

### Description:

RJ45/Dual USB Combo is a Through Hole (THT) Integrated Connector Module with a single RJ45 in combination with 2USB ports. The internal magnetics are designed to support 10/100/1000Base-TX applications such as LAN-on-Motherboard (LOM) and PC applications.



### Features and Benefits:

- RoHS peak wave solder temperature rating 260°C
- USB module complies with USB 2.0 standards
- RJ45 connection meets CAT3, 5e, & 6 Fast

### Electrical Performance Summary:

- Meets IEEE 802.3 specification
- High performance for maximum EMI suppression
- Minimum 1500Vrms isolation per IEEE 802.3 requirement

### Electrical Specifications @ 25°C - Operating Temperature 0°C to +70°C

RoHS Compliant Part Number	Data Rate	Turn Ratio		LEDs	Insertion Loss TX/RX (dB MAX)	Return Loss @ 100Ω ±15Ω (dB TYP)			Cross talk (dB MIN)			Common Mode Rejection (dB TYP)		Hipot (Vrms) (MIN)
		TX	RX	L/R	1-65 MHz	1-10 MHz	30 MHz	60-80 MHz	1-10 MHz	32-60 MHz	60-100 MHz	1-50 MHz	50-130 MHz	@60Hz 1 MIN
JW0-0009NL	10/100	1CT:1	1CT:1	G/Y <sup>2</sup>	-1.0	-20	-16	-12	-40	-35	-30	-30	-20	1500
JD4-4003NL	10/100	1CT:1	1CT:1	G-O/Y	-1.0	-20	-16	-12	-40	-35	-30	-30	-20	1500
JW0-0006NL	10/100/1000	1CT:1	1CT:1	G/G-Y	-1.0	-20	-16	-12	-40	-35	-30	-30	-20	1500
JW0-0013NL	10/100/1000	1CT:1	1CT:1	G-O/Y	-1.0	-20	-16	-12	-40	-35	-30	-30	-20	1500

#### Notes:

- LEDs Left/Right: G = green; Y = yellow; O = Orange
- G = Green with 250Ω internal resistor; Y = Yellow with 250Ω internal resistor

### RJ45 Durability Testing Rating

Part Number	Mating Force (MAX)	Unmating Force (MAX)	Durability	Plug to Jack Retention (MIN)
JW/JY Series	5 lbs./2.268 kgs.	5 lbs./2.268 kgs.	500 Insertions	20 lbs./9.072 kgs.

### RJ45 Material Specification

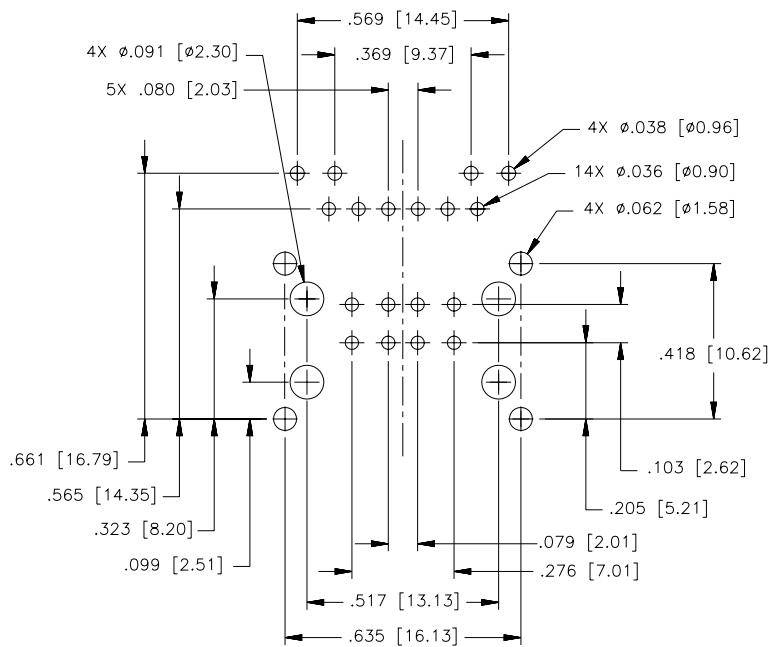
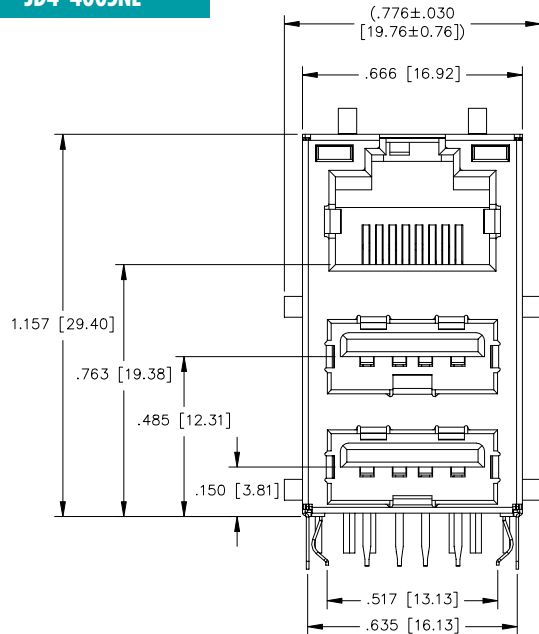
Part Number	Shield		Contact			Housing		MSL <sup>2</sup> Rating
	Material	Finish	Material	Plating Area	Solder Area <sup>3</sup>	Material	Specification	
JW/JY Series	Brass	20-40μ inches thick Nickel over brass	Phosphor Bronze	15μ inches gold over 30-80μ inches nickel	75-300μ inches tin-lead over 75-300μ inches bright nickel	Thermoplastic	UL 94 V-0	1

