



# ECONOMY POWER 2.5 CONNECTORS

## Quick Reference Guide

The Economy Power 2.5 (EP 2.5) connector is a single row or dual row crimp connector system. Based on a 2.5mm (0.098") centerline pitch, it is a very compact solution. EP 2.5 connectors provide a comprehensive connectivity solution with vertical and right angle headers, optional TPA retainers, wire-to-wire and wire-to-board options and a range of resin materials that include types meeting Glow Wire Test and UL 94 V-0 standards, as well as packaging to support automated board assembly. Additionally, EP 2.5 connectors are intermateable with similar products available in the market, facilitating simple retrofitting.

With board space increasingly at a premium, the EP 2.5 connector series offers an ideal interconnection solution for densely packed printed circuit boards. EP 2.5 housings and contacts were designed to help workers on the shop floor. The terminals have an asymmetrical shape. This means they can only be loaded into the housing cavity one way – the right way. Ideal for household appliances, HVAC and industrial machinery, EP 2.5 connectors offers this extensive portfolio for all design needs and challenges.

### FEATURES & BENEFITS

- Housing locking latch
- Polarization tabs
- Asymmetrical terminals can only be loaded into housing one way
- Standard or low insertion force (LIF) terminals
- Anti-fretting contact lubricant
- Offering includes vertical and right angle headers in single and dual row configurations
- Includes products compliant with Glow Wire test required by IEC/EN 60335-1 5th edition: Household and Similar Appliances-Safety and UL 94 V-0

### SPECIFICATIONS

- Product specification: [108-2418](#)
- Application specification: [114-13315](#)

### STANDARDS

- UL Recognized (U.S. and Canada) E28476
- VDE approval is being sought

### MATERIALS

- Housings: UL 94 V-0 rated Nylon (UL 94 V-0 rated PBT for headers on tape in ammo box packaging)
- Contacts: Copper alloy, tin plated
- Colored housings available upon request
- Glow Wire material and UL 94 V-0 option available

### ELECTRICAL

- Voltage rating: 250VAC
- Current rating: 4.2A max. (single row)

### MECHANICAL

- Positions: 2 to 15, single row, wire-to-wire; 2 to 20, single row, wire-to-board; 8 to 40, dual row, all types
- Wire size: 0.13 to 0.56mm<sup>2</sup> (26 to 20 AWG)
- Centerline pitch: 2.5mm (0.098")
- Operating temperature: -55 to 105°C
- Selectively loaded headers available upon request

## Economy Power 2.5 Connectors

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#### Single Row Plug Housing

| Style                        | Flammability                             | Position    | 2   | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  | 11   | 12  | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
|------------------------------|------------------------------------------|-------------|-----|----|----|----|----|----|----|----|-----|------|-----|------|------|------|------|------|------|------|------|
| Free Hanging/<br>Panel Mount | UL 94 V-0                                | x-1969442-y | -2† | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |
| Free Hanging/<br>Panel Mount | GWT acc. IEC<br>60335-1 and<br>UL 94 V-0 | x-1744417-y | -2  | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |

#### Single Row Receptacle Housing

| Style        | Flammability                             | Position    | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10   | 11   | 12  | 13   | 14   | 15   |
|--------------|------------------------------------------|-------------|----|----|----|----|----|----|----|----|------|------|-----|------|------|------|
| Free Hanging | UL-94 V-0                                | x-1969588-y | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1--0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 |
|              | GWT acc. IEC<br>60335-1 and<br>UL 94 V-0 | x-1969589-y | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1--0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 |
| Panel Mount  | UL-94 V-0                                | x-1969590-y | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1--0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 |
|              | GWT acc.IEC<br>60335-1 and<br>UL 94 V-0  | x-1969591-y | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1--0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 |

#### TPA

| Style         | Flammability | Position    | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  | 11   | 12  | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
|---------------|--------------|-------------|----|----|----|----|----|----|----|----|-----|------|-----|------|------|------|------|------|------|------|------|
| Locking Plate | UL 94 V-0    | X-1969443-y | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |

#### Single Row Headers

| Style                                                          | Flammability                             | Position    | 2              | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10  | 11   | 12  | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   |
|----------------------------------------------------------------|------------------------------------------|-------------|----------------|----|----|----|----|----|----|----|-----|------|-----|------|------|------|------|------|------|------|------|
| Vertical with<br>Boss                                          | UL 94 V-0                                | x-2132230-y | -2             | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |
|                                                                | GWT acc. IEC<br>60335-1 and<br>UL 94 V-0 | x-1744418-y | -2             | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |
| Vertical<br>without Boss                                       | UL 94<br>V-0, loose<br>packaging         | x-2132415-y | -2             | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |
|                                                                | GWT acc.IEC<br>60335-1 and<br>UL 94 V-0  | x-1744439-y | -2             | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |
| Vertical without<br>Boss with Tape<br>in Ammo Box<br>Packaging | UL 94 V-0                                | x-2299683-y | ††<br>-1<br>-2 | -3 | -4 | -5 | -6 | -7 | -8 | -  | -   | -    | -   | -    | -    | -    | -    | -    | -    | -    | -    |
| Right Angle                                                    | UL-94 V-0                                | x-1744426-y | -2             | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |
|                                                                | GWT acc.IEC<br>60335-1 and<br>UL 94 V-0  | x-1744446-y | -2             | -3 | -4 | -5 | -6 | -7 | -8 | -9 | 1-0 | 1--1 | 1-2 | 1--3 | 1--4 | 1--5 | 1--6 | 1--7 | 1--8 | 1--9 | 2--0 |

Notes: Configurations available in various color options. Please contact TE sales representative for more information or visit [TE.com](http://TE.com)

† 1969442-2 is designed to mate with the full range of EP 2.5 2-position headers. Another 2-position plug, 2301559-2, with a modified latch is available to mate with a competitive manufacturer's 2-position header of a similar design or with new TE EP 2.5 2-position header 2299683-3 with a narrow (0.85 mm wide) latch.

