



 Product Catalog

 **basics** 

## FCI: SETTING THE STANDARD FOR CONNECTORS

With 13,000 employees in 30 countries and sales of 1.25 billion euros in 2008, FCI is a leading manufacturer of connectors for various markets such as automotive, telecommunication infrastructures and consumer and industrial electronics.



## MORE SERVICE.



## + More Service

Easy product selection, samples, prototypes, documentation, drawings and more at [www.fciconnect.com/basics](http://www.fciconnect.com/basics)



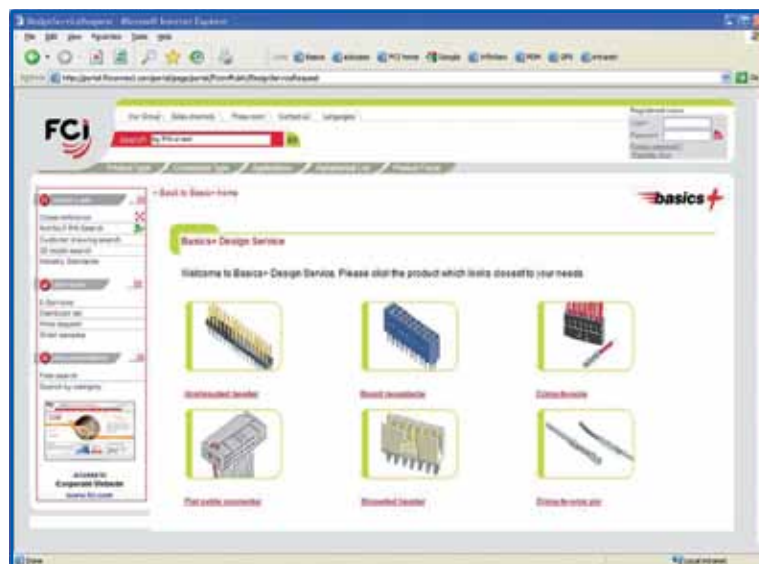
# LESS WAITING.

## Easy Availability

Catalog range direct from FCI's extensive local distribution network.  
Global too: design here, build there.

## Easy Customization

Just go here  
[www.fciconnect.com/basicsdesign](http://www.fciconnect.com/basicsdesign)  
and tell us what you want



## ■ UNSHROUDED HEADERS



### BergStik® Unshrouded Headers 2.54mm (.100")

|                              |    |
|------------------------------|----|
| Vertical - standard sizes    | 8  |
| Vertical - surface mount     | 10 |
| Vertical - continuous        | 12 |
| Right angle - standard sizes | 14 |
| Stacking headers             | 16 |

### Minitek™ Unshrouded Headers 2.00mm (.079")

|              |    |
|--------------|----|
| Vertical     | 50 |
| Right angle  | 52 |
| Pin-in-Paste | 54 |
| Stacking     | 56 |

## ■ SHROUDED HEADERS



### Dubox™ Shrouded Headers 2.54mm (.100)

28

### PV™ Superior Performance Shrouded Headers 2.54mm (.100")

34

### Minitek™ Shrouded Headers 2.00mm (.079")

|              |    |
|--------------|----|
| Vertical     | 62 |
| Right angle  | 64 |
| Pin-in-Paste | 66 |
| Eject latch  | 68 |

### Quickie® Shrouded Headers 2.54mm (.100")

|                                |    |
|--------------------------------|----|
| Low Profile                    | 40 |
| Surface Mount and Pin-in-Paste | 42 |
| Eject latch                    | 44 |

## ■ BOARD-TO-BOARD RECEPTACLES



### Dubox™ Board-to-Board Receptacles 2.54mm (.100")

|                                      |    |
|--------------------------------------|----|
| Vertical                             | 20 |
| Low profile vertical - through mount | 22 |
| Low profile vertical - surface mount | 24 |
| Horizontal                           | 26 |

### Minitek™ Vertical receptacles

58

## ■ CRIMP-TO-WIRE TERMINALS AND HOUSINGS



### Dubox™ Crimp-To-Wire 2.54mm (.100")

|          |    |
|----------|----|
| Contacts | 30 |
| Housings | 32 |

### PV™ Superior Performance Crimp-To-Wire 2.54mm (.100")

|          |    |
|----------|----|
| Contacts | 36 |
| Housings | 38 |

### Minitek™ Crimp-To-Wire 2.00mm (.079")

|              |    |
|--------------|----|
| Contacts     | 70 |
| Housings     | 70 |
| Active latch | 72 |

## ■ IDC RECEPTACLES



### Quickie® IDC Receptacles 2.54mm (.100")

46

### Quickie® IDC PCB connector 2.54mm (.100")

48

### Minitek™ IDC strain relief

74

## ■ SHUNTS



### Dubox™ Shunts 2.54mm (.100")

18

### Minitek™ Shunts 2.00mm (.079")

60

## ■ MORE OPTIONS

76

## ■ APPLICATION EQUIPMENT

78

## ■ PART NUMBER INDEX

80

SHORT LEAD TIMES

Standard parts available  
for immediate shipment  
from participating distributors

#### Pin-in-Paste

Our new PiP range has been specifically designed to meet the requirements of this process, complete with paste stencil design  
Pages 54, 66



#### Minitek Active Latch

A latching crimp-to-wire system for demanding environments  
Pages 64, 72



#### Minitek Eject Latch Header

This ribbon cable connector mates securely, but can be unmated with no difficulty.  
Pages 68, 74



#### The Minitek 2mm Modular System

Now the most complete and versatile system available: intermateable, high temperature compatible, low coplanarity and space saving  
Pages 50 – 74



## BOARD-TO-BOARD SOLUTIONS

### PARALLEL



### PERPENDICULAR

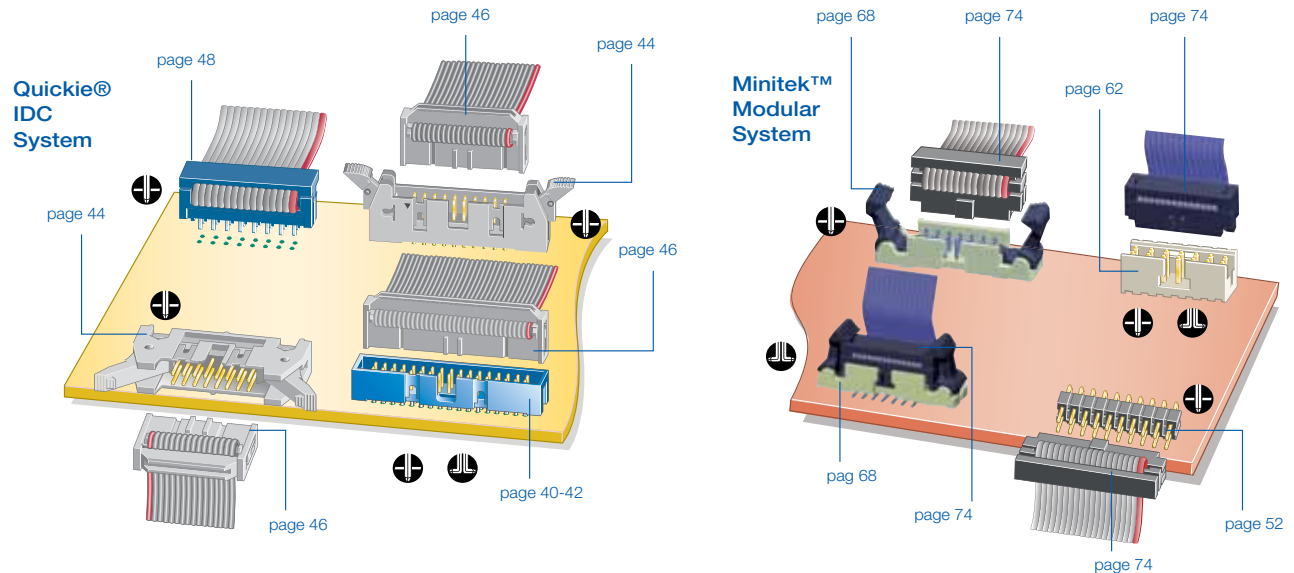


### PLANAR



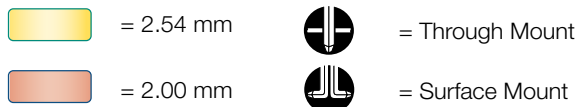
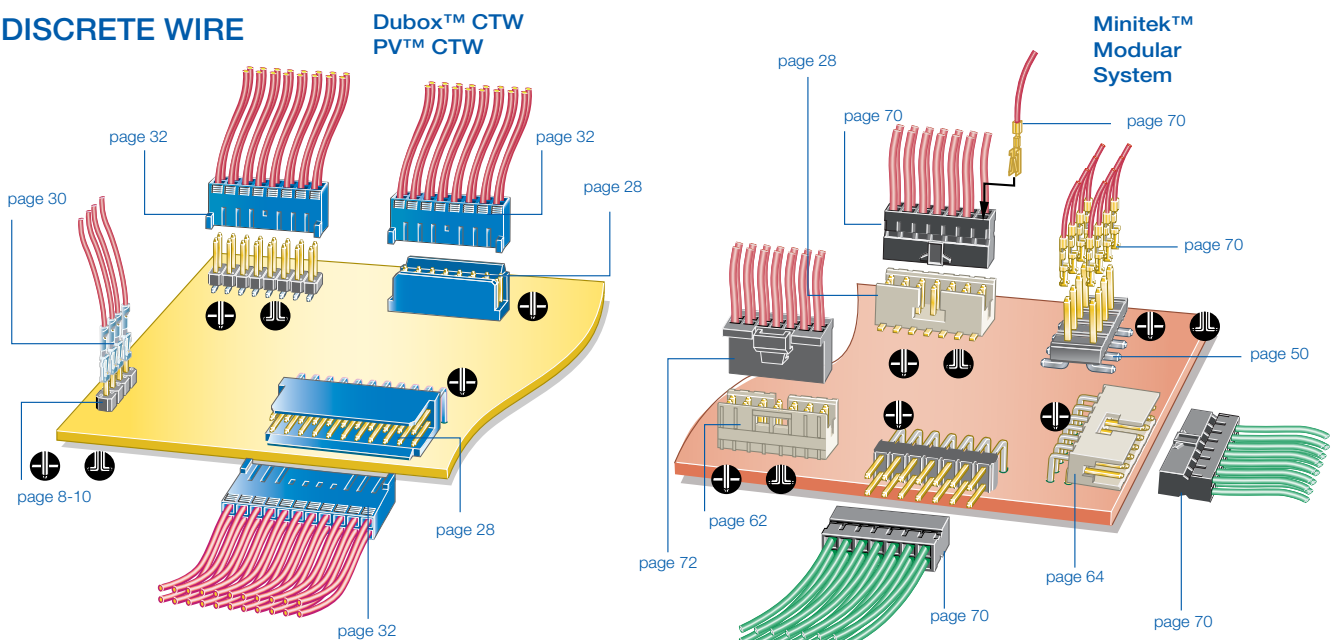
## CABLE-TO-BOARD SOLUTIONS

### FLAT CABLE IDC



## WIRE-TO-BOARD SOLUTIONS

### DISCRETE WIRE



## TECHNICAL DATA

### PHYSICAL

- Housing: High temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27 µm (50 µ") nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance: 5000 MΩ min.
- Dielectric withstanding voltage: 1500 V

### MECHANICAL PERFORMANCE

- Pin retention to housing: 8.8 N min.
- Retentive leg insertion force: >44.48 N max.
- Retentive leg board retention: 2.22 N

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- Standard: Bags
- Optional: Tubes or  
Tape-and-reel with pick-up cap

### REFERENCE INFORMATION

- File no. E66906
  - File no. LR46923
  - Product drawing: By 5-digit base part number
  - Product specification: BUS-12-114
- specifications subject to change without notice

### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

|                                           |        |
|-------------------------------------------|--------|
| ■ Dubox™ Crimp-to-wire contacts           | 30     |
| ■ Dubox™ Crimp-to-wire housings           | 32     |
| ■ Dubox™ Vertical receptacles             | 20     |
| ■ Dubox™ Low profile vertical receptacles | 22, 24 |
| ■ Dubox™ Horizontal receptacles           | 26     |
| ■ Quickie™ IDC receptacles                | 46     |
| ■ PV™ Crimp-to-Wire Contacts              | 36     |
| ■ PV™ Crimp-to-Wire Housings              | 38     |

## TYPICAL APPLICATIONS



# BergStik® Unshrouded Header, Vertical, Standard Sizes

2.54 mm (.100")

## PART NUMBERS



1 = 0.76  $\mu$ m (30 $\mu$ ) gold / GXT  
2 = 0.38  $\mu$ m (15 $\mu$ ) gold / GXT  
4 = tin

01 to 36 = Single row  
02 to 72 = Double row

### Single Row

| Base PN | Post |        | Tail |        | OAL   |        |
|---------|------|--------|------|--------|-------|--------|
|         | mm   | (inch) | mm   | (inch) | mm    | (inch) |
| 68000   | 5.84 | 0.230  | 2.41 | 0.095  | 10.80 | 0.425  |
| 68001   | 5.84 | 0.230  | 3.05 | 0.120  | 11.43 | 0.450  |
| 68002   | 5.84 | 0.230  | 3.81 | 0.150  | 12.19 | 0.480  |
| 78511   | 8.08 | 0.318  | 3.05 | 0.120  | 13.67 | 0.538  |
| 68024   | 8.08 | 0.318  | 3.81 | 0.150  | 14.43 | 0.568  |

### Double Row

| Base PN | Post |        | Tail |        | OAL   |        |
|---------|------|--------|------|--------|-------|--------|
|         | mm   | (inch) | mm   | (inch) | mm    | (inch) |
| 67996   | 5.84 | 0.230  | 2.41 | 0.095  | 10.80 | 0.425  |
| 67997   | 5.84 | 0.230  | 3.05 | 0.120  | 11.43 | 0.450  |
| 68602   | 5.84 | 0.230  | 3.81 | 0.150  | 12.19 | 0.480  |
| 68691   | 8.08 | 0.318  | 3.05 | 0.120  | 13.67 | 0.538  |
| 78233   | 8.08 | 0.318  | 3.81 | 0.150  | 14.43 | 0.568  |

68000 — 1XXHLF  
68001 — 1XXHLF  
68002 — 1XXHLF

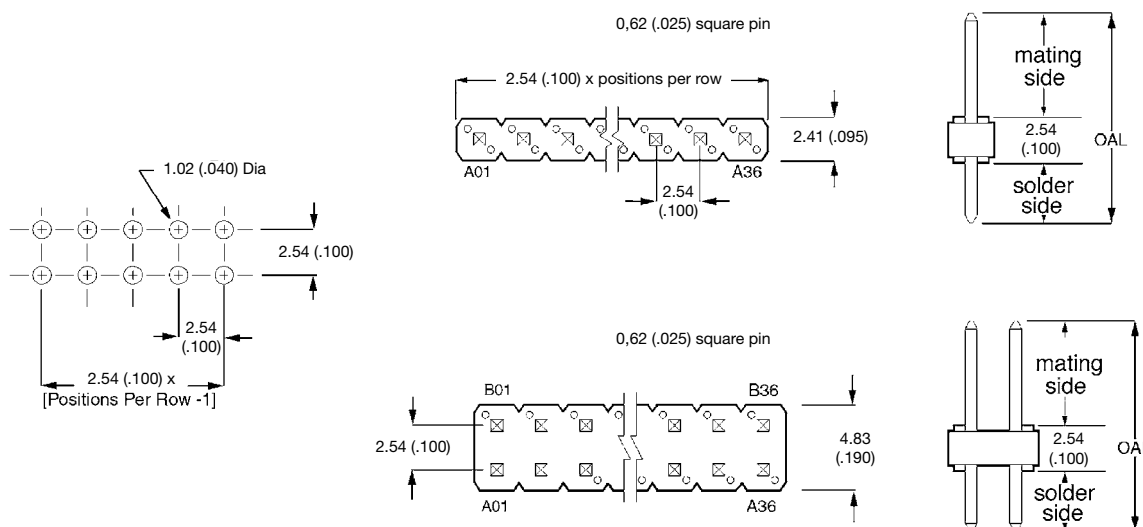
XX = 04, 06, 08, 10, 12, 16, 20

67996 — 1XXHLF  
67997 — 1XXHLF  
68602 — 1XXHLF

XX = 04, 06, 08, 10, 12, 16, 20

**CORE RANGE**

## PRODUCT



Dimension : mm (inch)

### TECHNICAL DATA

#### PHYSICAL

- Housing: High temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27 µm (50 µ") nickel

#### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance: 5000 MΩ min.
- Dielectric withstanding voltage: 1500 V

#### MECHANICAL PERFORMANCE

- Pin retention to housing: 9 N min.

#### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

#### PACKAGING

- Standard: Bags
- Optional: Tubes or Tape-and-reel with pick-up cap (SMT pin style 01 only)

#### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-114
- Tape and Reel packaging data: TA-840

#### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and (for SMT) IR reflow soldering processes
- Recommended IR profile TA 842 for SMT

#### RoHS INFORMATION

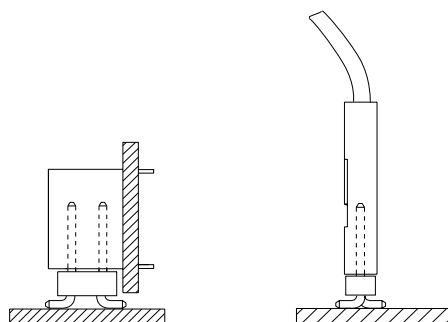
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



### MATING DATA

|                                           |        |
|-------------------------------------------|--------|
| ■ Dubox™ Crimp-to-wire contacts           | 30     |
| ■ Dubox™ Crimp-to-wire housings           | 32     |
| ■ Dubox™ Vertical receptacles             | 20     |
| ■ Dubox™ Low profile vertical receptacles | 22, 24 |
| ■ Dubox™ Horizontal receptacles           | 26     |
| ■ Quickie™ IDC receptacles                | 46     |
| ■ PV™ Crimp-to-Wire Contacts              | 36     |
| ■ PV™ Crimp-to-Wire Housings              | 38     |

### TYPICAL APPLICATIONS





## FEATURES

- Continuously molded and reeled
- High temperature plastic
- Various lengths cut from 1 part number
- Benchtop machine cuts, polarizes, and applies retentive leg

## TECHNICAL DATA

### PHYSICAL

- Housing: High temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27 µm (50 µ") nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance: 5000 MΩ min.
- Dielectric withstanding voltage: 1500 V

### MECHANICAL PERFORMANCE

- Pin retention to housing: 9 N min.

