

FEATURES

- Peregrine Semiconductor PE22100 compatible
- 3.3V and 5V versions
- Isolation tested to 4kV_{DC}
- Toroidal construction
- Low profile
- Industry-standard pinout
- UL 94 V-0 package materials
- Industrial temperature range
- J-STD-020D reflow (SM versions)
- RoHS compliant
- Backwards compatible with Sn/Pb soldering systems

DESCRIPTION

The 782100 series of converter transformers are specifically designed for use with the Peregrine Semiconductor PE22100 chip set to provide isolated power supplies for transceivers in isolated interface applications.

SELECTION GUIDE

| Order Code | Input Voltage | Output Voltage | Isolation ² Voltage | Turns Ratio | Package Type |
|---------------------|---------------|----------------|--------------------------------|-------------|--------------|
| | V | V | V _{DC} | | |
| 782100/33VC | 3.3 | 3.3 | 4000 | 1CT:1.33CT | DIL |
| 782100/53VC | 5 | 3 | 4000 | 1.14CT:1CT | |
| 782100/35JVC | 3.3 | 5.0 | 4000 | 1:2.14 | SM |
| 782100/55JVC | 5.0 | 5.0 | 4000 | 1:1.33 | |

ORDER CODE DETAILS

| Order Code | Package Type | Packaging Type | Quantity |
|------------------------|------------------|----------------|----------|
| 782100/XX(J)VC | 6 Pin (SM) / DIL | Tube | 50 |
| 782100/XX.JVC-R | 6 Pin SM | Tape & Reel | 500 |

782100/33VC CHARACTERISTICS

| Parameter | Conditions | Min. | Max. | Units |
|---|-----------------|------|------|-------|
| Primary Inductance, L _p ¹ | 100kHz, 20mV | 190 | 310 | μH |
| Leakage Inductance, L _l ¹ | 100kHz, 250mV | | 8 | μH |
| Inter winding Capacitance, C _{ww} | 100kHz, 250mV | | 8 | pF |
| Primary D.C. Resistance, R _{DC} ¹ | <0.1VDC | | 600 | mΩ |
| Volt-time Product, Et | Pins 1/2 or 2/3 | 13 | | Vμs |

782100/53VC CHARACTERISTICS

| Parameter | Conditions | Min. | Max. | Units |
|---|-----------------|------|------|-------|
| Primary Inductance, L _p ¹ | 100kHz, 20mV | 150 | 260 | μH |
| Leakage Inductance, L _l ¹ | 100kHz, 250mV | | 8 | μH |
| Inter winding Capacitance, C _{ww} | 100kHz, 250mV | | 8 | pF |
| Primary D.C. Resistance, R _{DC} ¹ | <0.1VDC | | 600 | mΩ |
| Volt-time Product, Et | Pins 1/2 or 2/3 | 13 | | Vμs |

782100/35JVC CHARACTERISTICS

| Parameter | Conditions | Min. | Max. | Units |
|---|-----------------|------|------|-------|
| Primary Inductance, L _p ¹ | 100kHz, 20mV | 110 | 203 | μH |
| Leakage Inductance, L _l ¹ | 100kHz, 250mV | | 5.00 | μH |
| Inter winding Capacitance, C _{ww} | 100kHz, 250mV | | 8.00 | pF |
| Primary D.C. Resistance, R _{DC} ¹ | >0.1VDC | | 0.50 | Ω |
| Volt-time Product, Et | Pins 1/2 or 2/3 | 18 | | Vμs |

782100/55JVC CHARACTERISTICS

| Parameter | Conditions | Min. | Max. | Units |
|---|-----------------|------|------|-------|
| Primary Inductance, L _p ¹ | 100kHz, 20mV | 170 | 335 | μH |
| Leakage Inductance, L _l ¹ | 100kHz, 250mV | | 8.00 | μH |
| Inter winding Capacitance, C _{ww} | 100kHz, 250mV | | 8.00 | pF |
| Primary D.C. Resistance, R _{DC} ¹ | >0.1VDC | | 0.60 | Ω |
| Volt-time Product, Et | Pins 1/2 or 2/3 | 25 | | Vμs |

