

# PulseJack™

## Surface Mount 1x1



### Description:

100 Base-TX (Fast Ethernet) surface mount RJ45 single port (1x1) Tab-UP/DOWN with or without LEDS Integrated Magnetics Connector, designed to support applications such as: Set Top Box and Network Interface Cars (NIC).



### Features and Benefits:

- RoHS peak wave reflow temperature rating 245°C
- JOC SMT product, reduced size and low cost alternative to JV series
- 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<br>Compliant<br>Part No. | Turns<br>Ratios |       | Tab<br>Option<br>Up/Down | LEDs <sup>1</sup><br>L/R | BST<br>Circuit | EMI<br>Finger | Insertion<br>Loss<br>(dB MAX) | Return Loss<br>(dB MIN)<br>100Ω (±15Ω) |             |           |              | Crosstalk<br>(dB MIN) |              |               | Common Mode<br>Rejection<br>(dB MIN) |               | Hipot<br>(Vrms MIN) |
|-------------------------------|-----------------|-------|--------------------------|--------------------------|----------------|---------------|-------------------------------|----------------------------------------|-------------|-----------|--------------|-----------------------|--------------|---------------|--------------------------------------|---------------|---------------------|
|                               | TX              | RX    |                          |                          |                |               |                               | 1-65<br>MHz                            | 1-10<br>MHz | 30<br>MHz | 60-80<br>MHz | 1-10<br>MHz           | 30-60<br>MHz | 60-100<br>MHz | 1-50<br>MHz                          | 50-130<br>MHz |                     |
| JOC-0003NL                    | 1CT:1           | 1CT:1 | Down                     | No                       | No             | No            | -1.0                          | -18                                    | -14         | -10       | -35          | -35                   | -30          | -20           | -20                                  | 1500          |                     |
| JOC-0004NL                    | 1CT:1           | 1CT:1 | Down                     | No                       | No             | Yes           | -1.0                          | -18                                    | -14         | -10       | -35          | -35                   | -30          | -20           | -20                                  | 1500          |                     |
| JOC-0005NL                    | 1CT:1           | 1CT:1 | Down                     | No                       | Yes            | No            | -1.0                          | -18                                    | -14         | -10       | -35          | -35                   | -30          | -20           | -20                                  | 1500          |                     |
| JOC-0006NL                    | 1CT:1           | 1CT:1 | Down                     | No                       | Yes            | Yes           | -1.0                          | -18                                    | -14         | -10       | -35          | -35                   | -30          | -20           | -20                                  | 1500          |                     |
| JV006I21NL                    | 1CT:1           | 1CT:1 | Down                     | No                       | No             | Yes           | -1.0                          | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                     |
| JV011I21NL                    | 1CT:1           | 1CT:1 | Down                     | No                       | Yes            | Yes           | -1.0                          | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                     |
| JV026I21NL                    | 1CTS:1          | 1CT:1 | Down                     | No                       | Yes            | Yes           | -1.0                          | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                     |
| J3011G21DNL                   | 1CT:1           | 1CT:1 | Up                       | G/Y                      | Yes            | Yes           | -1.0                          | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                     |
| J3026G01DNL                   | 1CTS:1          | 1CT:1 | Up                       | G/Y                      | Yes            | No            | -1.0                          | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                     |
| J3026G21DNL                   | 1CTS:1          | 1CT:1 | Up                       | G/Y                      | Yes            | Yes           | -1.0                          | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                     |
| JX30-0005NL <sup>3</sup>      | 1CT:1           | 1CT:1 | Up                       | G/Y                      | Yes            | Yes           | -1.0                          | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                     |

### Notes:

- LEDs Left/Right: **G** = green; **Y** = yellow.
- Add suffix "**T**" for Tape & Reel option (e.g. JOC-0004T).
- Extended Temperature: -40° to 85° C

### RJ45 Durability Test Rating

| Part Number      | Mating Force (MAX) | Unmating Force (MAX) | Durability     | Plug to Jack Retention (MIN) |
|------------------|--------------------|----------------------|----------------|------------------------------|
| JOC/JV/J3 Series | 5 lbs./2.268 kgs.  | 5 lbs./2.268 kgs.    | 750 Insertions | 20 lbs./9.072 kgs.           |

USA 858 674 8100

Germany 49 7032 7806 0

Singapore 65 6287 8998

Shanghai 86 21 62787060

China 86 755 33966678

Taiwan 886 3 4356768

### RJ45 Material Specification

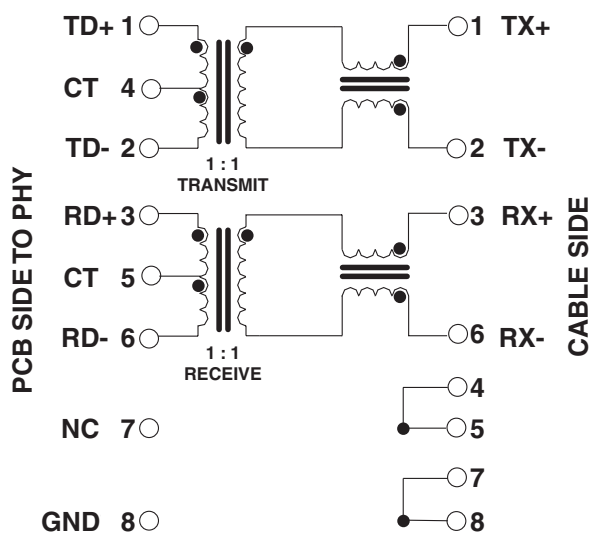
| Part Number      | Shield   |                                       | Contact         |                                            |                          | Housing                  |               | MSL <sup>2</sup> Rating |
|------------------|----------|---------------------------------------|-----------------|--------------------------------------------|--------------------------|--------------------------|---------------|-------------------------|
|                  | Material | Finish                                | Material        | Plating Area <sup>3</sup>                  | Solder Area <sup>4</sup> | Material                 | Specification |                         |
| JOC/JV/J3 Series | Brass    | 20-40μ inches thick nickel over Brass | Phosphor Bronze | (X)μ inches gold over 30-80μ inches nickel | Tin matte finish         | High Temp. Thermoplastic | UL 94 V-0     | 1                       |