### OPERATING TEMPERATURE RANGE

- 65°C to +125°C

### PACKAGING

- Reel

### REFERENCE INFORMATION

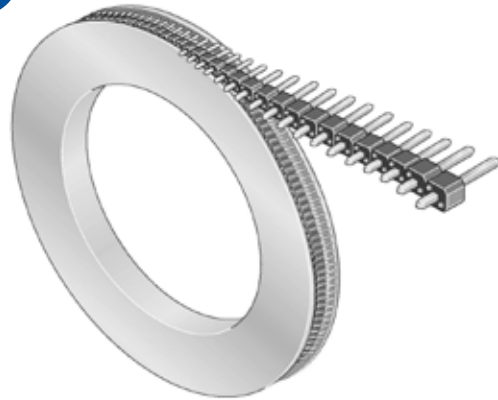
- File no. E66906
- File no. LR46923
- Product drawing: 54101 or 54102
- Product specification: BUS-12-059

### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

### RoHS INFORMATION

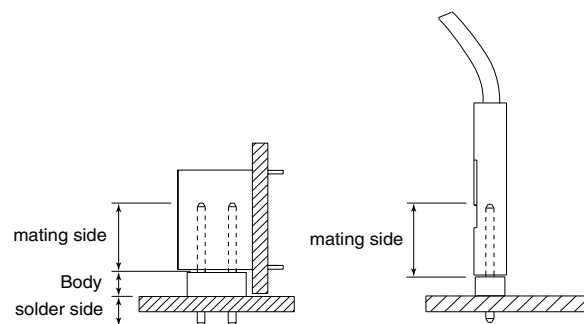
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

|                                         |        |
|-----------------------------------------|--------|
| Dubox™ Crimp-to-wire contacts           | 30     |
| Dubox™ Crimp-to-wire housings           | 32     |
| Dubox™ Vertical receptacles             | 20     |
| Dubox™ Low profile vertical receptacles | 22, 24 |
| Dubox™ Horizontal receptacles           | 26     |
| Quickie™ IDC receptacles                | 46     |
| PV™ Crimp-to-Wire Contacts              | 36     |
| PV™ Crimp-to-Wire Housings              | 38     |

## TYPICAL APPLICATIONS



# BergStrip® Unshrouded Header, Continuous

2.54 mm (.100")

## PART NUMBERS



1 = 0.76µm (30µ") gold /GXT  
2 = 0.38µm (15µ") gold / GXT  
4 = tin

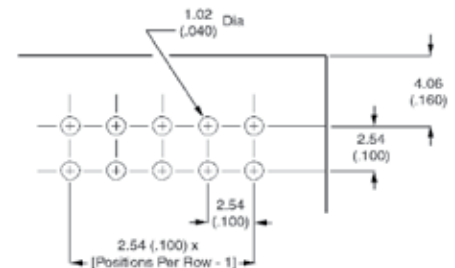
### Single Row

| Base PN | mating side |       | solder side |       | OAL   |       |
|---------|-------------|-------|-------------|-------|-------|-------|
|         | mm          | (in.) | mm          | (in.) | mm    | (in.) |
| 68000   | 5.84        | 0.230 | 2.41        | 0.095 | 10.80 | 0.425 |
| 68001   | 5.84        | 0.230 | 3.05        | 0.120 | 11.43 | 0.450 |
| 68002   | 5.84        | 0.230 | 3.81        | 0.150 | 12.19 | 0.480 |

### Double Row

| Base PN | mating side |       | solder side |       | OAL   |       |
|---------|-------------|-------|-------------|-------|-------|-------|
|         | mm          | (in.) | mm          | (in.) | mm    | (in.) |
| 67996   | 5.84        | 0.230 | 2.41        | 0.095 | 10.80 | 0.425 |
| 67997   | 5.84        | 0.230 | 3.05        | 0.120 | 11.43 | 0.450 |
| 68602   | 5.84        | 0.230 | 3.81        | 0.150 | 12.19 | 0.480 |

## PRODUCT



Recommended PCB layouts

Dimension : mm (inch)

### FEATURES

- High temperature plastic
- Selective plating

### TECHNICAL DATA

#### PHYSICAL

- Housing: High temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27  $\mu\text{m}$  (50  $\mu''$ ) nickel



#### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance: 5000 M $\Omega$  min.
- Dielectric withstanding voltage: 1500 V

#### MECHANICAL PERFORMANCE

- Pin retention to housing: 8.8 N min.
- Retentive leg insertion force: >44.48 N max.
- Retentive leg board retention: 2.22 N

#### OPERATING TEMPERATURE RANGE

- 65°C to +125°C

#### PACKAGING

- Bags

#### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 55101 or 55102
- Product specification: BUS-12-114

#### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

#### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



### MATING DATA

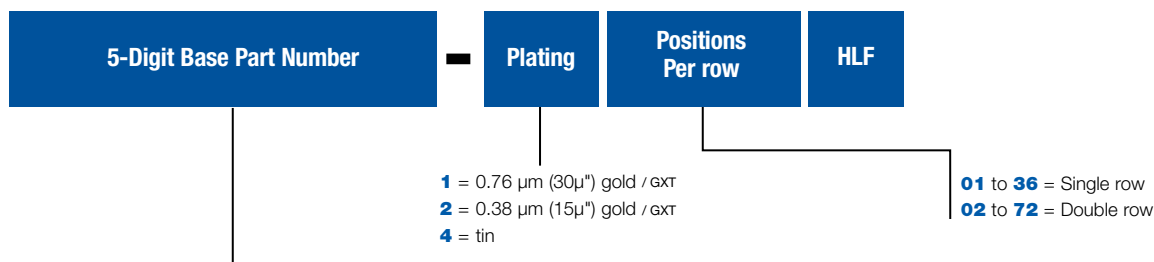
|                                         |        |
|-----------------------------------------|--------|
| Dubox™ Crimp-to-wire contacts           | 30     |
| Dubox™ Crimp-to-wire housings           | 32     |
| Dubox™ Vertical receptacles             | 20     |
| Dubox™ Low profile vertical receptacles | 22, 24 |
| Dubox™ Horizontal receptacles           | 26     |
| Quickie™ IDC receptacles                | 46     |
| PV™ Crimp-to-Wire Contacts              | 36     |
| PV™ Crimp-to-Wire Housings              | 38     |

### TYPICAL APPLICATIONS



# BergStik® Unshrouded Header, Right Angle, Standard Sizes

## PART NUMBERS



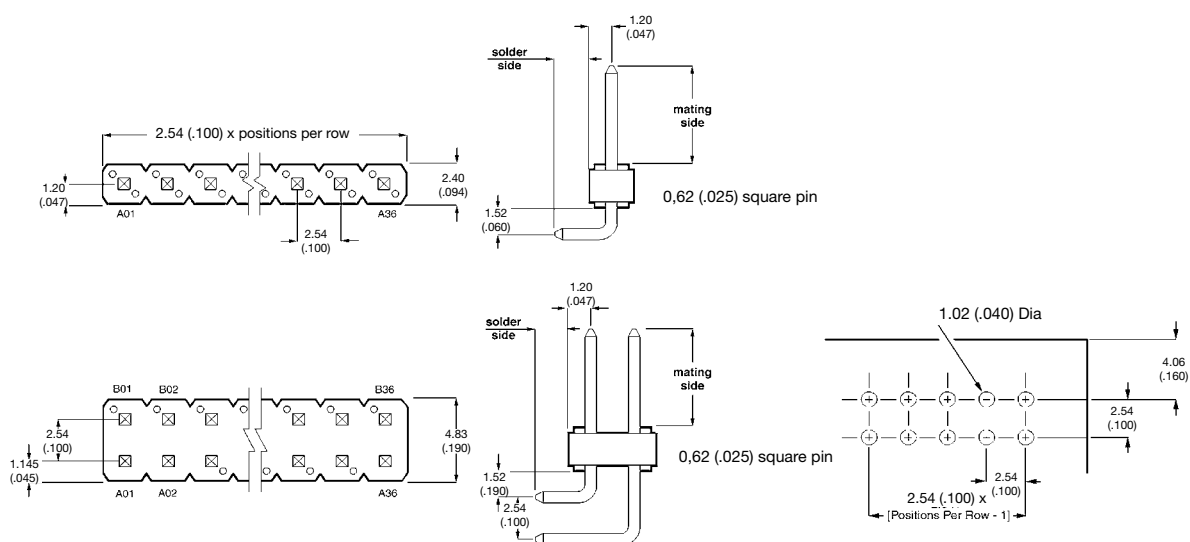
### Single Row

| Base PN      | mating side |       | solder side |       |
|--------------|-------------|-------|-------------|-------|
|              | mm          | (in.) | mm          | (in.) |
| <b>68015</b> | 5.84        | 0.230 | 2.41        | 0.095 |
| <b>68016</b> | 5.84        | 0.230 | 3.05        | 0.120 |

### Double Row

| Base PN      | mating side |       | solder side |       |
|--------------|-------------|-------|-------------|-------|
|              | mm          | (in.) | mm          | (in.) |
| <b>68020</b> | 5.84        | 0.230 | 2.41        | 0.095 |
| <b>68021</b> | 5.84        | 0.230 | 3.05        | 0.120 |

## PRODUCT



Recommended PCB layouts

Dimension : mm (inch)

## FEATURES

- Wide variety of stack heights in 0.5 mm increments
- High temperature plastic
- Selective plating

## TECHNICAL DATA

### PHYSICAL

- Housing: High temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance: 5000 M $\Omega$  min.
- Dielectric withstanding voltage: 1500 V

### MECHANICAL PERFORMANCE

- Pin retention to housing: 9 N min.

### OPERATING TEMPERATURE RANGE

- 65°C to +125°C

### PACKAGING

- Bags

### REFERENCE INFORMATION

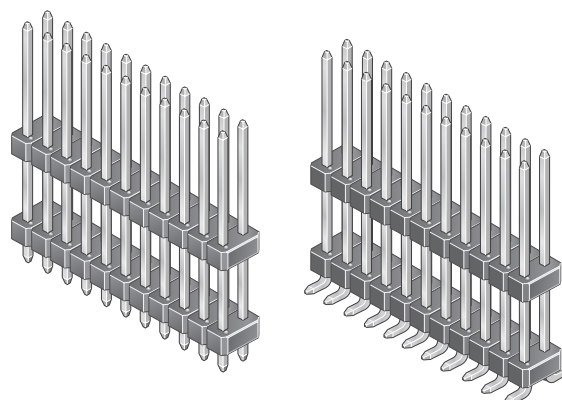
- File no. E66906
- File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-114

### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

### RoHS INFORMATION

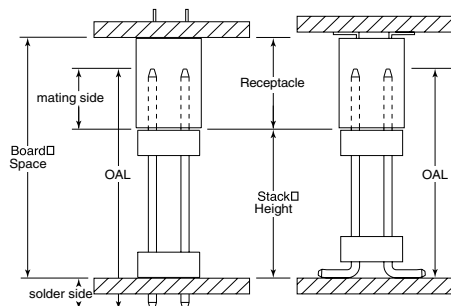
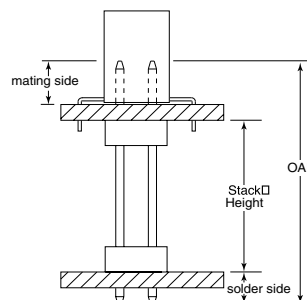
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- Dubox™ Vertical receptacles 20
- Dubox™ Low profile vertical receptacles 22, 24

## TYPICAL APPLICATIONS



# BergStik® Unshrouded Header, Stacking

2.54 mm (.100")

## PART NUMBERS

Compile your own part number using custom dimensions (Please allow for initial setup on our system)

| 5 | 4 | Lead                                                                                                                             | Solder Side Option | Row Option                                  | Plating | Pin Style | Total Positions                                                                     | Stack Height | LF |
|---|---|----------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------|---------|-----------|-------------------------------------------------------------------------------------|--------------|----|
|   |   | 1 = Through Hole (TMT)<br>2 = Surface Mount (SMT)                                                                                |                    | 1 = Single Row (TMT only)<br>2 = Double Row |         |           | 02 to 36 single row (TMT)<br>04 to 72 double row (TMT)<br>04 to 50 double row (SMT) |              |    |
|   |   | 1 = 2.41 mm<br>2 = 3.05 mm<br>4 = SMT (double row only)                                                                          |                    |                                             |         |           |                                                                                     |              |    |
|   |   | 1 = 0.76 µm (30µ") gold/GXT on mating area, tin on solder side<br>8 = 0.38 µm (15µ") gold/GXT on mating area, tin on solder side |                    |                                             |         |           |                                                                                     |              |    |

| Pin Styl | Overall length (TMT) | Overall length (SMT) |
|----------|----------------------|----------------------|
| 01       | 12.20 (.480)         | 10.42 (.410)         |
| 02       | 13.50 (.531)         | 11.72 (.461)         |
| 03       | 15.90 (.626)         | 14.12 (.556)         |
| 04       | 16.76 (.660)         | 14.98 (.590)         |
| 05       | 17.65 (.695)         | 15.87 (.525)         |
| 06       | 18.91 (.744)         | 17.13 (.674)         |
| 07       | 20.96 (.825)         | 19.18 (.755)         |
| 08       | 23.50 (.925)         | 21.72 (.855)         |
| 09       | 26.04 (1.025)        | 24.26 (.955)         |
| 10       | 28.58 (1.125)        | 26.80 (1.055)        |
| 11       | 31.12 (1.225)        | 29.34 (1.155)        |
| 12       | 33.66 (1.325)        | 31.88 (1.255)        |

**XX.XX** = mm  
Specify mm  
i.e. 08.50 = 8.50 mm  
in 0.50 mm increments  
**TMT** = 08.00 min. - 25.00 max.  
**SMT** = 09.50 min. - 26.00 max.

## PRODUCT



### The board spacing

is the stack height of this header, plus the height of the receptacle (see application drawings on opposite page)

Dimension : mm (inch)

## FEATURES

- Dual-beam contacts for added reliability
- Slotted cutout in low profile housing simplifies electrical testing
- Side-by-side and end-to-end stackable

## TECHNICAL DATA

### PHYSICAL

- Housing: thermoplastic  
69145 color black  
68786 and 63429 color white
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel



low profile only

### ELECTRICAL PERFORMANCE

- Current rating: 2.5 A max. per contact
  - Insulation resistance: 50,000  $\text{M}\Omega$  min.
  - Contact resistance: 15  $\text{M}\Omega$  max. initial,  
20  $\text{M}\Omega$  max. after environmental tests
- Dielectric withstanding voltage: 800 V

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 50-Gold, 25-Tin.
- Insertion force: 450 gf max. per gold contact  
500 gf max. per tin-lead contact
- Withdrawal force: 30 gf min. per gold contact  
30 gf min. per tin-lead contact.

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- Plastic bags

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-071-gold  
BUS-12-070-tin

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



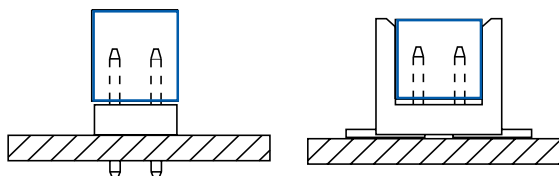
## MATING DATA

- Continuous unshrouded headers 12
- Unshrouded vertical headers 8, 10
- Unshrouded right angle headers 14, 16

## INSERTION DEPTH

- 4.85 mm (.191") min.  
[provides 3.81 mm (.015") wipe] - Low profile

## TYPICAL APPLICATIONS



# SHUNTS

2.54 mm (.100")

## PART NUMBERS

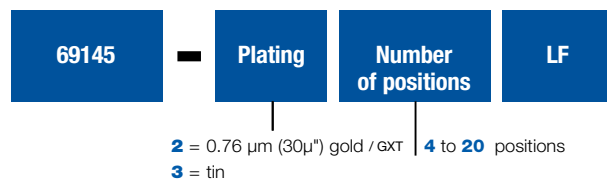
### Low profile



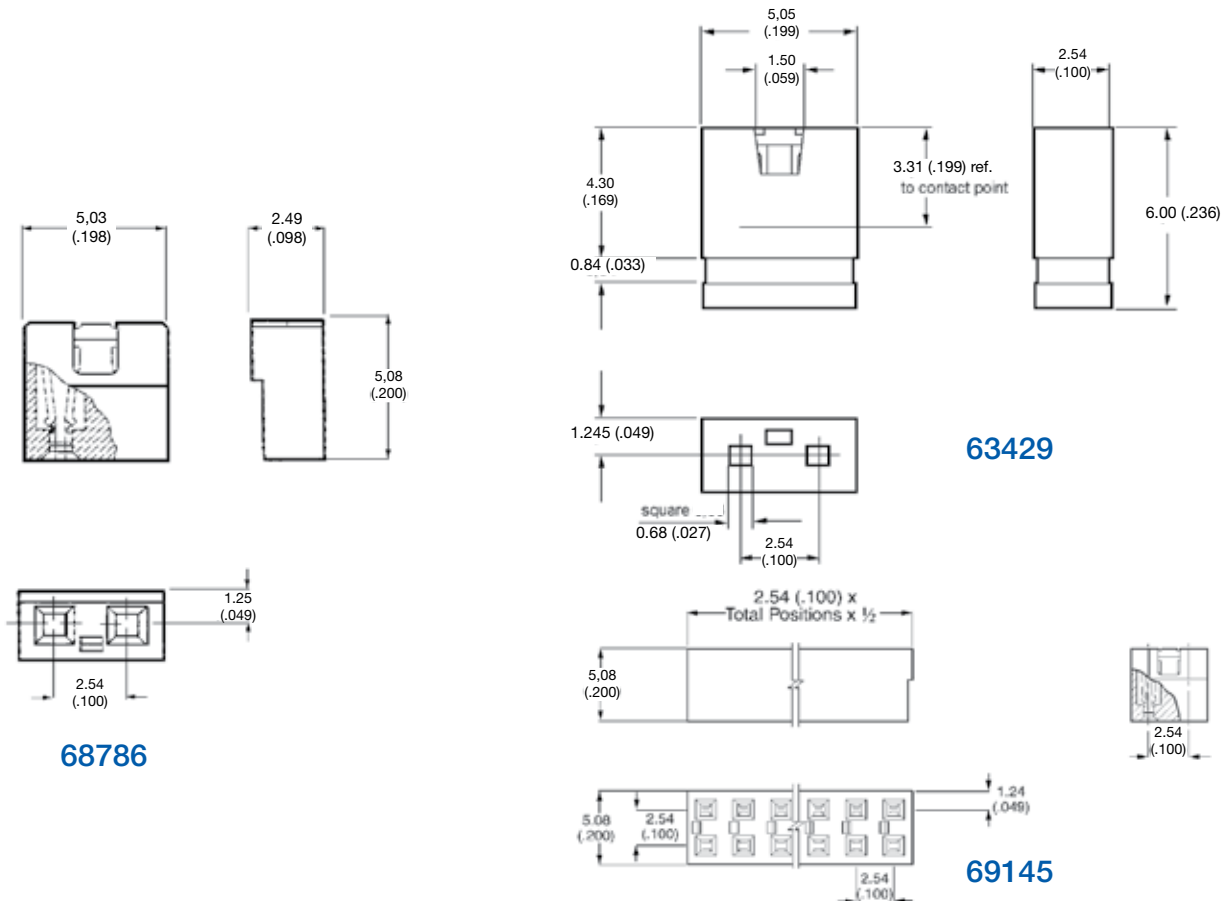
### Standard



### Multi-position



## PRODUCT



Dimension : mm (inch)

## FEATURES

- The Dubox™ contact has a pre-stressed, dual beam design to enable low insertion force
- 4-wall contact design for signal protection

## TECHNICAL DATA

### PHYSICAL

- Housing: Glass filled thermoplastic polyester, blue
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT or tin in accordance with IEC 603-81

### ELECTRICAL PERFORMANCE

- Current rating: 3 A dc max. per individual contact  
2 A dc max. per contact for fully energized connector
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 15  $\text{M}\Omega$  max. initial,  
20  $\text{M}\Omega$  max. after environmental tests
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 200
- Insertion force per gold contact: 1.50 N (150 gf) max.
- Withdrawal force per gold contact: 0.30 N (30 gf) min.

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- Plastic boxes or tubes

### PROCESSING INFORMATION

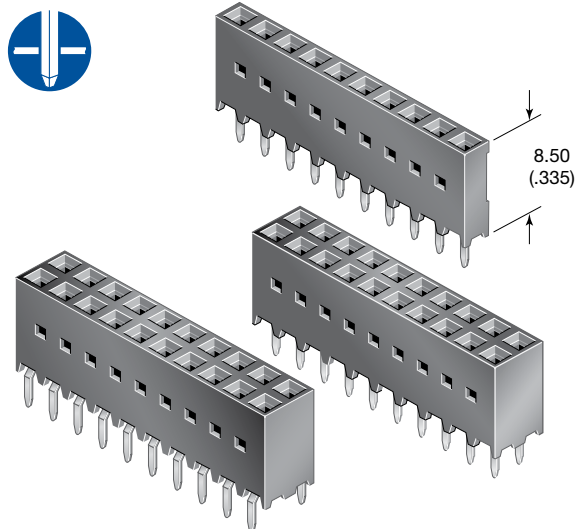
- Compatible with wave soldering processes

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: HE 13/14 and IEC 603-8

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



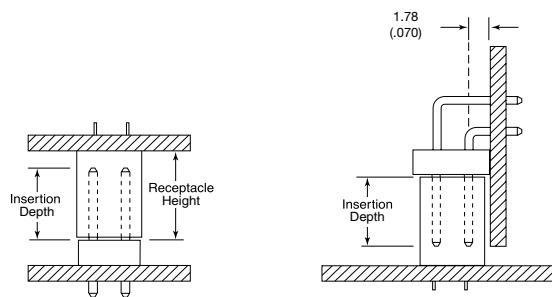
## MATING DATA

- BergStik® Unshrouded vertical headers 8, 10
- BergStik® Unshrouded right angle headers 14
- BergStik® Unshrouded stacking headers 16
- BergStik® continuous Unshrouded headers 12

## INSERTION DEPTH

- Top Entry: 3.6 mm min. to 6.81 mm max.  
[provides .381 mm wipe]
- Bottom Entry: 7 mm min.  
[provides .381 mm wipe] plus board thickness

## TYPICAL APPLICATIONS



# Dubox™ Vertical Receptacles

## PART NUMBERS



\*Other sizes available on request

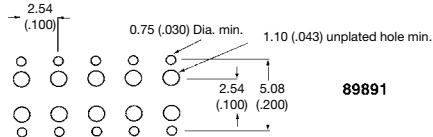
## PRODUCT



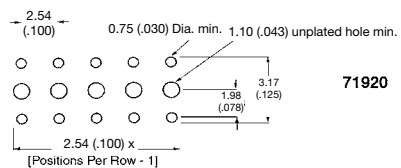
**75915**



**87606**

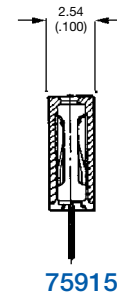


**89891**

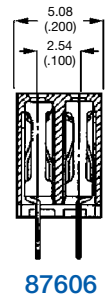


**71920**

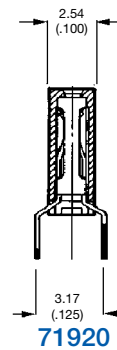
Recommended PCB layouts



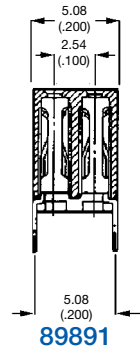
**75915**



**87606**



**71920**



**89891**

Dimension : mm (inch)

## FEATURES

- The Dubox™ contact has a pre-stressed, dual beam design to enable low insertion force
- 4-wall contact design for signal protection

## TECHNICAL DATA

### PHYSICAL

- Housing: Glass filled thermoplastic polyester, blue
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27  $\mu$ m (50  $\mu$ " ) nickel

### ELECTRICAL PERFORMANCE

- Current rating: 3 A dc max. per individual contact  
2 A dc max. per contact for fully energized connector
- Insulation resistance:  $1 \times 10^5$  M $\Omega$  min.
- Contact resistance: 15 M $\Omega$  max. initial,  
20 M $\Omega$  max. after environmental tests
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 200
- Insertion force per gold contact: 1.50 N (150 gf) max.
- Withdrawal force per gold contact: 0.30 N (30 gf) min.