#### Notes:

- Connector dimensions comply with FCC dimension requirements
- MSL = Moisture Sensitivity Level
- NL parts are tin matte finish over nickel

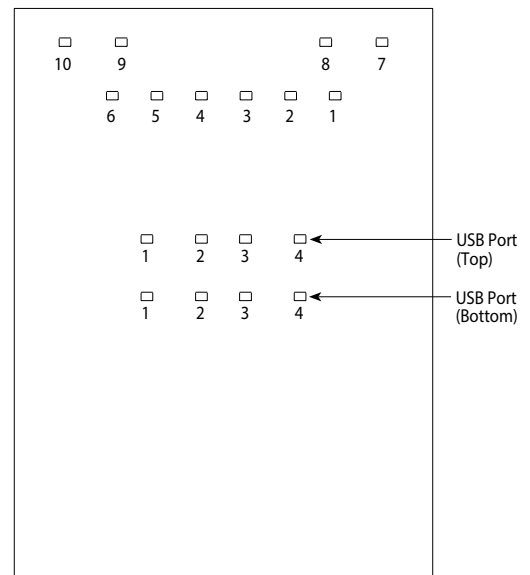
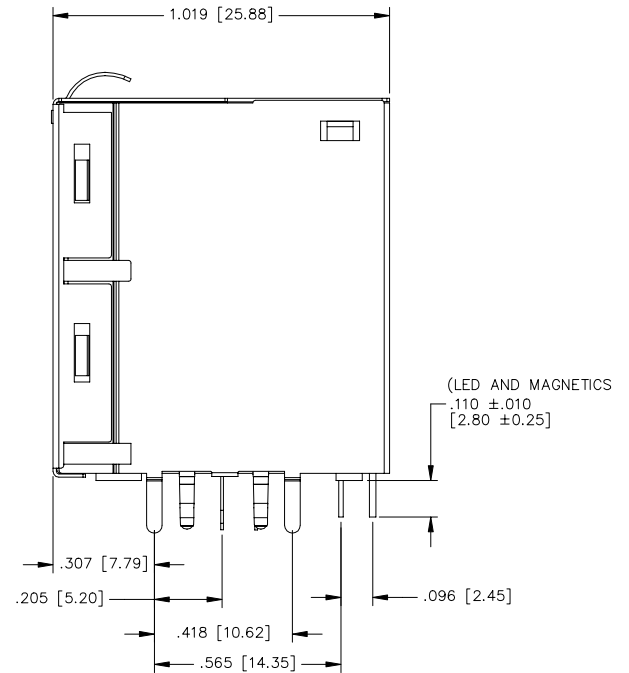
## Mechanical

### JD4-4003NL



SUGGESTED FOOTPRINT (SHOWN FROM COMPONENT SIDE)  
DIMENSIONAL TOLERANCE: INCHES [METRIC]  
.XXX ±.003 [x.xx ±0.08]

