

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.

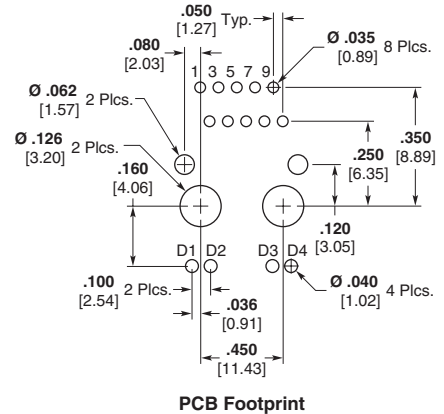
Note: All part numbers are RoHS compliant.

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
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Single Port Tab Down*

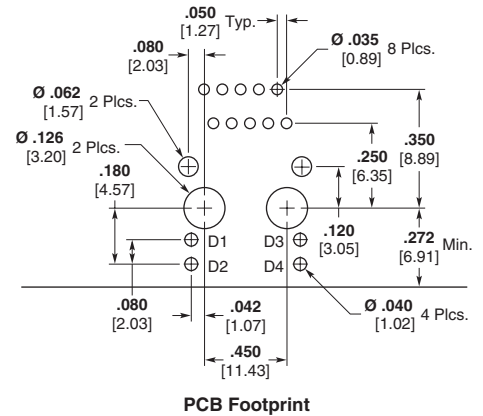
	10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
	✓	✓	✓	No

*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
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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

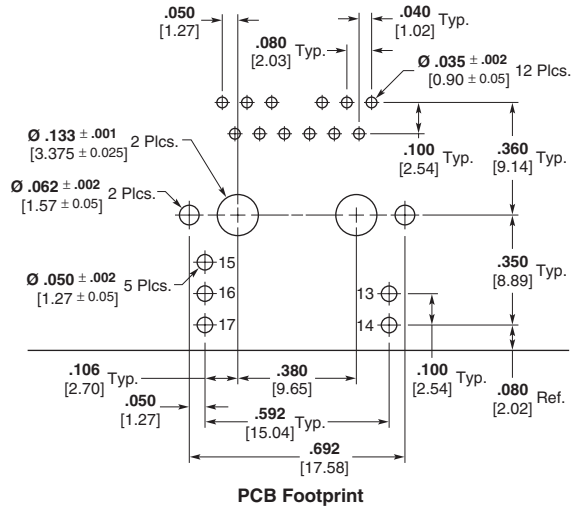
Note: All part numbers are RoHS compliant.

**MAG45 Modular Jacks
with Integrated Magnetics**

MAG45 Modular Jacks with Integrated Magnetics (Continued)

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

- Height is .445" vs std .580"
- UL Recognized
- IEEE 802.3 & ANSI X3.263 Compliant
- With LEDs
- 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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Low Profile*

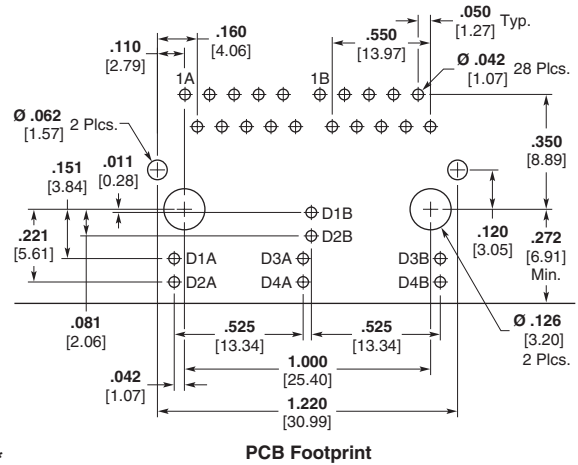
	10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
	✓	No	✓	No

*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

Ganged 10/100 Base-T, Gigabit & PoE, Tab Up

- Multi-Port Single Layer Connector
- 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
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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.

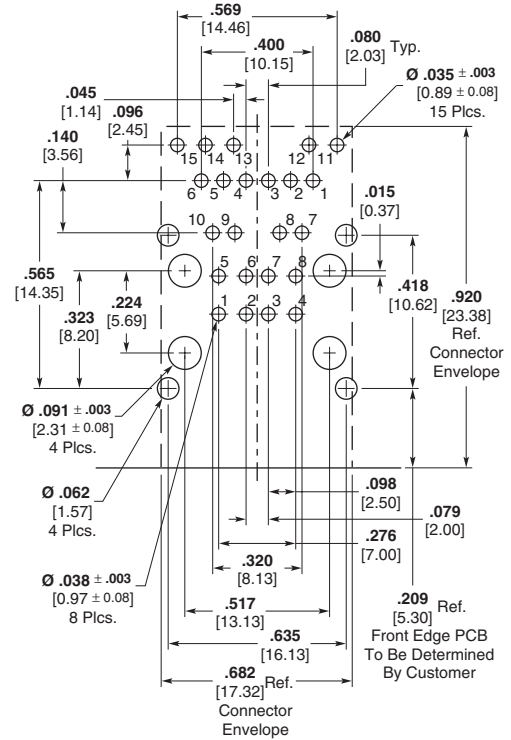
Note: All part numbers are RoHS compliant.

MAG45 Modular Jacks with Integrated Magnetics

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
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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.