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- Plastic boxes or tubes

### PROCESSING INFORMATION

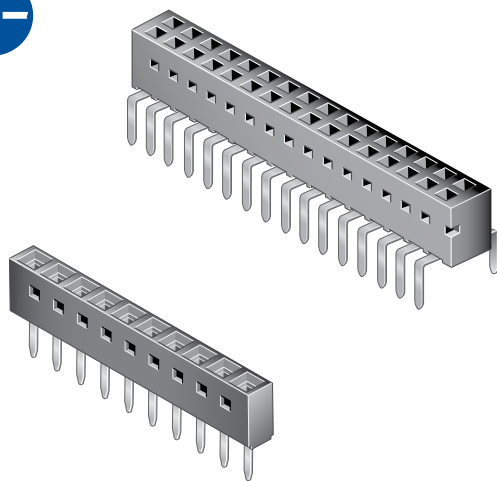
- Compatible with wave soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-055

### RoHs INFORMATION

- This product is RoHs compatible according to the European Union Directive 2002/95/IEC



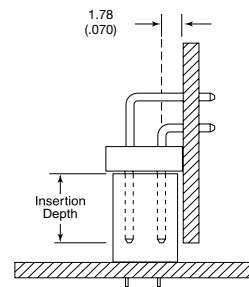
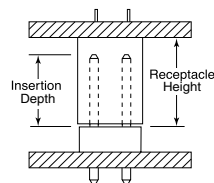
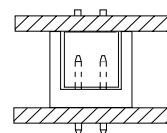
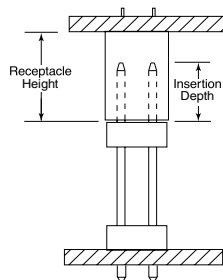
## MATING DATA

- BergStik® Unshrouded vertical headers 8, 10
- BergStik® Unshrouded right angle headers 14,
- BergStik® Unshrouded stacking headers 16
- BergStik® continuous Unshrouded headers 12

## INSERTION DEPTH

- Top Entry: 3.6 mm min. to 6.7 mm max.  
[provides .381 mm wipe]
- Bottom Entry: 6 mm min.  
[provides .381 mm wipe] plus board thickness

## TYPICAL APPLICATIONS



# Dubox™ Vertical Receptacles, Low Profile

2.54 mm (.100")

## PART NUMBERS



\*Other sizes available on request

## PRODUCT



### Recommended PCB layouts

Dimension : mm (inch)

## FEATURES

- The Dubox™ contact has a pre-stressed, dual beam design to enable low insertion force
- 4-wall contact design for signal protection

## TECHNICAL DATA

### PHYSICAL

- Housing: High temperature body, grey
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27 µm (50 µ") nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A dc max. per individual contact  
2 A dc max. per contact for fully energized connector
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 15 MΩ max. initial,  
20 MΩ max. after environmental tests
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 200
- Insertion force per gold contact: 1.50 N (150 gf) max.
- Withdrawal force per gold contact: 0.30 N (30 gf) min.

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- Plastic boxes or tubes
- Tape and reel as available

### PROCESSING INFORMATION

- Compatible with vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-055

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- BergStik® Unshrouded vertical headers 8, 10
- BergStik® Unshrouded right angle headers 14
- BergStik® Unshrouded stacking headers 16
- BergStik® continuous Unshrouded headers 12

## INSERTION DEPTH

- Top Entry: 3.6 mm min. to 6.7 mm max.  
[provides .381 mm wipe]
- Bottom Entry: 6 mm min.  
[provides .381 mm wipe] plus board thickness

## TYPICAL APPLICATIONS



# Dubox™ Vertical Receptacles, Low Profile

2.54 mm (.100")

## PART NUMBERS



**91601** = Single Row, Dual Entry  
**91614** = Single Row with external Locating Pegs, Dual Entry  
**89898** = Double Row, Dual Entry  
**91615** = Double Row with External Locating Pegs, Dual Entry  
**91618** = Double Row with Internal Locating Pegs, Dual Entry

— = standard-tubes

**A** = Tape-and-Reel packaging with pick-up cap \*

**02 to 25** Single Row

**02 to 25** Double Row

**3** = 0,76 µm (30µ") gold/GXT on mating area, tin on solder side

**89898 - 3XXALF**

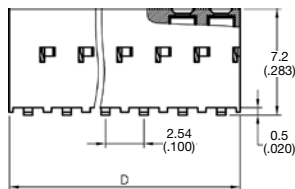
**CORE RANGE**

XX = 02, 03, 04, 05, 06, 08, 10

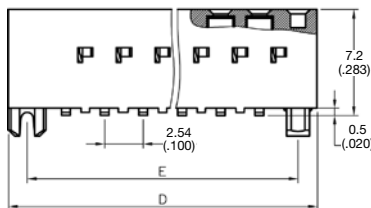
\* as available

## PRODUCT

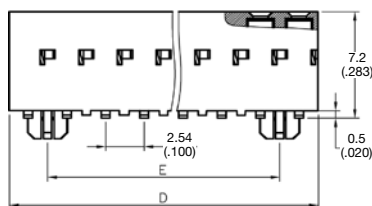
### Standard



### External Locating Pegs



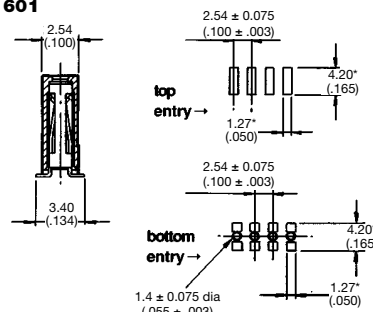
### Internal Locating Pegs



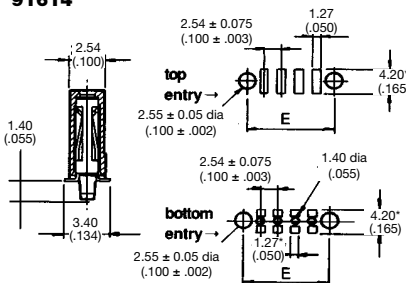
Dimension : mm (inch)

### Single Row + Pad lay-outs

#### 91601



#### 91614



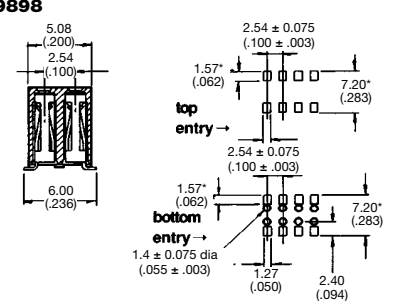
\*Note: available as of 3 position versions

not available in single row

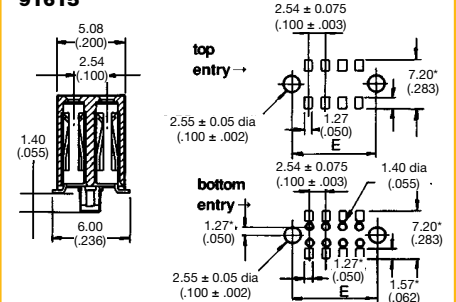
**Note:**  
All dimensions marked with \*  
are minimum dimensions

### Double Row + Pad lay-outs

#### 89898

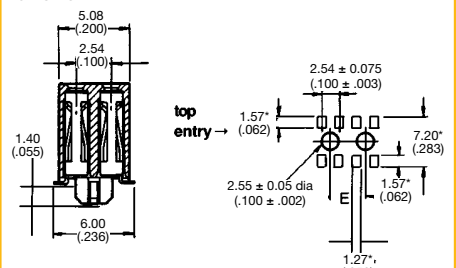


#### 91615



\*Note: available as of 3 position versions

#### 91618



\*Note: available as of 6 number of positions

## FEATURES

- The Dubox™ contact has a pre-stressed, dual beam design to enable low insertion force
- Floating solder tails self-center on circuit pads and assure coplanarity
- 4-wall contact design for signal protection

## TECHNICAL DATA

### PHYSICAL

- Housing: Blue thermoplastic - Through hole  
High temp. grey thermoplastic - Surface mount
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT or tin over 1.27 µm (50 µ") nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A dc max. per individual contact  
2 A dc max. per contact for fully energized connector
- Insulation resistance: 1x 10<sup>5</sup> MΩ min.
- Contact resistance: 15 MΩ max. initial,  
20 MΩ max. after environmental tests
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 200
- Insertion force per gold contact: 1.50 N (150 gf) max.
- Withdrawal force per gold contact: 0.30 N (30 gf) min.

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- Standard: Tubes
- Optional: Tape-and-reel

### PROCESSING INFORMATION

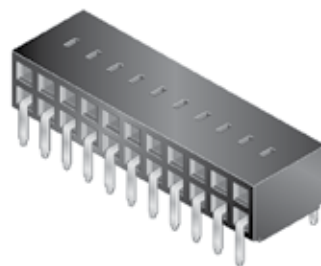
- Series 89882, 89883: compatible with wave soldering processes
- Series 71607, 71609: compatible with vapor-phase and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 71607, 71609, 89882, 89883
- Product specification: HE 13/14 and IEC 603-8
- Application specification: TA-842 for SMT
- Tape and Reel packaging data : TA-856

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



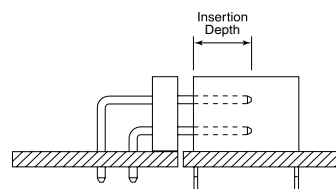
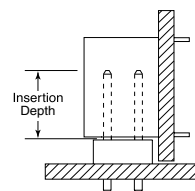
## MATING DATA

- BergStik® Unshrouded vertical headers 8, 10
- BergStik® Unshrouded right angle headers 14
- BergStik® continuous Unshrouded headers 12

## INSERTION DEPTH

- 3,6 mm min. to 7.50 mm max.  
[provides .381 mm wipe]

## TYPICAL APPLICATIONS



# Dubox™ Horizontal Receptacles

## PART NUMBERS

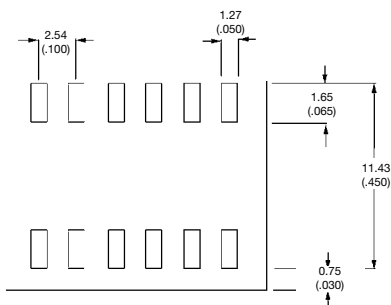
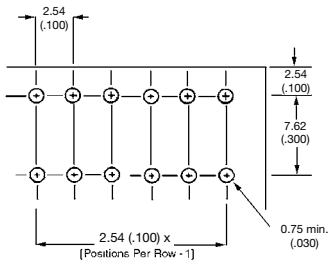


**89882** = Through Hole (TMT), Single Row  
**89883** = Through Hole (TMT), Double Row  
**71607** = Surface Mount (SMT), Single Row  
**71609** = Surface Mount (SMT), Double Row

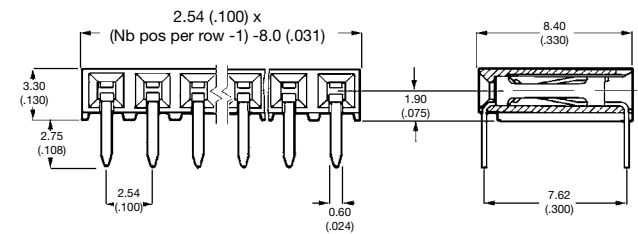
**02 to 36** (TMT)  
**02 to 25** (SMT)

**3** = 0,76 µm (30µ") gold/GXT on mating area, tin on solder side

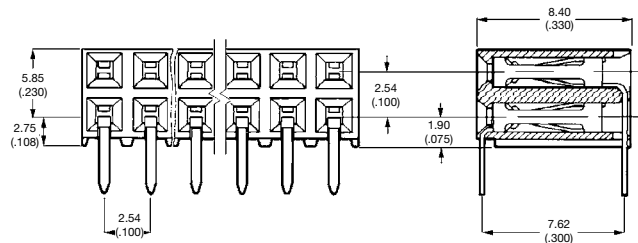
## PRODUCT



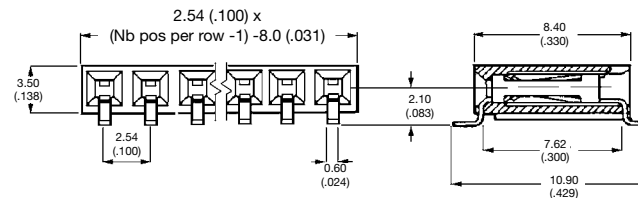
Recommended PCB layouts



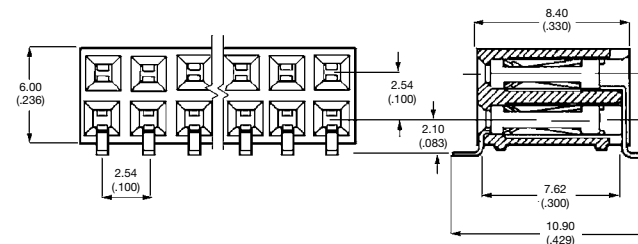
**89882**



**89883**



**71607**



**71609**

Dimension : mm (inch)

## FEATURES

- For use with Dubox™ crimp-to-wire housings
- Stackable end-to-end
- Passive latching, anti-reverse and anti-miss-match when used with Dubox™ crimp-to-wire housings
- Selective plating

## TECHNICAL DATA

### PHYSICAL

- Housing: Glass filled thermoplastic polyester
- Housing color for series 76382, 76383: blue
- Housing color for series 76384, 76385: black
- Flammability rating: UL 94 V-0
- Contact: copper Alloy
- Plating: Gold/GXT or tin over 1.27 µm (50µ") nickel

### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega \text{ min.}$
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Contact retention to housing: 20 N min.

### OPERATING TEMPERATURE RANGE

- -40°C to +125°C

### PACKAGING

- 1x2 to 1x6 and 2x2 to 2x6: plastic bags
- Other in tube

### PROCESSING INFORMATION

- Compatible with wave soldering processes

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Application specification: TA-531

### RoHs INFORMATION

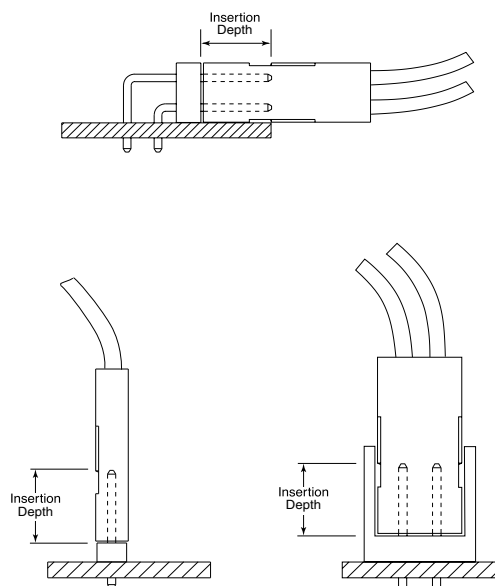
- This product is RoHs compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- Dubox™ Crimp-to-wire contacts 30
- Dubox™ Crimp-to-wire housings 32

## TYPICAL APPLICATIONS





## FEATURES

- The Dubox™ contact has a pre-stressed, dual beam design to enable low insertion force.
- Mates with very short pins (5 mm)
- Universal crimp barrel accommodates wires from AWG 22-30
- Selective plating

## TECHNICAL DATA

### PHYSICAL

- Contact: phosphor bronze
- Plating: 0.76 µm (30µ") Gold/GXT over 1.27 µm (50 µ") nickel

### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Contact resistance after environmental test: 15Ω m max. – Contact
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 200 – Gold
- Insertion force gold finish contact: 1.3 N
- Withdrawal force (min) gold finish contact: 0.3 N.
- contact retention force to housing: 15 N per contact.

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- 1 Reels
- Boxes - Loose piece

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-055
- Application specification: TA-317, TA-340

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- |                                            |       |
|--------------------------------------------|-------|
| ■ BergStik® unshrouded straight headers    | 8, 10 |
| ■ BergStik® unshrouded right angle headers | 14    |
| ■ Dubox™ shrouded vert./ra. headers        | 28    |
| ■ BergStik® continuous unshrouded headers  | 12    |

## INSERTION DEPTH

- Discrete Wire: 3.6 mm min. to 5.6 mm max.  
[provides .381 mm wipe]
- Crimp-to-Wire Housing: 5.1 mm min. to 6.2 mm max.  
[provides .381 mm wipe in housing]

## TYPICAL APPLICATIONS



# Dubox™ Crimp-to-Wire Contacts

2.54 mm (.100")

## PART NUMBERS

### Part numbers / Contacts on Reel

| Wire size    | insulation O.D.           | Selective Gold Plated | Tin plated          | Packaging   |
|--------------|---------------------------|-----------------------|---------------------|-------------|
| <b>22-30</b> | 0.90 - 1.50 (.035 - .059) | <b>76347-301LF</b>    | <b>76347-401LF</b>  | 15.000/reel |
| <b>22-30</b> | 0.90 - 1.50 (.035 - .059) | <b>76347-302 LF•</b>  | <b>76347-402LF•</b> | 15.000/reel |
| <b>22-30</b> | 0.90 - 1.50 (.035 - .059) | <b>76347-303 LF</b>   | <b>76347-403LF</b>  | 500/reel    |
| <b>20-22</b> | 1.10 - 1.60 (.043 - .062) | <b>76347-311LF</b>    | <b>76347-411LF</b>  | 15.000/reel |
| <b>20-22</b> | 1.10 - 1.60 (.043 - .062) | <b>76347-312 LF•</b>  | <b>76347-412LF•</b> | 15.000/reel |

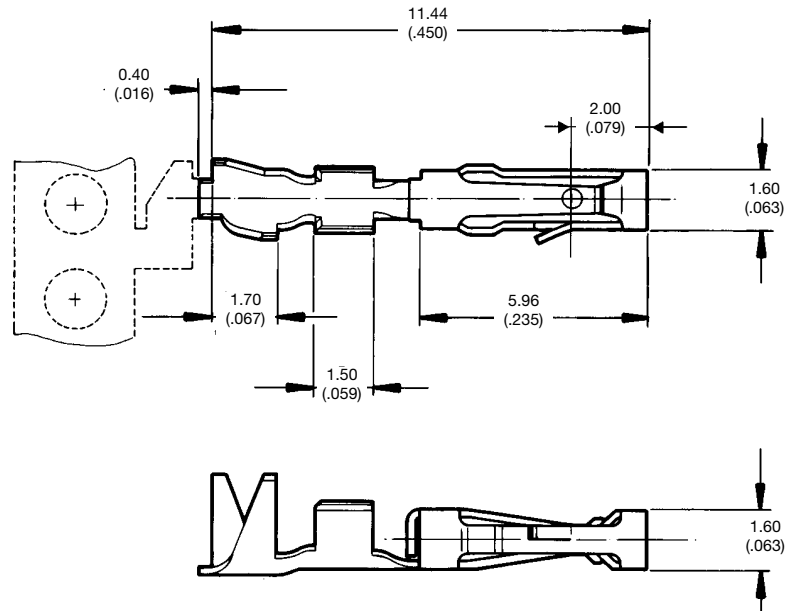
### Part numbers / Contacts loose Piece

| Wire size    | insulation O.D.           | Selective Gold Plated | Tin plated         | Packaging |
|--------------|---------------------------|-----------------------|--------------------|-----------|
| <b>22-30</b> | 0.90 - 1.50 (.035 - .059) | <b>76357-301LF</b>    | <b>76357-401LF</b> | 1000/box  |

Notes: • = reeled for application machine with left-to-right feeding

**76347 - 301LF** **CORE RANGE**

## PRODUCT



**Contacts to be used with housing** = 65239-xxx / 65240-xxx

**Wire strip length** = 3.00 ± 0.25 (.118 ± .010)

**Mating pin size** = 0.62 (.024) square

**Mating pin recommended length** = 5.00 (.197) min.

Dimension : mm (inch)

## FEATURES

- For use with Dubox™ crimp-to-wire contacts
- Stackable end-to-end
- Passive latching, anti-reverse and anti-miss-match when used with Dubox™ shrouded headers
- Contacts removable for easy repairability

## TECHNICAL DATA

### PHYSICAL

- Housing: Glass filled thermoplastic polyester
- Housing color blue
- Flammability rating: UL 94 V-0

### ELECTRICAL PERFORMANCE

- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega \text{ min.}$
- Dielectric withstanding voltage: 1000 V rms

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- Bulk

### PROCESSING INFORMATION

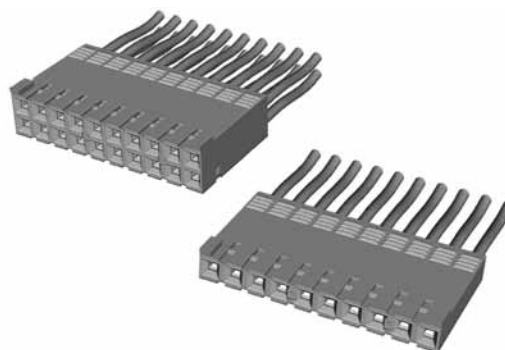
- Compatible with wave soldering processes

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Application specification: TA-317, TA-340

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



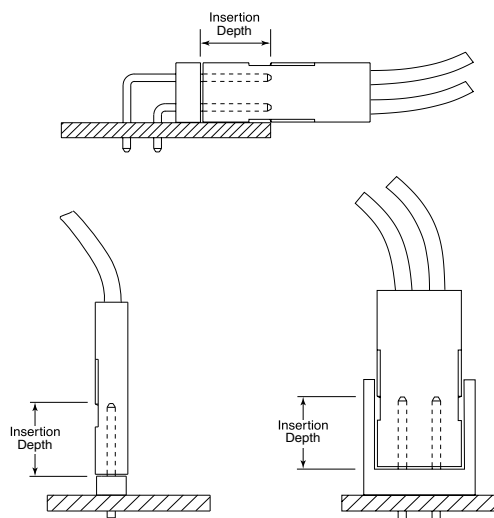
## MATING DATA

- BergStik® unshrouded straight headers 8, 10
- BergStik® unshrouded right angle headers 14
- Dubox™ shrouded vert./ra. headers 28

## INSERTION DEPTH

- 3.6 mm min. to 6.0 mm max.