Weight ..... 8.1 grams  
Tray ..... 25/tray



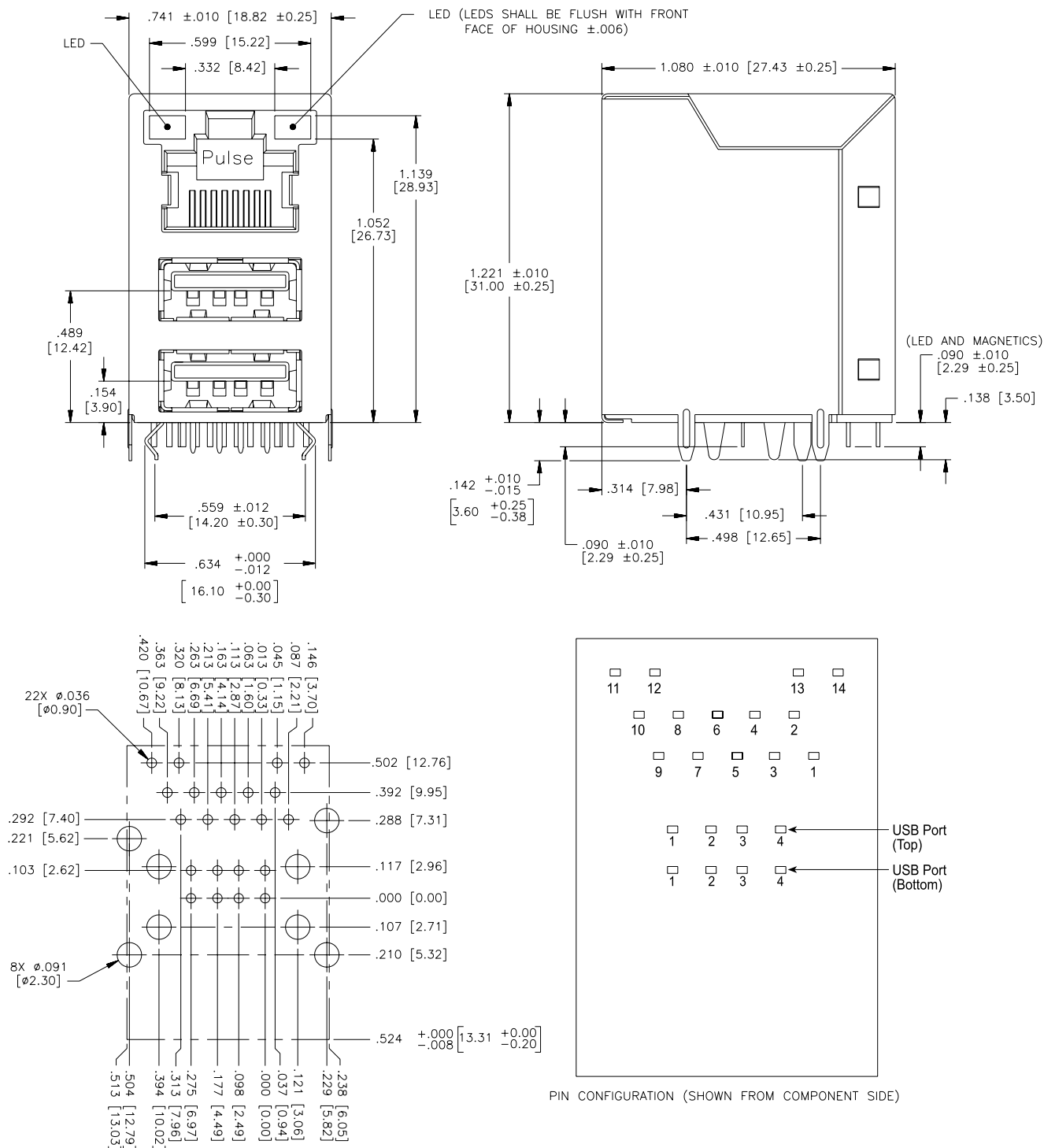
PIN CONFIGURATION (SHOWN FROM COMPONENT SIDE)

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

## Mechanical

JW0-0006NL, JW0-0009NL



SUGGESTED FOOTPRINT (SHOWN FROM COMPONENT SIDE)

DIMENSIONAL TOLERANCE: INCHES [METRIC]  
.XXX ±.003 [X.XX ±0.08]

