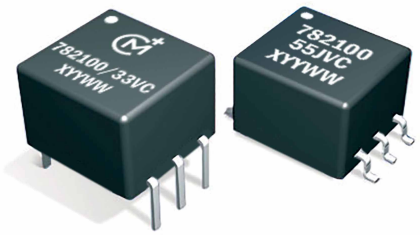
Murata Power Solutions

PRELIMINARY

782100 Series

PE22100 Compatible Converter Transformers



FEATURES

- Peregrine Semiconductor PE22100 compatible
- 3.3V and 5V versions
- Isolation tested to 4kVDC
- 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	VDC		
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/XXJVC-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

RoHS COMPLIANT

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.

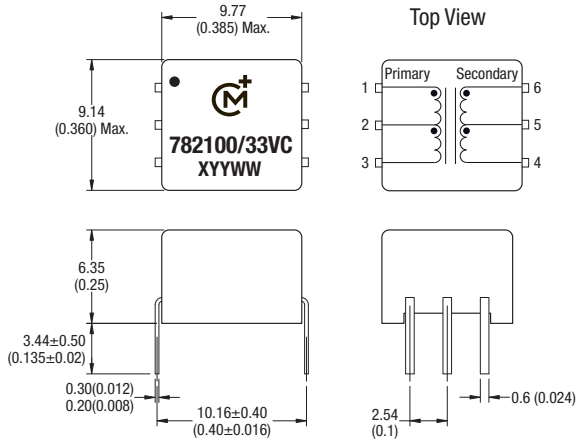
This consideration equally applies to agency recognized parts rated for better than functional isolation where the wire enamel insulation is always supplemented by a further insulation system of physical spacing or barriers.

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.

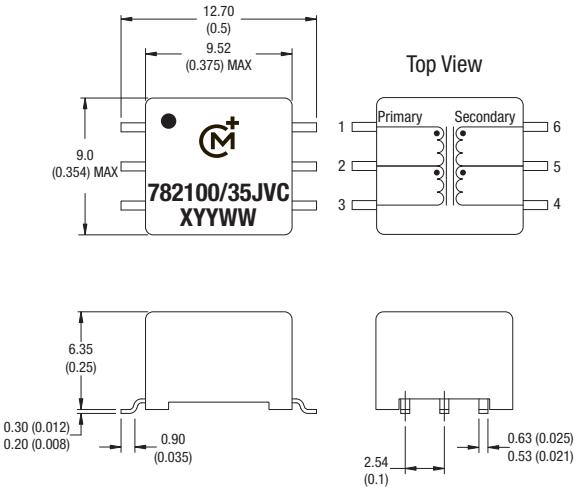
PACKAGE SPECIFICATIONS

MECHANICAL DIMENSIONS

DIL Package



SM Package

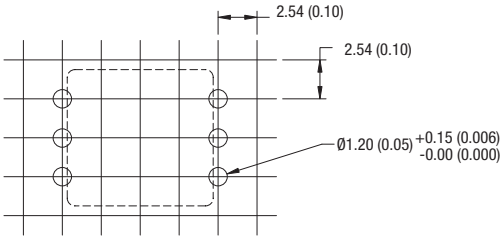


Unless otherwise stated all dimensions in mm (inches) ± 0.25 (0.01). All pins on a 2.54 (0.1) pitch and within ± 0.25 (0.01) of true position.

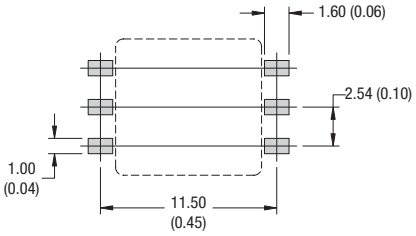
Package weight: 1.1g Typ.

