 PLACES ± ---</td><td>± ---</td><td>CHECKED BY</td><td>DATE</td></tr><tr><td colspan="3"></td><td>2 PLACES ± ---</td><td>± ---</td><td>PATEL</td><td>1987/07/10</td><td colspan="2" rowspan="2">MATERIAL NO. DOCUMENT NO. SHEET NO.<br/>SDA-7478 3 OF 7</td></tr><tr><td colspan="3"></td><td>1 PLACE ± ---</td><td>± ---</td><td>APPROVED BY</td><td>DATE</td></tr><tr><td colspan="3"></td><td colspan="2">ANGULAR ± ---°</td><td>LENZ</td><td>1987/07/10</td><td colspan="2" rowspan="2">THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION</td></tr><tr><td colspan="3"></td><td colspan="2">DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS</td><td colspan="2">SEE CHART</td></tr></table> |                                                       |                               |                                       |                 |                          |                                                      |                                                                                                     |                      |                        |          |            |                                                                                                                               |          | ADD P/N'S<br>EC NO: UCP2006-1815<br>DRW:ADERR<br>CHKD: AELHAG<br>APPR:FSM TH<br>Y9 | DESCRIPTION<br>2006/02/06<br>2006/02/06<br>2006/02/09 | QUALITY SYMBOLS<br>▽=0<br>▽=0 | GENERAL TOLERANCES (UNLESS SPECIFIED) |  | DIMENSION STYLE<br>IN/MM |  | SCALE<br>--- | DESIGN UNITS<br>INCH | THIRD ANGLE PROJECTION |  | mm | INCH | DRAWN BY | DATE | TITLE<br>FRICTION LOCK HEADER ASY<br>.100 CL BENT SQ PINS<br>7478 SERIES DWG.<br>MOLEX INCORPORATED |  | 4 PLACES ± --- | ± --- | GUZIK | 1987/07/10 | 3 PLACES ± --- | ± --- | CHECKED BY | DATE |  |  |  | 2 PLACES ± --- | ± --- | PATEL | 1987/07/10 | MATERIAL NO. DOCUMENT NO. SHEET NO.<br>SDA-7478 3 OF 7 |  |  |  |  | 1 PLACE ± --- | ± --- | APPROVED BY | DATE |  |  |  | ANGULAR ± ---° |  | LENZ | 1987/07/10 | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |  |  |  |  | DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS |  | SEE CHART |  |
| ADD P/N'S<br>EC NO: UCP2006-1815<br>DRW:ADERR<br>CHKD: AELHAG<br>APPR:FSM TH<br>Y9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DESCRIPTION<br>2006/02/06<br>2006/02/06<br>2006/02/09 | QUALITY SYMBOLS<br>▽=0<br>▽=0 | GENERAL TOLERANCES (UNLESS SPECIFIED) |                 | DIMENSION STYLE<br>IN/MM |                                                      | SCALE<br>---                                                                                        | DESIGN UNITS<br>INCH | THIRD ANGLE PROJECTION |          |            |                                                                                                                               |          |                                                                                    |                                                       |                               |                                       |  |                          |  |              |                      |                        |  |    |      |          |      |                                                                                                     |  |                |       |       |            |                |       |            |      |  |  |  |                |       |       |            |                                                        |  |  |  |  |               |       |             |      |  |  |  |                |  |      |            |                                                                                                                               |  |  |  |  |                                                      |  |           |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                       |                               |                                       |                 |                          | ANGULAR ± ---°                                       |                                                                                                     | LENZ                 |                        |          | 1987/07/10 | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |          |                                                                                    |                                                       |                               |                                       |  |                          |  |              |                      |                        |  |    |      |          |      |                                                                                                     |  |                |       |       |            |                |       |            |      |  |  |  |                |       |       |            |                                                        |  |  |  |  |               |       |             |      |  |  |  |                |  |      |            |                                                                                                                               |  |  |  |  |                                                      |  |           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                       |                               |                                       |                 |                          | DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS |                                                                                                     | SEE CHART            |                        |          |            |                                                                                                                               |          |                                                                                    |                                                       |                               |                                       |  |                          |  |              |                      |                        |  |    |      |          |      |                                                                                                     |  |                |       |       |            |                |       |            |      |  |  |  |                |       |       |            |                                                        |  |  |  |  |               |       |             |      |  |  |  |                |  |      |            |                                                                                                                               |  |  |  |  |                                                      |  |           |  |
| ib_frame_C_P_ME_T<br>Rev. D 2004/04/02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 12                                                    | 11                            | 10                                    | 9               | 8                        | 7                                                    | 6                                                                                                   | 5                    | 4                      | 3        | 2          | 1                                                                                                                             |          |                                                                                    |                                                       |                               |                                       |  |                          |  |              |                      |                        |  |    |      |          |      |                                                                                                     |  |                |       |       |            |                |       |            |      |  |  |  |                |       |       |            |                                                        |  |  |  |  |               |       |             |      |  |  |  |                |  |      |            |                                                                                                                               |  |  |  |  |                                                      |  |           |  |