

# PULSEJACK™

## Surface Mount 1x1



### Description:

10/100Base-TX 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 Cards (NIC).



### Features and Benefits:

- RoHS-5 peak reflow temperature rating 235°C
- RoHS-6 peak reflow temperature rating 245°C
- J0C SMT product, reduced size and low cost alternative to JV series

### 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-5 <sup>3</sup><br>Compliant<br>Part No. | RoHS-6 <sup>4</sup><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>TX/RX<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)<br>(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 |                          |
| J0C-0003                                     | J0C-0003NL                                   | 1CT:1           | 1CT:1 | Down                     | No                       | No             | No            | -1.0                                   | -18                                    | -14         | -10       | -35          | -35                   | -30          | -20           | -20                                  | 1500          |                          |
| J0C-0004                                     | J0C-0004NL                                   | 1CT:1           | 1CT:1 | Down                     | No                       | No             | Yes           | -1.0                                   | -18                                    | -14         | -10       | -35          | -35                   | -30          | -20           | -20                                  | 1500          |                          |
| J0C-0005                                     | J0C-0005NL                                   | 1CT:1           | 1CT:1 | Down                     | No                       | Yes            | No            | -1.0                                   | -18                                    | -14         | -10       | -35          | -35                   | -30          | -20           | -20                                  | 1500          |                          |
| J0C-0006                                     | J0C-0006NL                                   | 1CT:1           | 1CT:1 | Down                     | No                       | Yes            | Yes           | -1.0                                   | -18                                    | -14         | -10       | -35          | -35                   | -30          | -20           | -20                                  | 1500          |                          |
| JV006I21                                     | JV006I21NL                                   | 1CT:1           | 1CT:1 | Down                     | No                       | No             | Yes           | -1.0                                   | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                          |
| JV011I21                                     | JV011I21NL                                   | 1CT:1           | 1CT:1 | Down                     | No                       | Yes            | Yes           | -1.0                                   | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                          |
| JV026I21                                     | JV026I21NL                                   | 1CTS:1          | 1CT:1 | Down                     | No                       | Yes            | Yes           | -1.0                                   | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                          |
| J3006G21D                                    | J3006G21DNL                                  | 1CT:1           | 1CT:1 | Up                       | G/Y                      | No             | Yes           | -1.0                                   | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                          |
| J3011G21D                                    | J3011G21DNL                                  | 1CT:1           | 1CT:1 | Up                       | G/Y                      | Yes            | Yes           | -1.0                                   | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                          |
| J3018G21K                                    | —  | 1CTS:1.414      | 1CT:1 | Up                       | G/G                      | Yes            | Yes           | -1.0                                   | -20                                    | -16         | -11.5     | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                          |
| J3026G01D                                    | J3026G01DNL                                  | 1CTS:1          | 1CT:1 | Up                       | G/Y                      | Yes            | No            | -1.0                                   | -20                                    | -16         | -12       | -40          | -35                   | -30          | -30           | -20                                  | 1500          |                          |
| J3026G21D                                    | J3026G21DNL                                  | 1CTS: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. J0C-0004T).

- RoHS-5 - Product does not contain 5 out of the 6 banned substances specified in the RoHS directive. Product contains lead in applications considered as solders.
- RoHS-6 - Product does not contain 5 out of the 6 banned substances specified in the RoHS directive. Some internal connections may contain lead in high temperature solder (solder alloys containing more than 85% lead).

### RJ45 Durability Testing Rating

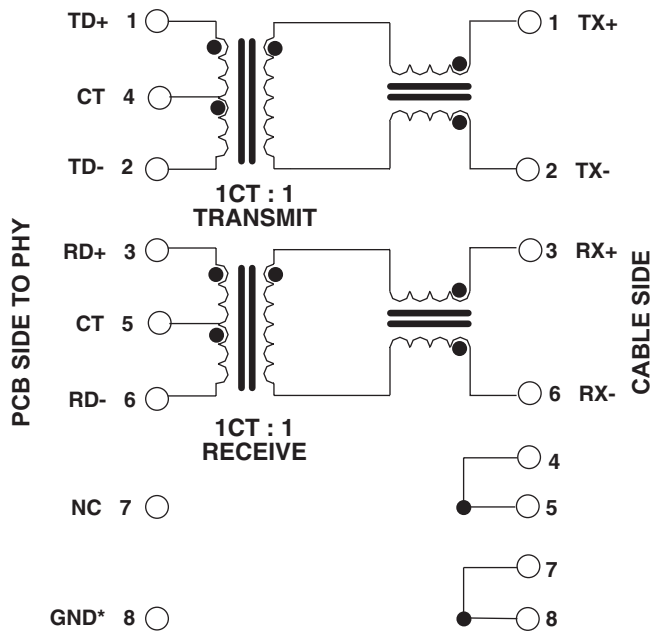
| Part Number      | Mating Force<br>(MAX) | Unmating Force<br>(MAX) | Durability     | Plug to Jack<br>Retention (MIN) |
|------------------|-----------------------|-------------------------|----------------|---------------------------------|
| J0C/JV/J3 Series | 5 lbs./2.268 kgs.     | 5 lbs./2.268 kgs.       | 750 Insertions | 20 lbs./9.072 kgs.              |