#### Notes:

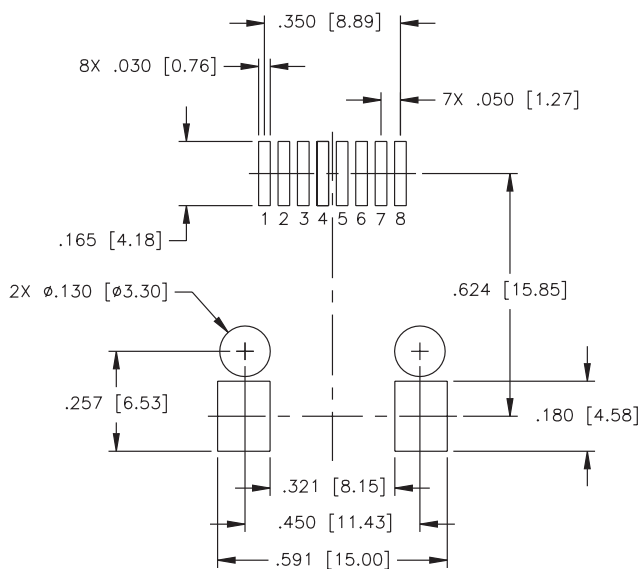
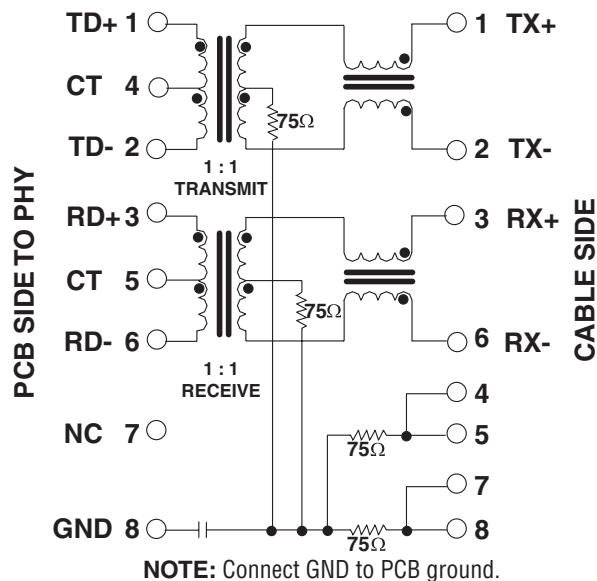
1. Connector dimensions comply with FCC part 68 dimension requirements.
2. MSL = Moisture Sensitivity Level rating: 1-5 (highest rating = 1, lowest rating = 5)
3. (X) = 30 inches gold for JV and J30 platforms and 15 inches gold for JOC platform.
4. NL parts are tin matte finish over nickel.

### JOC Platform Schematics

#### JOC-0003NL/JOC-0004NL



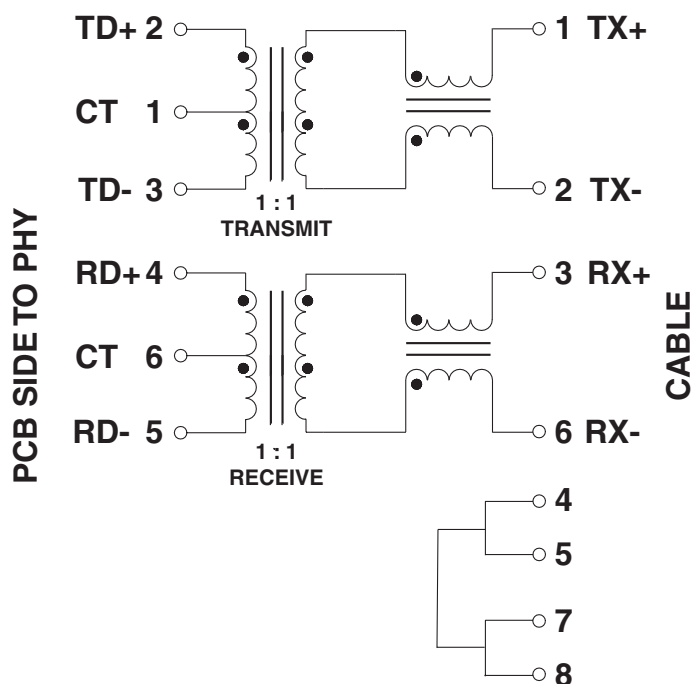
#### JOC-0005NL/JOC-0006NL



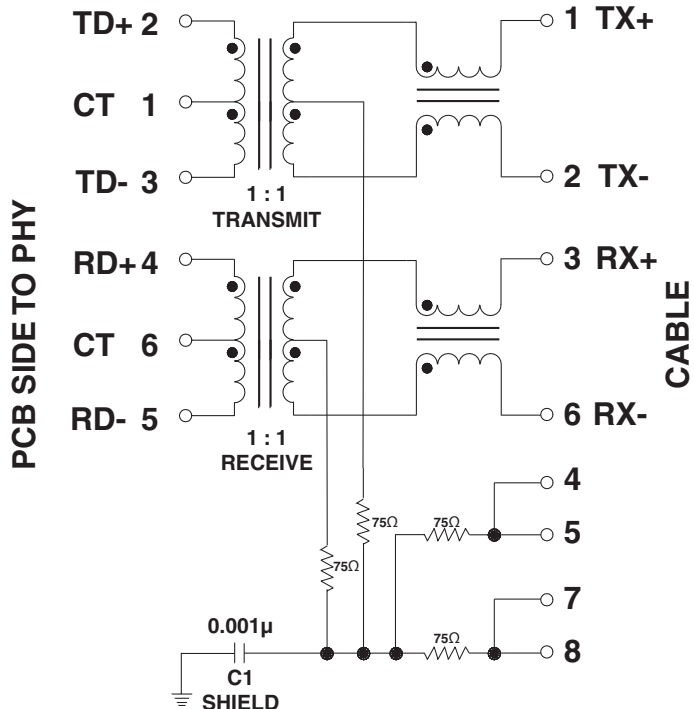
SUGGESTED FOOTPRINT (COMPONENT SIDE SHOWN)  
DIMENSIONAL TOLERANCE: (UNLESS OTHERWISE SPECIFIED)  
.XXX ±.003 [X.XX ±0.08]