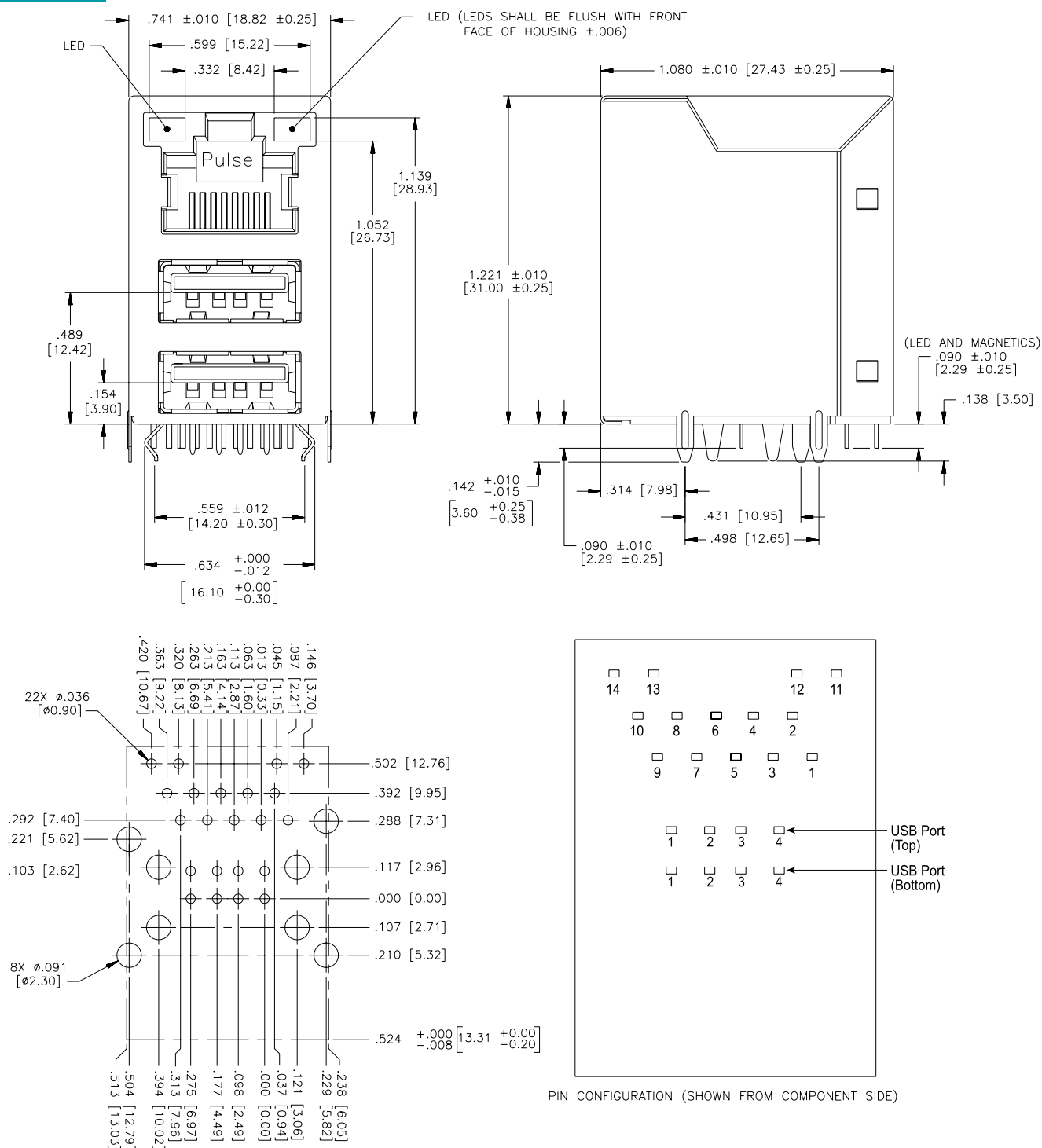
PIN CONFIGURATION (SHOWN FROM COMPONENT SIDE)

Weight ..... 8.1 grams

Tray ..... 25/tray

## Mechanical

JW0-0013NL



SUGGESTED FOOTPRINT (SHOWN FROM COMPONENT SIDE)

DIMENSIONAL TOLERANCE: INCHES [METRIC]  
.XXX ±.003 [X.XX ±0.08]

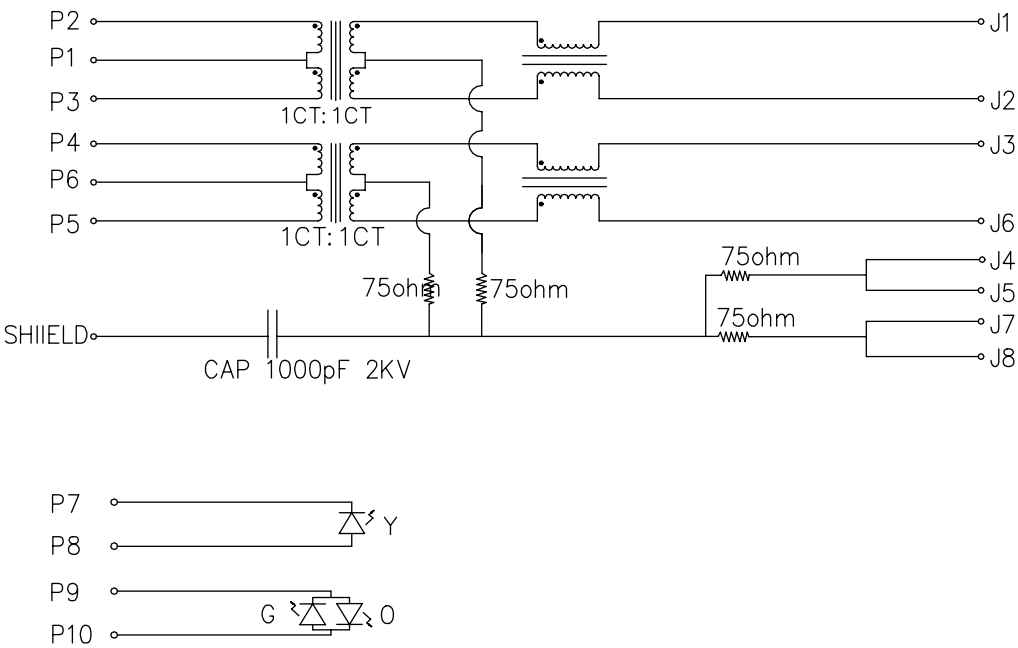
PIN CONFIGURATION (SHOWN FROM COMPONENT SIDE)