## TYPICAL APPLICATIONS



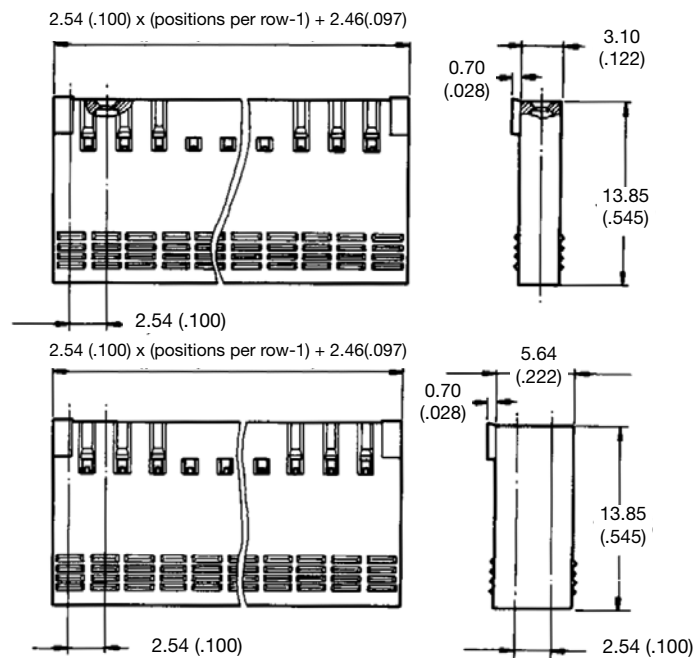
# Dubox™ Crimp-to-Wire Housings

## PART NUMBERS



|                                 |                   |
|---------------------------------|-------------------|
| <b>65239</b> - 0XXLF            | <b>CORE RANGE</b> |
| XX = 02, 03, 04, 05, 06, 08, 10 |                   |
| <b>65240</b> - 0XXLF            |                   |
| XX = 04, 06, 08, 10, 12, 16, 20 |                   |

## PRODUCT



- Pin size: 0.62 (.024) square
- Recommended pin length: 5.00 (.197) min.

Dimension : mm (inch)

## FEATURES

- Housing uses our high reliability contact
- High temperature headers
- Passive latching system

## TECHNICAL DATA

### PHYSICAL

- Housing: Black thermoplastic
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT or tin-lead over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel

### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Contact retention to housing: 17.76 N min.

### OPERATING TEMPERATURE RANGE

- -40°C to +125°C

### PACKAGING

- Bags

### PROCESSING INFORMATION

- Compatible with wave soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-067, BUS-12-075
- Application specification: TA-531

### RoHS INFORMATION

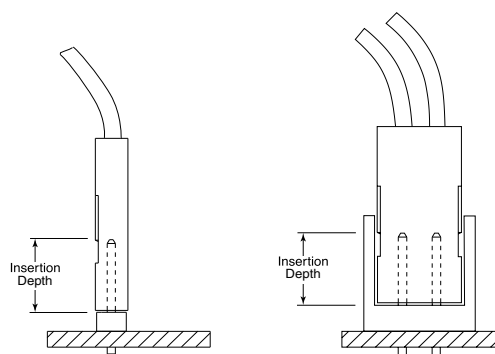
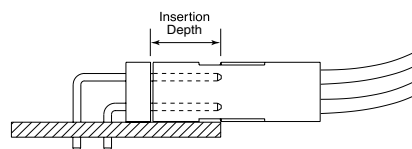
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- PV™ Crimp-to-wire contacts 36
- PV™ Crimp-to-wire housings 38

## TYPICAL APPLICATIONS

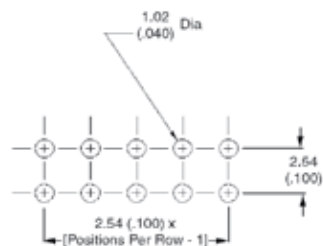


## PV™ Shrouded Headers

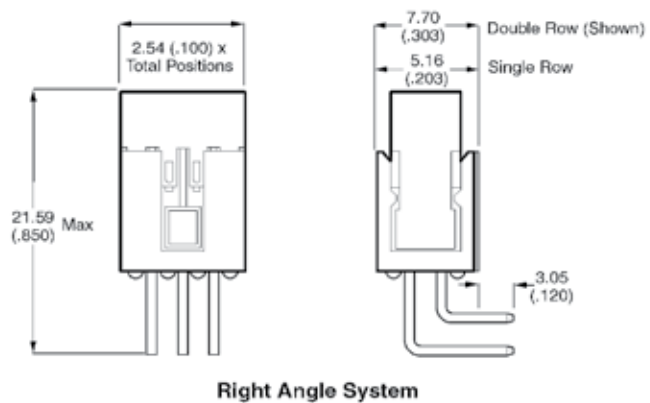
### PART NUMBERS



### PRODUCT



Recommended PCB layouts



Dimension : mm (inch)

## FEATURES

- High reliability contacts for shock and vibration applications
- Three spring thickness options meet application specific insertion, withdrawal, and normal force requirements
- Leaf spring design provides constant retention force after repeated cycles

## TECHNICAL DATA

### PHYSICAL

- Contact: Brass body with beryllium-copper spring
- Pin: Brass
- Plating: Gold/GXT or tin over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel

### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous depending on wire size
- Insulation resistance: 5000  $\text{m}\Omega$  min.
- Contact resistance after environmental test: 15  $\Omega$  m max. – Contact
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 1000 - Gold
- Insertion force per gold contact:
  - 2.35 N (240 gf) - Standard spring
  - 4.41 N (450 gf) - High spring
  - 10.79 N (1100 gf) - Ultra high spring

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

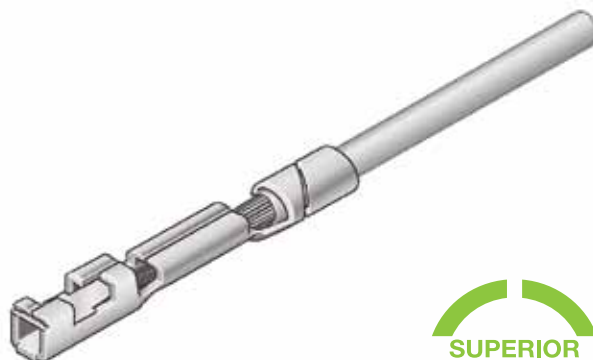
- 1 Reels
- Boxes - Loose piece

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-067 Contact
- Application specification: TA-75, TA-146 - Contact, TA-295, TA-228 and TA-302

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



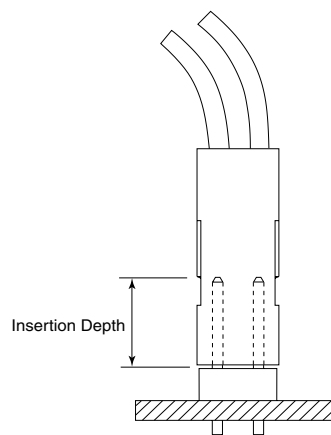
## MATING DATA

- Continuous unshrouded headers 12
- Unshrouded vertical headers 8, 10
- Unshrouded right angle headers 14

## INSERTION DEPTH

- Discrete Wire: 3.5 mm min. to 5.3 mm max. [provides .381 mm wipe]
- Crimp-to-Wire Housing: 4.2 mm min. to 5.3 mm max. [provides .381 mm (.015") wipe in housing]

## TYPICAL APPLICATIONS



## PV™ Crimp-to-Wire Contacts

### PART NUMBERS

#### HOW TO SELECT THE RIGHT CONTACT

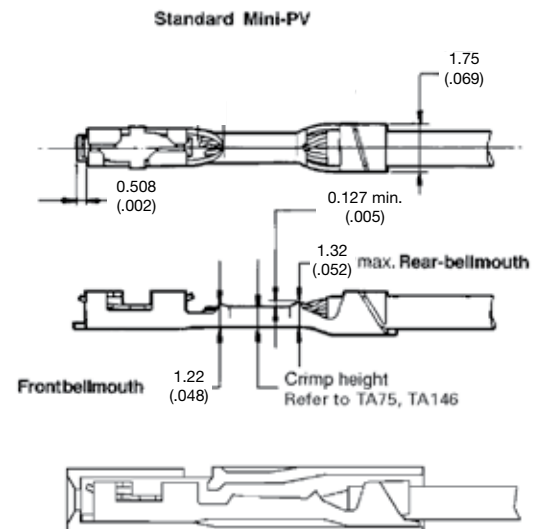
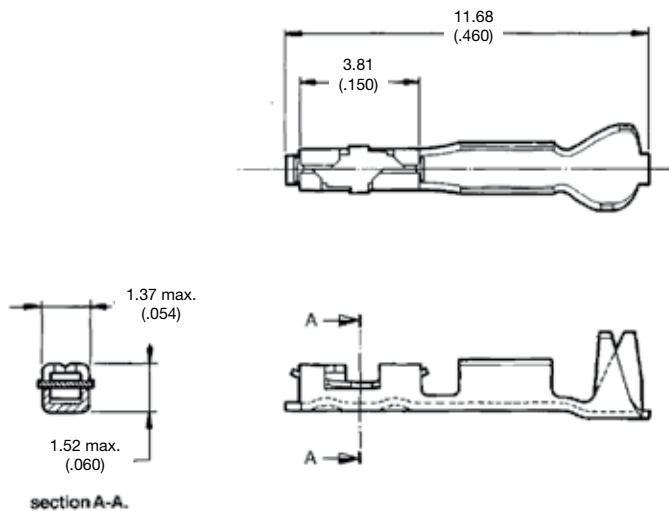
- Step 1** Select Application
- Step 2** Select Spring Force
- Step 3** Select Wire Size



| 1 | Application                       | 2 | Spring Force |
|---|-----------------------------------|---|--------------|
|   | <b>Housing</b>                    |   |              |
|   | <b>40-72</b> Contacts Per Housing |   | Standard     |
|   | <b>10-50</b> Contacts Per Housing |   | High         |
|   | <b>2-20</b> Contacts Per Housing  |   | Ultra High   |
|   | <b>Discrete Contact</b>           |   | Ultra High   |

| Wire Size (AWG)   | Application Spring Force | Part Number |
|-------------------|--------------------------|-------------|
| <b>18, 20</b>     | Standard                 | 48276-002LF |
| <b>or two 22</b>  | High                     | 48047-002LF |
| <b>or two 24</b>  | Ultra High               | 47566-002LF |
| <b>22, 24, 26</b> | Standard                 | 47457-002LF |
| <b>or two 26</b>  | High                     | 47439-002LF |
| <b>or two 28</b>  | Ultra High               | 47565-002LF |
| <b>28, 30, 32</b> | Standard                 | 48048-002LF |
| <b>or two 30</b>  | High                     | 47437-002LF |
| <b>or two 32</b>  | Ultra High               | 47564-002LF |

### PRODUCT



Dimension : mm (inch)

2.54 mm (.100")

## FEATURES

- Lowest profile housing in the industry
- Designed for use with our high reliability PV™ Contact

## TECHNICAL DATA

### PHYSICAL

- Housing: Black thermoplastic
- Flammability rating: UL 94 V-0

### ELECTRICAL PERFORMANCE

- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega \text{ min.}$
- Dielectric withstanding voltage: 1000 V rms

### MECHANICAL PERFORMANCE

- Contact retention to housing: 17.76 N min.

### OPERATING TEMPERATURE RANGE

- 40°C to +125°C

### PACKAGING

- Bags

### PROCESSING INFORMATION

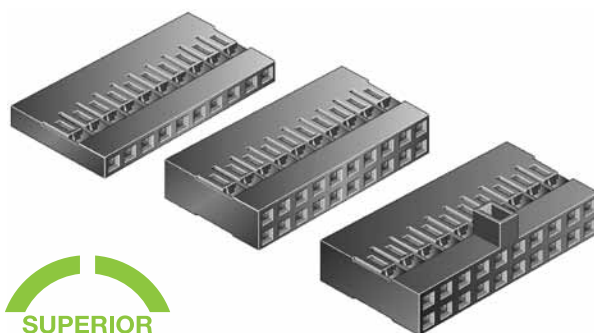
- Compatible with wave soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-067
- Application specification: TA-531

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



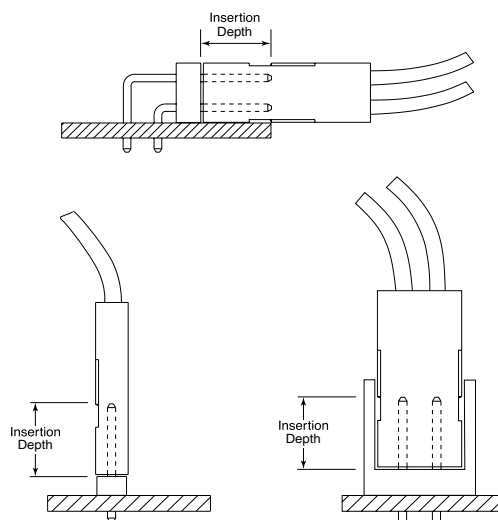
## MATING DATA

- |                                 |       |
|---------------------------------|-------|
| Continuous unshrouded headers   | 12    |
| Unshrouded vertical headers     | 8, 10 |
| Unshrouded right angle headers  | 14    |
| see previous page for terminals | 36    |

## INSERTION DEPTH

- 4.2 mm (.165") min. to 5.3 mm (.210") max.  
[provides .381 mm (.015") wipe in housing].

## TYPICAL APPLICATIONS



# PV™ Crimp-to-Wire Housings

## PART NUMBERS



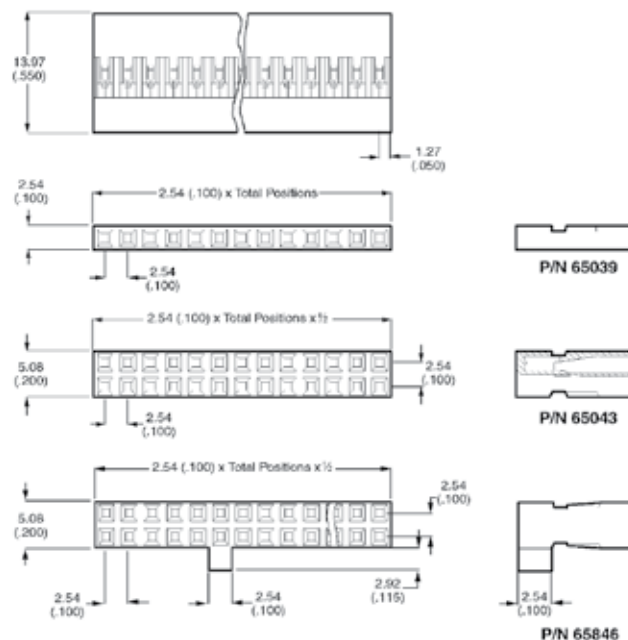
65039 = Single Row  
65043 = Double Row  
65846 = Double Row with Center Key

| Single Row      |       |       | Double Row      |       |       |
|-----------------|-------|-------|-----------------|-------|-------|
| Total Positions | 65039 | 78211 | Total Positions | 65043 | 65846 |
| 2               | -035  |       | 4               | -035  |       |
| 3               | -034  | -003  | 6               | -034  |       |
| 4               | -033  | -004  | 8               | -033  |       |
| 5               | -032  | -005  | 10              | -032  |       |
| 6               | -031  | -006  | 12              | -031  | -017  |
| 7               | -030  | -007  | 14              | -030  |       |
| 8               | -029  | -008  | 16              | -029  |       |
| 9               | -028  | -009  | 18              | -028  |       |
| 10              | -027  | -010  | 20              | -027  |       |
| 11              | -026  | -011  | 22              | -026  | -018  |
| 12              | -025  | -012  | 24              | -025  |       |
| 13              | -024  | -013  | 26              | -024  | -019  |
| 14              | -023  | -014  | 28              | -023  | -020  |
| 15              | -022  | -015  | 30              | -022  |       |
| 16              | -021  |       | 32              | -021  | -021  |
| 17              | -020  |       | 34              | -020  | -022  |
| 18              | -019  |       | 36              | -019  | -023  |
|                 |       |       | 38              | -018  |       |

| Single Row      |       |       | Double Row      |       |       |
|-----------------|-------|-------|-----------------|-------|-------|
| Total Positions | 65039 | 78211 | Total Positions | 65043 | 65846 |
| 19              | -018  |       | 40              | -017  | -024  |
| 20              | -017  |       | 42              | -016  | -025  |
| 21              | -016  |       | 44              | -015  | -004  |
| 22              | -015  |       | 46              | -014  | -026  |
| 23              | -014  |       | 48              | -013  | -027  |
| 24              | -013  |       | 50              | -012  |       |
| 25              | -012  |       | 52              | -011  | -028  |
| 26              | -011  |       | 54              | -010  |       |
| 27              | -010  |       | 56              | -009  | -029  |
| 28              | -009  |       | 58              | -008  | -030  |
| 29              | -008  |       | 60              | -007  | -013  |
| 30              | -007  |       | 62              | -006  | -031  |
| 31              | -006  |       | 64              | -005  | -009  |
| 32              | -005  |       | 66              | -004  | -032  |
| 33              | -004  |       | 68              | -003  | -033  |
| 34              | -003  |       | 70              | -002  | -034  |
| 35              | -002  |       | 72              | -001  | -035  |
| 36              | -001  |       |                 |       |       |

## PRODUCT



Dimension : mm (inch)

## FEATURES

- Recessed pins assure proper alignment and eliminate damage during mating
- End windows for latching with IDC receptacle

## TECHNICAL DATA

### PHYSICAL

- Housing: Glass filled, thermoplastic polyester, blue
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50 $\mu$ "") nickel

### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Dielectric withstanding voltage: 500 V rms min.

### MECHANICAL PERFORMANCE

- Pin retention to housing: 20 N min.

### OPERATING TEMPERATURE RANGE

- -65°C to +105°C

### PACKAGING

- Tubes

### PROCESSING INFORMATION

- Compatible with wave soldering processes

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-082

### RoHS INFORMATION

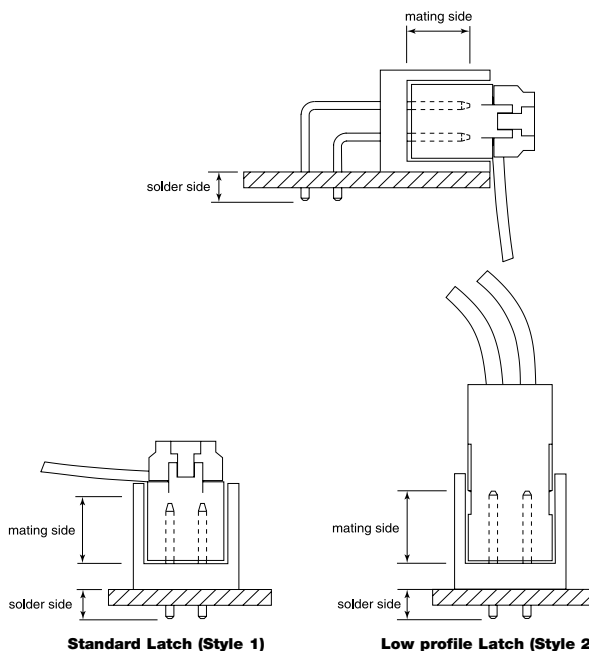
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- Quickie™ IDC receptacles 46

## TYPICAL APPLICATIONS



# Quickie™ Shrouded Headers, Low Profile

2.54 mm (.100")

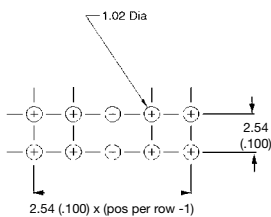
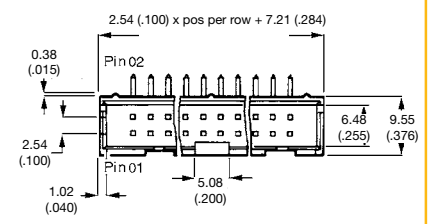
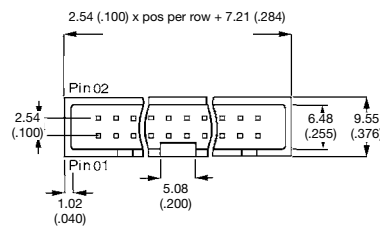
## PART NUMBERS

| 5-Digit Base Part Number                                                      | Plating | Total Positions                                                                                                                                                                                                                                                                                      | LF |
|-------------------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>Through mount</b><br><b>75869</b> = Vertical<br><b>75867</b> = Right angle |         |                                                                                                                                                                                                                                                                                                      |    |
| <b>1</b> = 0.76 µm (30µ") gold/GXT on mating area, tin on solder side         |         |                                                                                                                                                                                                                                                                                                      |    |
|                                                                               |         | <b>30</b> = 4 pos.<br><b>31</b> = 6 pos.<br><b>32</b> = 8 pos.<br><b>01</b> = 10 pos.<br><b>02</b> = 14 pos.<br><b>03</b> = 16 pos.<br><b>04</b> = 20 pos.<br><b>05</b> = 26 pos.<br><b>06</b> = 34 pos.<br><b>07</b> = 40 pos.<br><b>08</b> = 50 pos.<br><b>09</b> = 60 pos.<br><b>10</b> = 64 pos. |    |

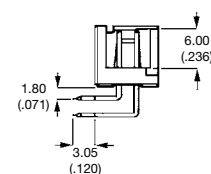
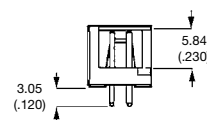
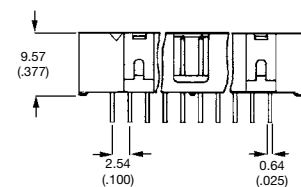
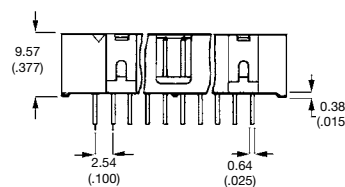
## PRODUCT

**Vertical**

**Right Angle**



**Recommended PCB layouts**



Dimension : mm (inch)

## FEATURES

- High temperature housing
- Compatible with IR reflow soldering processes
- Tape-and-Reel packaging for automatic pick-and-place

## TECHNICAL DATA

### PHYSICAL

- Housing: Glass filled, high temperature thermoplastic polyester, black
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50 $\mu$ "") nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Dielectric withstanding voltage: 500 V rms min.