### RJ45 Material Specification

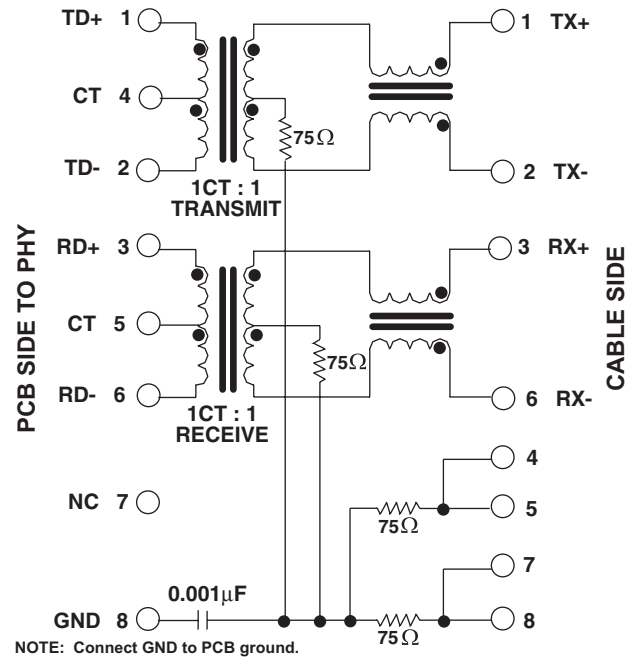
| Part<br>Number      | Shield   |  | Contact            |  |  | Housing                     |               | MSL <sup>2</sup><br>Rating |
|---------------------|----------|--|--------------------|--|--|-----------------------------|---------------|----------------------------|
|                     | Material | Finish                                   | Material           | Plating Area                                 | Solder Area <sup>4</sup>                             | Material                    | Specification |                            |
| J0C/JV/J3<br>Series | Brass    | 20-40μ inches thick nickel<br>over Brass | Phosphor<br>Bronze | 15μ inches gold over<br>30-80μ inches nickel | 75-300μ inches tin-lead over<br>30-80μ inches nickel | High Temp.<br>Thermoplastic | UL 94 V-0     | 1 <sup>3</sup>             |

- Notes: 1. Connector dimensions comply with FCC part 68 dimension requirements. 3. The MSL rating for J0C-000X is Level 4. All other connectors are Level 1.
2. MSL = Moisture Sensitivity Level rating: 1 to 5 (highest rating = 1, lowest rating = 5). 4. NL parts are tin matte finish over nickel.

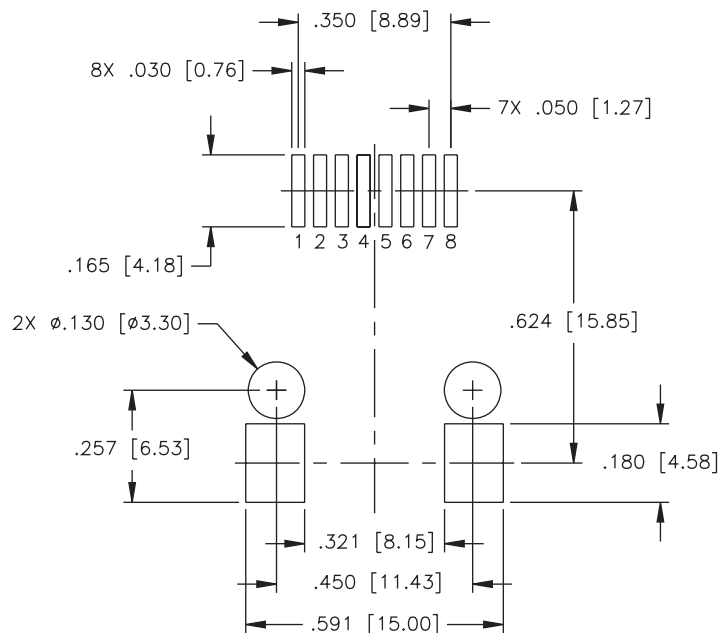
### J0C Platform Schematics

**J0C-0003/4**


\*Connecting pin 8 to Ground makes J00-0042/46/64/66 footprint compatible to J00-0014/45/61/65.

**J0C-0005/6**


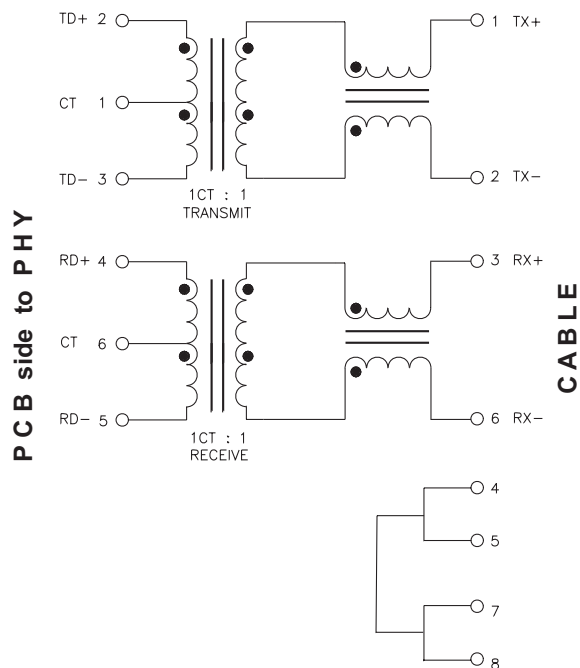
NOTE: Connect GND to PCB ground.



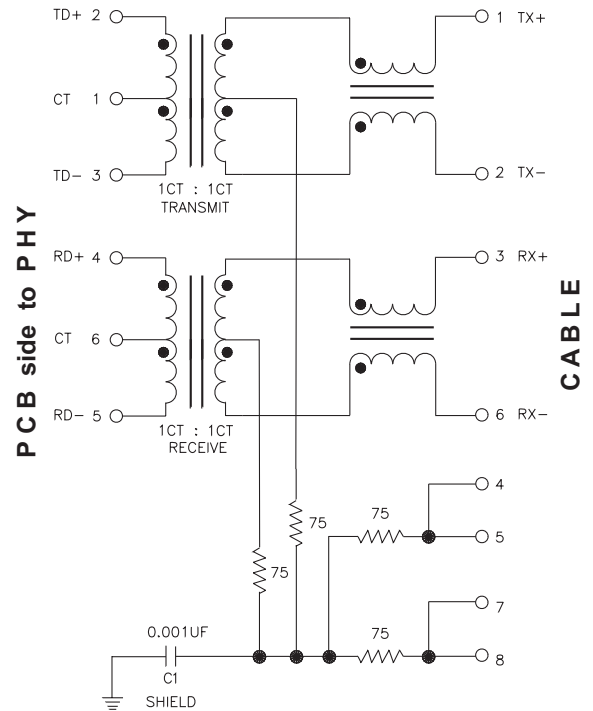
SUGGESTED FOOTPRINT (COMPONENT SIDE SHOWN)  
 DIMENSIONAL TOLERANCE: (UNLESS OTHERWISE SPECIFIED)  
 .XXX ±.003 [X.XX ±0.08]

