

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 10/1000\mu s$), $T=25^\circ C$	P_{PK}	300	W
Peak Pulse Current ($t_p = 10/1000\mu s$), $T=25^\circ C$	I_{PP}	12	A
Peak Pulse Current ($t_p = 8/20\mu s$), $T=25^\circ C$	I_{PP}	100	A
ESD per IEC 61000-4-2 (Air) ⁽²⁾ ESD per IEC 61000-4-2 (Contact) ⁽²⁾	V_{ESD}	± 20 ± 15	kV
Operating Temperature	T_J	-55 to +125	$^\circ C$
Storage Temperature	T_{STG}	-55 to +150	$^\circ C$

Electrical Characteristics ($T=25^\circ C$ unless otherwise specified)

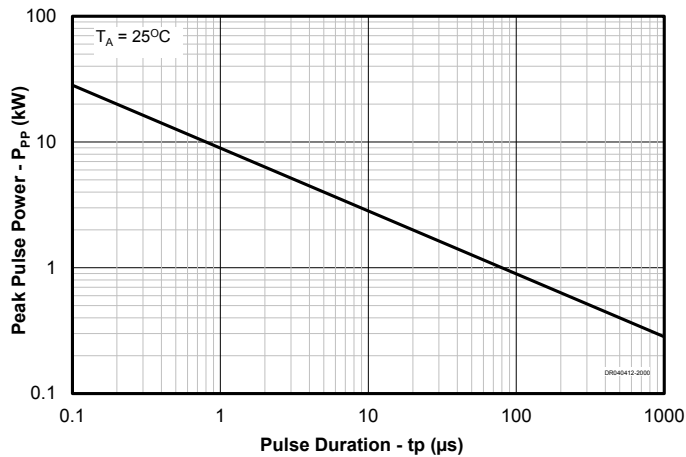
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$ Pins 1, 2 or 3 to Pins 4, 5 and Tab ⁴	13.3	15	18.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 12V$ Pins 1, 2 or 3 to Pins 4, 5 and Tab ⁴	$T = 25^\circ C$		0.1	μA
			$T = 125^\circ C$		0.5	
Clamping Voltage	V_C	$t_p = 10/1000\mu s$ Pins 1, 2 or 3 to Pins 4, 5 and Tab ⁴	$I_{PP} = 12A$		25	V
Clamping Voltage	V_C	$t_p = 8/20\mu s$ Pins 1, 2 or 3 to Pins 4, 5 and Tab ⁴	$I_{PP} = 100A$		40	V
Dynamic Resistance ^{2,3}	R_{DYN}	$t_p = 0.2/100ns$ Pin 1 and 4		0.11		Ω
Junction Capacitance	C_J	$V_R = 0V$, $f = 1MHz$ Pins 1 or 3 to Pins 4, 5 and Tab ⁴			12	pF

Notes

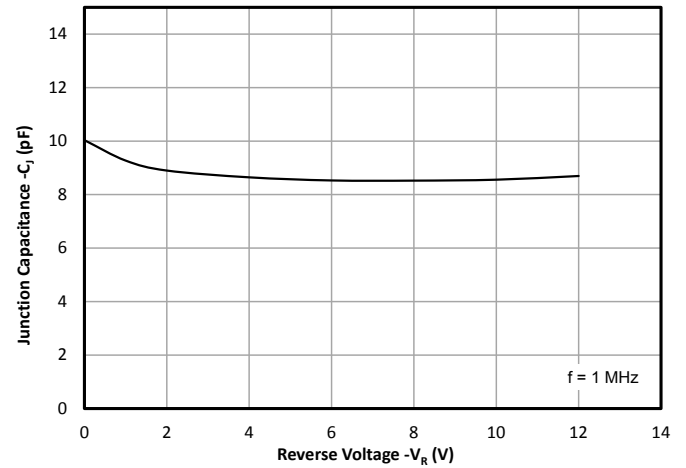
- 1) Measured with a 40dB attenuator, 50 Ohm scope input impedance, 2GHz bandwidth. ESD gun return path connected to ESD ground plane.
- 2) Transmission Line Pulse Test (TLP) Settings: $t_p = 100ns$, $t_r = 0.2ns$, I_{TLP} and V_{TLP} averaging window: $t_1 = 70ns$ to $t_2 = 90ns$.
- 3) Dynamic resistance calculated from $I_{TLP} = 4A$ to $I_{TLP} = 16A$
- 4) Pin 4, 5 and center tab are internally connected.