### MECHANICAL PERFORMANCE

- Pin retention to housing: 20 N min.

### OPERATING TEMPERATURE RANGE

- 65°C to +125°C

### PACKAGING

- SMT: Tape-and-reel with pick-up cap
- PiP, right angle: Tube without pick-up cap
- PiP, straight: Tape and reel

### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-055

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC

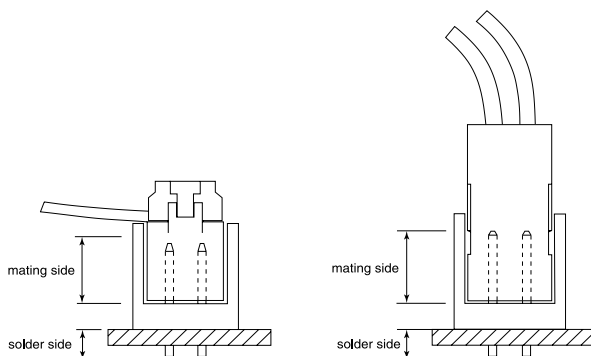


## MATING DATA

- Quickie™ IDC receptacles

46

## TYPICAL APPLICATIONS



# Quickie™ Shrouded Headers, Low Profile, SMT, Pin-in-Paste

2.54 mm (.100")

## PART NUMBERS

SMT (Surface Mount)



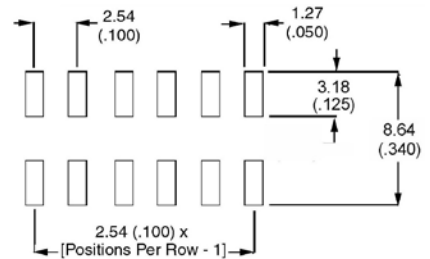
PiP (Pin-in-Paste)



## PRODUCT



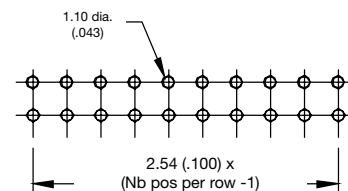
52601



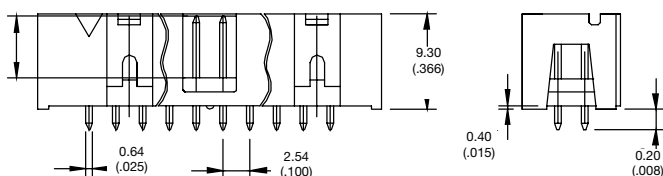
Recommended PCB layouts



10056844



Recommended PCB layouts



Dimension : mm (inch)

## FEATURES

- Selective plating
- Recessed pins assure proper alignment and eliminate damage during mating

## TECHNICAL DATA

### PHYSICAL

- Housing: Glass filled, high temperature thermoplastic polyester, grey
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27 µm (50µ") nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5$  MΩ min.
- Dielectric withstanding voltage: 500 V rms min.

### MECHANICAL PERFORMANCE

- Pin retention to housing: 20 N min.

### OPERATING TEMPERATURE RANGE

- -65°C to +105°C

### PACKAGING

- Tubes

### PROCESSING INFORMATION

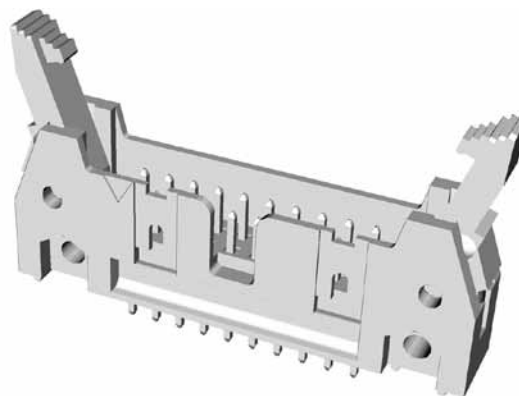
- Compatible with wave soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-082

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



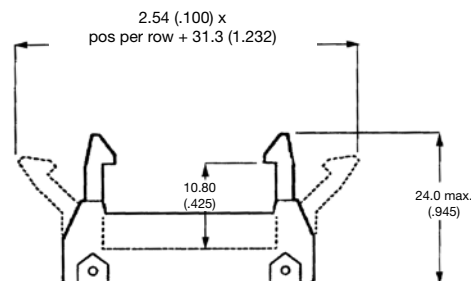
## MATING DATA

- Quickie™ IDC receptacles 46

## TYPICAL APPLICATIONS



Standard Latch (Style 1)



Low profile Latch (Style 2)

# Quickie™ Shrouded Headers, Eject Latch

2.54 mm (.100")

## PART NUMBERS

| 5-Digit Base Part Number                                                                                                                                     | Latch Style                                                                                                                                    | Total Positions                                                   | LF |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----|
| <b>Through mount</b><br><b>71918</b> = Vertical<br><b>71922</b> = Right angle<br><b>Plating</b> = 0.76 µm (30µ") gold/GXT on mating area, tin on solder side | <b>1</b> = Standard (mates with IDC Receptacle with Strain Relief)<br><b>2</b> = Low Profile (mates with IDC Receptacle without Strain Relief) | <b>06, 08, 10, 14, 16, 18, 20, 26, 30, 34, 40, 44, 50, 60, 64</b> |    |

**71918 - 1XXLF**  
**71922 - 1XXLF**  
**CORE RANGE**  
 XX = 06, 08, 10, 16, 20

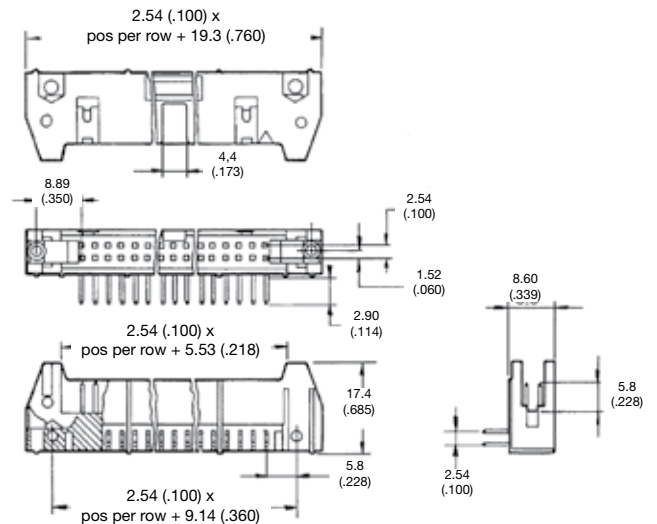
## PRODUCT



**Vertical**



**Right Angle**



**Recommended PCB layouts**

Dimension : mm (inch)

## TECHNICAL DATA

### PHYSICAL

- Housing: Grey thermoplastic  
Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: 0.76 µm (30µ") Gold/GXT over  
1.27 µm (50 µ") nickel

### ELECTRICAL PERFORMANCE

- Current rating: 1 A continuous
- Insulation resistance:  $1 \times 10^5$  MΩ min.
- Contact resistance: 15 mΩ max.
- Dielectric withstanding voltage: 1000 V min. rms (sea level)

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100

### OPERATING TEMPERATURE RANGE

- -65°C to +105°C

### PACKAGING

- Tubes

### PROCESSING INFORMATION

- Compatible with wave soldering processes

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-095

### RoHS INFORMATION

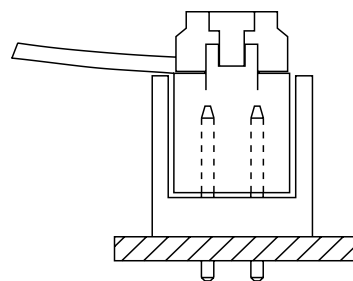
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- BergStik® unshrouded vertical headers 8, 12
- Quickie® shrouded low profile headers 40, 42
- Quickie® shrouded eject latch headers 44

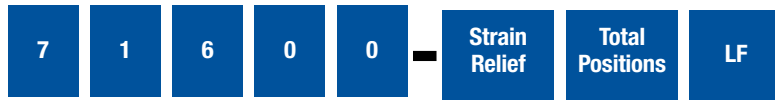
## TYPICAL APPLICATIONS



Low profile Latch (Style 2)

# Quickie™ IDC Receptacle

## PART NUMBERS



Note: 4 position available without strain relief only

04, 06, 08, 10, 14, 16, 20, 26, 34, 40, 50, 60, 64

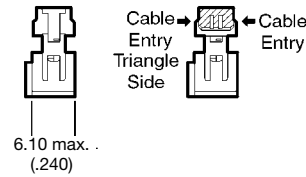
- 0 = Standard (Mates with Shrouded Eject Latch Header Latch 1)
- 1 = None (Mates with Shrouded Eject Latch Header Latch 2)
- 6 = Latching (Mates with Low Profile Headers)

71600 - 0XXLF

XX = 04, 06, 08, 10, 16, 20

**CORE RANGE**

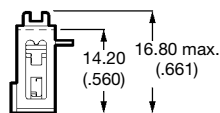
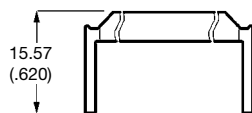
## PRODUCT



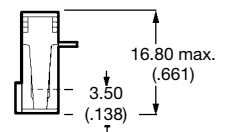
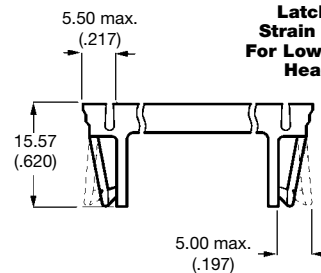
### Cable specification:

Wire size: AWG 28 stranded  
AWG 30 solid  
Pitch: 1.27 mm (.050")

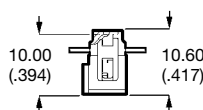
### 0 Standard Strain Relief



### 6 Latching Strain Relief For Low Profile Header



### 1 Without Strain Relief



Dimension : mm (inch)

## FEATURES

- Ideal for daisy chain applications
- Single piece design provides one of the lowest applied costs in the industry

## TECHNICAL DATA

### PHYSICAL

- Housing: Blue thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Tin over 1.27  $\mu\text{m}$  (50 $\mu$ "") nickel

### ELECTRICAL PERFORMANCE

- Current rating: 1 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 15 m $\Omega$  max.
- Dielectric withstanding voltage: 1000 V min. rms (sea level)

### OPERATING TEMPERATURE RANGE

- -65°C to +125°C

### PACKAGING

- Tubes

### PROCESSING INFORMATION

- Compatible with wave and vapor phase soldering processes — Low temperature

### REFERENCE INFORMATION

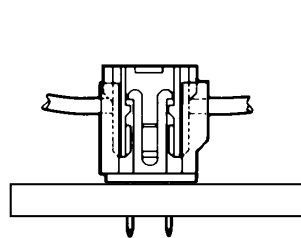
-  File no. E66906
-  File no. LR46923
- Product drawing: By 5-digit base part number
- Product specification: BUS-12-095

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## TYPICAL APPLICATIONS



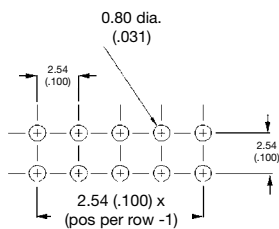
# Quickie™ IDC PCB Connector

## PART NUMBERS

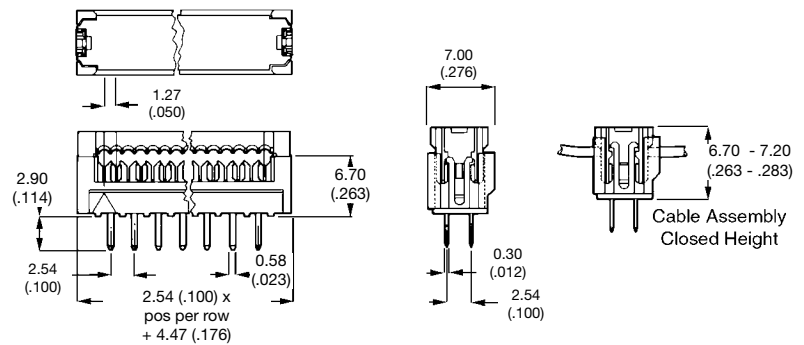


|              |              |              |
|--------------|--------------|--------------|
| 06 = 6 pos.  | 18 = 18 pos. | 34 = 34 pos. |
| 08 = 8 pos.  | 20 = 20 pos. | 40 = 40 pos. |
| 10 = 10 pos. | 24 = 24 pos. | 50 = 50 pos. |
| 14 = 14 pos. | 26 = 26 pos. | 60 = 60 pos. |
| 16 = 16 pos. | 30 = 30 pos. | 64 = 64 pos. |

## PRODUCT



Recommended PCB layouts



Dimension : mm (inch)

## TECHNICAL DATA

### PHYSICAL

- Housing: High-temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50 $\mu''$ ) nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 25 m $\Omega$  max.
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100.

### OPERATING TEMPERATURE RANGE

- -55°C to +125°C

### PACKAGING

- Standard: TMT in tubes (04 to 06 pos. packed in box)
- SMT in Tape-and-reel
- Optional: SMT in Tubes

### PROCESSING INFORMATION

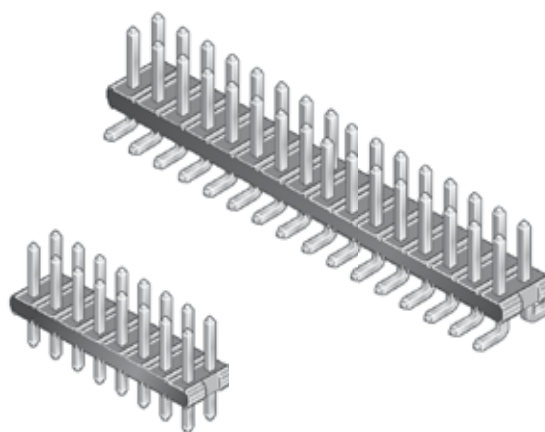
- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 57102 or 57202
- Product specification: DPS-12-011 and GS-12-163
- Tape and Reel packaging data: TA-884

### RoHS INFORMATION

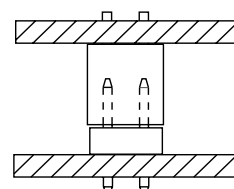
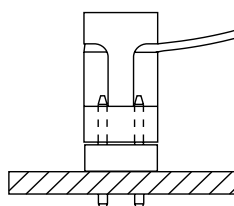
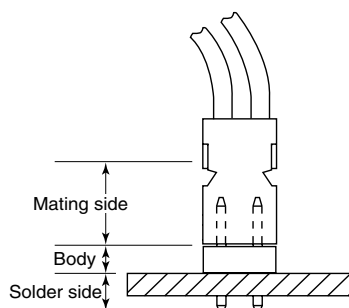
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

|                                      |    |
|--------------------------------------|----|
| ■ Minitek™ ctw contacts and housings | 70 |
| ■ Minitek™ Vertical receptacles      | 58 |
| ■ Minitek™ Shunts                    | 60 |
| ■ Minitek™ IDC receptacles           | 74 |

## TYPICAL APPLICATIONS



# Minitek™ Unshrouded Vertical Headers

## PART NUMBERS



**1** = Through Mount (TMT)  
**2** = Surface Mount (SMT)

**G** = 0,76 µm (30µ") gold/GXT on mating area,  
2-6 µm (79-237µ") Tin on solder side  
**F** = Gold flash on mating area,  
2-6 µm (79-237µ") Tin on solder side

**02 to 25** (TMT)  
**02 to 25** (SMT)

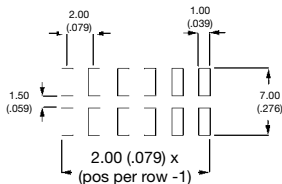
**U** = Tube without cap (TMT)  
**A** = Tape-and-reel with cap (SMT)

57202 - G 52 - XXALF  
XX = 02, 03, 04, 05, 06, 08, 10

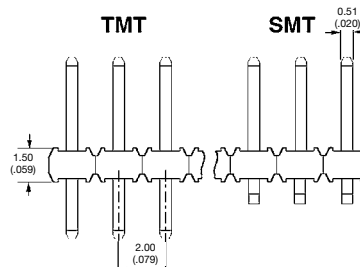
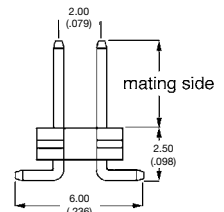
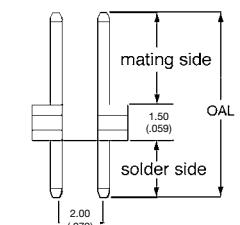
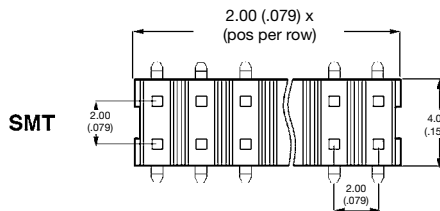
**CORE RANGE**

| Surface Mount |             |        | Through Mount |             |             |             |
|---------------|-------------|--------|---------------|-------------|-------------|-------------|
| Pin Style     | Mating side |        | Pin Style     | Mating Side | Solder Side | OAL         |
| 51            | 2.00        | (.079) | 06            | 4.00 (.157) | 2.50 (.098) | 8.00 (.315) |
| 52            | 4.00        | (.157) | 08            | 4.00 (.157) | 3.00 (.118) | 8.50 (.335) |

## PRODUCT



Recommended PCB layouts



Dimension : mm (inch)

2.00 mm (.079")

## FEATURES

- High temperature plastic
- Selective plating

## TECHNICAL DATA

### PHYSICAL

- Housing: High-temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50 $\mu''$ ) nickel



### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 25 m $\Omega$  max.
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100.