RECOMMENDED FOOTPRINT DETAILS

VC Versions

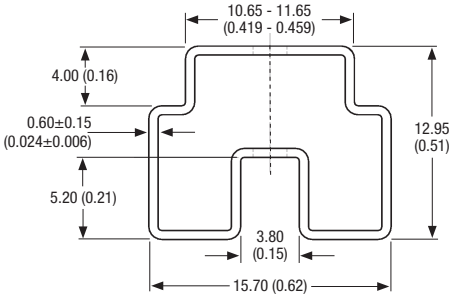


JVC Versions



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

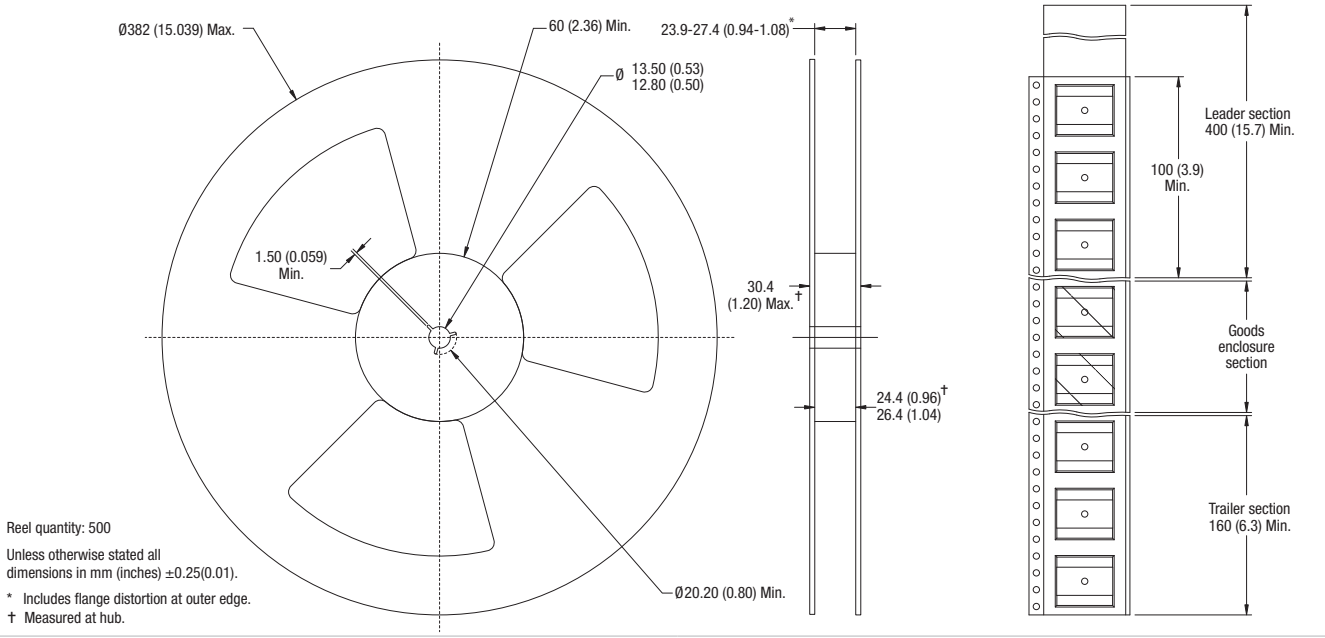
Unless otherwise stated all dimensions in mm (inches) ±0.25 (0.01).

Tube length: 500±2 (19.7±0.08)

Tube quantity: 50

TAPE & REEL SPECIFICATIONS

REEL OUTLINE DIMENSIONS

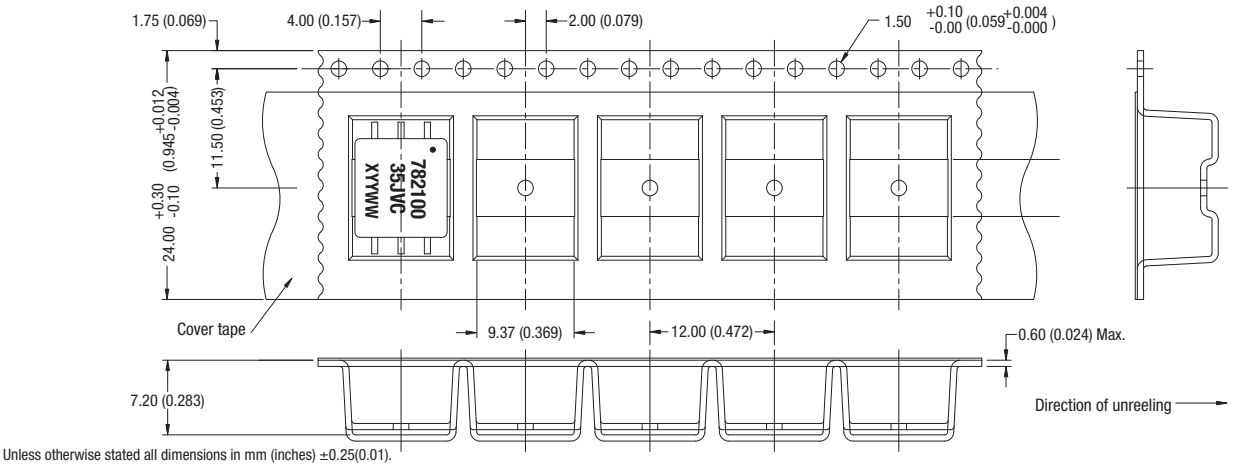


Reel quantity: 500

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

* Includes flange distortion at outer edge.
† Measured at hub.

TAPE OUTLINE DIMENSIONS



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