## JV Platform Schematics

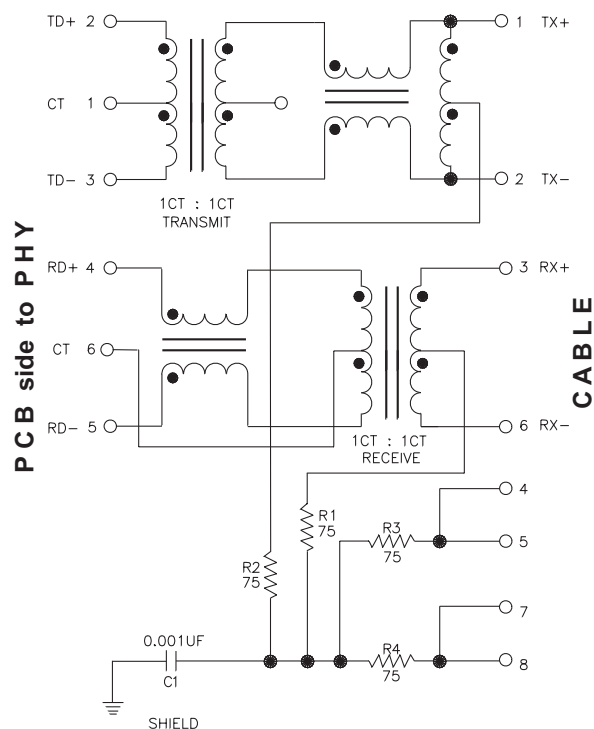
**JV006**



**JV011**

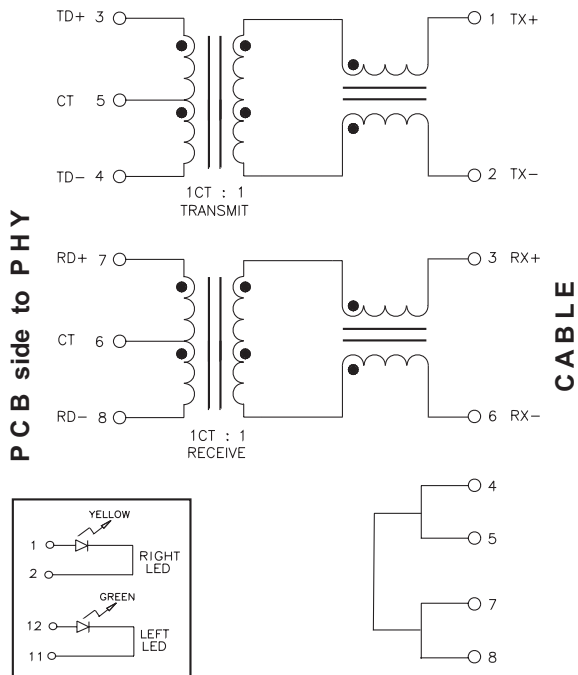


**JV026**

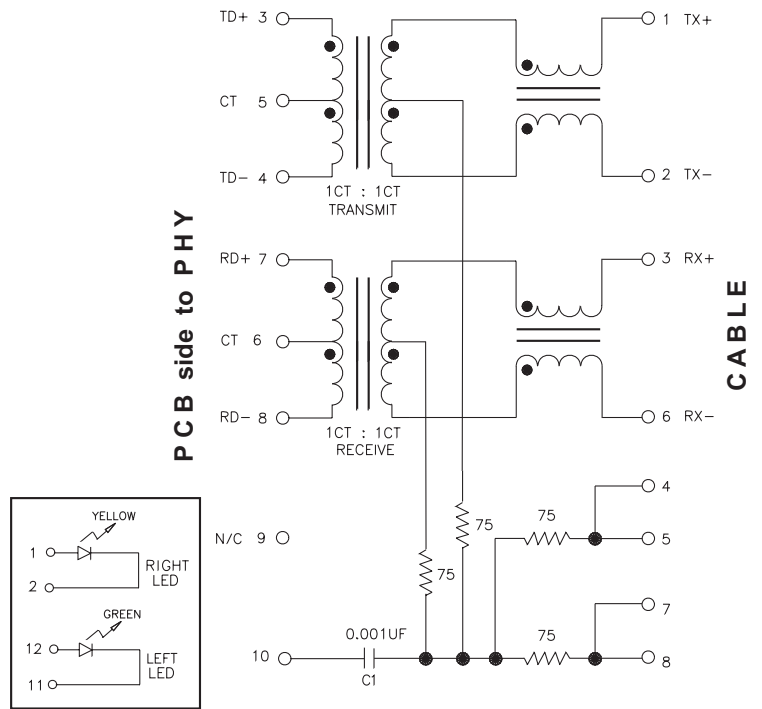


### J3 Platform Schematics

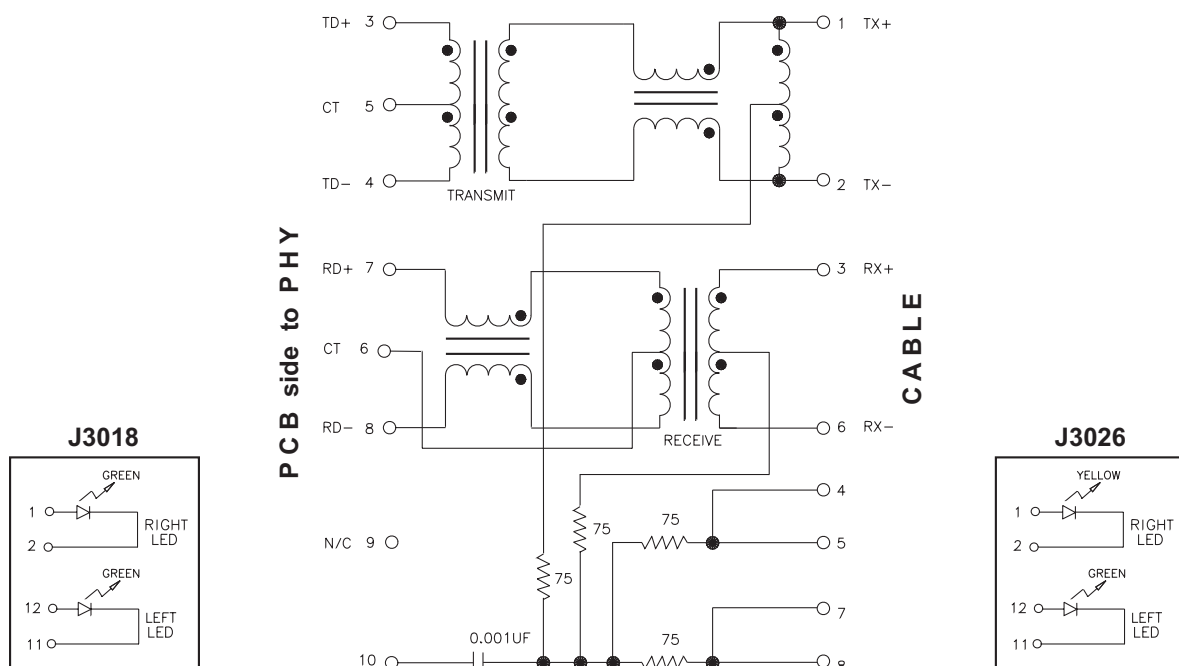