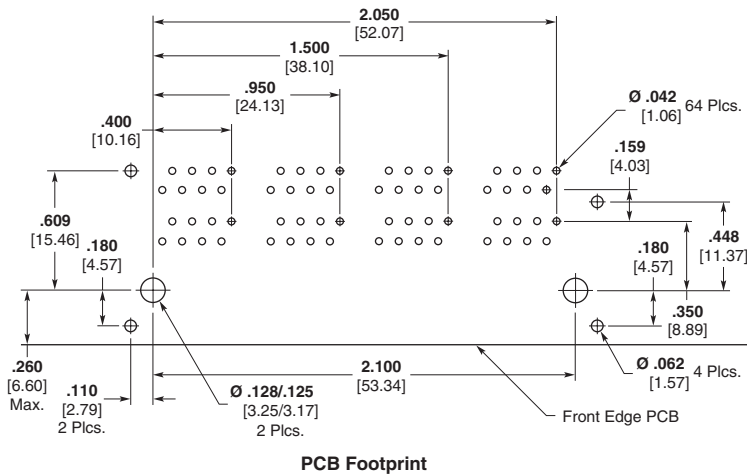
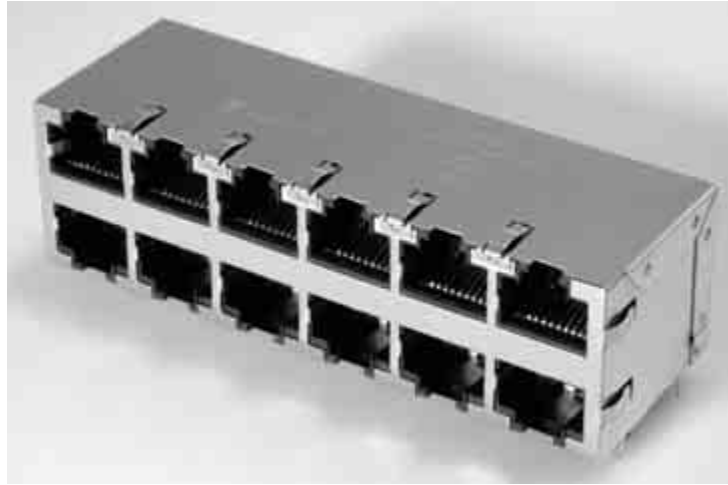
Note: All part numbers are RoHS compliant.

MAG45 Modular Jacks with Integrated Magnetics

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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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

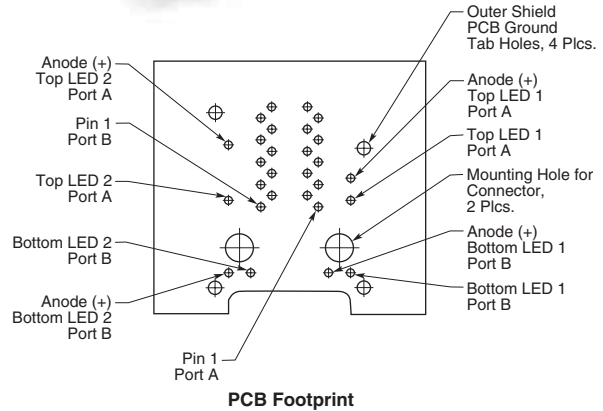
Note: All part numbers are RoHS compliant.

MAG45 Modular Jacks with Integrated Magnetics

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
With LED's				
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**
Without LED's				
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

** Contact product management about possibility of adding.

Note: All part numbers are RoHS compliant.

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 / 1500Vac 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

PoE Controller Features

- Power supplied over data contacts 1 & 2 and 3 & 6
- I2C Capability
- PoE chip provides power and command/control circuitry from motherboard power plane/bus
- Provides isolation between earth/building and signal ground

- 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?

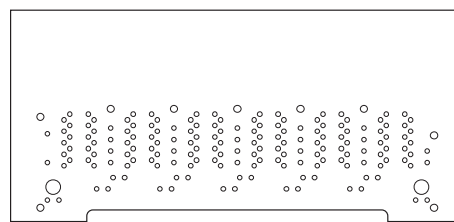
- Embedded inside each RJ45 is the Silicon Power PD64012 chip
- Each RJ45 is a 12 port PoE system, communicating

- 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

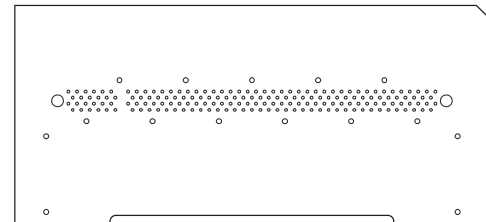
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Legacy vs. Press Fit PoE Footprint



Legacy Footprint
Solder Only



Integrated/Enabled/Non PoE Footprint
Press Fit

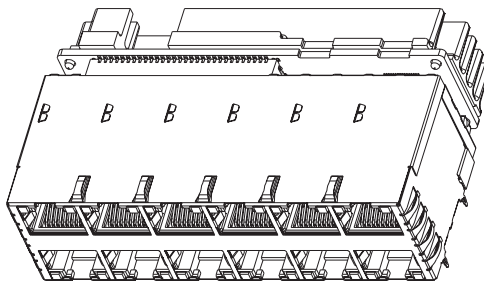
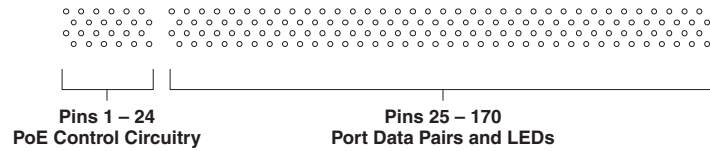
**MAG45 Modular Jacks
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MAG45 Modular Jacks with Integrated Magnetics (Continued)

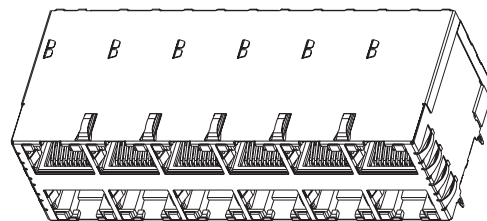
Part Number Matrix

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.

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