Weight ..... 8.1 grams

Tape ..... 25/tape

Schematic

JD4-4003NL



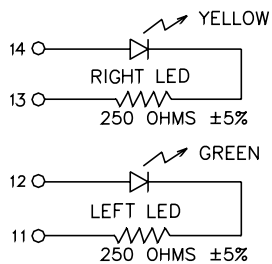
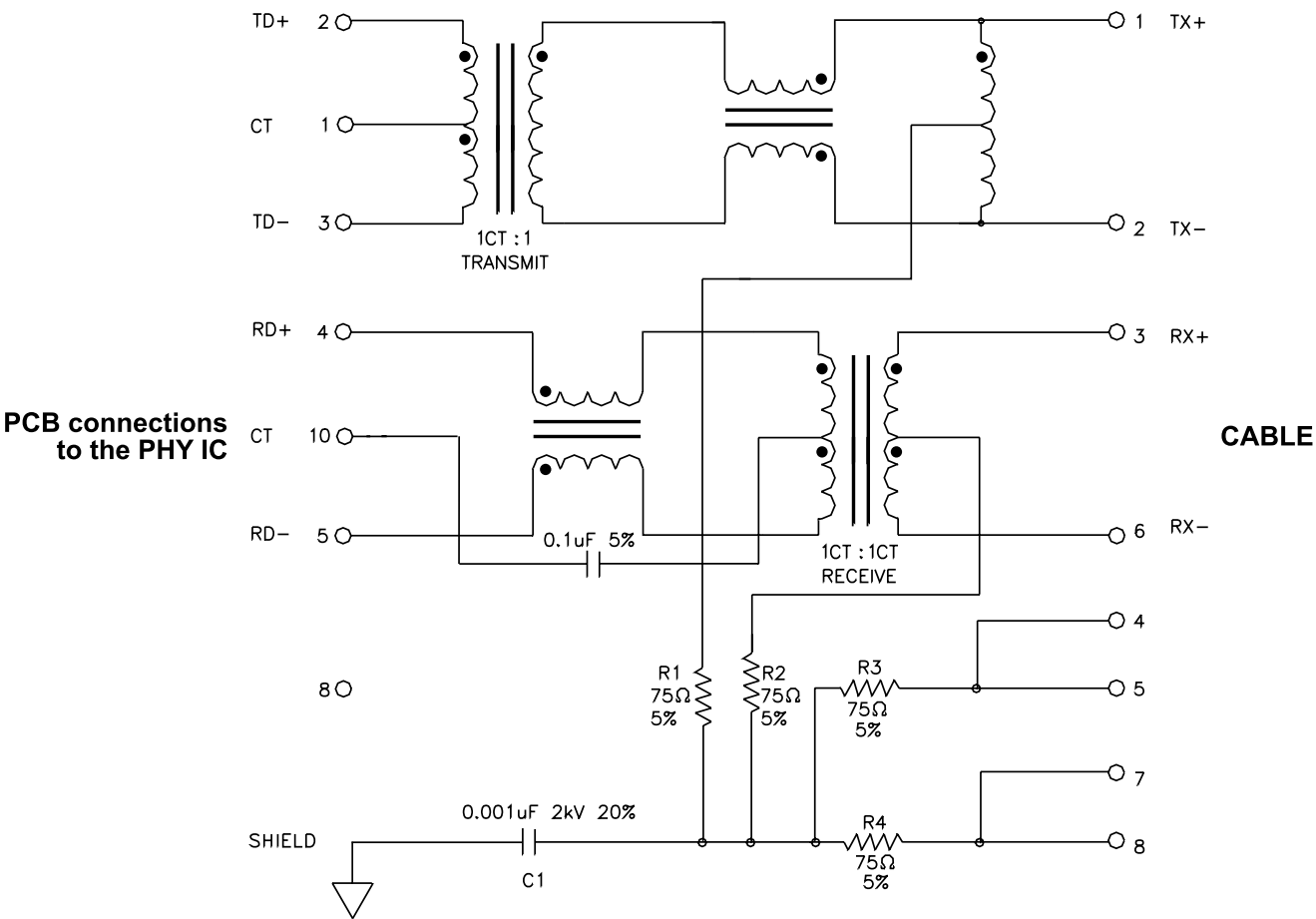
LED SPECIFICATION:

