

## MAG45 Modular Jacks with Integrated Magnetics

### Product Features

- PCB space savings
- Improved reliability and EMI performance over discrete magnetics
- Micro-welding of mag wire to PCB versus soldering
- Meets or exceeds FCC Part 68, IEEE 802.3, and ANSI X3.263 requirements
- Supports all appropriate and available PHY Chips and applications
- Extended Temp -40C to +85C available

### Product Qualification

- 501 and 108 Qualification Test and Product Specification Reports available
- UL/CSA Recognized component
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
- Your Tyco Electronics Sales Representative or one of the Product Information Centers listed below are also available to assist



The MAG45 product line offers a broad range of available RJ45 modular jacks with integrated magnetics for 10/100 Base-T, Gigabit and PoE Enabled applications. Multiple configurations are available to include single port, tab up or tab down; single port USB/RJ45; single port low profile; ganged multiport, 1xN; and stacked multiport,

2xN. All available with or without LEDs. There are multiple LED combinations and color options available.

Available soon RJ45 with Integrated Magnetics/PoE controller and MRJ21 product.

Available in Spring 2005 Pb Free/RoHS Compliant MAG45 product.

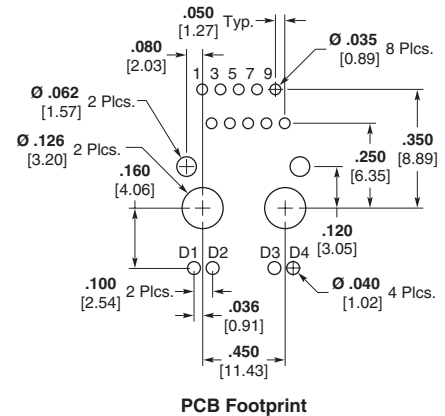
**Note:** All part numbers are RoHS compliant.

## MAG45 Modular Jacks with Integrated Magnetics (Continued)

### Single Port 10/100 Base-T, Gigabit & PoE, Tab Down

#### Product Facts

- Single Port
- Through Hole, Tab Down
- Available with or without LEDs
- UL Recognized
- IEEE 802.3 & ANSI X3.263 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
- Your Tyco Electronics Sales Representative or one of the Product Information Centers listed below are also available to assist



#### Single Port Tab Down\*

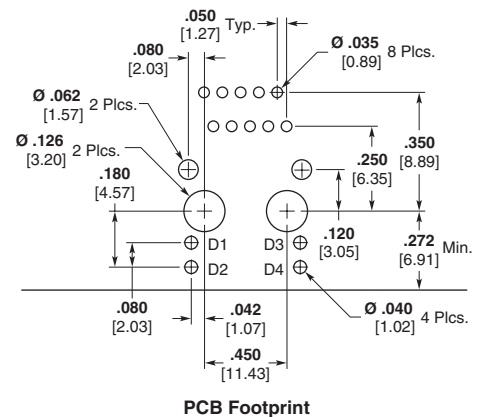
| 10/100 Base-T | 10/100 PoE | Gigabit | Gigabit PoE |
|---------------|------------|---------|-------------|
| ✓             | ✓          | ✓       | No          |

\*multiple LED colors with and without resistors available.

| 10/100 Base-T | 10/100 PoE  | Gigabit     |
|---------------|-------------|-------------|
| 6605424-1     | 6605432-2   | 1-6605444-1 |
| 6-6605425-1   | 1-6605310-1 | 6605434-1   |
| 5-6605308-1   | 6-6605440-1 | 6605445-6   |

### Single Port 10/100 Base-T, Gigabit & PoE, Tab Up

- Single Port
- Through Hole, Tab Up
- Available with or without LEDs
- UL Recognized Component
- IEEE 802.3 & ANSI X3.263 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
- Your Tyco Electronics Sales Representative or one of the Product Information Centers listed below are also available to assist



#### Single Port Tab Up\*

| 10/100 Base-T | 10/100 PoE | Gigabit | Gigabit PoE |
|---------------|------------|---------|-------------|
| ✓             | ✓          | ✓       | **          |