Typical Characteristics

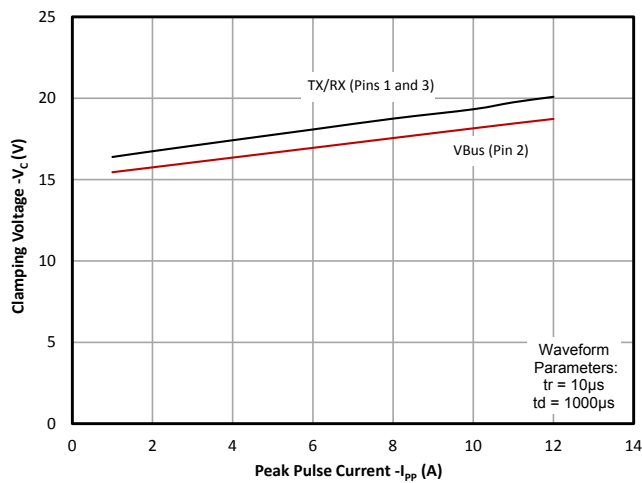
Non-Repetitive Peak Pulse Power vs. Pulse Time (VBus Pin1)



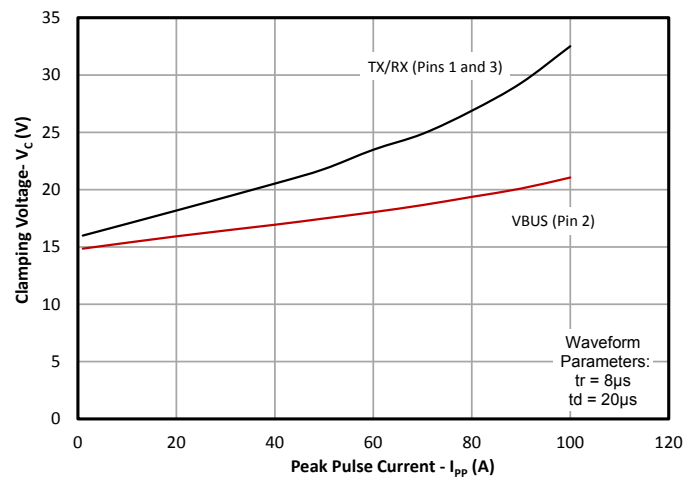
Capacitance vs. Reverse Voltage (Data Line Pins 1 and 3)



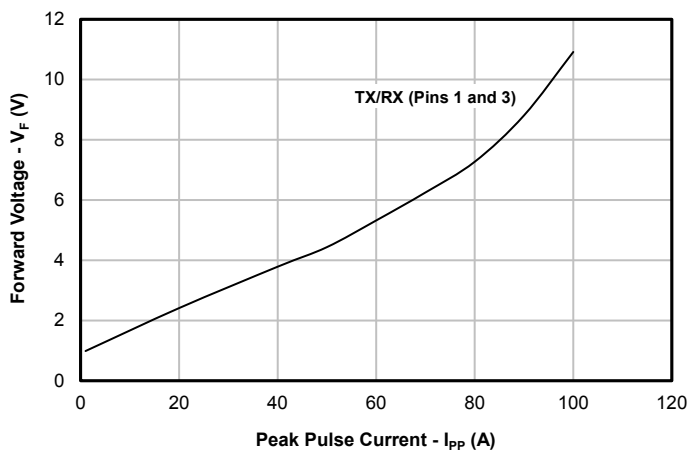
Clamping Voltage vs. Peak Pulse Current ($t_p = 10/1000 \mu$ s)



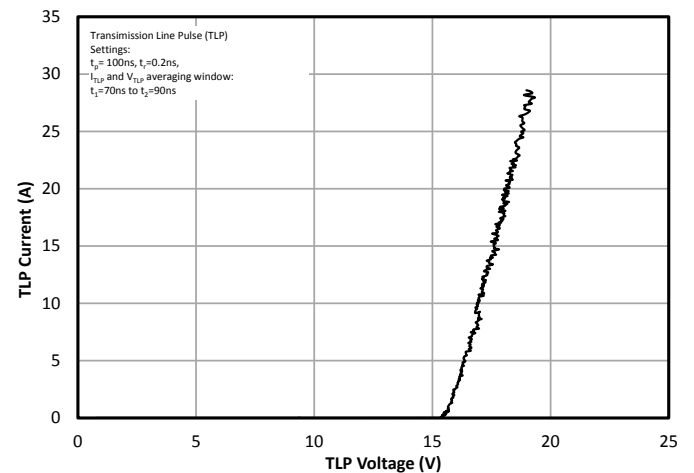
Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20 \mu$ s)