LED SPECIFICATION			
STANDARD LED	WAVELENGTH	FORWARD V(MAX)	TYP
GREEN	565nm	2.4V	2.2V
YELLOW	590nm	2.5V	2.1V
ORANGE	605nm	2.5V	2.0V

\*WITH A FORWARD CURRENT OF 20mA

Schematic

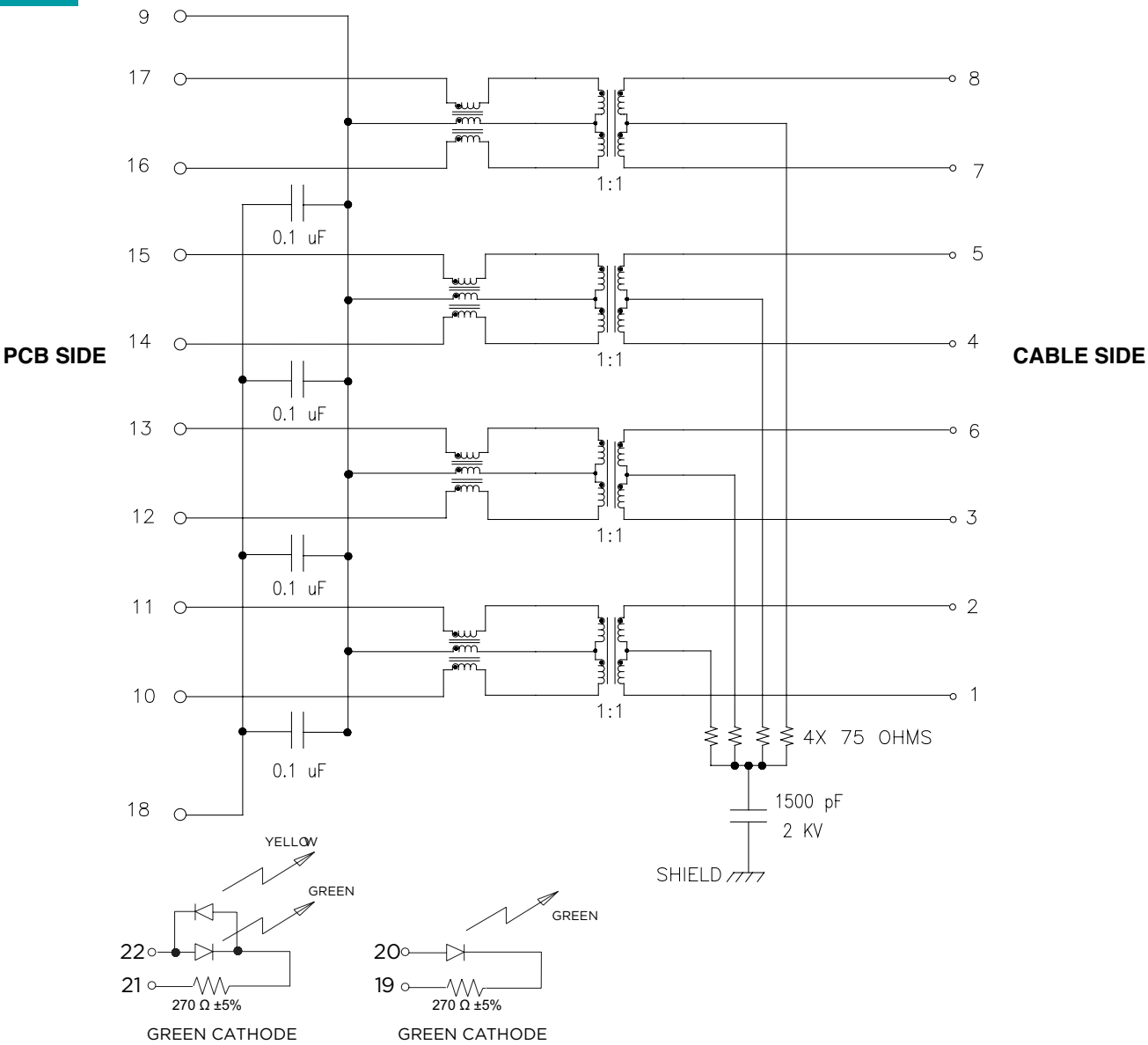
JW0-0009NL



STANDARD LED	WAVE LENGTH*	V(MAX)	I <sub>F</sub> @5V (TYP) (MAX)	
YELLOW	585 nm	5 V	10 mA	15 mA