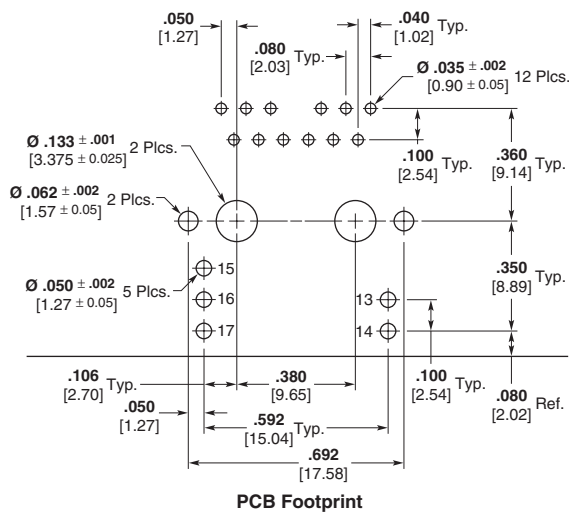
\*multiple LED colors with and without resistors available.  
\*\*under development.

| 10/100 Base-T | 10/100 PoE  | Gigabit     |
|---------------|-------------|-------------|
| 6605759-1     | 1-6605832-1 | 5-6605809-1 |
| 5-6605763-6   | 6605818-1   | 6605814-5   |
| 5-6605758-9   | 1-6605834-1 | 6605852-2   |

**Note:** All part numbers are RoHS compliant.

**Single Port  
Low Profile  
10/100 Base-T & Gigabit,  
Tab Up**

- 



### Low Profile\*

| 10/100 Base-T | 10/100 PoE | Gigabit | Gigabit PoE |
|---------------|------------|---------|-------------|
| ✓             | No         | ✓       | No          |

\*multiple LED colors with and without resistors available.

|          | 10/100 Base-T | Gigabit   |
|----------|---------------|-----------|
| Tab Up   | 1368458-1     | 1368398-1 |
| Tab Down | 1368590-1     | 1368589-1 |



- 
- Technical drawing of a mechanical part showing dimensions and tolerances. The drawing includes a top view and a side view. Key dimensions and tolerances are as follows:
- Top View Dimensions:**
    - Overall width:  $\varnothing .126$  [3.20] 2 Plcs.
    - Overall height:  $\varnothing .062$  [1.57] 2 Plcs.
    - Distance from left edge to center of hole 1A:  $.110$  [2.79]
    - Distance from center of hole 1A to center of hole 1B:  $.160$  [4.06]
    - Distance from center of hole 1B to right edge:  $.550$  [13.97]
    - Distance from left edge to center of hole 2A:  $.151$  [3.84]
    - Distance from center of hole 2A to center of hole 2B:  $.011$  [0.28]
    - Distance from center of hole 2B to right edge:  $.350$  [8.89]
    - Distance from left edge to center of hole 3A:  $.221$  [5.61]
    - Distance from center of hole 3A to center of hole 3B:  $.081$  [2.06]
    - Distance from center of hole 3B to right edge:  $.120$  [3.05]
    - Distance from center of hole 3A to center of hole 4A:  $.525$  [13.34]
    - Distance from center of hole 3B to center of hole 4B:  $.525$  [13.34]
    - Distance from center of hole 4A to right edge:  $1.000$  [25.40]
    - Distance from center of hole 4B to right edge:  $1.220$  [30.99]
    - Distance from center of hole 2A to center of hole 3A:  $.042$  [1.07]
    - Distance from center of hole 2B to center of hole 3B:  $.042$  [1.07]
    - Distance from center of hole 2A to center of hole 4A:  $.525$  [13.34]
    - Distance from center of hole 2B to center of hole 4B:  $.525$  [13.34]
    - Distance from center of hole 3A to center of hole 4A:  $.525$  [13.34]
    - Distance from center of hole 3B to center of hole 4B:  $.525$  [13.34]
    - Distance from center of hole 4A to center of hole 4B:  $.120$  [3.05]
    - Distance from center of hole 4B to right edge:  $.272$  [6.91] Min.
  - Side View Dimensions:**
    - Overall height:  $\varnothing .042$  [1.07] 28 Plcs.
    - Distance from top edge to center of hole 1A:  $.110$  [2.79]
    - Distance from center of hole 1A to center of hole 1B:  $.160$  [4.06]
    - Distance from center of hole 1B to right edge:  $.550$  [13.97]
    - Distance from top edge to center of hole 2A:  $.151$  [3.84]
    - Distance from center of hole 2A to center of hole 2B:  $.011$  [0.28]
    - Distance from center of hole 2B to right edge:  $.350$  [8.89]
    - Distance from top edge to center of hole 3A:  $.221$  [5.61]
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    - Distance from center of hole 3A to center of hole 4A:  $.525$  [13.34]
    - Distance from center of hole 3B to center of hole 4B:  $.525$  [13.34]
    - Distance from center of hole 4A to center of hole 4B:  $.120$  [3.05]
    - Distance from center of hole 4B to right edge:  $.272$  [6.91] Min.