†† 2299683-1 has a narrow (0.85 mm wide) latch to readily mate with a competitive manufacturer's 2-position plug of a similar design or with new TE EP 2.5 2-position plug 2301559-2. 2299683-2 has a 1.6 mm wide latch to readily mate with TE EP 2.5 2-position plug 1969442-2.

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#### Dual Row Plug Housing

| Style         | Flammability                       | Position    | 8  | 10   | 12   | 14   | 16   | 18   | 20   | 22   | 24   | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   |
|---------------|------------------------------------|-------------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| For all types | UL 94 V-0                          | x-1969540-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |
|               | GWT acc. IEC 60335-1 and UL 94 V-0 | x-1969567-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |

#### Dual Row Receptacle Housing

| Style        | Flammability                       | Position    | 8  | 10   | 12   | 14   | 16   | 18   | 20   | 22   | 24   | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   |
|--------------|------------------------------------|-------------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Free Hanging | UL 94 V-0                          | x-1969540-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |
|              | GWT acc. IEC 60335-1 and UL 94 V-0 | x-1969567-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |
| Panel Mount  | UL 94 V-0                          | x-1969594-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |
|              | GWT acc. IEC 60335-1 and UL 94 V-0 | x-1969595-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |

#### Dual Row TPA

| Style         | Flammability | Position    | 8  | 10   | 12   | 14   | 16   | 18   | 20   | 22   | 24   | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   |
|---------------|--------------|-------------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Locking Plate | UL 94 V-0    | x-1969541-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |

#### Dual Row Vertical Row Headers

| Style        | Flammability                       | Position    | 8  | 10   | 12   | 14   | 16   | 18   | 20   | 22   | 24   | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   |
|--------------|------------------------------------|-------------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| With Boss    | UL 94 V-0                          | x-1969543-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |
|              | GWT acc. IEC 60335-1 and UL 94 V-0 | x-1969570-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |
| Without Boss | UL 94 V-0                          | x-1969582-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |
|              | GWT acc. IEC 60335-1 and UL 94 V-0 | x-1969584-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |

#### Dual Row Right Angle Header

| Style       | Flammability                       | Position    | 8  | 10   | 12   | 14   | 16   | 18   | 20   | 22   | 24   | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   |
|-------------|------------------------------------|-------------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Right Angle | UL 94 V-0                          | x-1969572-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |
|             | GWT acc. IEC 60335-1 and UL 94 V-0 | x-1969574-y | -8 | 1--0 | 1--2 | 1--4 | 1--6 | 1--8 | 2--0 | 2--2 | 2--4 | 2--6 | 2--8 | 3--0 | 3--2 | 3--4 | 3--6 | 3--8 | 4--0 |

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#### Terminals

| Style                                            | Material            | Wire Range                  | Part Number |
|--------------------------------------------------|---------------------|-----------------------------|-------------|
| Standard Insertion Force<br>Socket (Receptacle)  | Plated Copper Alloy | 22-26 AWG (0.13 to 0.36mm²) | 2110989-1   |
|                                                  |                     | 20-24 AWG (0.20 to 0.56mm²) | 1744423-1   |
| Standard Insertion Force<br>Pin, Lanceless       |                     | 22-26 AWG (0.13 to 0.36mm²) | 2238007-1   |
|                                                  |                     | 20-24 AWG (0.20 to 0.56mm²) | 2238008-1   |
| Low Insertion Force (LIF)<br>Socket (Receptacle) |                     | 22-26 AWG (0.13 to 0.36mm²) | 2232905-1   |
|                                                  |                     | 20-24 AWG (0.20 to 0.56mm²) | 2232983-1   |

LIF sockets reduce insertion force about 60% from that of standard sockets. Maximum insertion force is 3.5 N for the new LIF sockets, versus maximum insertion force of 8.9 N for standard sockets.

#### Application Tooling

Both the tab and receptacle contact can be applied to wire using OCEAN applicator for automatic and semi-automatic applications. For low volume production and prototype work, a hand-tool is available to crimp the contacts to wire.

| Part Number  | Description                                 |
|--------------|---------------------------------------------|
| 1590232- [ ] | HDI Quick Change Miniature Applicator       |
| 1725950- [ ] | AMP 3/K-40 Press                            |
| 1725900- [ ] | AMP 5/K Press                               |
| 1530232-3    | AMP-O-LECTRIC Model "G" Termination Machine |
| 1530232-2    | AMP-O-LECTRIC Model "K" Termination Machine |
| 1530232-1    | Lead Making Machine                         |
| 354500- [ ]  | AMP-O-LECTRIC Model "G" Terminating Machine |
| 528324- [ ]  | Komax Gamma 333 PC                          |
| 2217074-1    | Hand tool for 22-26 AWG                     |
| 2161958-1    | Pin Extraction Tool                         |



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