JV Platform Schematics

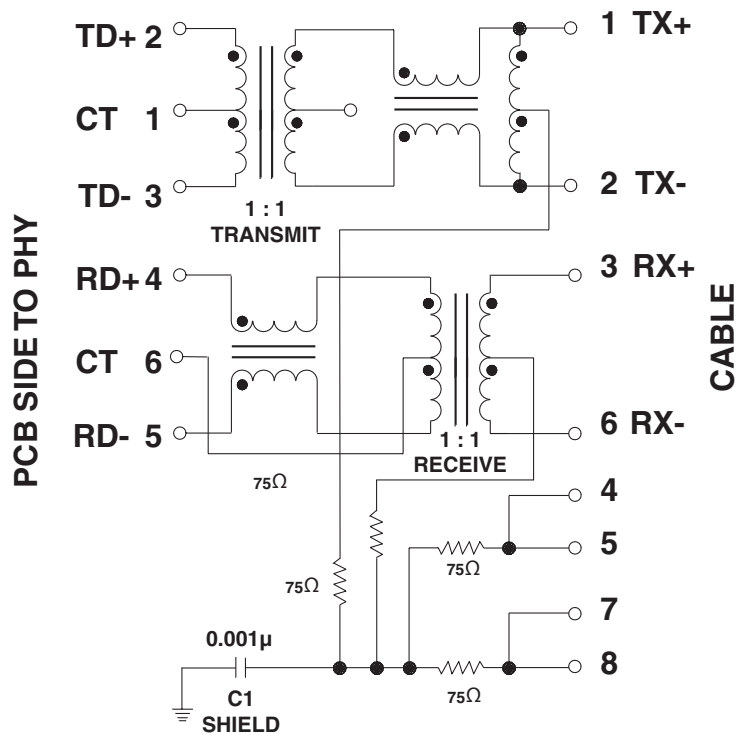
J0C006



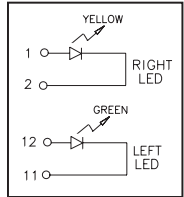
JV011



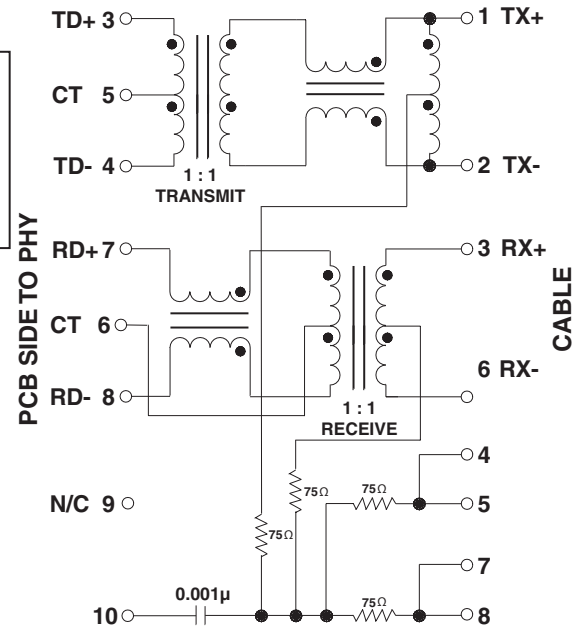
JV026



## J3011



## CABLE



**PCB SIDE TO PHY**

**LOW**

**RIGHT LED**

**GREEN**

**LEFT LED**

**TD+ 3**

**5**

**TD- 4**

**RD+ 7**

**6**

**RD- 8**

**9**

**10**

**1:1 TRANSMIT**

**1:1 RECEIVE**

**CT1**

**CT2**

**75Ω**

**75Ω**