**Ganged Multi-Port Tab Up (unless noted)\***

| Port Configuration | 10/100 Base-T | 10/100 PoE | Gigabit | Gigabit PoE |
|--------------------|---------------|------------|---------|-------------|
| 1x2                | ✓             | ✓          | ✓       | **          |
| 1x4                | ✓             | ✓          | ✓       | ✓           |
| 1x5                | ✓             | ✓          | ✓       | **          |
| 1x6                | ✓             | ✓          | ✓       | ✓           |
| 1x8                | ✓             | ✓          | ✓       | **          |

\*multiple LED colors with and without resistors available.  
\*\* Under development.

| Port Configuration       | 10/100 Base-T | 10/100 PoE  | Gigabit     | Gigabit PoE |
|--------------------------|---------------|-------------|-------------|-------------|
| 1x2                      | 5-6610000-1   | 1-6610128-1 | 1-6610209-1 | No***       |
| 1x2 Tab Down             | No***         | No          | 1840516-6   | No          |
| 1x4                      | 5-6610049-1   | 1840500-1   | 6610068-6   | 1840514-1   |
| 1x4 Tab Down             | 6610211-1     | No          | 6610204-1   | No          |
| 1x4 Tab Down Low Profile | No***         | No          | 1840515-1   | No          |
| 1x4 Tab Up Low Profile   | No***         | No          | 1761889-1   | No          |
| 1x5                      | 6610078-2     | 6610182-2   | 1-6610132-1 | No          |
| 1x6                      | 1-6610084-1   | 5-6610168-8 | 6610157-1   | 6610199-1   |
| 1x8                      | 6610112-1     | 1-6610122-1 | 6610160-6   | No***       |

\*\*\* Contact product management about possibility of adding.

Catalog 82066  
Revised 11-07  
[www.tycoelectronics.com](http://www.tycoelectronics.com)

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

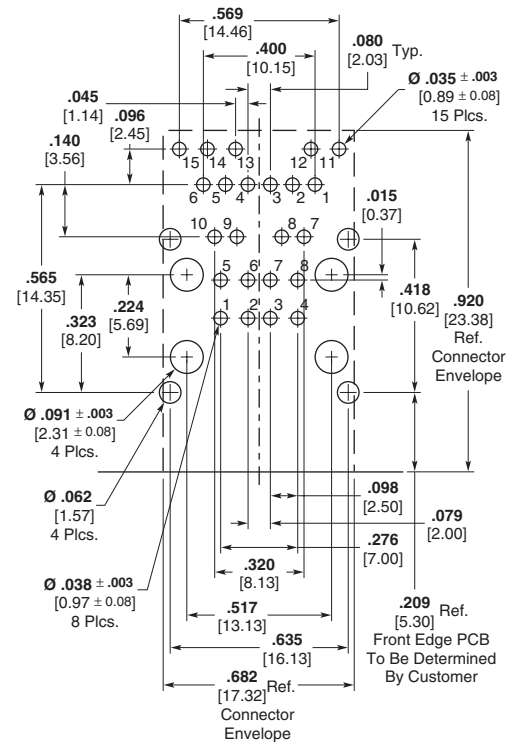
USA: 1-800-522-6752  
Canada: 1-905-470-4425  
Mexico: 01-800-733-8926  
C. America: 52-55-1106-0803

South America: 55-11-2103-6000  
Hong Kong: 852-2735-1628  
Japan: 81-44-844-8013  
UK: 44-8706-080-208

## MAG45 Modular Jacks with Integrated Magnetics (Continued)

### Stacked USB/RJ45 (10/100 Base-T or Gigabit)

- USB/RJ45 with integrated magnetics
- 10/100 or Gigabit applications
- Stacked USB type A included
- UL Recognized
- Available with LEDs
- IEEE 802.3 & ANSI X3.263 Compliant
- USB 2.0 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
- Your Tyco Electronics Sales Representative or one of the Product Information Centers listed below are also available to assist