All specifications typical at T_A=25°C

1. L_p, L_l and R_{DC} measured between pins 1-3.
2. Flash tested for 1 second



For full details go to
www.murata-ps.com/rohs

ABSOLUTE MAXIMUM RATINGS

| | |
|--------------------------------------|----------------|
| Operating free air temperature range | -40°C to 85°C |
| Storage temperature range | -50°C to 125°C |

VC VARIANTS SOLDERING INFORMATION

| | |
|------------------------------|----------------------|
| Pin finish | Matte tin |
| Max. peak reflow temperature | 260°C for 10 seconds |

JVC VARIANTS SOLDERING INFORMATION

| | |
|---|-----------|
| Pin finish | Matte tin |
| Max. peak reflow temperature | 245°C |
| Moisture sensitivity level ³ | 1 |
| Max. time above liquidous (217 °C) | 100s |

TECHNICAL NOTES

ISOLATION VOLTAGE

‘Hi Pot Test’, ‘Flash Tested’, ‘Withstand Voltage’, ‘Proof Voltage’, ‘Dielectric Withstand Voltage’ & ‘Isolation Test Voltage’ are all terms that relate to the same thing, a test voltage, applied for a specified time, across a component designed to provide electrical isolation, to verify the integrity of that isolation.

All products in this series are 100% production tested at their stated isolation voltage.

A question commonly asked is, “What is the continuous voltage that can be applied across the part in normal operation?”

For a part holding no specific agency approvals both input and output should normally be maintained within SELV limits i.e. less than 42.4V peak, or 60VDC. The isolation test voltage represents a measure of immunity to transient voltages and the part should never be used as an element of a safety isolation system. The part could be expected to function correctly with several hundred volts offset applied continuously across the isolation barrier; but then the circuitry on both sides of the barrier must be regarded as operating at an unsafe voltage and further isolation/insulation systems must form a barrier between these circuits and any user-accessible circuitry according to safety standard requirements.

REPEATED HIGH-VOLTAGE ISOLATION TESTING

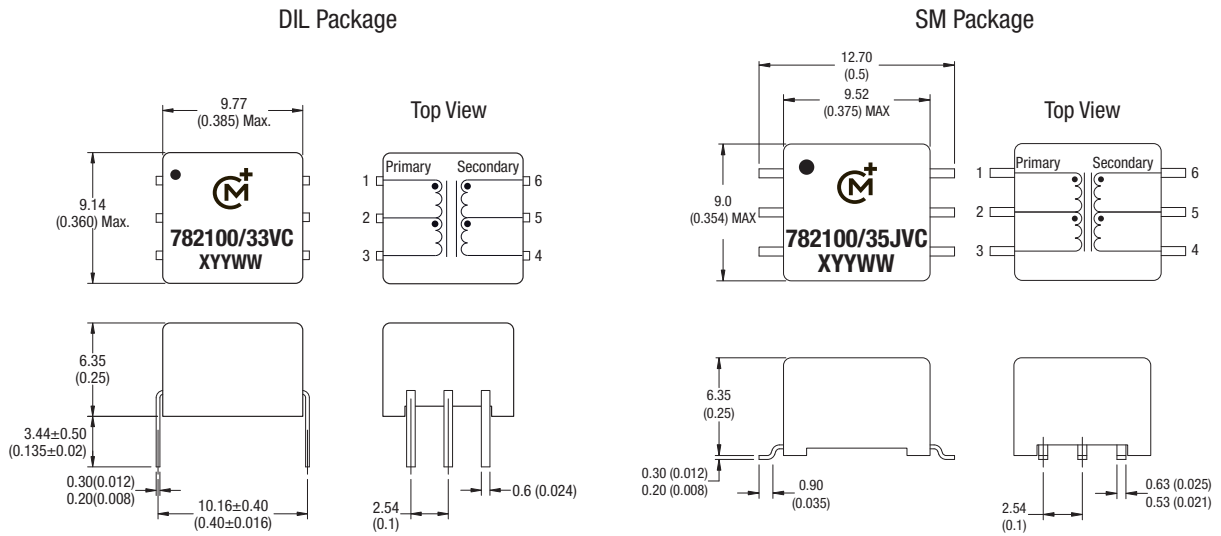
It is well known that repeated high-voltage isolation testing of a barrier component can actually degrade isolation capability, to a lesser or greater degree depending on materials, construction and environment. This series has toroidal isolation transformers, with no additional insulation between primary and secondary windings of enameled wire. While parts can be expected to withstand several times the stated test voltage, the isolation capability does depend on the wire insulation. Any material, including this enamel (typically polyurethane) is susceptible to eventual chemical degradation when subject to very high applied voltages thus implying that the number of tests should be strictly limited. We therefore strongly advise against repeated high voltage isolation testing, but if it is absolutely required, that the voltage be reduced by 20% from specified test voltage.