**75Ω**

**75Ω**

**0.001µ**

**CT1**

**1 TX+**

**2 TX-**

**3 RX+**

**6 RX-**

**4**

**5**

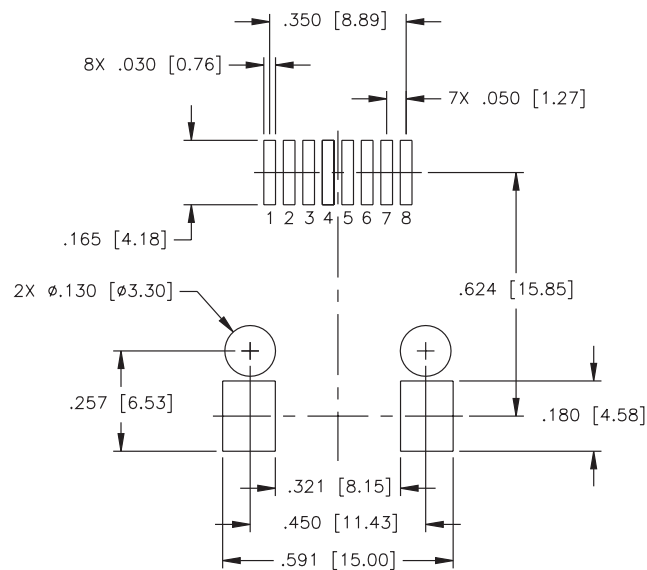
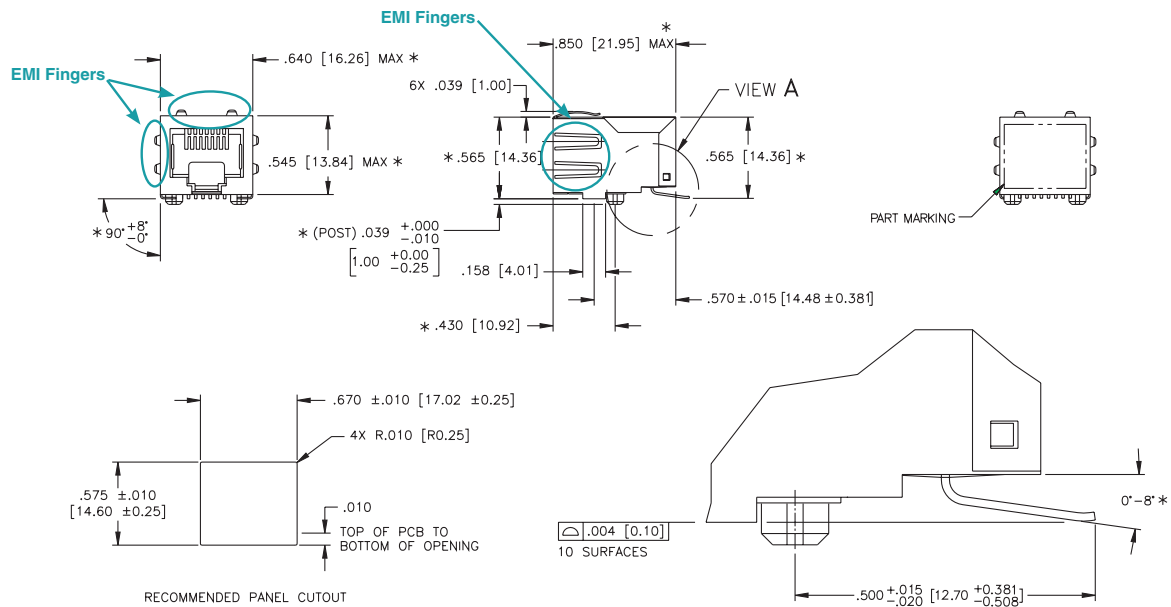
**7**

**8**

**CABLE**

JOC Platform Mechanicals

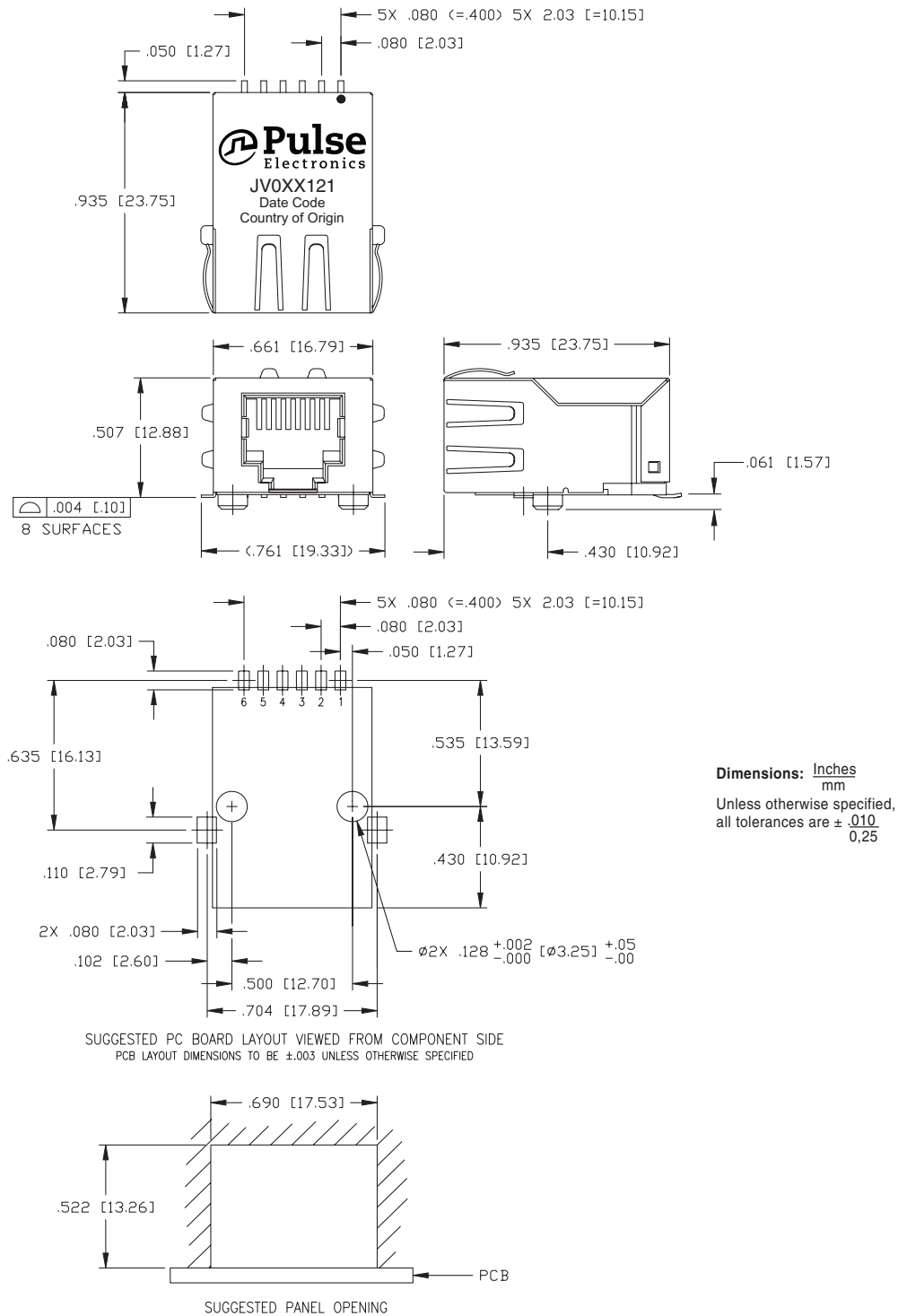
JOC-0004NL/06NL



SUGGESTED FOOTPRINT (COMPONENT SIDE SHOWN)  
DIMENSIONAL TOLERANCE: (UNLESS OTHERWISE SPECIFIED)  
.XXX ± .003 [X.XX ± 0.08]