PCB Footprint

### USB/RJ45\*

|  | 10/100 Base-T | 10/100 PoE | Gigabit | Gigabit PoE |
|--|---------------|------------|---------|-------------|
|  | ✓             | No         | ✓       | No          |

\*multiple LED colors with and without resistors available.

| Port Configuration | 10/100 Base-T | Gigabit   |
|--------------------|---------------|-----------|
|                    | 6620004-1     | 6368472-1 |
| RJ45/Dual USB      | 6620002-1     | 6620005-1 |
|                    | 6368532-1     | 6620009-1 |
| RJ45/Single USB    | No**          | 1840012-1 |

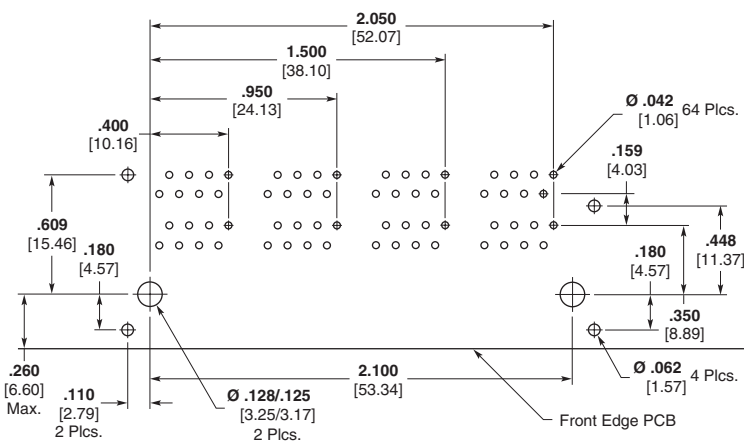
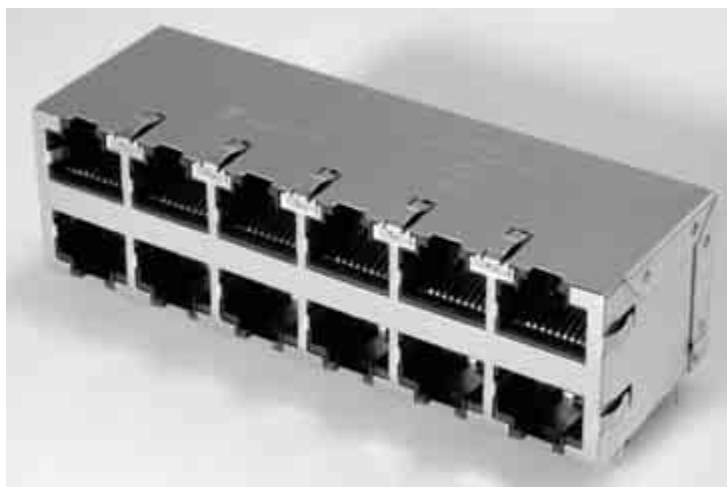
\*\* Contact product management about possibility of adding.

**Note:** All part numbers are RoHS compliant.

## MAG45 Modular Jacks with Integrated Magnetics (Continued)

### Stacked (10/100 Base-T)

- Stacked Connector
- UL Recognized
- Without LEDs
- IEEE 802.3 & ANSI X3.263 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
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PCB Footprint

### Stacked

| Port Configuration | 10/100 Base-T | 10/100 PoE |
|--------------------|---------------|------------|
| 2x1                | ✓             | ✓          |
| 2x3                | ✓             | ✓          |
| 2x4                | ✓             | ✓          |
| 2x6                | ✓             | ✓          |
| 2x8                | ✓             | ✓          |

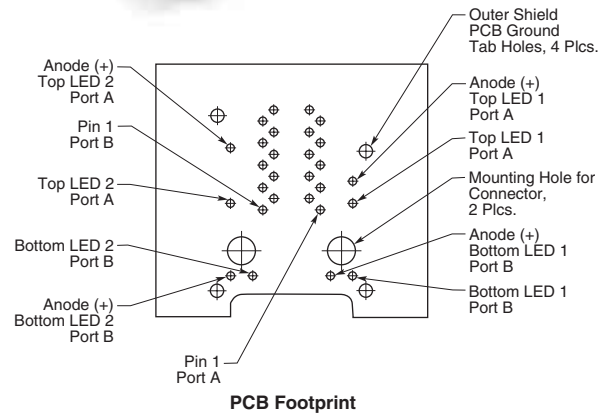
| Port Configuration | 10/100 Base-T |
|--------------------|---------------|
| 2x4                | 6615012-1     |
| 2x6                | 6368525-1     |
| 2x8                | 6368526-1     |