### OPERATING TEMPERATURE RANGE

- 55°C to +125°C

### PACKAGING

- Tubes (04 to 06 pos. packed in box)

### PROCESSING INFORMATION

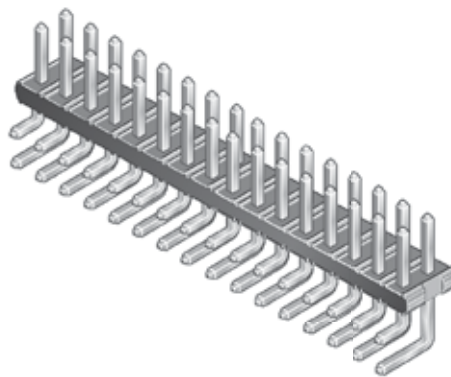
- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 98423
- Product specification: DPS-12-011 and GS-12-163

### RoHS INFORMATION

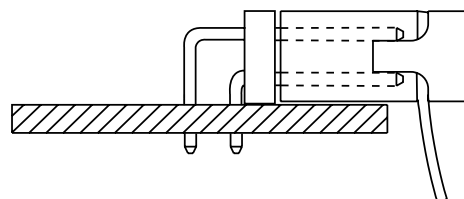
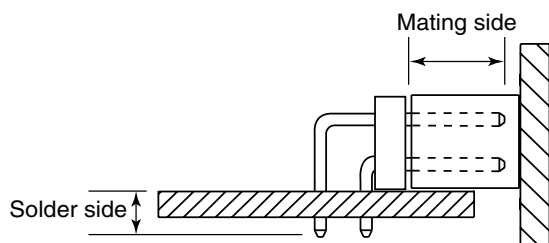
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

|                                    |    |
|------------------------------------|----|
| Minitek™ ctw contacts and housings | 70 |
| Minitek™ Vertical receptacles      | 58 |
| Minitek™ Shunts                    | 60 |
| Minitek™ IDC receptacles           | 74 |

## TYPICAL APPLICATIONS



## Minitek™ Unshrouded Right Angle Headers

### PART NUMBERS

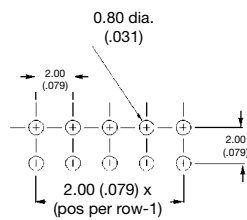


**G** = 0,76 µm (30µ") gold/GXT on mating area,  
2-6 µm (79-237µ") Tin on solder side  
**F** = Gold flash on mating area,  
2-6 µm (79-237µ") Tin on solder side

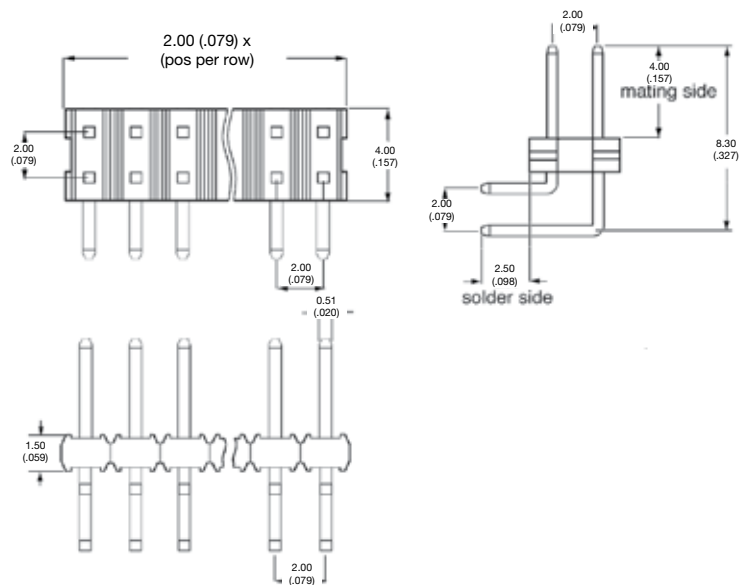
**02 to 25**

2.00 mm (.079")

### PRODUCT



Recommended PCB layouts



Dimension : mm (inch)

## TECHNICAL DATA

### PHYSICAL

- Housing: High-temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50 $\mu$ "") nickel

### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 25 m $\Omega$  max.
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100.

### OPERATING TEMPERATURE RANGE

- -55°C to +125°C

### PACKAGING

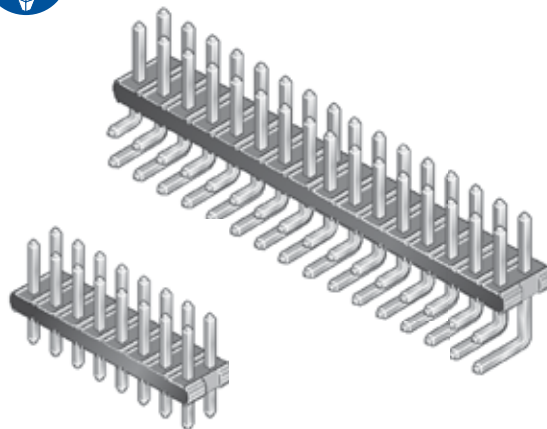
- Tubes (04 to 06 pos. packed in box)
- Tape on reel with pick up cap

### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: by 8-digit base part number
- Product specification: DPS-12-011 and GS-12-163
- Application specification: TA-895
- Reflow profile: TA-842



## MATING DATA

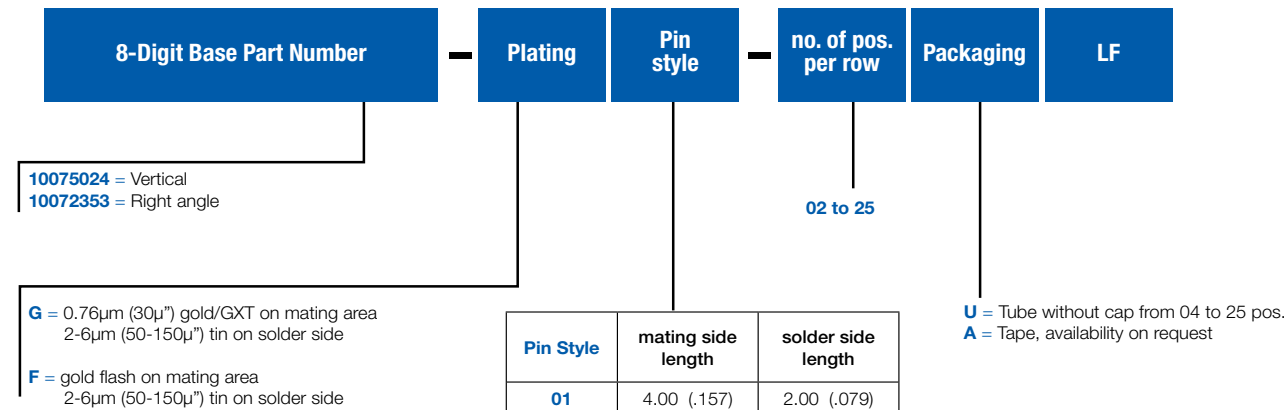
|                                      |    |
|--------------------------------------|----|
| ■ Minitek™ ctw contacts and housings | 70 |
| ■ Minitek™ Vertical receptacles      | 58 |
| ■ Minitek™ Shunts                    | 60 |
| ■ Minitek™ IDC receptacles           | 74 |

## TYPICAL APPLICATIONS



# Minitek™ Unshrouded Headers, Pin-in-Paste

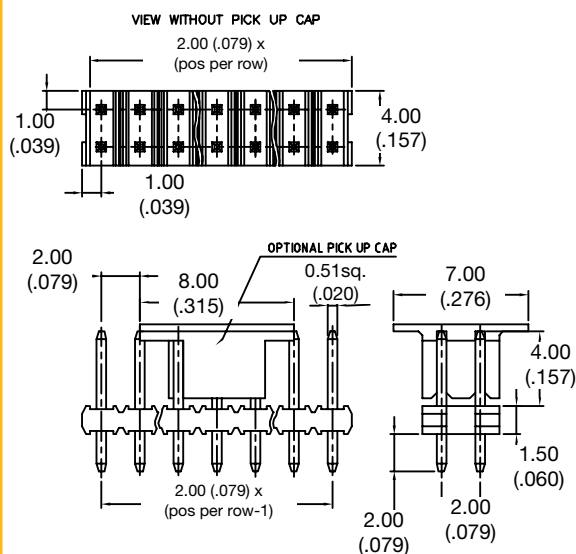
## PART NUMBERS



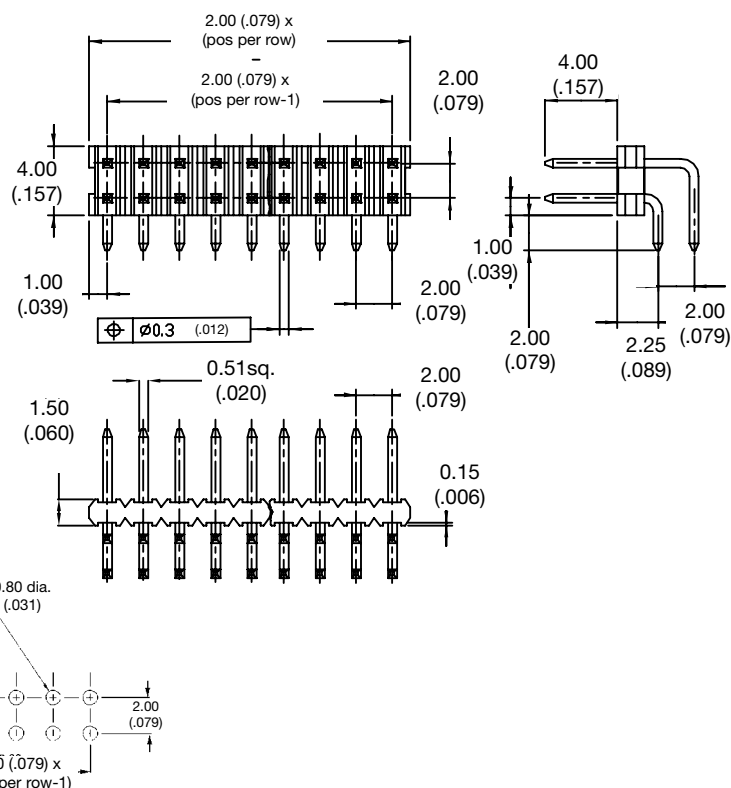
2.00 mm (.079")

## PRODUCT

### 10075024 Vertical



### 10072353 Right angle



Dimension : mm (inch)

Recommended PCB layouts

## FEATURES

- Wide variety of stack heights in 0.13 mm increments
- Custom sizes to meet your specific design requirements

## TECHNICAL DATA

### PHYSICAL

- Housing: High-temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over over 1.27  $\mu\text{m}$  (50 $\mu$ ) nickel



### ELECTRICAL PERFORMANCE

- Current rating: 2 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 25 m $\Omega$  max.
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100.

### OPERATING TEMPERATURE RANGE

- 55°C to +125°C

### PACKAGING

- Standard: in bags

### PROCESSING INFORMATION

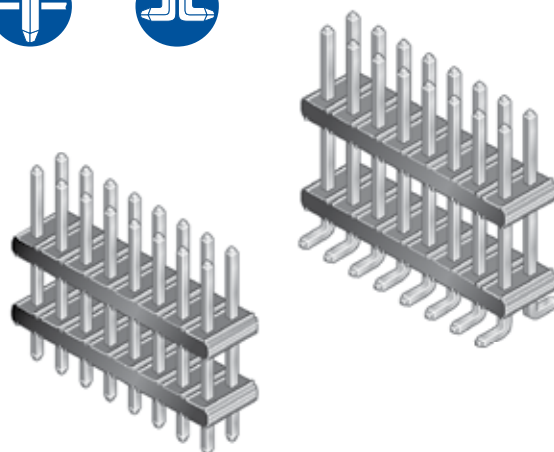
- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 59112, 59132, or 59202
- Product specification: DPS-12-011

### RoHS INFORMATION

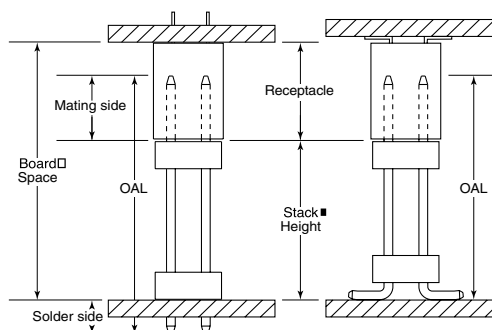
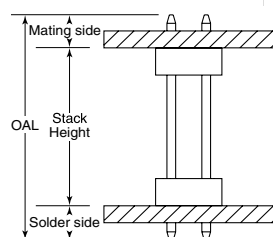
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

|                                    |    |
|------------------------------------|----|
| Minitek™ ctw contacts and housings | 70 |
| Minitek™ Vertical receptacles      | 58 |
| Minitek™ Shunts                    | 60 |
| Minitek™ IDC receptacles           | 74 |

## TYPICAL APPLICATIONS



# Minitek™ Unshrouded Stacking Headers

## PART NUMBERS

Compile your own part number using custom dimensions (Please allow for initial setup on our system)

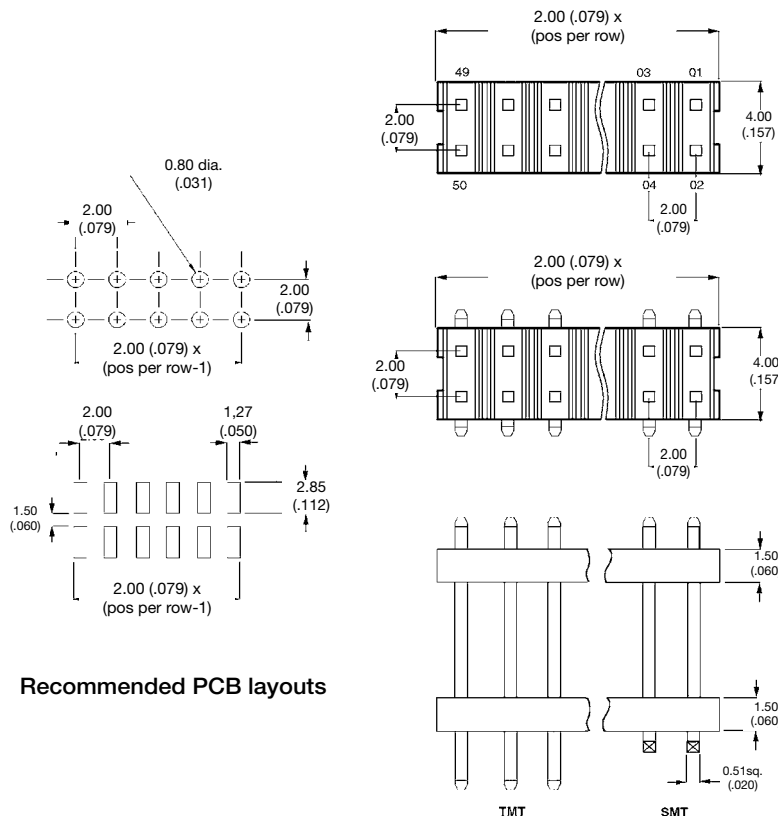
| 5                                                                                                                                      | 9 | Lead                                                                                 | Solder Side Option | 2                                                      | Plating | Pin Style                                                                                | Positions Per Row | Stack Height | LF |
|----------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------|---------|------------------------------------------------------------------------------------------|-------------------|--------------|----|
| <p><b>1</b> = Through Mount (TMT)<br/><b>2</b> = Surface Mount (SMT)</p> <p><b>1</b> = 2.50<br/><b>3</b> = 3.00<br/><b>0</b> = SMT</p> |   | <p><b>T</b> = 0,76 µm (30µ")<br/>gold/GXT on mating side,<br/>tin on solder side</p> |                    | <p><b>02 to 25</b> (TMT)<br/><b>02 to 25</b> (SMT)</p> |         | <p><b>xxx</b> = mm<br/>Specify mm<br/>[e.g., 037 = 03.7 mm]<br/>in 0.1 mm increments</p> |                   |              |    |

| Pin Style | Overall length (OAL) |              |
|-----------|----------------------|--------------|
|           | (TMT)                | (SMT)        |
| <b>22</b> | 8.20 (.323)          | 6.53 (.257)  |
| <b>24</b> | 9.55 (.376)          | 7.87 (.310)  |
| <b>26</b> | 10.19 (.401)         | 8.51 (.335)  |
| <b>28</b> | 11.79 (.464)         | 10.11 (.398) |
| <b>30</b> | 13.54 (.533)         | 11.86 (.467) |
| <b>32</b> | 14.10 (.555)         | 12.42 (.489) |
| <b>34</b> | 15.60 (.614)         | 13.92 (.548) |
| <b>36</b> | 17.09 (.473)         | 15.42 (.607) |
| <b>38</b> | 19.08 (.751)         | 17.40 (.685) |
| <b>40</b> | 21.08 (.830)         | 19.41 (.764) |

2.00 mm (.079")

## PRODUCT



Recommended PCB layouts

Dimension : mm (inch)

**The board spacing**  
is the stack height of this header,  
plus the height of the receptacle  
(see application drawings on opposite page)

## FEATURES

- Two housing heights: 2.30 mm, 4.50 mm
- Dual-beam contact design for highly reliable electrical performance

## TECHNICAL DATA

### PHYSICAL

- Housing: High-temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze Beryllium-copper – 63453
- Plating: Gold/GXT over 1.27 µm (50 µ") nickel



### ELECTRICAL PERFORMANCE

- Current rating: 2 A continuous
- Insulation resistance:  $1 \times 10^5$  MΩ min.
- Contact resistance: 20 mΩ  
25 mΩ – 63453
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 25  
100 – 63453
- Contact retention to housing: 2.20 N (227 gf) min.  
4.90 N (500 gf) min. – 63453
- Insertion force per contact: 1.80 N (184 gf) max.  
1.95 N (200 gf) – 63453
- Withdrawal force per contact: 0.20 N (20 gf) min.

### OPERATING TEMPERATURE RANGE

- 55°C to +125°C

### PACKAGING

- Standard: TMT in Tubes  
SMT in Tape-and-reel
- Optional: Tubes (SMT)

### PROCESSING INFORMATION

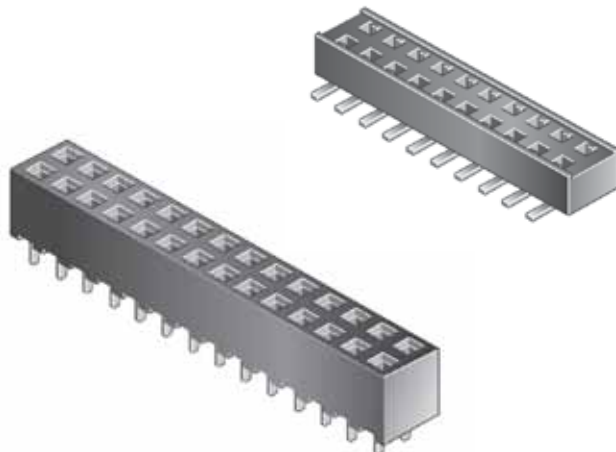
- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: by 5-digit base part number
- Product specification: GS-12-008  
DPS-12-011 – for 63453

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



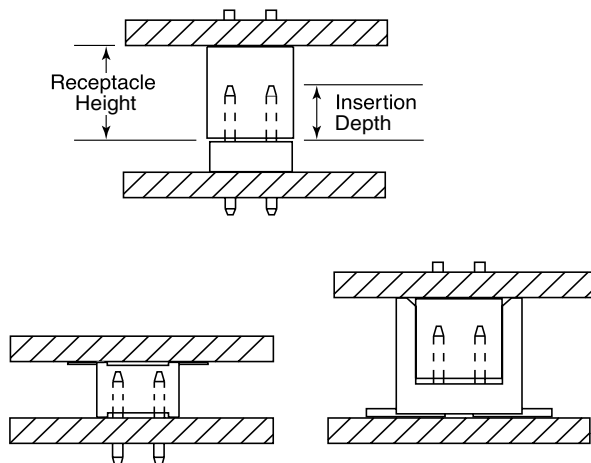
## MATING DATA

- Minitek™ Unshrouded headers 50, 52, 56
- Minitek™ Shrouded headers 62, 64

## INSERTION DEPTH

- 4.50 mm height: 3.00 mm min. to 4.30 mm max. [provides .381 mm wipe]
- 2.30 mm height – Top Entry: 1.30 mm min. to 2.20 mm max. [provides .381 mm wipe]
- 2.30 mm height – Bottom Entry: 1.40 mm min. to 2.20 mm max. [provides .381 mm wipe] plus board thickness

## TYPICAL APPLICATIONS



# Minitek™ Vertical Receptacles

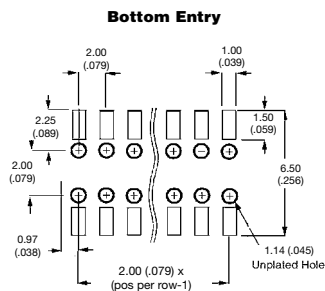
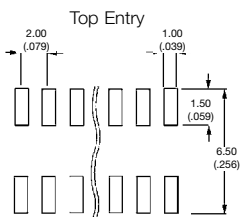
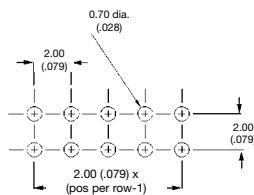
## PART NUMBERS

| 5-Digit Base Part Number                                                                                                                                                                                                                 |             |        | 1                   | Total Positions | Packaging   | LF          |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|---------------------|-----------------|-------------|-------------|-------------|-------|-------|-------------|-----|-------|----------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------|--|--|--|
| <div></div>                                                                                                                                                                                                                              |             |        | <div></div>         | <div></div>     | <div></div> | <div></div> |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |
| <table><tr><th colspan="3">Through Mount (TMT)</th></tr><tr><th>Height</th><th></th><th>Entry</th></tr><tr><td>63453</td><td>4.50 (.177)</td><td>Top</td></tr></table>                                                                   |             |        | Through Mount (TMT) |                 |             | Height      |             | Entry | 63453 | 4.50 (.177) | Top |       | <div>04 to 50 Top Entry</div> <div>04 to 30 Bottom Entry</div> |        | <div>- (dash) = Tubes (TMT)</div> <div>TR = Tape-and-reel (SMT)</div>                           |  |  |  |
| Through Mount (TMT)                                                                                                                                                                                                                      |             |        |                     |                 |             |             |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |
| Height                                                                                                                                                                                                                                   |             | Entry  |                     |                 |             |             |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |
| 63453                                                                                                                                                                                                                                    | 4.50 (.177) | Top    |                     |                 |             |             |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |
| <table><tr><th colspan="3">Surface Mount (SMT)</th></tr><tr><td>55510</td><td>4.50 (.177)</td><td>Top</td></tr><tr><td>55508</td><td>2.30 (.090)</td><td>Top</td></tr><tr><td>91596</td><td>2.30 (.090)</td><td>Bottom</td></tr></table> |             |        | Surface Mount (SMT) |                 |             | 55510       | 4.50 (.177) | Top   | 55508 | 2.30 (.090) | Top | 91596 | 2.30 (.090)                                                    | Bottom | <div>1 = 0,76 μm (30μ") gold/GXT on mating area,<br/>2-6 μm (79-237μ") Tin on solder side</div> |  |  |  |
| Surface Mount (SMT)                                                                                                                                                                                                                      |             |        |                     |                 |             |             |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |
| 55510                                                                                                                                                                                                                                    | 4.50 (.177) | Top    |                     |                 |             |             |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |
| 55508                                                                                                                                                                                                                                    | 2.30 (.090) | Top    |                     |                 |             |             |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |
| 91596                                                                                                                                                                                                                                    | 2.30 (.090) | Bottom |                     |                 |             |             |             |       |       |             |     |       |                                                                |        |                                                                                                 |  |  |  |