#### J3006



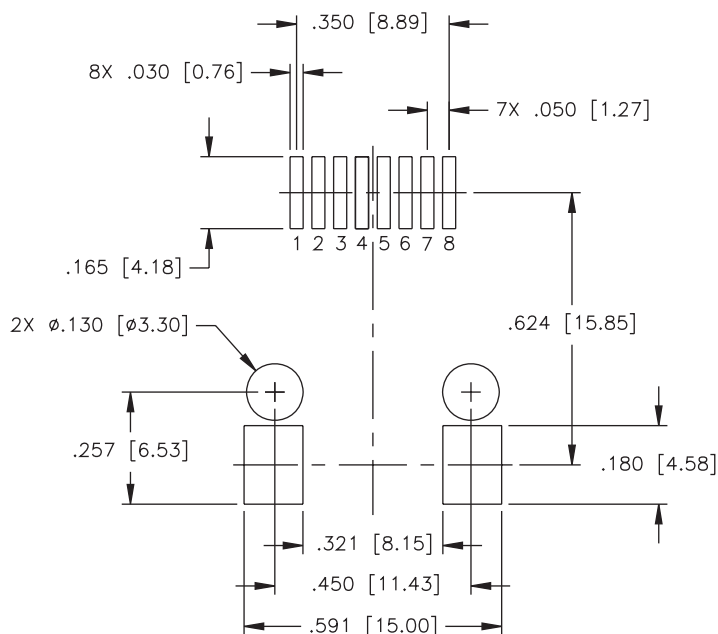
#### J3011



#### J3018/J3026



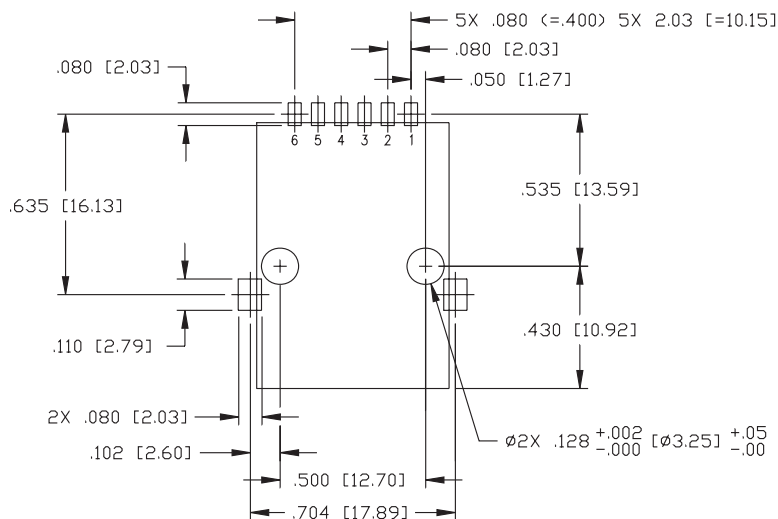
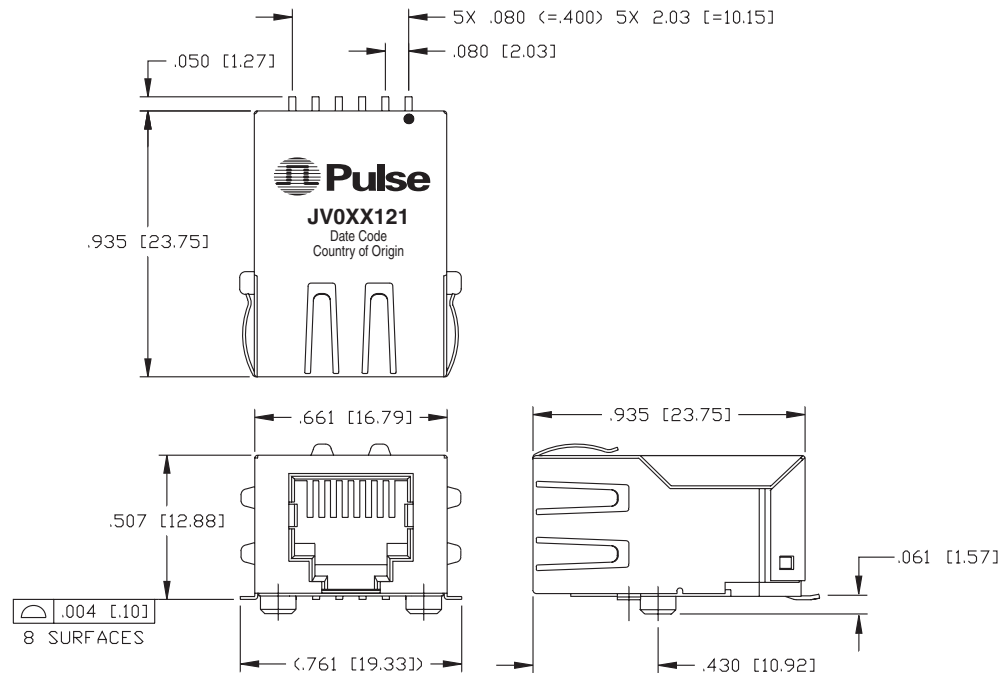
**J0C-0004/6 (J0C-0003/5 - Same platform without EMI Fingers)**