**Note:** All part numbers are RoHS compliant.

## MAG45 Modular Jacks with Integrated Magnetics (Continued)

### Stacked (10/100 Base-T, Gigabit & PoE)

- Stacked, Through Hole, Vertical 10-Pin Footprint
- Available with or without LEDs
- UL Recognized
- IEEE 802.3 & ANSI X3.263 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
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### Stacked\*

| Port Configuration | 10/100 Base-T | 10/100 PoE | Gigabit | Gigabit PoE |
|--------------------|---------------|------------|---------|-------------|
| 2x1                | ✓             | ✓          | ✓       | ✓           |
| 2x2                | ✓             | ✓          | ✓       | ✓           |
| 2x3                | ✓             | ✓          | ✓       | ✓           |
| 2x4                | ✓             | ✓          | ✓       | ✓           |
| 2x6                | ✓             | ✓          | ✓       | ✓           |
| 2x7                | —             | —          | ✓       | —           |
| 2x8                | ✓             | ✓          | ✓       | ✓           |

\*multiple LED colors with and without resistors available.

| Port Configuration   | 10/100 Base-T | 10/100 PoE | Gigabit   | Gigabit PoE |
|----------------------|---------------|------------|-----------|-------------|
| <b>With LED's</b>    |               |            |           |             |
| 2x1                  | 6368457-1     | No**       | 6368513-1 | No**        |
| 2x2                  | 6368387-1     | No**       | 6368511-1 | No**        |
| 2x4                  | 6368400-1     | No**       | 6368507-1 | No**        |
| 2x6                  | 1840115-1     | 6615076-1  | 6368506-1 | No**        |
| 2x8                  | 6368536-1     | No**       | 6368510-1 | No**        |
| <b>Without LED's</b> |               |            |           |             |
| 2x1                  | 1840124-1     | No**       | 1840003-1 | No**        |
| 2x2                  | No**          | No**       | 6368523-1 | No**        |
| 2x4                  | No**          | 6615072-1  | 1840155-1 | No**        |
| 2x6                  | No**          | 6615070-1  | 1840186-1 | 1840141-1   |
| 2x7                  | No**          | No**       | 1840187-1 | No**        |
| 2x8                  | No**          | No**       | 1840188-1 | 1840142-1   |

**Note:** All part numbers are RoHS compliant.

\*\* Contact product management about possibility of adding.

## MAG45 Modular Jacks with Integrated Magnetics (Continued)

### MAG45 with PoE Controller

#### RJ45 + PoE Magnetics + Silicon Power Controller Chip

#### PoE Product Features

- Integrated Silicon PoE 12-port controller
  - 802.3af compliant
  - Auto and Enhanced mode capable
- Footprint
  - Press-fit configuration
  - Ease of routing on customer PCB
- Pin Assignments
  - Signal integrity benefits vs. standard footprint
- Three options in same footprint:
  - Integrated Magnetics Only
  - Integrated Magnetics, Enabled PoE
  - Integrated Magnetics, Integrated PoE
- 2250Vdc / 1500Vdc electrical isolation per 802.3 requirements

#### Customer Benefits:

- Simplify implementation of full PoE solution
- Board real estate savings
- Reduce board layout issues
- Integrate new and existing technologies into a single connector unit

#### Why Integrate the PoE Circuitry into the RJ?

- Single package (PoE, LED's, Magnetics, Heat Sink)
- Identical footprint for both Integrated PoE/Enabled and non-PoE
- Single design, single motherboard can be used for both PoE and non-PoE
- Same design can migrate between switches (including blades and fixed)
- Delivered fully tested and qualified, no need to bother with complicated PoE testing