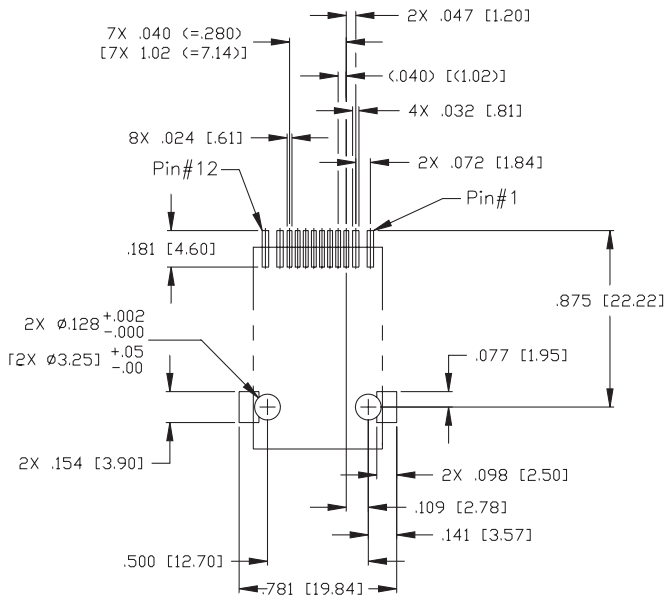
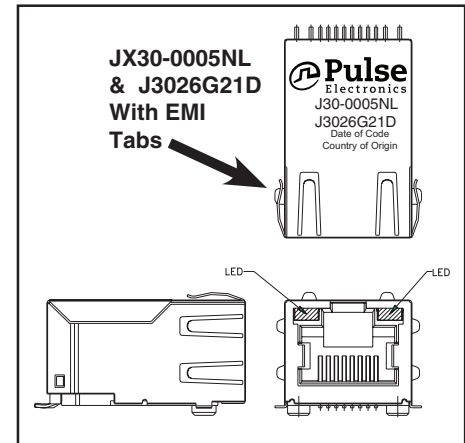
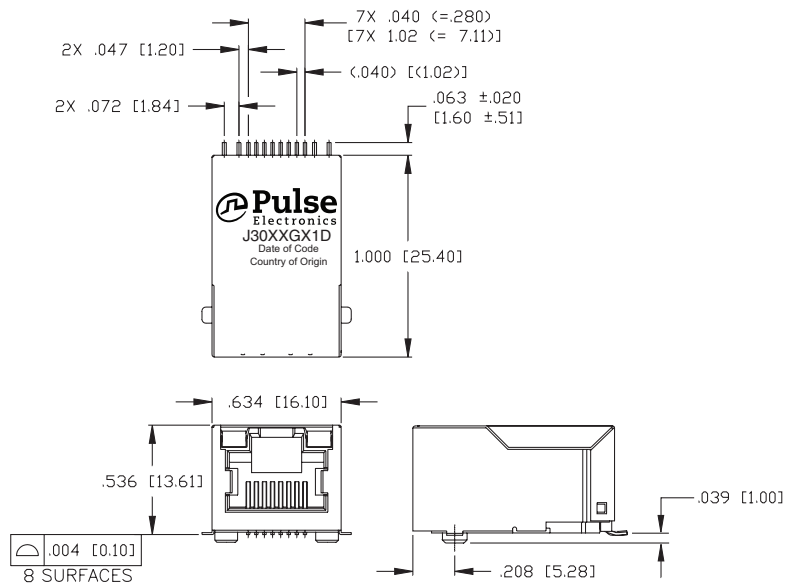
## JV Platform Mechanicals

### JV Series

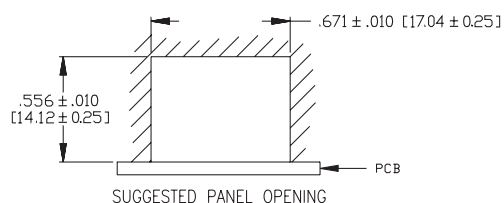


## J3 Platform Mechanical

### J3 Series



SUGGESTED PC BOARD LAYOUT VIEWED FROM COMPONENT SIDE  
 PCB LAYOUT DIMENSIONS TO BE  $\pm .003$  [ $\pm 0.08$ ] UNLESS OTHERWISE SPECIFIED



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm .010$   
 0,25

### JOC Application Note

This line of 10/100Base-TX SMT RJ45 1X1 Connector Magnetics Modules has been specifically designed for the implementation of a 10Base-T and 100Base-TX transmission over data-grade unshielded twisted pair cable (UTP-3, 5e and 6).