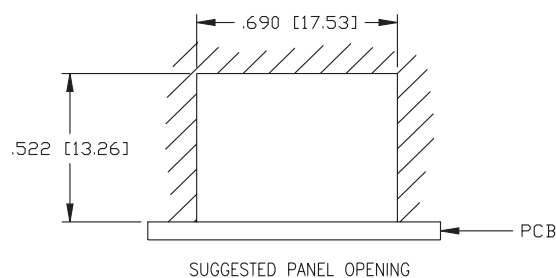
USA 858 674 8100 • Germany 49 7032 7806 0 • Singapore 65 6287 8998 • Shanghai 86 21 54643211/2 • China 86 769 85538070 • Taiwan 886 3 4641811

### JV Platform Mechanicals

#### JV Series



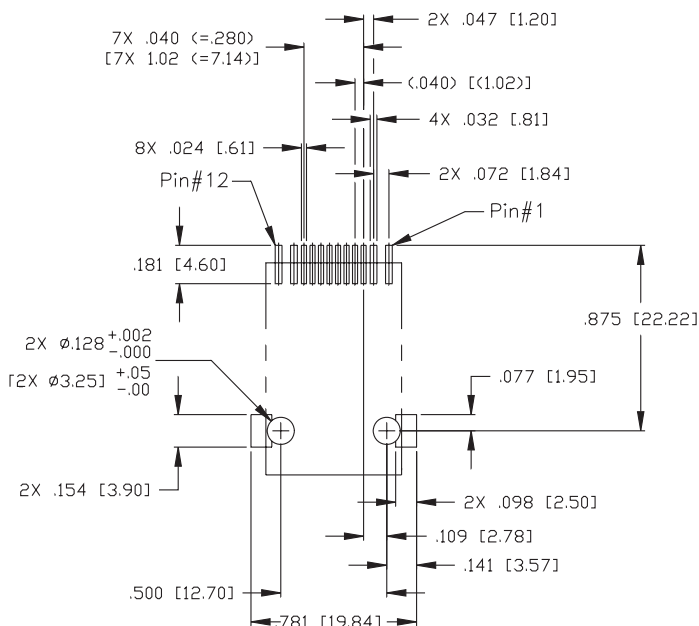
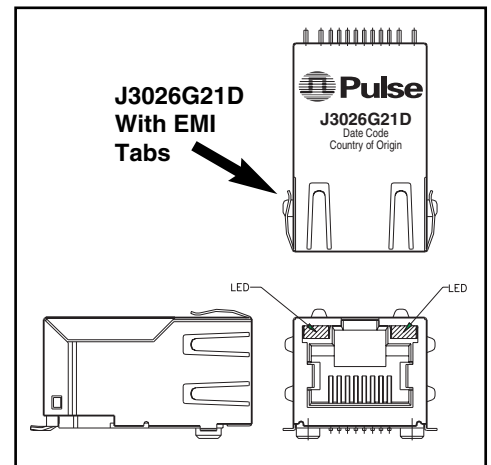
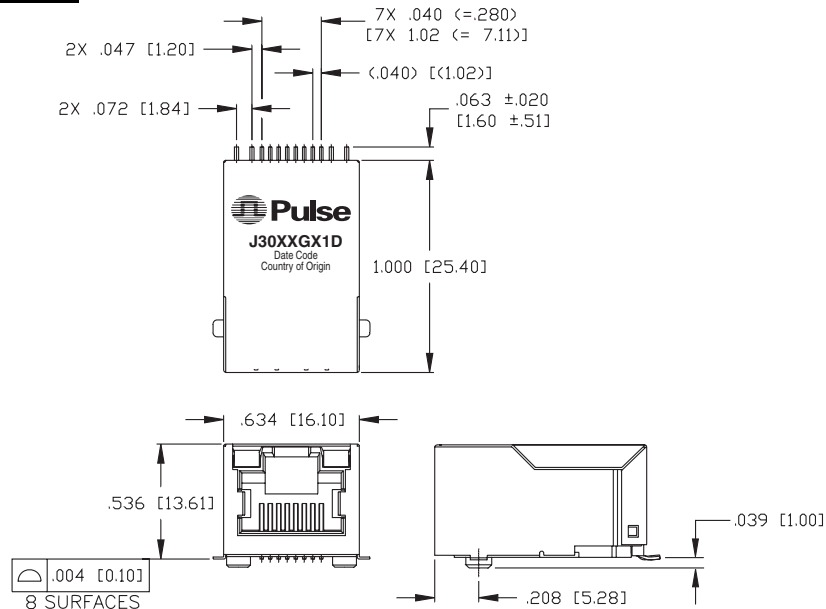
SUGGESTED PC BOARD LAYOUT VIEWED FROM COMPONENT SIDE  
 PCB LAYOUT DIMENSIONS TO BE  $\pm .003$  UNLESS OTHERWISE SPECIFIED



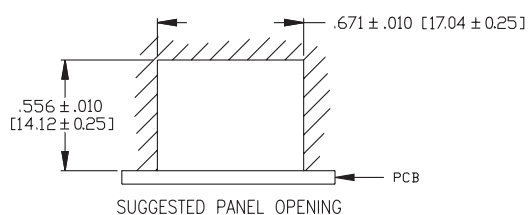
**Dimensions:**  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{.010}{0.25}$