1 = 0,76 µm (30µ") gold/GXT on mating area,  
2-6 µm (79-237µ") Tin on solder side

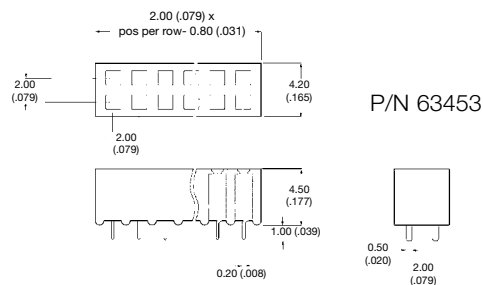
**55510 - 1XXTRLF** **CORE RANGE**  
XX = 04, 06, 08, 10, 12, 16, 20

## PRODUCT

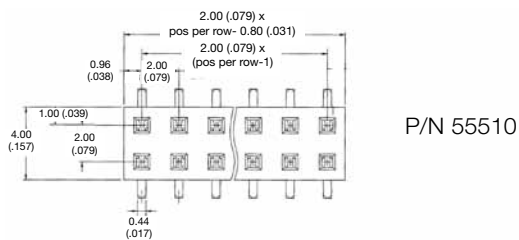


Recommended PCB layouts

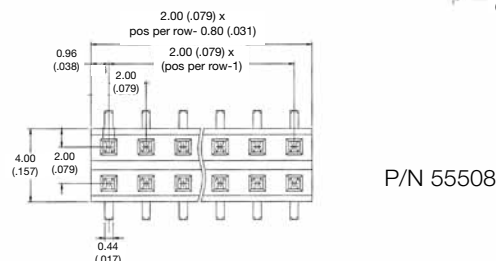
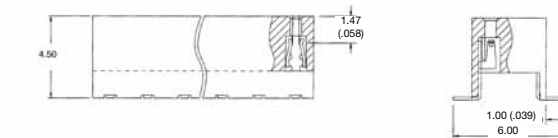
Dimension : mm (inch)



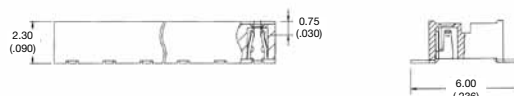
P/N 63453



P/N 55510



P/N 55508



## FEATURES

- Early entry, dual-beam contacts provide long wiping action for reliable electrical contact

## TECHNICAL DATA

### PHYSICAL

- Housing: Black thermoplastic
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT or tin-lead over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel

### ELECTRICAL PERFORMANCE

- Current rating: 1 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 25  $\text{m}\Omega$
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 50
- Insertion force per contact: 6.41 N (650 gf) max.
- Withdrawal force per contact: 0.49 N (50 gf) min.

### OPERATING TEMPERATURE RANGE

- 55°C to +125°C

### PACKAGING

- Bags

### PROCESSING INFORMATION

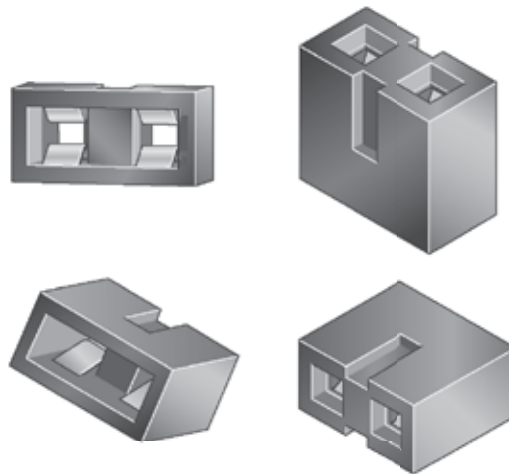
- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: by 5-digit base part number
- Product specification: DPS-12-012

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- |                               |            |
|-------------------------------|------------|
| ■ Minitek™ Unshrouded headers | 50, 52, 56 |
| ■ Minitek™ Shrouded headers   | 62, 64     |

## INSERTION DEPTH

- 2.24 mm min. [provides .381 mm wipe]

## TYPICAL APPLICATIONS



## Minitek™ Shunts

### PART NUMBERS

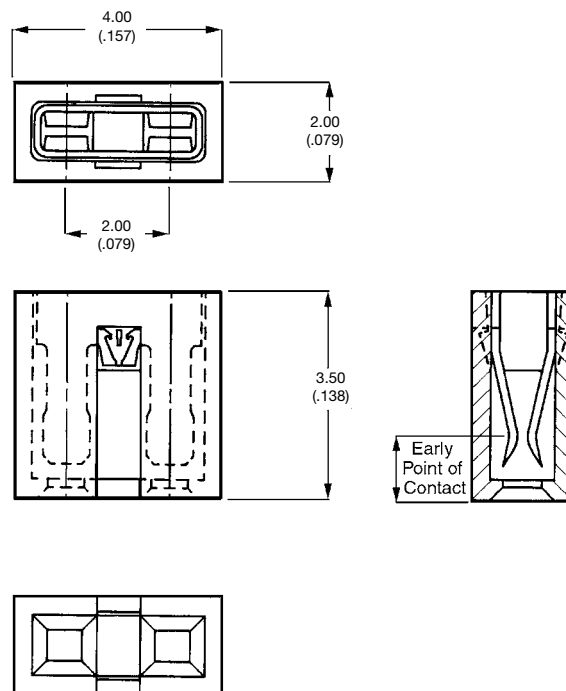


**1** = 0,76 µm (30µ") gold/GXT on mating area,  
2-6 µm (79-237µ") Tin on solder side  
**0** = Gold flash

86730 - 101LF **CORE RANGE**

2.00 mm (.079")

### PRODUCT



Dimension : mm (inch)

## FEATURES

- 4-wall design prevents mis-mating
- Selective plating
- Co-planarity 0.1 (SMT)

## TECHNICAL DATA

### PHYSICAL

- Housing: High temperature, cream-colored thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27 µm (50 µ") nickel



### ELECTRICAL PERFORMANCE

- Current rating: 2 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega \text{ min.}$
- Contact resistance: 25 mΩ max.
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100

### OPERATING TEMPERATURE RANGE

- 40°C to +125°C

### PACKAGING

- Standard: TMT in Tubes (04 to 06 pos. packed in box)  
SMT in Tape-and-reel
- Optional: SMT in Tubes (04 and 06 in box)

### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 98414 or 98424
- Product specification: DPS-12-011 and GS-12-163
- Tape and Reel packaging data TA-884

### RoHS INFORMATION

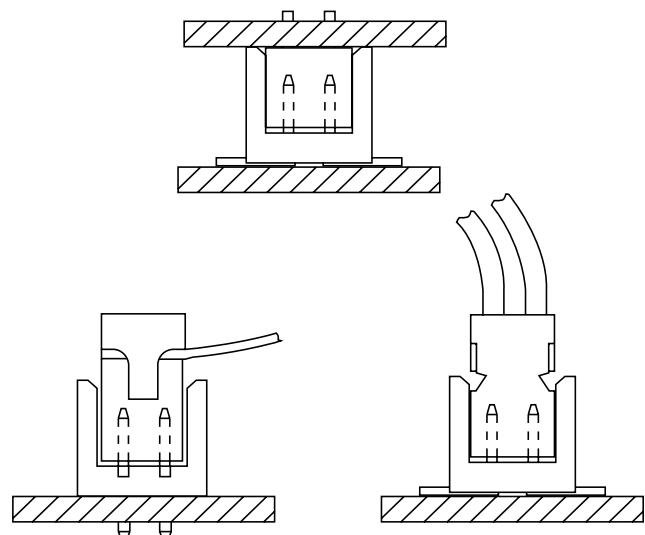
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

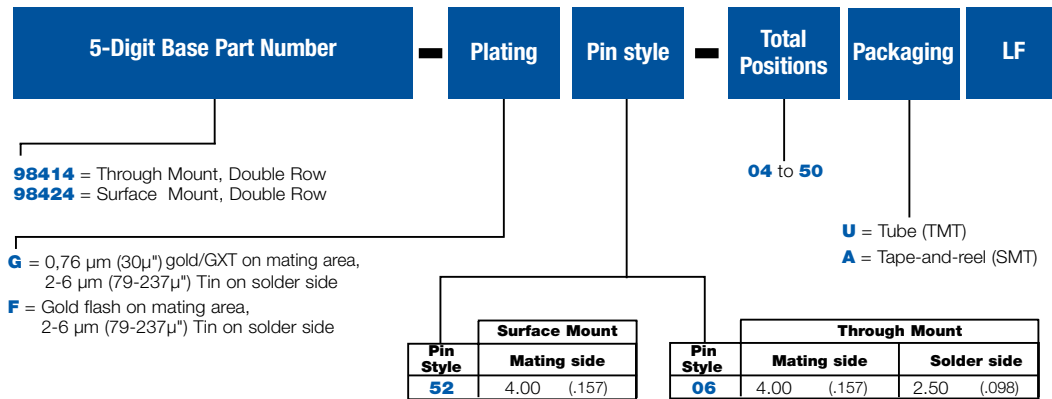
|                                    |    |
|------------------------------------|----|
| Minitek™ ctw contacts and housings | 70 |
| Minitek™ Vertical receptacles      | 58 |
| Minitek™ Shunts                    | 60 |
| Minitek™ IDC receptacles           | 74 |
| Minitek™ Active latch              | 72 |

## TYPICAL APPLICATIONS



# Minitek™ Shrouded Vertical Headers

## PART NUMBERS

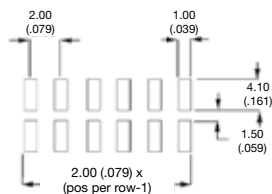
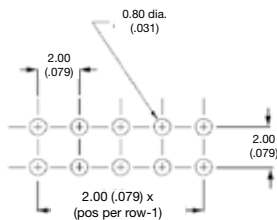


**98424 - G 52 - XX ALF**  
 XX = 04, 06, 08, 10, 12, 16, 20

**CORE RANGE**

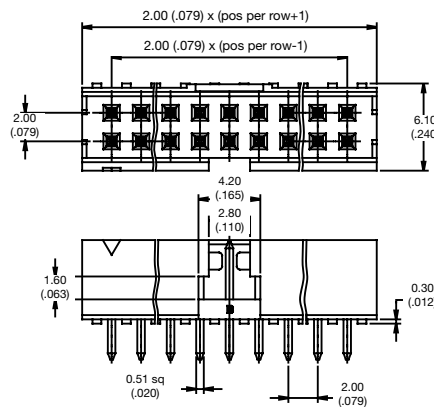
2.00 mm (.079")

## PRODUCT

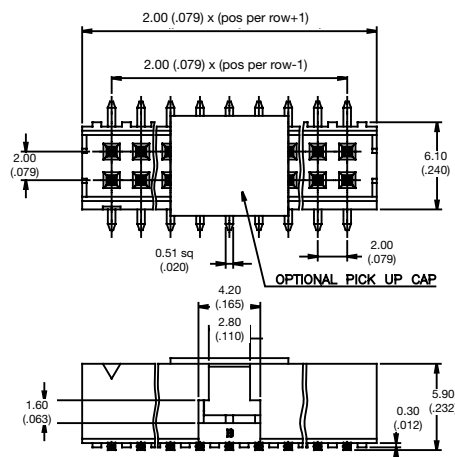
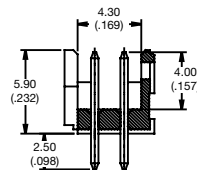


Recommended PCB layouts

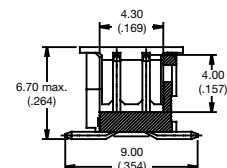
Dimension : mm (inch)



**98414** Through mount



**98424** Surface mount



## FEATURES

- 4-wall design prevents mis-mating
- Selective plating

## TECHNICAL DATA

### PHYSICAL

- Housing: High temperature, cream-colored thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel



### ELECTRICAL PERFORMANCE

- Current rating: 2 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega \text{ min.}$
- Contact resistance: 25  $\text{m}\Omega \text{ max.}$
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100

### OPERATING TEMPERATURE RANGE

- $-40^\circ\text{C}$  to  $+125^\circ\text{C}$

### PACKAGING

- Standard: Tubes (04 pos. packed in box)

### PROCESSING INFORMATION

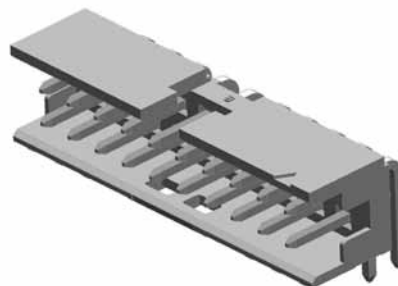
- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 98464
- Product specification: DPS-12-011 and GS-12-163

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

|                                      |    |
|--------------------------------------|----|
| ■ Minitek™ ctw contacts and housings | 70 |
| ■ Minitek™ Vertical receptacles      | 58 |
| ■ Minitek™ Shunts                    | 60 |
| ■ Minitek™ IDC receptacles           | 74 |
| ■ Minitek™ Active latch              | 72 |

## TYPICAL APPLICATIONS



# Minitek™ Shrouded Right Angle Headers

## PART NUMBERS



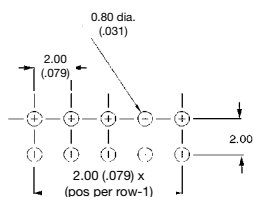
04 to 50 (Double Row)

**G** = 0,76 µm (30µ") gold/GXT on mating area,  
2-6 µm (79-237µ") Tin on solder side

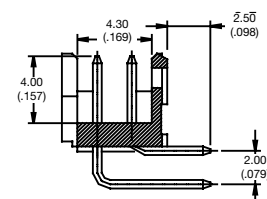
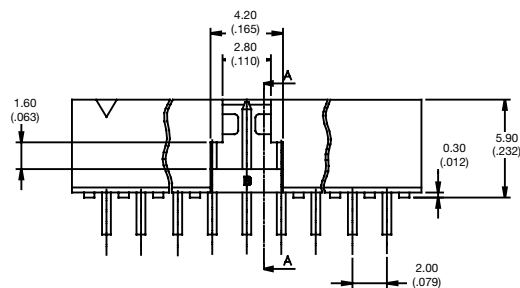
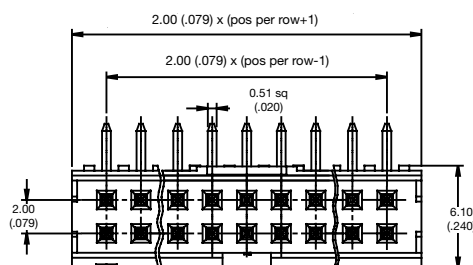
**F** = Gold flash on mating area,  
2-6 µm (79-237µ") Tin on solder side

2.00 mm (.079")

## PRODUCT



Recommended PCB layouts



Dimension : mm (inch)

## TECHNICAL DATA

### PHYSICAL

- Housing: High-temperature, black thermoplastic
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27 µm (50µ") nickel

### ELECTRICAL PERFORMANCE

- Current rating: 3 A continuous
- Insulation resistance:  $1 \times 10^5$  MΩ min.
- Contact resistance: 25 mΩ max.
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.



### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100.

### OPERATING TEMPERATURE RANGE

- -55°C to +125°C

### PACKAGING

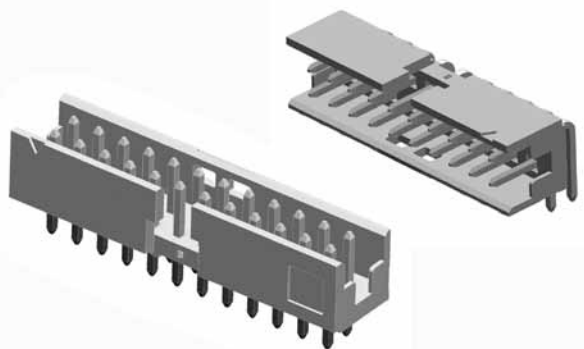
- Tubes (04 pos. packed in box)
- Tape on reel with pick up cap

### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

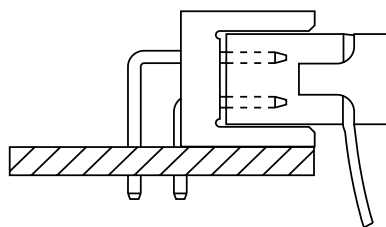
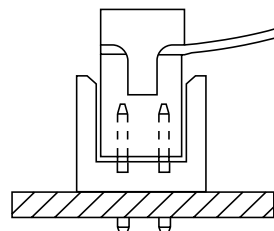
-  File no. E66906
-  File no. LR46923
- Product drawing: by 8-digit base part number
- Product specification: DPS-12-011 and GS-12-163
- Application specification: TA-895
- Reflow prprofile: TA-842



## MATING DATA

|                                      |    |
|--------------------------------------|----|
| ■ Minitek™ ctw contacts and housings | 70 |
| ■ Minitek™ Vertical receptacles      | 58 |
| ■ Minitek™ Shunts                    | 60 |
| ■ Minitek™ IDC receptacles           | 74 |
| ■ Minitek™ Active latch              | 72 |

## TYPICAL APPLICATIONS



# Minitek™ Shrouded Headers, Pin-in-Paste

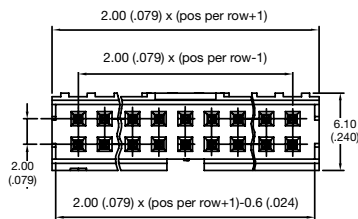
## PART NUMBERS



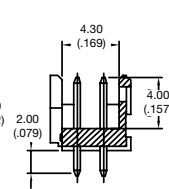
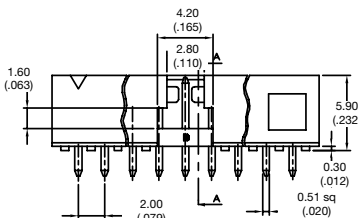
2.00 mm (.079")

## PRODUCT

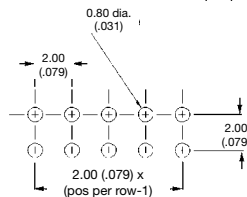
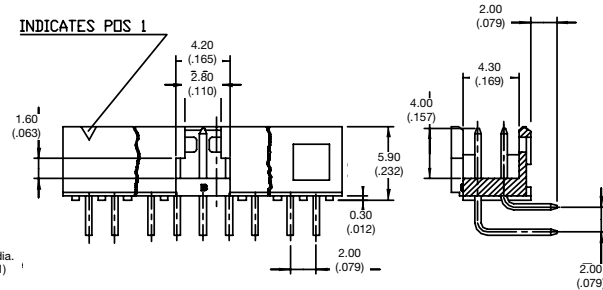
### 10075025 Vertical



### 10072354 Right angle



INDICATES POS 1



Dimension : mm (inch)

Recommended PCB layouts

## FEATURES

- Secure latching of cable connector
- Easy ejection when required
- Works with IDC connectors with or without strain relief
- Low profile

## TECHNICAL DATA

### PHYSICAL

- Housing: Body, cream-colored LCP, Latch black PA
- Flammability rating: UL 94 V-0
- Pin: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel

### ELECTRICAL PERFORMANCE

- Current rating: 2 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega \text{ min.}$
- Contact resistance: 25  $\text{m}\Omega \text{ max.}$
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Latching retention force: 30 N min.