- Reduced layer count/ Reduces cost of motherboard
- No PoE daughterboards
- Isolated PoE voltage provided directly from the power supply
- All per port components embedded in RJ
- Eliminates issues of voltage isolation on motherboard
- Reduces EMI risks
- Real time control of overload, underload, short circuits and under voltage states
- 0.5A current carrying capacity
- Full AC disconnect and classification
- 80V tolerant, surge protected system
- Registers for MIB 8 support and parameters adjustment
- Single voltage feeding (44 – 57VDC)
- Designed to support legacy capacitor detection
- How Does PoE RJ45 Work?
  - Embedded inside each RJ45 is the Silicon Power PD64012 chip
  - Each RJ45 is a 12 port PoE system, communicating

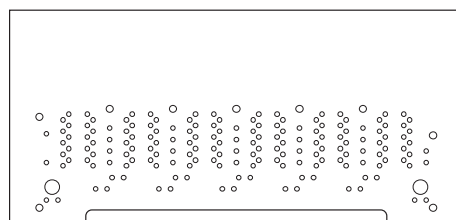
with each other to create a system of up to 48 ports

- The Host CPU controls the system via I2C
- Two main operating modes: Automatic/Enhanced Mode to match system customization requirements

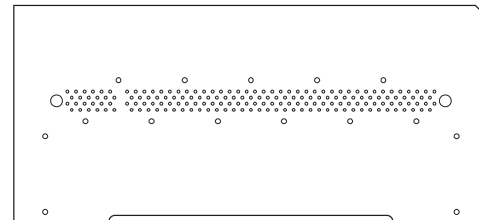
For assistance in part selection, please refer to the Tyco Electronics E-Catalog.

Your Tyco Electronics Sales Representative or one of the Product Information Centers listed below are also available to assist.

#### Legacy vs. Press Fit PoE Footprint



Legacy Footprint  
Solder Only



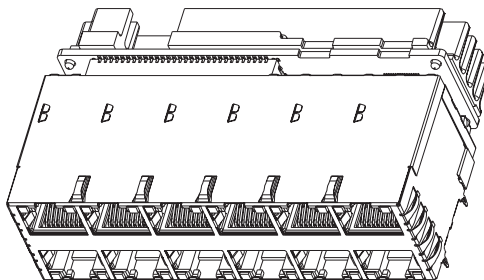
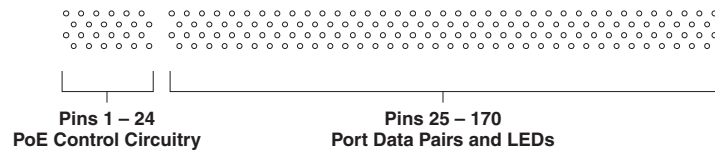
Integrated/Enabled/Non PoE Footprint  
Press Fit

## MAG45 Modular Jacks with Integrated Magnetics (Continued)

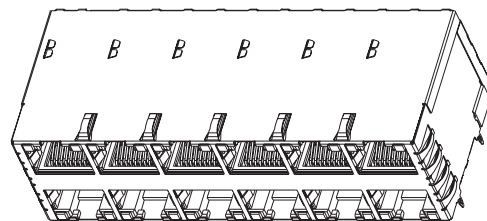
### Part Number Matrix

| Base Part Number | Integrated Magnetics | Power over Ethernet | PCB Attach Options | LED Options (2 per Port)  | Description                                       |
|------------------|----------------------|---------------------|--------------------|---------------------------|---------------------------------------------------|
| 1658821          | 10/100/1000          | Integrated          | Press Fit          | With/Without Yellow/Green | PowerDsine Integrated Chip Set, 802.3af Compliant |
| 1658822          | 10/100               | Integrated          | Press Fit          | With/Without Yellow/Green | PowerDsine Integrated Chip Set, 802.3af Compliant |
| 1658825          | 10/100/1000          | Enabled             | Press Fit          | With/Without Yellow/Green | PoE Chip set on Motherboard, 802.3af Compliant    |
| 1658826          | 10/100               | Enabled             | Press Fit          | With/Without Yellow/Green | PoE Chip set on Motherboard, 802.3af Compliant    |
| 1658827          | 10/100/1000          | No                  | Press Fit          | With/Without Yellow/Green |                                                   |
| 1658828          | 10/100               | No                  | Press Fit          | With/Without Yellow/Green |                                                   |

Same Mechanical Footprint, all versions.  
Same Electrical Footprint, pins 25 – 170, all versions.



Part Number 1658821 – 1658822



Part Number 1658825 – 1658828

**Note:** All part numbers are RoHS compliant.