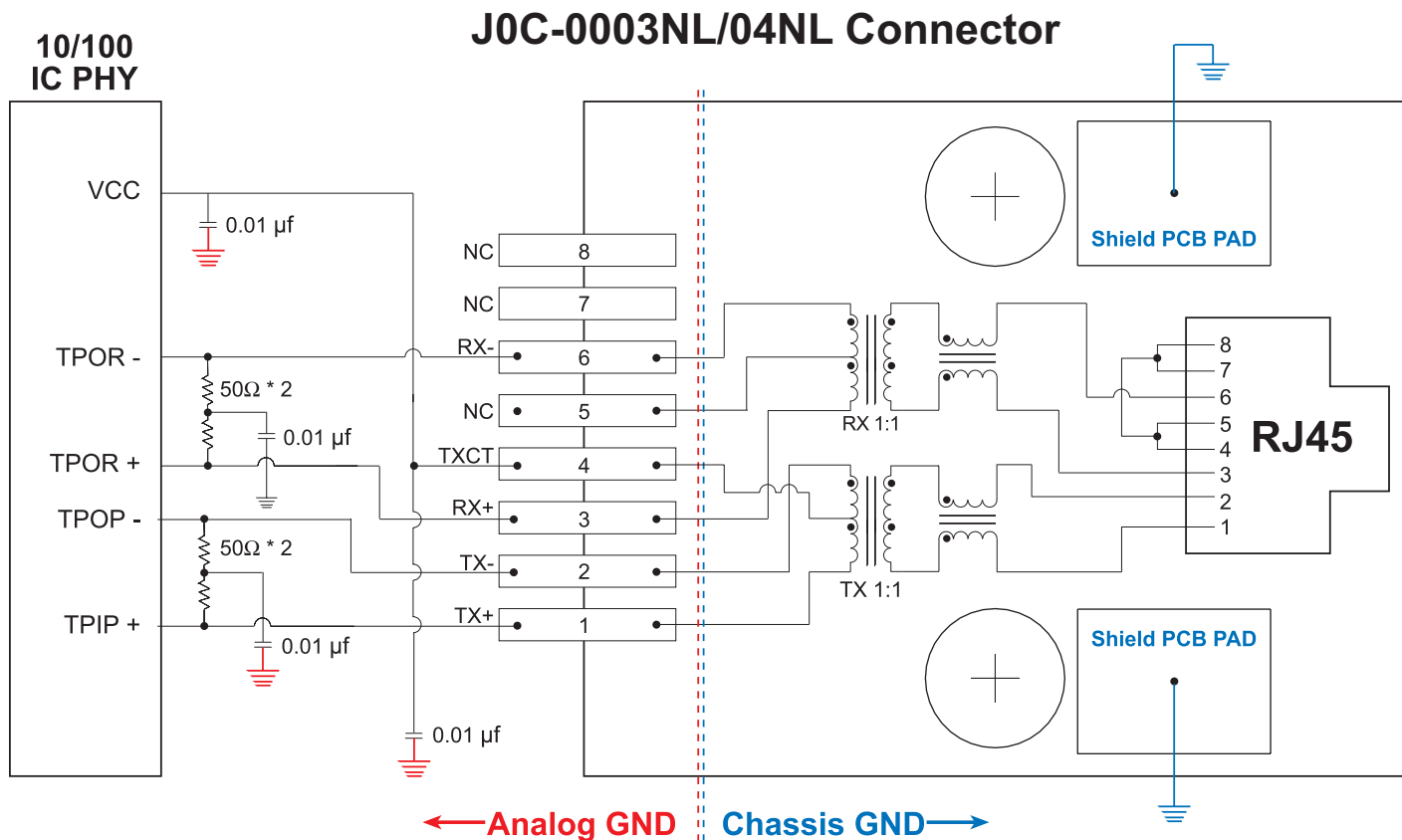
The connectors provide excellent EMI filtering and are suitable for adapter card and multiport applications. Pulse has worked closely with the leading IC manufacturers in providing these 10/100 solutions, thereby assuring compatibility with each transceiver.

The JOC series meets the stringent open circuit inductance requirements imposed by 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 minimize system level jitter.

The 1X1 SMT RJ45 connectors manufactured by Pulse are designed to meet all published specifications after exposure to surface mount soldering temperatures. The SMT are robust enough to withstand convection and infrared reflow solder temperatures. Additionally, compliant leads provide excellent solder-joint reliability with a coplanarity of 0.10 (0.004").

**Note:** Modules are packaged in trays, unless Tape & Reel is specified (ex: JOC-0003NL for Trays and JOC-0003NLT for Tape & Reel).



NOTE: Connector design not to scale

### PCB Layout Recommendations:

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



### JV Application Note

This line of 10/100Base-TX SMT RJ45 1X1 Connector Magnetics Modules has been specifically designed for the implementation of a 10Base-T and 100Base-TX transmission over data-grade unshielded twisted pair cable (UTP-3, 5e and 6).

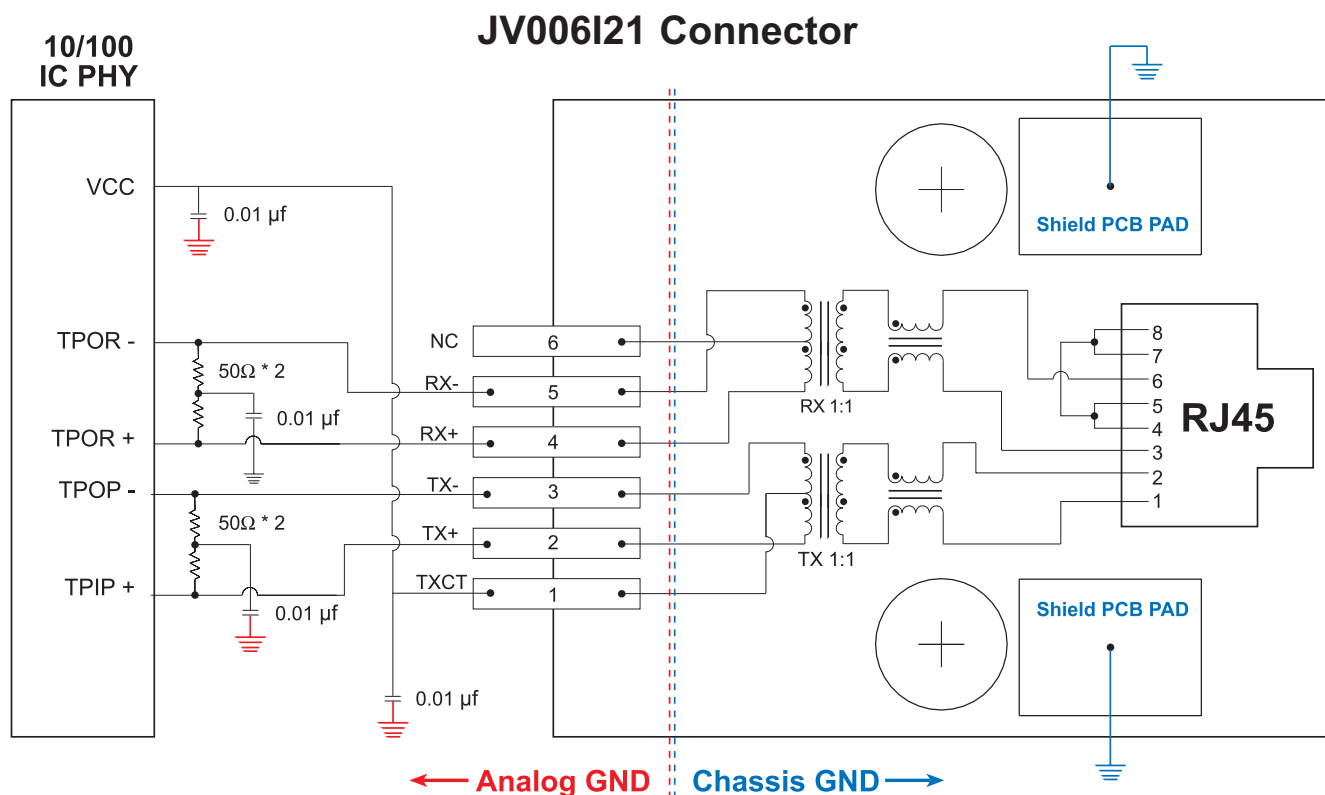
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**Note:** Modules are packaged in trays, unless Tape & Reel is specified. Please add the suffix “T” for Tape & Reel orders (ex: JV0006121T). Add the suffix “NL” for RoHS compliant parts (ex: JV006121NLT for Trays and JV006121NLT for Tape & Reel).