### OPERATING TEMPERATURE RANGE

- 40°C to +125°C

### PACKAGING

- Standard: Tubes

### PROCESSING INFORMATION

- Compatible with wave, vapor-phase, and IR reflow soldering processes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 8-digit part number
- Product specification: GS-12-469

### RoHS INFORMATION

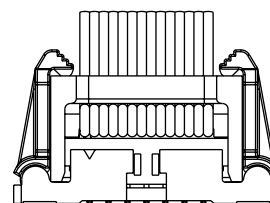
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



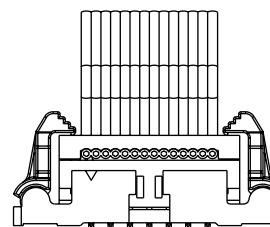
## MATING DATA

- Minitek™ IDC receptacles 74

## TYPICAL APPLICATIONS



with strain relief  
standard latch



without strain relief  
low profile latch

# Minitek™ Shrouded Eject Latch Headers

## PART NUMBERS



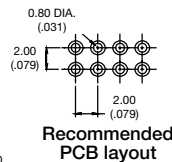
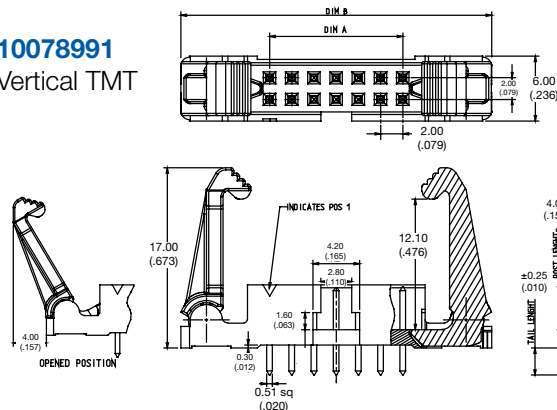
10078991 - G 22 - XX U LF  
10078995 - G 02 - XX U LF  
XX = 06, 08, 10, 12, **CORE RANGE**

\* as available

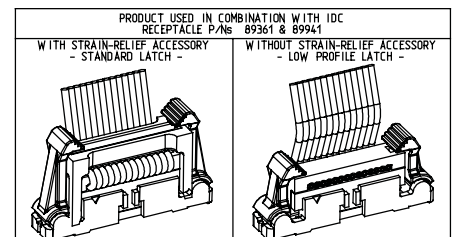
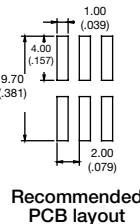
2.00 mm (.079")

## PRODUCT

### 10078991 Vertical TMT



### 10078995 Vertical SMT



Dimension : mm (inch)

## FEATURES

- Dual-beam contact design for highly reliable electrical performance
- Latching key assures proper alignment and friction retention

## TECHNICAL DATA

### PHYSICAL

- Housing: Black thermoplastic
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel



### ELECTRICAL PERFORMANCE

- Current rating: 2 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega$  min.
- Contact resistance: 20 m $\Omega$
- Dielectric withstanding voltage: 650 V
- Voltage rating: 200 V.

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100
- Contact retention to housing: 7.83 N (800 gf) min.
- Mating force per contact: 1.77 N (180 gf) max.
- Unmating force per contact: 0.20 N (20gf) min.

### OPERATING TEMPERATURE RANGE

- -40°C to +125°C

### PACKAGING

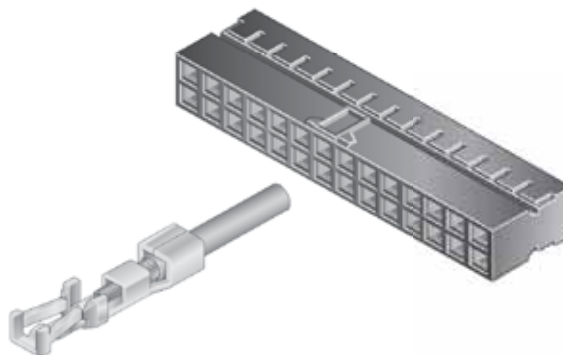
- Reels – Contacts
- Bags – Housings

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: 77138 or 77139 – Contact  
69307, 90311 – Housing
- Product specification: 110-036
- Application specification: 100-006, TA-959

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- Minitek™ Unshrouded headers 50, 52, 56
- Minitek™ Shrouded headers 62, 64

## INSERTION DEPTH

- 2.40 mm min. to 3.30 mm max.  
[provides .381 mm wipe]
- 3.63 mm min. to 4.00 mm max.  
[provides .381 mm wipe in housing]

## TYPICAL APPLICATIONS



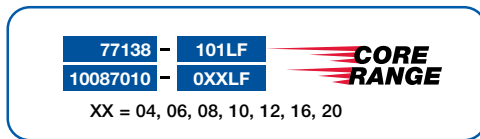
# Minitek™ Crimp-to-wire Housings and Contacts

## PART NUMBERS

### Contacts



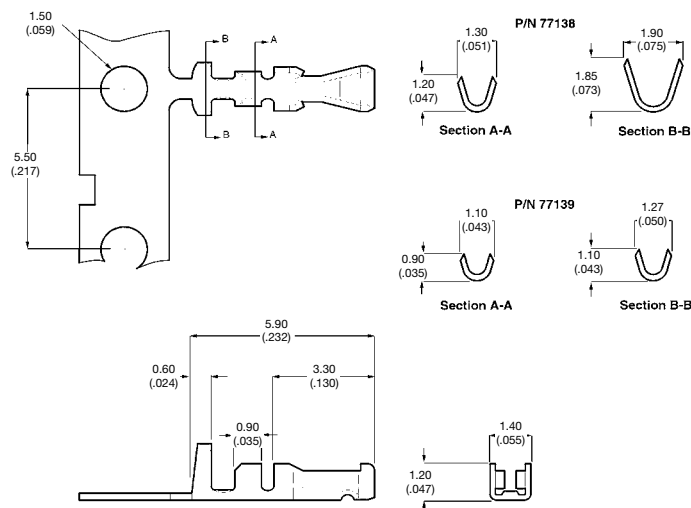
### Housings



2.00 mm (.079")

## PRODUCT

### Contacts



### Housings



Dimension : mm (inch)

## FEATURES

- Latching retention 15/25 N (depending on size) due to latch alone
- Latches with audible click
- Mates with standard Minitek headers
- Latch can be released and parts unmated

## TECHNICAL DATA

### PHYSICAL

- Housing: Polyamide, black
- Flammability rating: UL 94 V-0

### ELECTRICAL PERFORMANCE

- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega \text{ min.}$
- Dielectric withstanding voltage: 500 V

### MECHANICAL PERFORMANCE

- Latching retention force: 15 N min. (for 2x3 and 2x4 pos)
- Latching retention force: 25 N min. (for 2x5 and 2x25 pos)

### OPERATING TEMPERATURE RANGE

- -55°C to +125°C

### PACKAGING

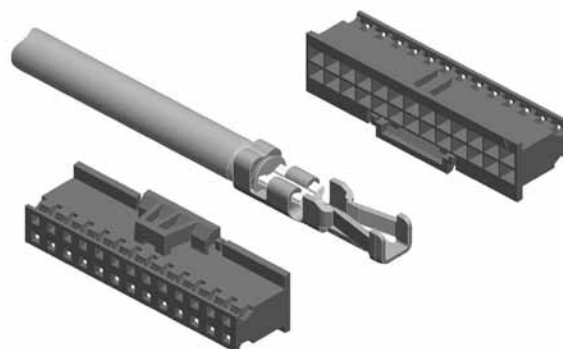
- Standard: Plastic bags

### REFERENCE INFORMATION

-  File no. E66906
-  File no. LR46923
- Product drawing: 8-digit part number
- Product specification: GS-12-415

### RoHS INFORMATION

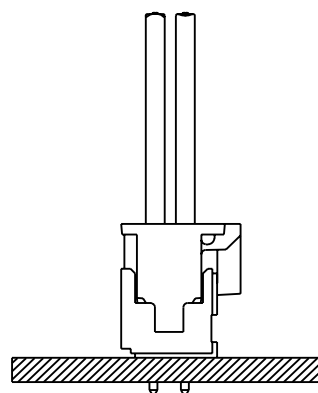
- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



## MATING DATA

- |                             |            |
|-----------------------------|------------|
| ■ Minitek™ Shrouded headers | 62, 64, 66 |
| ■ Minitek™ CTW contacts     | 70, 72     |

## TYPICAL APPLICATIONS



# Minitek™ Crimp-to-wire Housings, Active latch

## PART NUMBERS

### Contacts

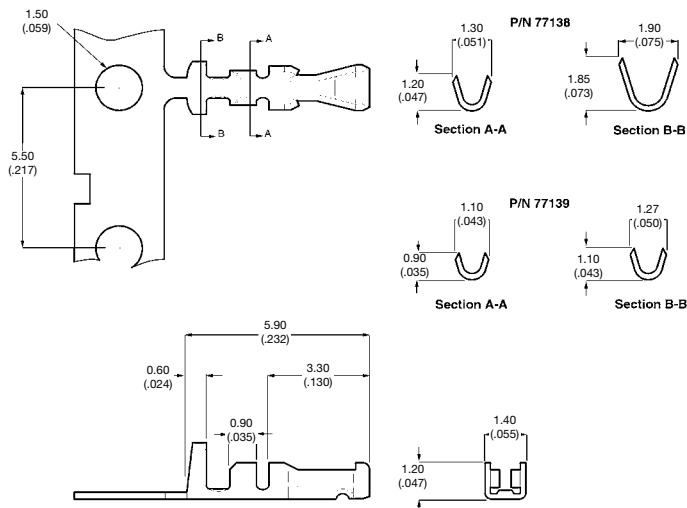


### Housings



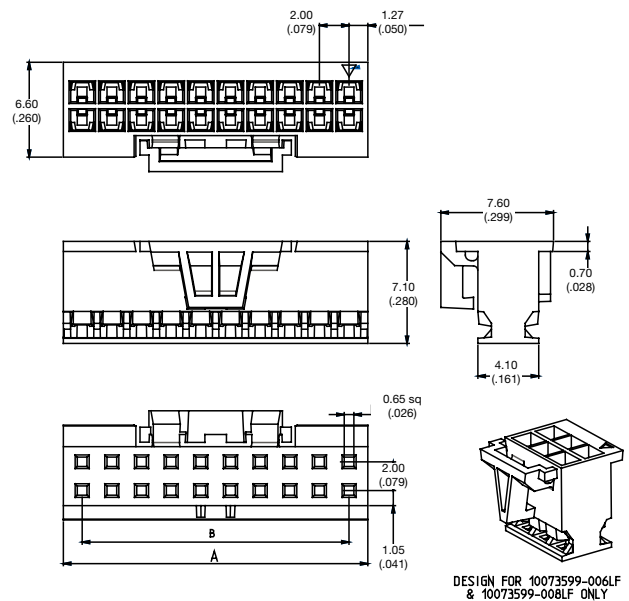
## PRODUCT

### Contacts



Dimension : mm (inch)

### Housings



2.00 mm (.079")

## FEATURES

- Early entry, single-beam contacts provide long wiping action for reliable electrical contact
- Center key polarization and friction latch options

## TECHNICAL DATA

### PHYSICAL

- Housing: Black thermoplastic
- Flammability rating: UL 94 V-0
- Contact: Phosphor-bronze
- Plating: Gold/GXT over 1.27  $\mu\text{m}$  (50  $\mu\text{in}$ ) nickel



### ELECTRICAL PERFORMANCE

- Current rating: 1 A continuous
- Insulation resistance:  $1 \times 10^5 \text{ M}\Omega \text{ min.}$
- Contact resistance: 30  $\text{m}\Omega$
- Dielectric withstanding voltage: 650 V

### MECHANICAL PERFORMANCE

- Mating cycles (durability): 100

### OPERATING TEMPERATURE RANGE

- $-40^\circ\text{C}$  to  $+105^\circ\text{C}$

### PACKAGING

- Tubes

### REFERENCE INFORMATION

- File no. E66906
- File no. LR46923
- Product drawing: 89947 or 89361
- Product specification: BUS-12-115

### RoHS INFORMATION

- This product is RoHS compatible according to the European Union Directive 2002/95/IEC



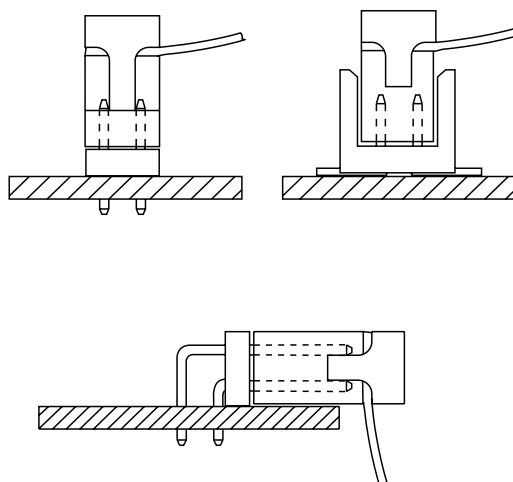
## MATING DATA

- |                               |            |
|-------------------------------|------------|
| ■ Minitek™ Unshrouded headers | 50, 52, 56 |
| ■ Minitek™ Shrouded headers   | 62, 64     |

## INSERTION DEPTH

- 2.55 mm min. to 4.57 mm max.  
[provides .381 mm wipe]

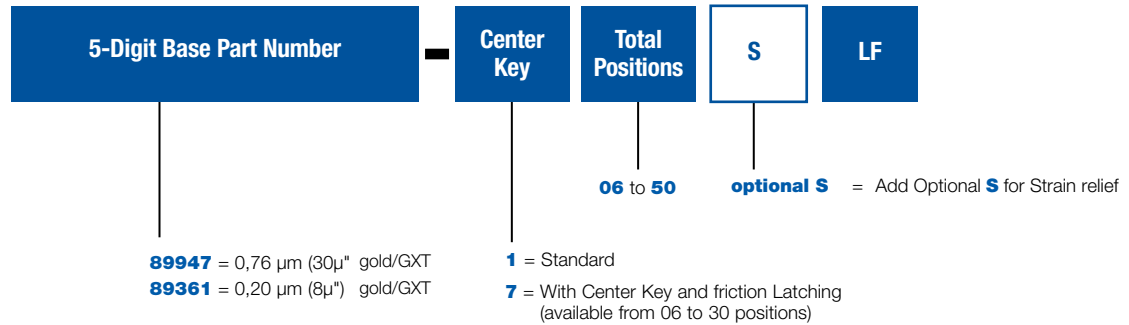
## TYPICAL APPLICATIONS



2.00 mm (.079")

# Minitek™ IDC Receptacle

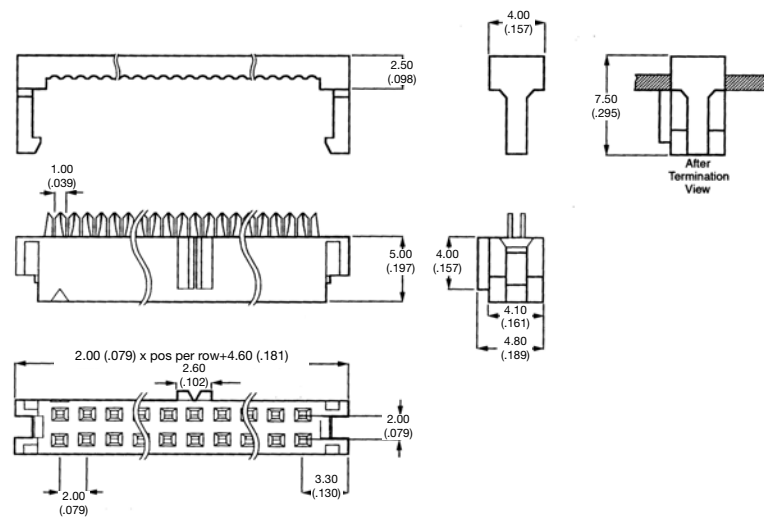
## PART NUMBERS



**89361 - 7XXLF** **CORE RANGE**  
 XX = 04, 06, 08, 10, 12, 16, 20

2.00 mm (.079")

## PRODUCT



Dimension : mm (inch)

## MORE OPTIONS

If you need something more than the standard parts in this catalog, Basics+ has many more options to help you in your design process. Here are just some examples.

### ► Polarized (missing) positions

These are highly specific, so please contact us with your requirement



### ► Kinked legs

See drawing 69190 and 69192 at [www.fciconnect.com](http://www.fciconnect.com)



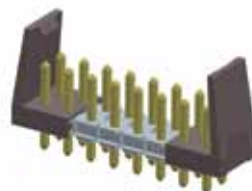
### ► Press-fit pins

See drawing 94674 at [www.fciconnect.com](http://www.fciconnect.com)



### ► Add-on latches for headers

Please contact us with your requirement



### ► Wide body headers



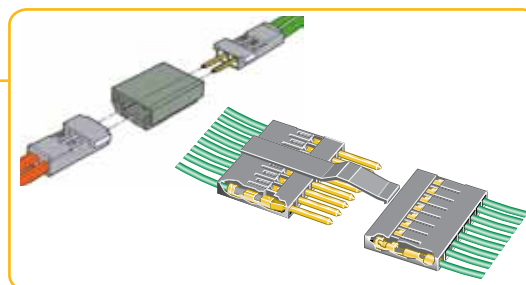
### ► Crimp-to-wire pin

See drawing 47791 and 75653 at [www.fciconnect.com](http://www.fciconnect.com)



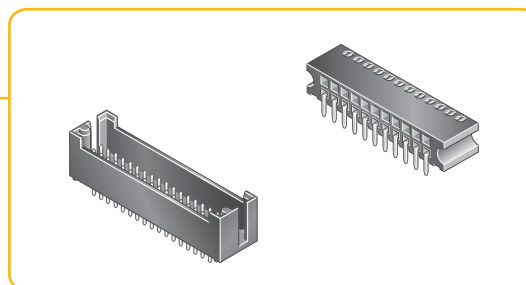
#### ■ Flying latch

See drawing 67009,  
68105 and 68106 at  
[www.fciconnect.com](http://www.fciconnect.com)



#### ■ Guide pin header / receptacles

See drawing 64991  
and 66527 at  
[www.fciconnect.com](http://www.fciconnect.com)



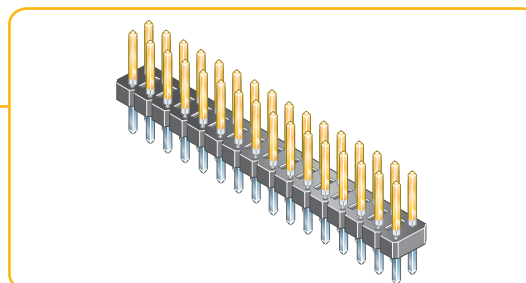
#### ■ Printed housings

Please contact us with  
your requirement



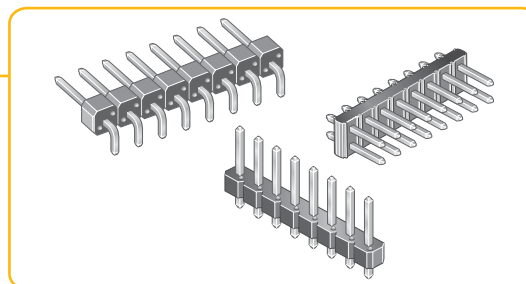
#### ■ Additional plating options

Please contact us with  
your requirement



#### ■ Pin-in-paste headers

See drawing 10076801,  
10082201 and 10082202 at  
[www.fciconnect.com](http://www.fciconnect.com)



Visit: [www.fciconnect.com/basicsdesign](http://www.fciconnect.com/basicsdesign) to specify your design need

## Application Equipment



## DUBOX™ CRIMP-TO-WIRE CONTACTS

| Contact Description    | Wire size | Hand Tool | Mini-Applicator (right to left feeding) | Mini-Applicator (left to right feeding) | Repair Tool |
|------------------------|-----------|-----------|-----------------------------------------|-----------------------------------------|-------------|
| Dubox                  | AWG 20-22 | RCY21235  | RCY20027                                | RCY20017                                | HT 272      |
| Dubox                  | AWG 22-24 | RCY21234  | RCY20008                                | RCY20029                                | HT 272      |
| Dubox                  | AWG 26-30 | RCY21234  | RCY20008                                | RCY20029                                | HT 272      |
| Small insulation Dubox | AWG 28-32 | -         | RCY20028                                |                                         | HT 272      |

## PV™ CRIMP-TO-WIRE CONTACTS

| Contact Description | Wire size | Hand Tool | Mini-Applicator | Repair Tool |
|---------------------|-----------|-----------|-----------------|-------------|
| Standard Mini-PV    | AWG 18-20 | HT-0073   | 133867-104      | HT-0080     |
| Standard Mini-PV    | AWG 22-26 | HT-0095   | 133867-105      | HT-0080     |
| Standard Mini-PV    | AWG 28-32 | HT-0095   | 133867-106      | HT-0080     |
| Standard Mini-PV    | AWG 34-36 | HT-0112   | 133867-108      | HT-0080     |
| Small Insulation PV | AWG 22-26 | HT-207    | -               | HT-0080     |
| Small Insulation PV | AWG 28-32 | HT-217    | -               | HT-0080     |

## MINITEK™ CRIMP-TO-WIRE CONTACTS

| Contact Description | Wire size | Hand Tool | Mini-Applicator | Repair Tool |
|---------------------|-----------|-----------|-----------------|-------------|
| Minittek            | AWG 26-30 | HT 151    | 155250-101      | HT-0080     |
| Minittek            | AWG 32-36 | HT 152    | 155250-102      | HT-0080     |

## Application Equipment



### BergStik® AND Bergstrip®

- Manual cutting tool: HT 320

### Quickie® IDC

- Manual flat cable cutter: HT 209
- Quickie assembly hand tool: HT 210
- Hand Press: QP-104
- Many other variations of manual, semi- automatic and automatic tools available upon request.

### Minitek® IDC

- Manual flat cable cutter: HT 209
- Hand Press: QP-104

## Where to get your tooling

These toolings and more detailed advice, pricing, availability etc. are available through your distributor or from the following suppliers:

#### ■ Americas

Phone: 1-800-843-6911  
E-mail: [doug.sheaffer@fciconnect.com](mailto:doug.sheaffer@fciconnect.com)

#### ■ Europe

Föhrenbach Application Tooling N.V.  
Phone: +32 3 216 19 98  
Email : [application.tooling@foehrenbach.be](mailto:application.tooling@foehrenbach.be)

#### ■ Asia

Phone: +65 549 6666  
E-mail: [fcising\\_sales@fciconnect.com](mailto:fcising_sales@fciconnect.com)

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