GREEN	565 nm	5 V	10 mA	15 mA

Schematic

JW0-0006NL

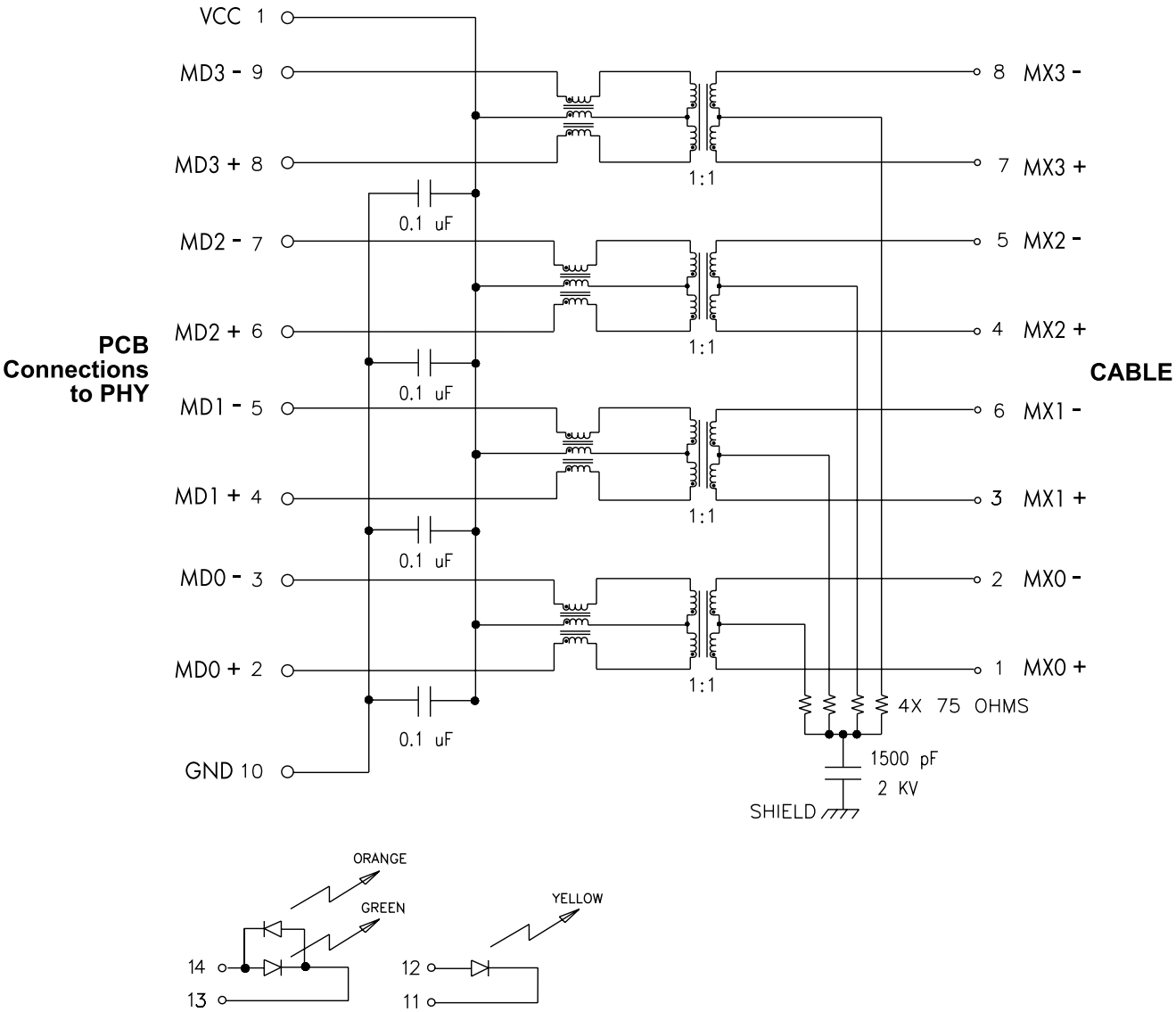


JW0-0006 NL LEDs

STANDARD LED	WAVE * LENGTH	V(MAX)	$I_F$ @5V	
			(TYP)	(MAX)
GREEN/YELLOW	568/590 nm	5 V	10 mA	15 mA
GREEN	565 nm	5 V	10 mA	15 mA
YELLOW	585 nm	5 V	10 mA	15 mA
GREEN/ORANGE	568/610 nm	5 V	10 mA	15 mA