### 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  $\pm .010$   
 $0.25$

### J0C 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).

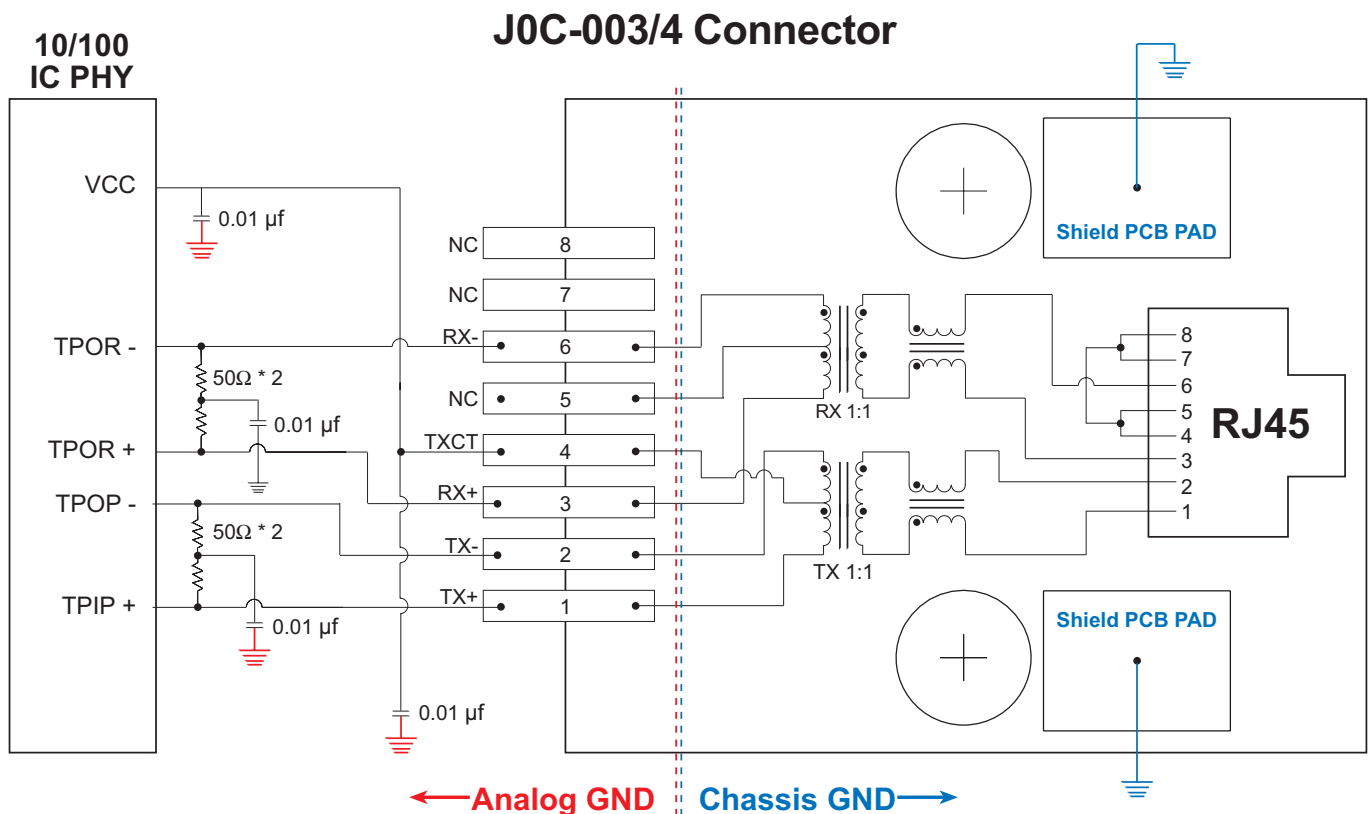
The connectors provide excellent EMI filtering and are suitable for adapter card and multiport applications. Pulse has worked closely with the leading IC manufacturers in providing these 10/100 solutions, thereby assuring compatibility with each transceiver.

The J0C 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 0.10mm (0.004")

**NOTE:** Modules are packaged in trays, unless Tape & Reel is specified. Please add the suffix "T" for Tape & Reel orders (ex: J0C-0003T). Add the suffix "NL" for RoHS compliant parts (ex: J0C-0003NL for Trays and J0C-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).

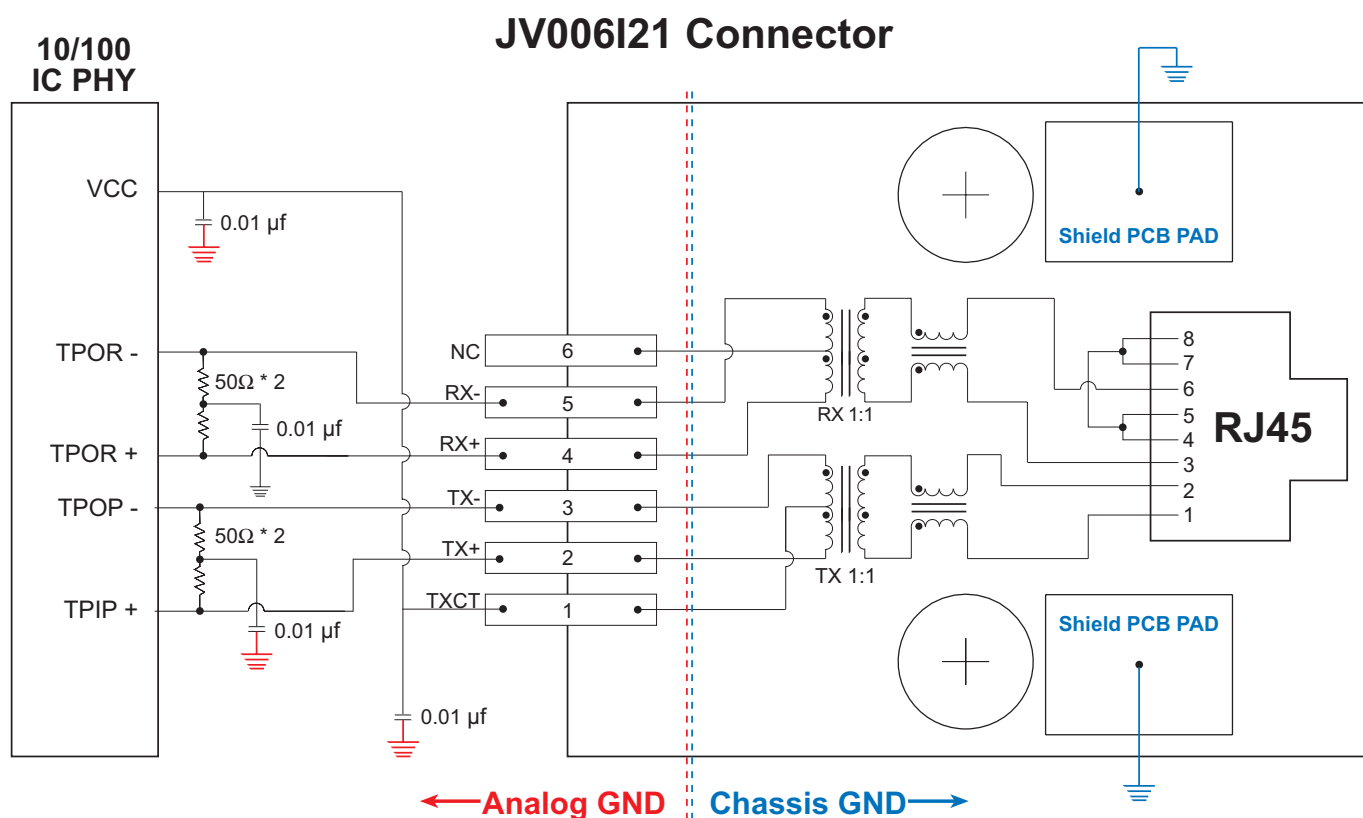
The connectors provide excellent EMI filtering and are suitable for adapter card and multiport applications. Pulse has worked closely with the leading IC manufacturers in providing these 10/100 solutions, thereby assuring compatibility with each transceiver.