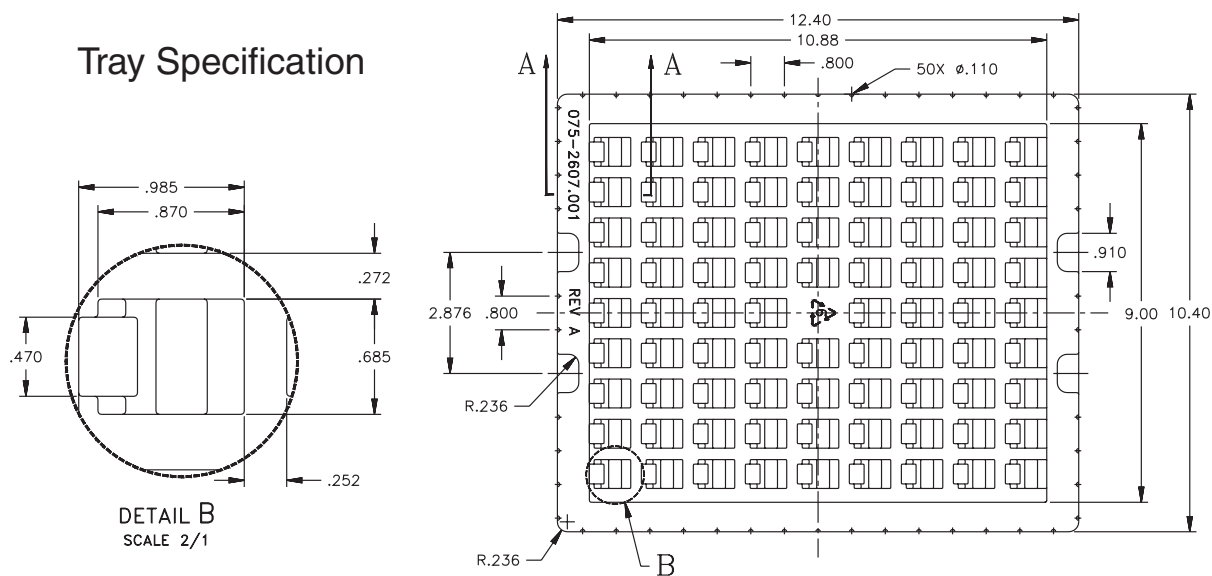


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## JOC Series

**Weight**.....7.07 grams  
**Tape & Reel**..... 90/reel  
**Tray** ..... 80/tray  
**Tape** ..... 44x32mm  
**Tube** ..... 25/tube