Forward Voltage vs. Peak Pulse Current ($t_p = 8/20 \mu$ s)

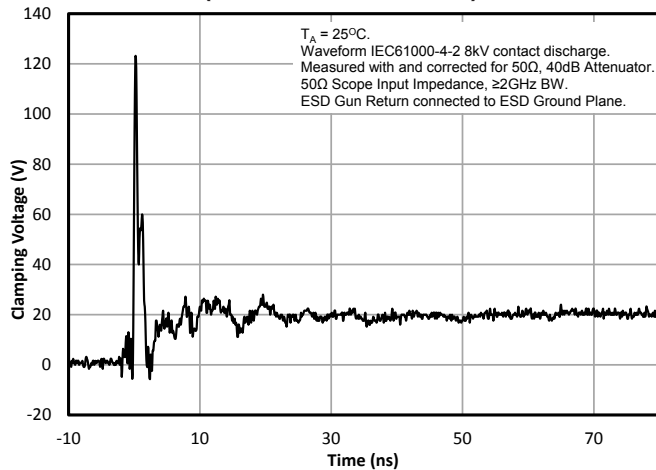


TLP Characteristic (Data Line Pins 1 and 3)

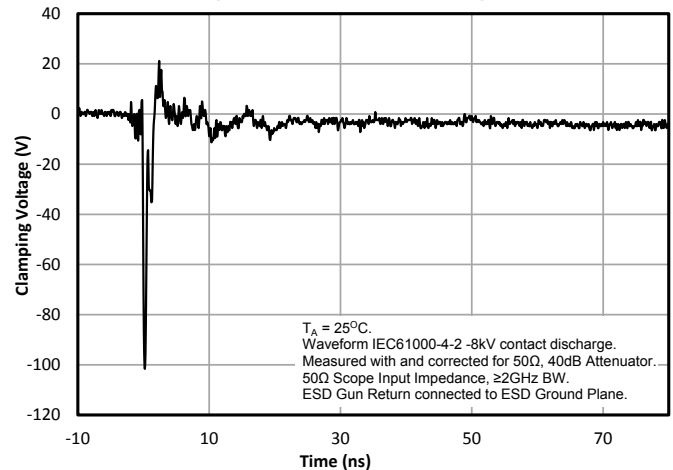


Typical Characteristics (Continued)

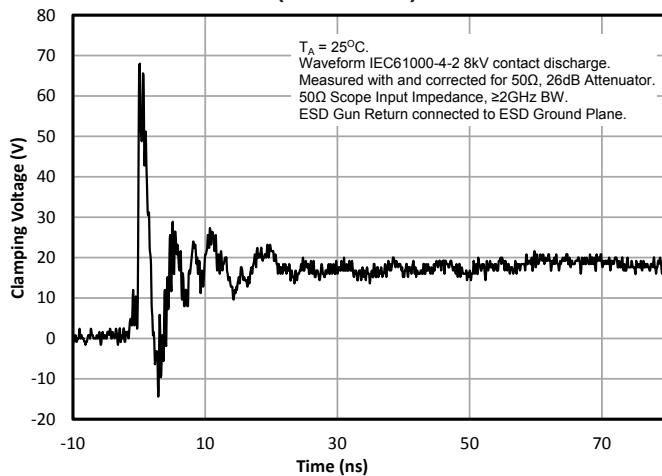
**ESD Clamping (8kV Contact per IEC 61000-4-2)
(Data Line Pins 1 and 3)**



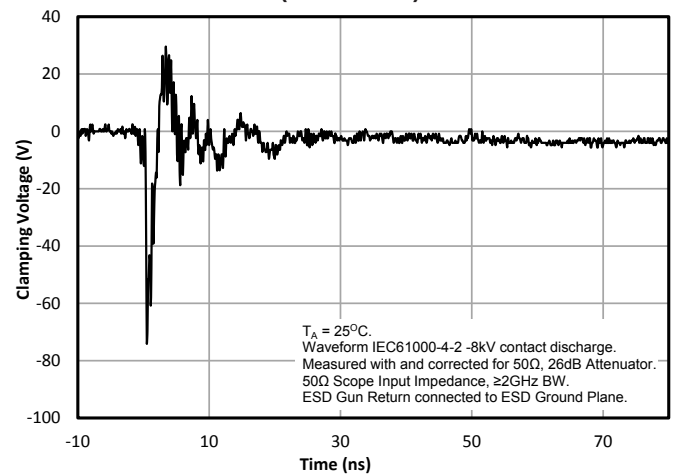
**ESD Clamping (-8kV Contact per IEC 61000-4-2)
(Data Line Pins 1 and 3)**