The JV 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 0.10mm (0.004")

**NOTE:** Modules are packaged in trays, unless Tape & Reel is specified. Please add the suffix "T" for Tape & Reel orders (ex: JV006I21T). Add the suffix "NL" for RoHS compliant parts (ex: JV006I21NL for Trays and JV006I21NLT 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.

## J0C Series

## Tape and Reel Specification



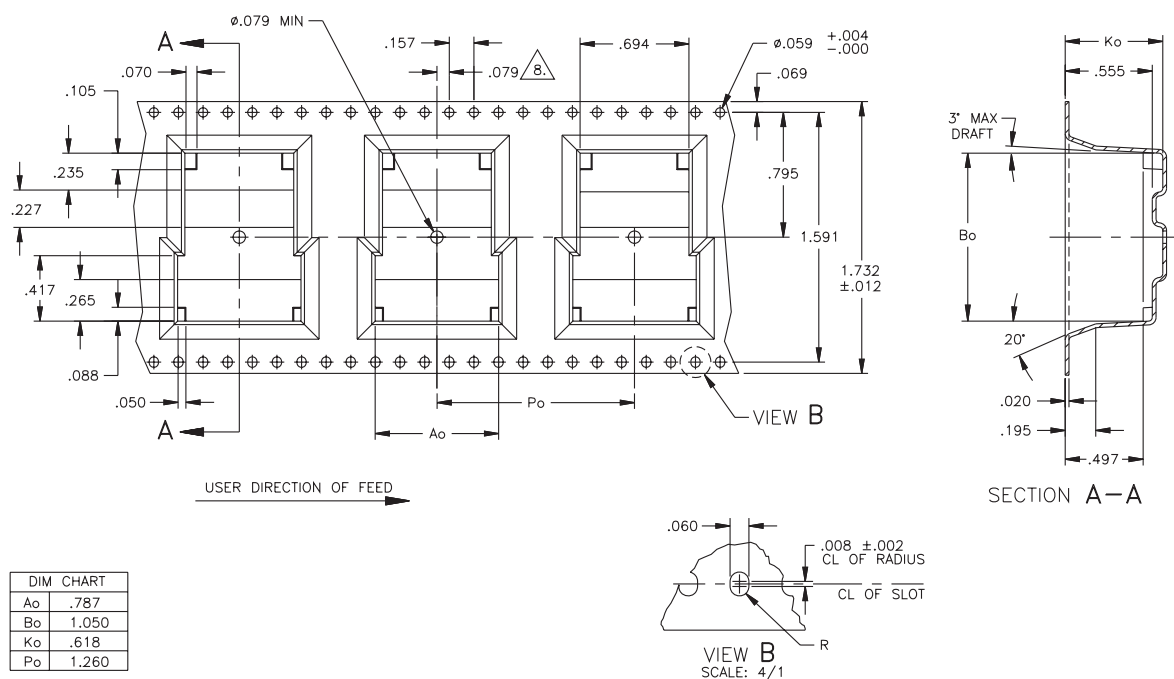


## JV Packaging Specifications

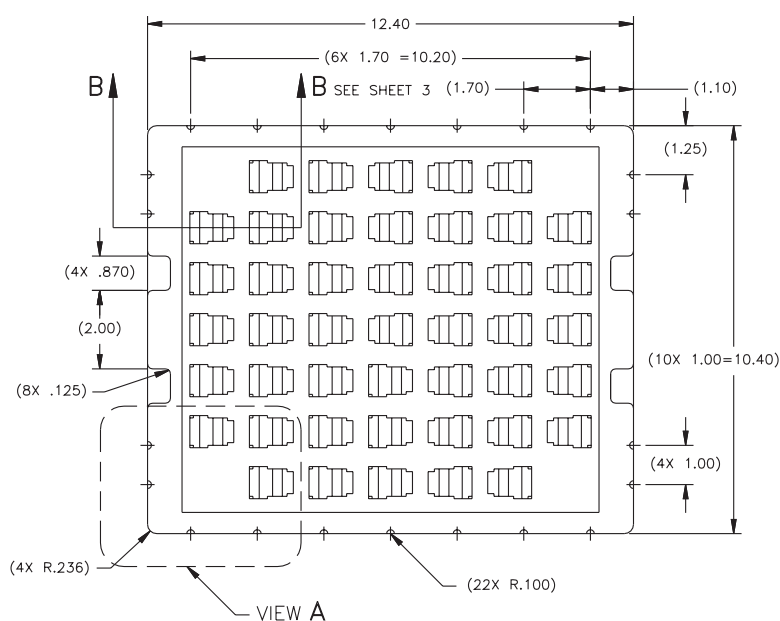
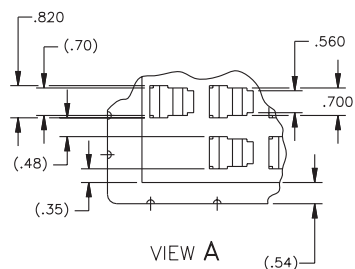
## JV Series