This consideration equally applies to agency recognized parts rated for better than functional isolation where the wire enamel insulation is always supplemented by a further insulation system of physical spacing or barriers.

3. Representative samples of the product were subjected to the conditioning described in IPC/JEDEC J-STD-020D and passed electrical testing, package coplanarity and visual inspection which revealed no external cracks or changes in package body flatness.

PACKAGE SPECIFICATIONS

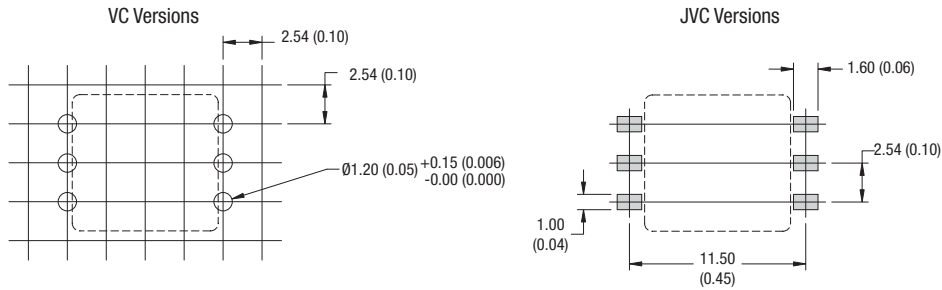
MECHANICAL DIMENSIONS



Unless otherwise stated all dimensions in mm (inches) ± 0.25 (0.01). All pins on a 2.54 (0.1) pitch and within ± 0.25 (0.01) of true position.

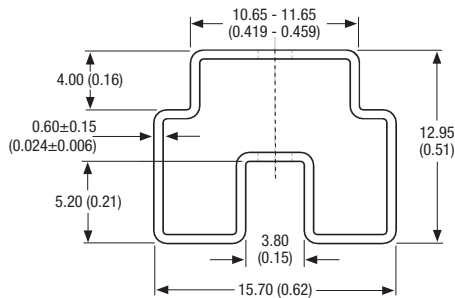
Package weight: 1.1g Typ.

RECOMMENDED FOOTPRINT DETAILS



Unless otherwise stated all dimensions in mm (inches) ± 0.25 (0.01). All pins on a 2.54 (0.1) pitch and within ± 0.25 (0.01) of true position.