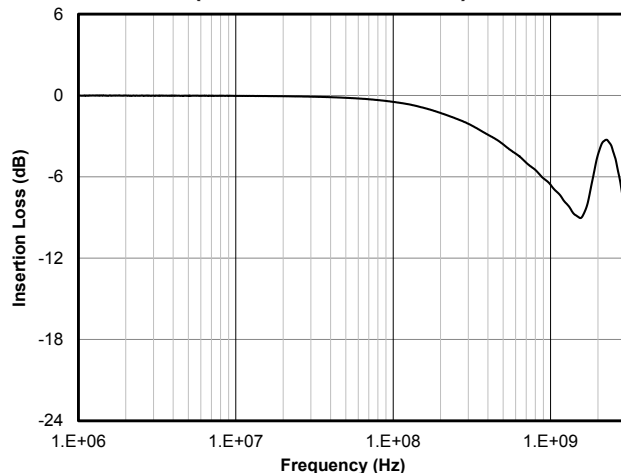
**ESD Clamping (8kV Contact per IEC 61000-4-2)
(VBus Pin 2)**



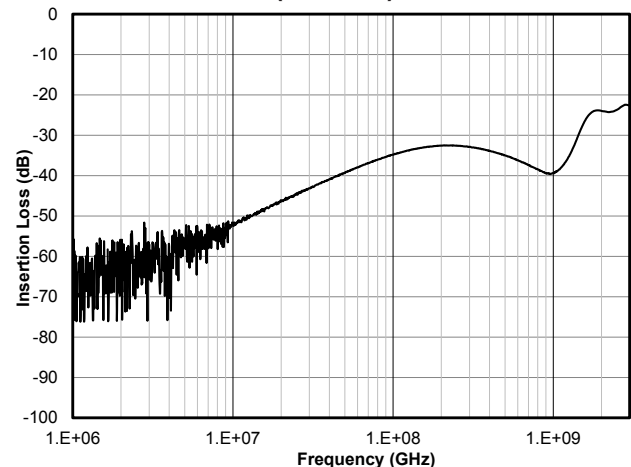
**ESD Clamping (-8kV Contact per IEC 61000-4-2)
(VBus Pin 2)**