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

## Tape and Reel Specification



## Tray Specification



# PULSEJACK™

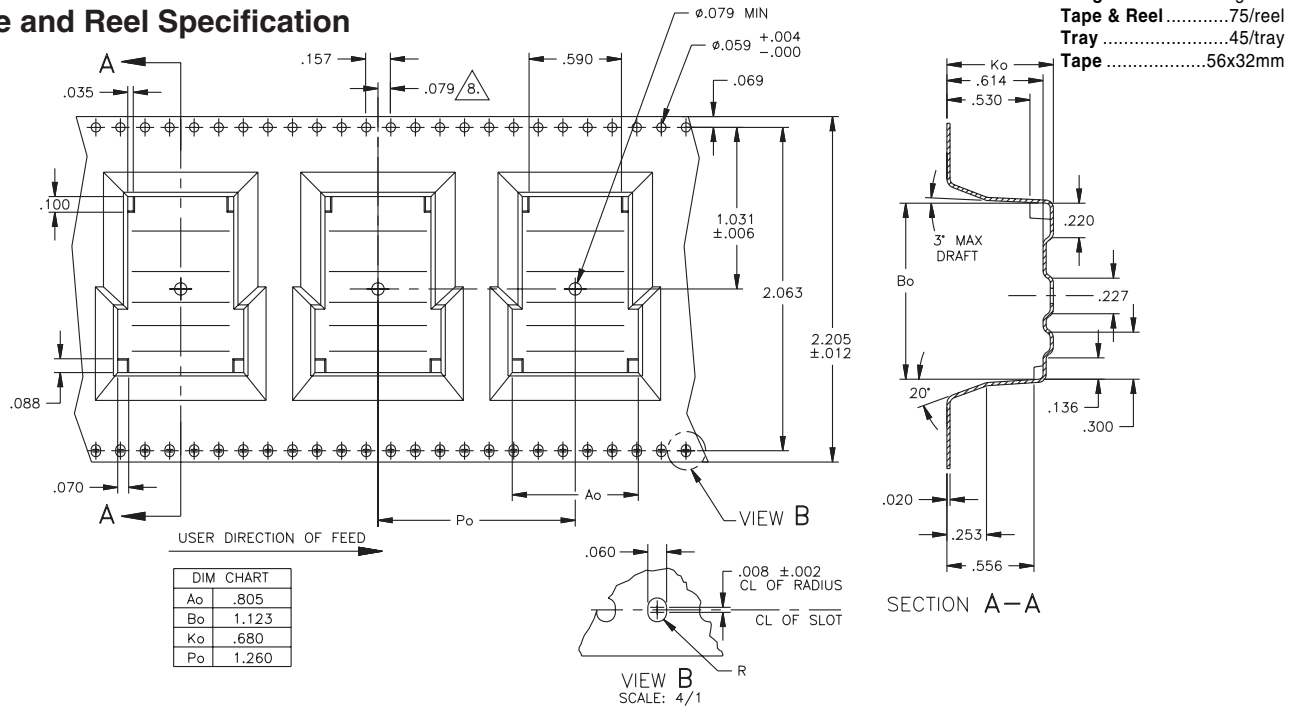
## Surface Mount 1x1



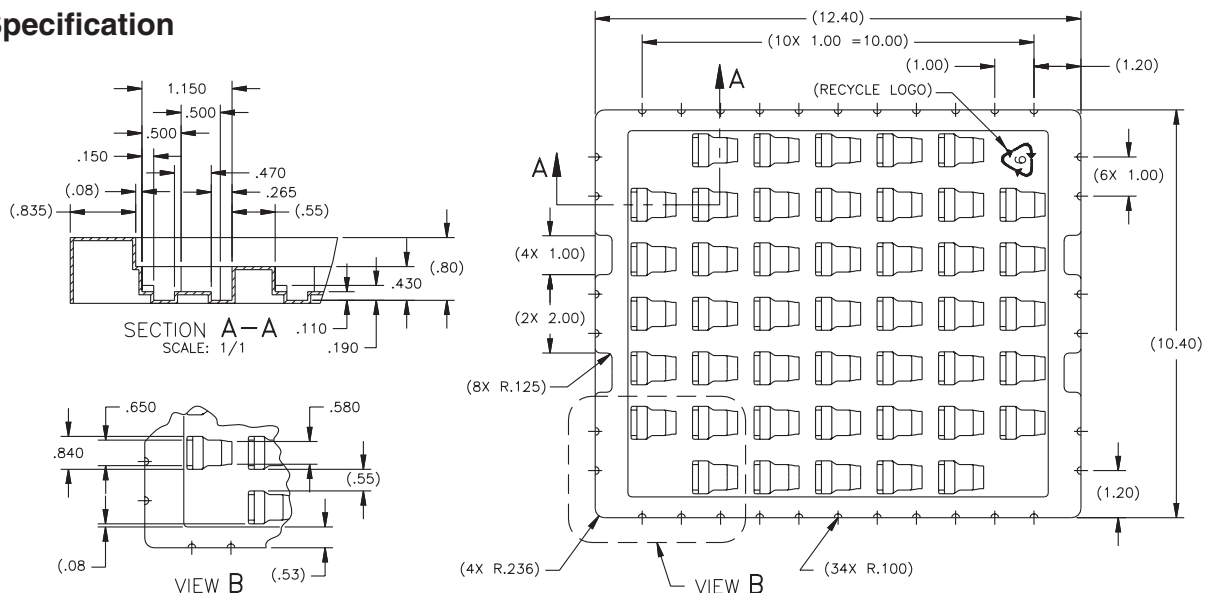
### J3 Packaging Specifications

#### J3 Series

#### Tape and Reel Specification



#### Tray Specification



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