TUBE OUTLINE DIMENSIONS



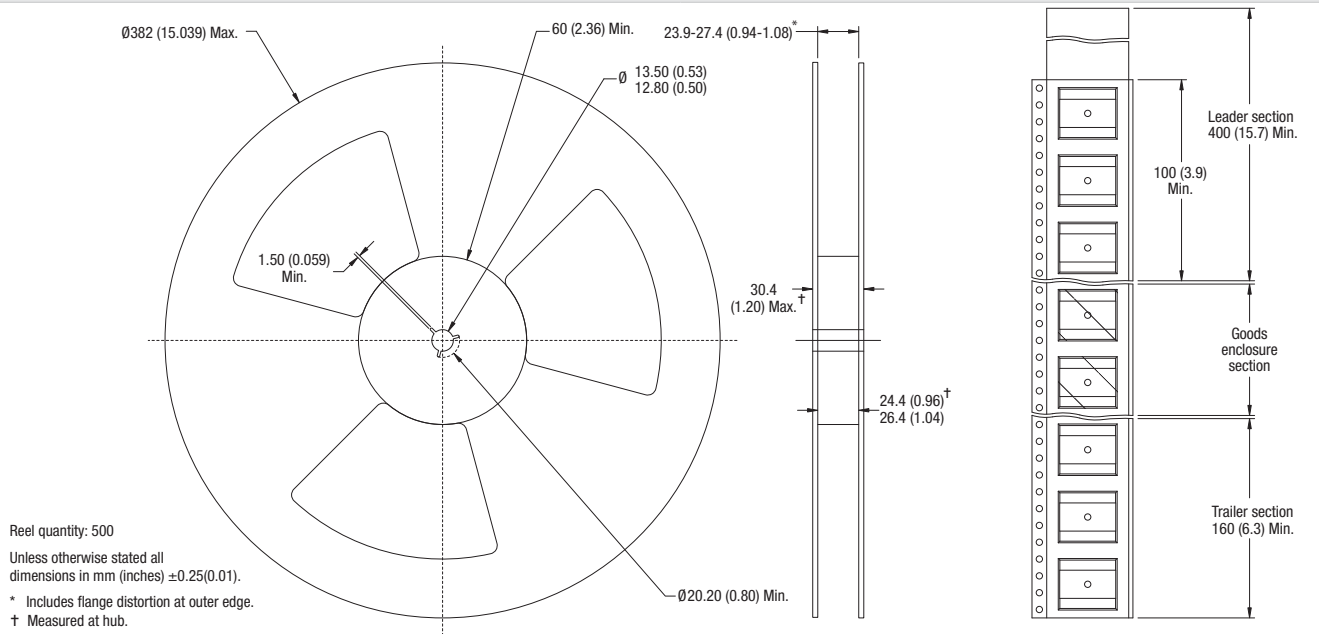
Tube material: Antistatic coated clear pvc

Unless otherwise stated all dimensions in mm (inches) ± 0.25 (0.01).

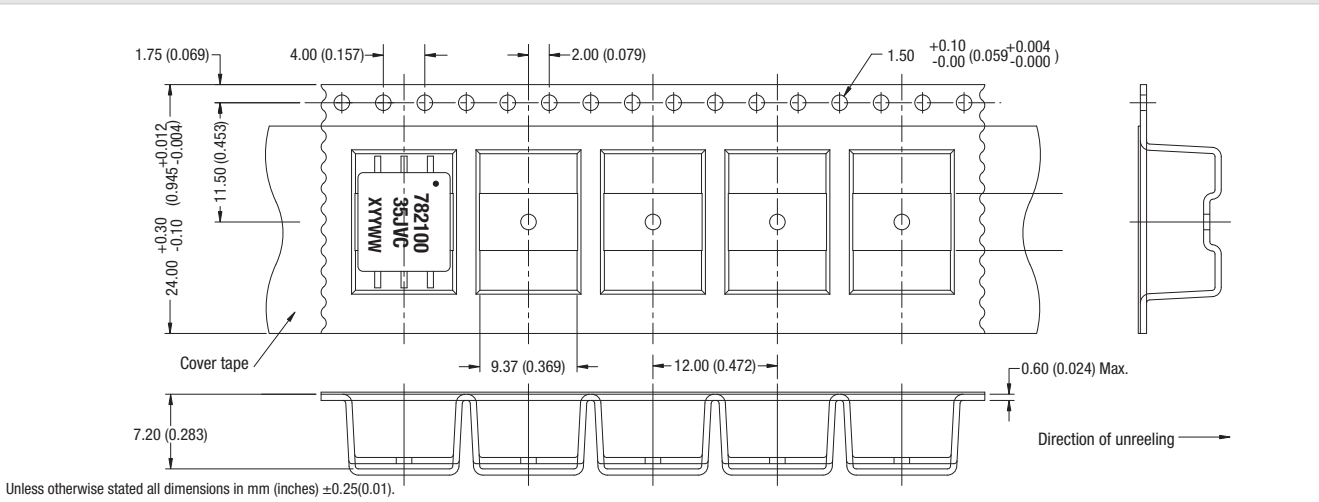
Tube length: 500±2 (19.7±0.08)
Tube quantity: 50

TAPE & REEL SPECIFICATIONS

REEL OUTLINE DIMENSIONS



TAPE OUTLINE DIMENSIONS



This product is subject to the following **operating requirements** and the **Life and Safety Critical Application Sales Policy**:

Refer to: <http://www.murata-ps.com/requirements/>

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