**Typical Insertion Loss S21
(Data Line Pins 1 and 3)**



**Analog Crosstalk
(Pin1 to 3)**



Application Information

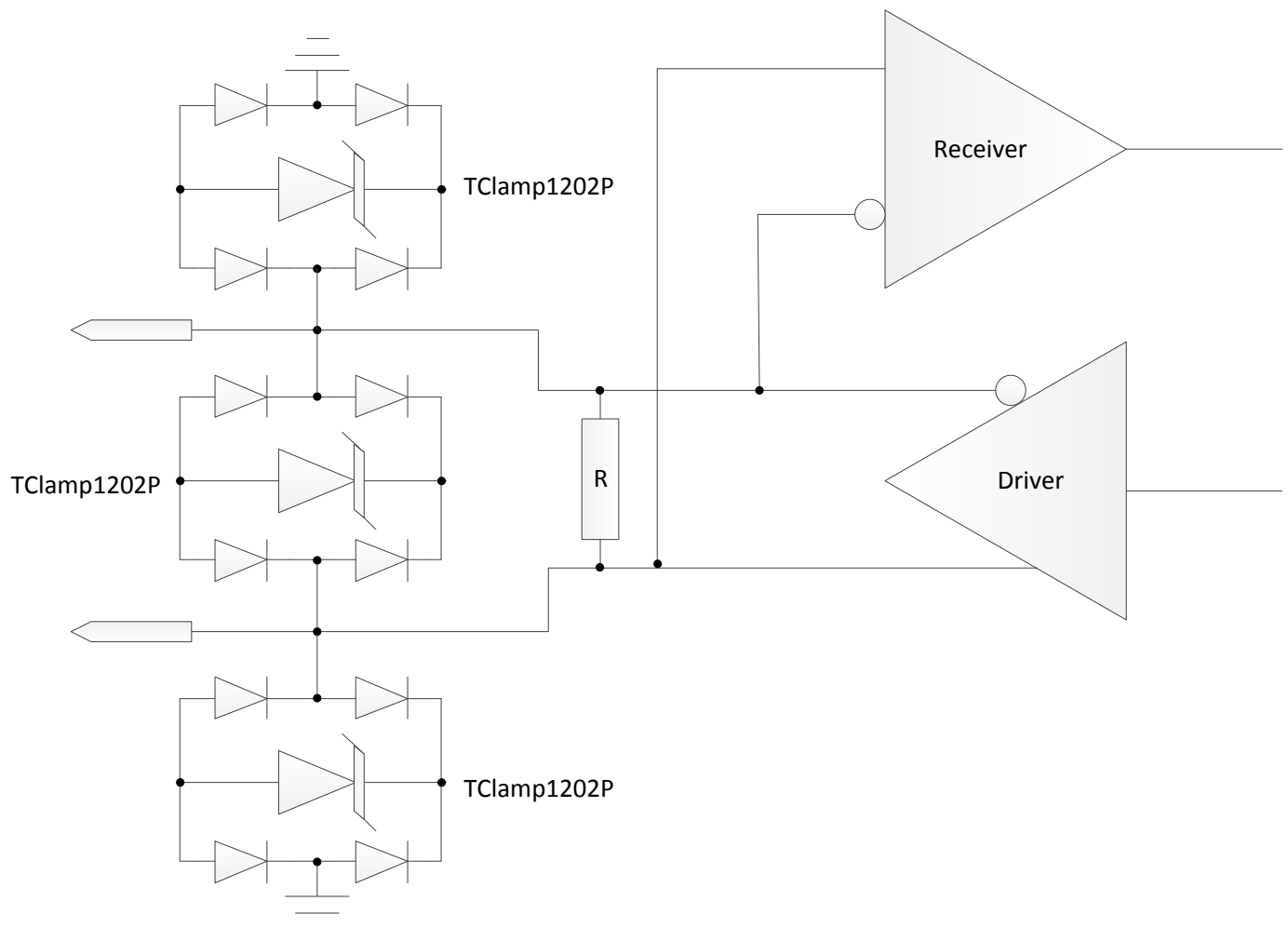
Device Connection for Protection of RS-485 Interfaces

EIA RS-485 specifies a $\pm 7V$ ground difference between devices on the bus. This permits the bus voltage to range from +12V (5V + 7V) to -7V (0 - 7V).

Because of this requirement, each TClamp1202P can be configured to protect one line for common mode surges or one line pair for differential surges.

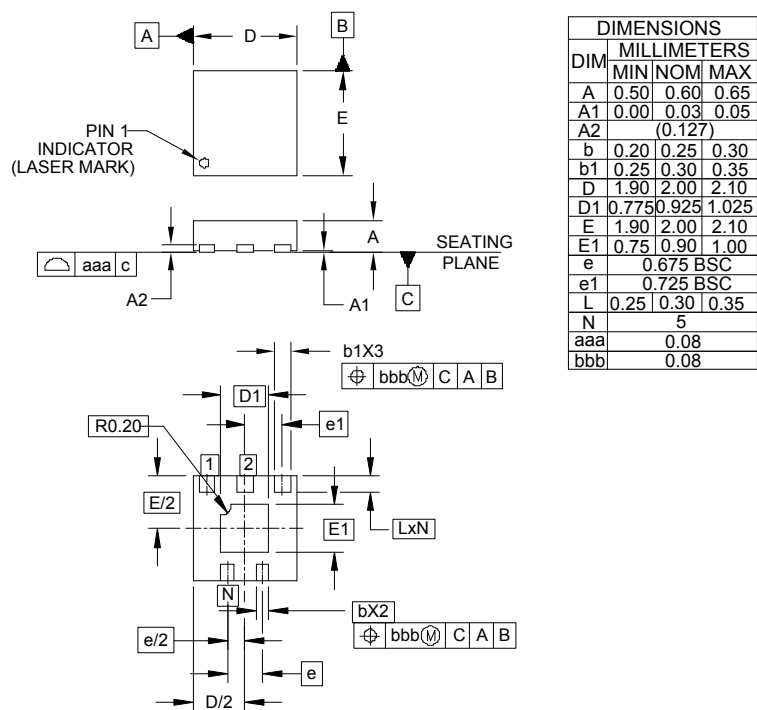
The example below illustrates how to connect the TClamp1202P for common mode and differential

mode protection on an RS-485 interface. For common mode protection, one of the TClamp1202P data pins (pin 1 or 3) is connected to the TX/RX line and the other is connected to ground. Pins 4 and 5 as well as the center tab are not connected. This effectively makes the device look like a bidirectional 12V TVS to the circuit. For differential mode protection, each of the device data pins (1 and 3) are connected to the transceiver RX/TX pins as shown. Again, Pins 4, 5 and the center tab are not connected.