Schematic

JW0-0013NL



JW0-0013NL LEDs

STANDARD LED	WAVE * LENGTH	V(MAX)	I <sub>F</sub> @5V	
			(TYP)	(MAX)
GREEN/YELLOW	568/590 nm	5 V	10 mA	15 mA
GREEN	565 nm	5 V	10 mA	15 mA
YELLOW	585 nm	5 V	10 mA	15 mA
GREEN/ORANGE	568/610 nm	5 V	10 mA	15 mA



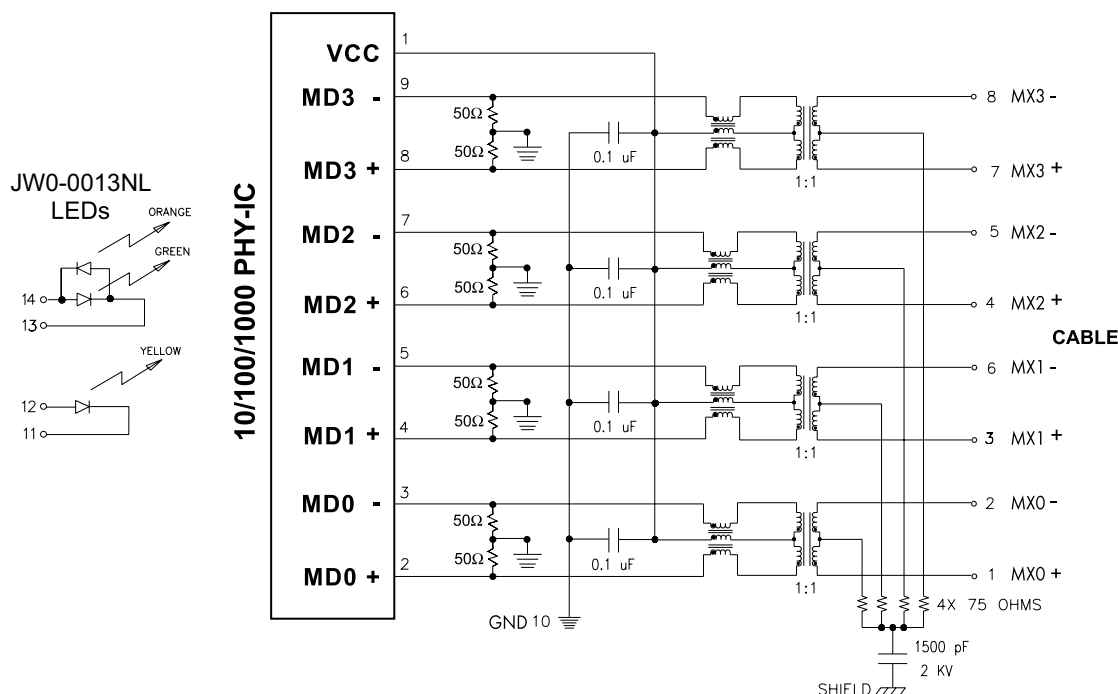
## USB/RJ45 Application Note

This line of Integrated Connector Modules are specifically designed for the implementation of a 10Base-T, 100Base-TX and 1000Base-TX transmission over data-grade unshielded twisted pair cable (UTP-3, 5/5e).

The connectors provide excellent EMI filtering and are suitable for Desktop PC, Embedded Systems and Multiport Applications. Pulse has worked closely with the leading IC manufacturers in

providing these 10/100/1000 solutions, thereby assuring compatibility with each transceiver.

JW0 and JY0 series meet the stringent open circuit inductance requirements of IEEE. When an 8mA DC current is applied across the transformer windings, the transformer will provide at least 350μH. The transformers used in each module also provide 1500Vrms minimum isolation, wide bandwidth with minimal attenuation and fast rise times to minimise system level jitter.



### PCB Layout Recommendations:

1. For maximum EMI suppression (electromagnetic interference) place the decoupling capacitors adjacent to Vcc and 50W connections.
2. Connections to ground should be as short as possible.
3. Connections between the 10/100/1000 IC and the connector should be direct (ideally no change in direction) and of minimum length.

### For More Information:

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