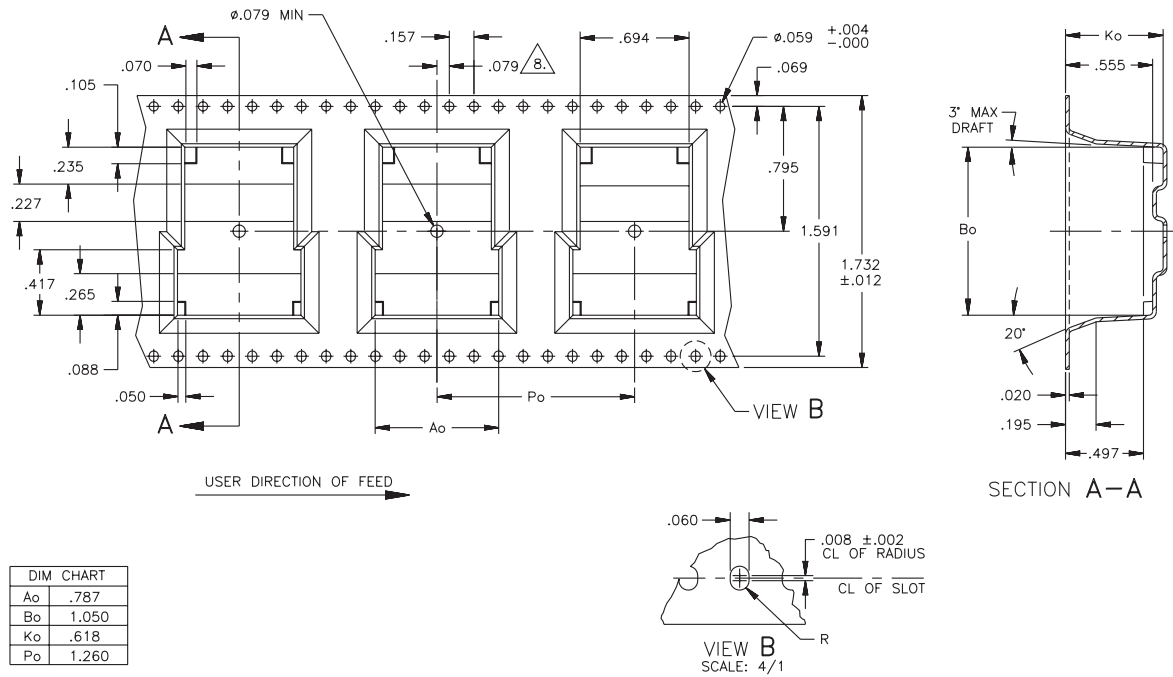


## JV Packaging Specifications

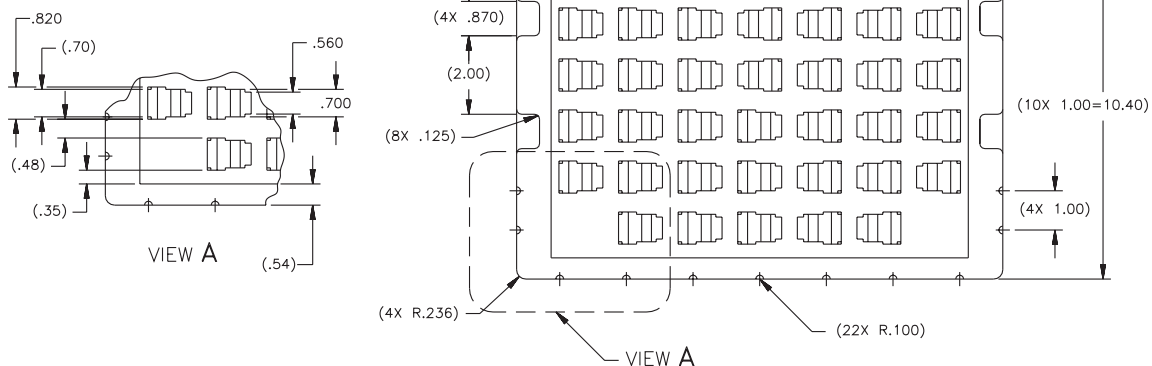
### JV Series

Weight.....6.6 grams  
Tape & Reel..... 150/reel  
Tray ..... 45/tray  
Tape ..... 44x32mm

### Tape and Reel Specification



### Tray Specification



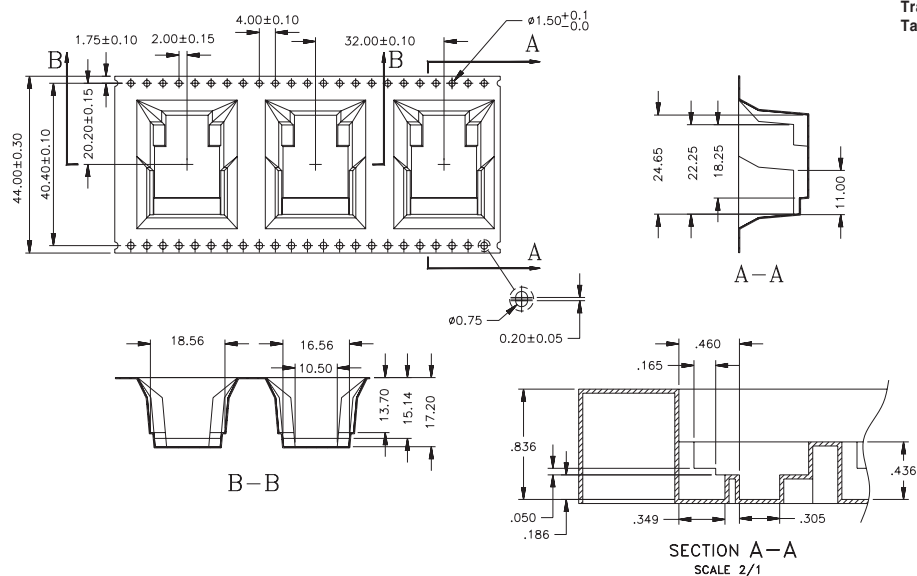
# PulseJack™

## Surface Mount 1x1

### J3 Packaging Specifications

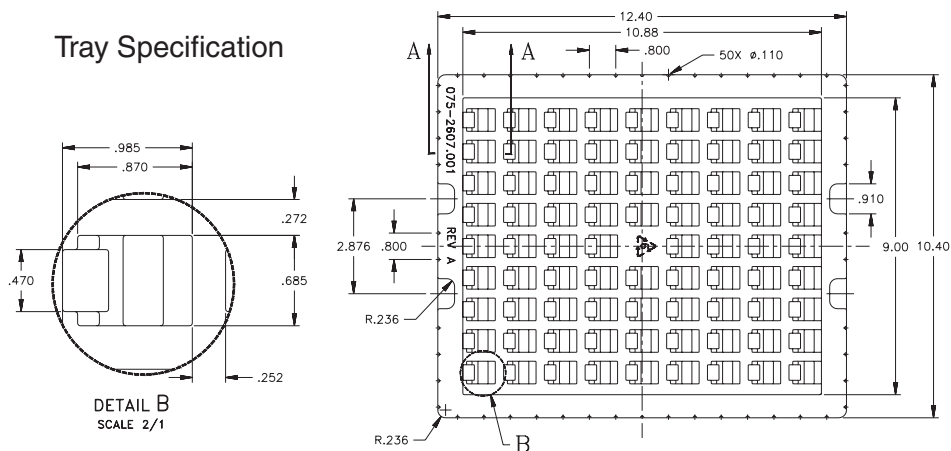
#### J3 Series

#### Tape and Reel Specification



Weight.....8.1 grams  
Tape & Reel.....75/reel  
Tray .....45/tray  
Tape .....56x32mm

#### Tray Specification



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