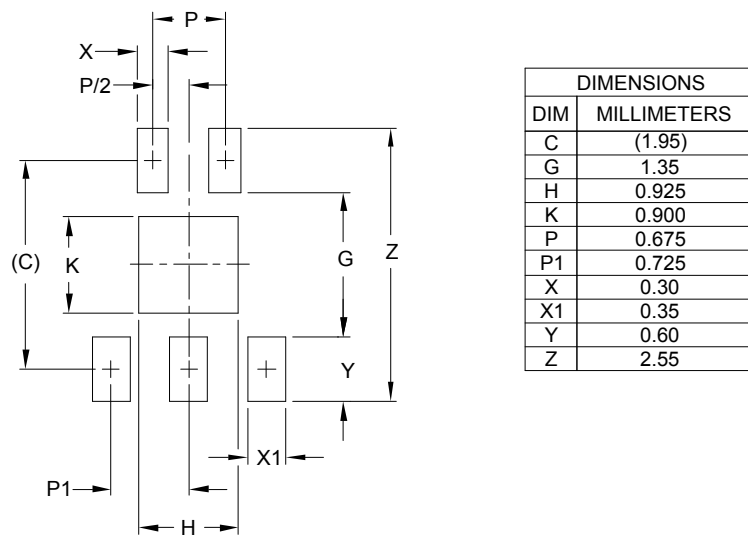
RS-485 Common Mode and Differential Mode Surge Protection

Outline Drawing - SLP2020P5



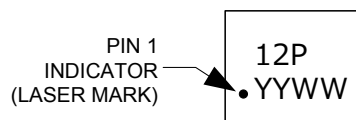
- NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
 2. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

Land Pattern - SLP2020P5



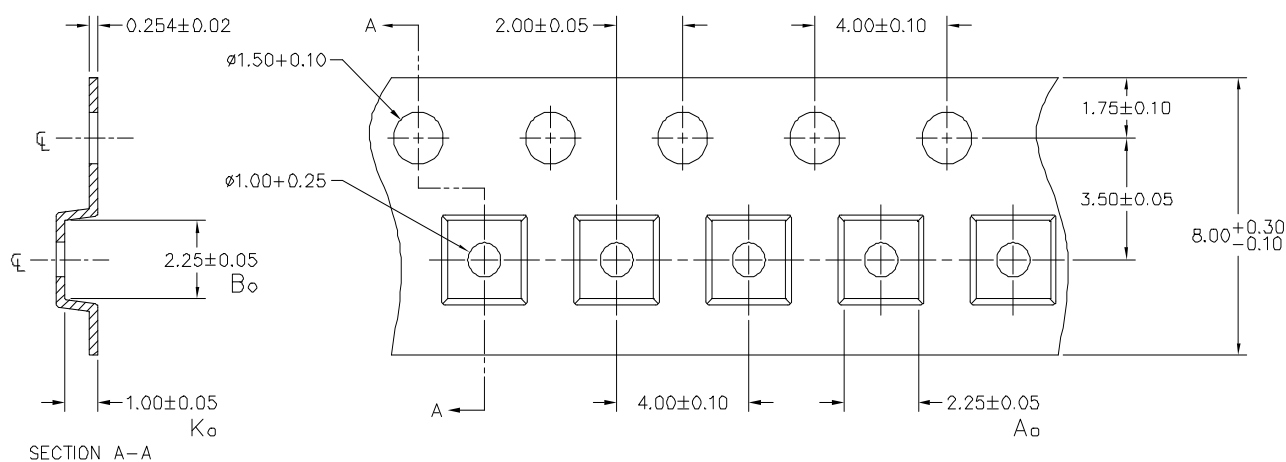
- NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
 2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

Marking Code

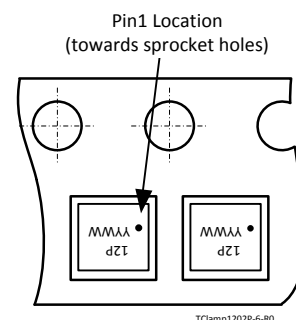


Note: YYWW = Alphanumeric character date code

Tape and Reel Specification



NOTES: 1.) ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



Ordering Information

Part Number	Qty per Reel	Reel Size
TClamp1202P.TGT	10,000	13"



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