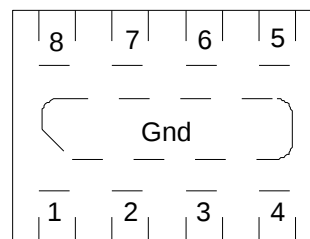


## PROTECTION PRODUCTS

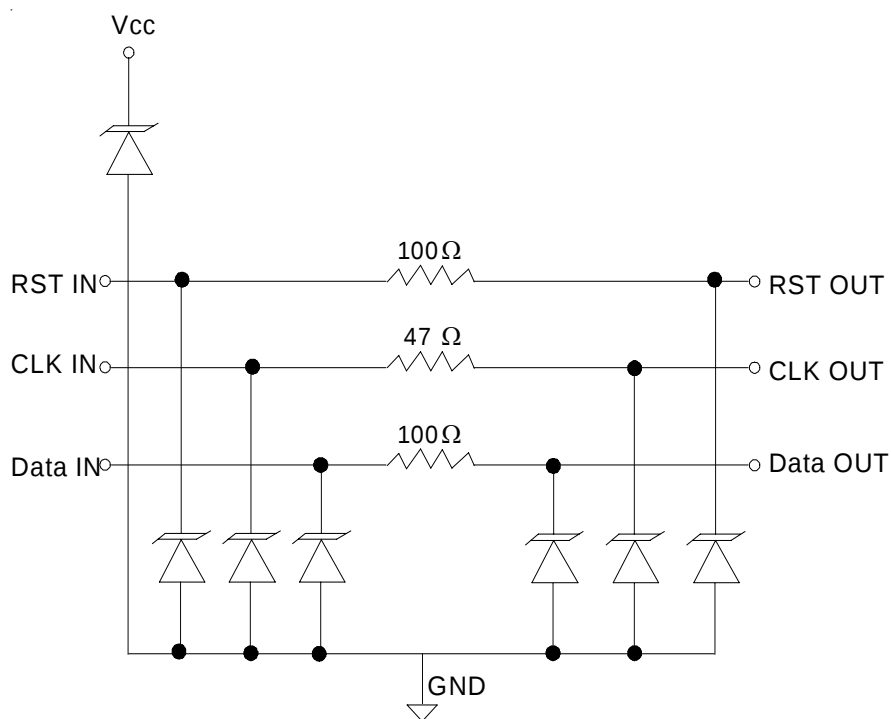
### Pin Identification and Configuration

| Pin        | Symbol | Identification                               |
|------------|--------|----------------------------------------------|
| 1, 8       | RST    | Reset input/output with termination resistor |
| 2, 7       | CLK    | Clock input/output with termination resistor |
| 3, 6       | Data   | Data input/output with termination resistor  |
| 4          | NC     | No Connect                                   |
| 5          | Vcc    | Power Supply ESD Protection                  |
| Center tab | GND    | Ground connection                            |



**Pin Configuration (Top View)**

### Schematics & Component Values



## PROTECTION PRODUCTS

### Maximum Ratings

| Rating                                                         | Symbol    | Value            | Units |
|----------------------------------------------------------------|-----------|------------------|-------|
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | +/- 18<br>+/- 12 | kV    |
| Junction Temperature                                           | $T_J$     | 125              | °C    |
| Operating Temperature                                          | $T_{op}$  | -40 to +85       | °C    |
| Storage Temperature                                            | $T_{STG}$ | -55 to +150      | °C    |

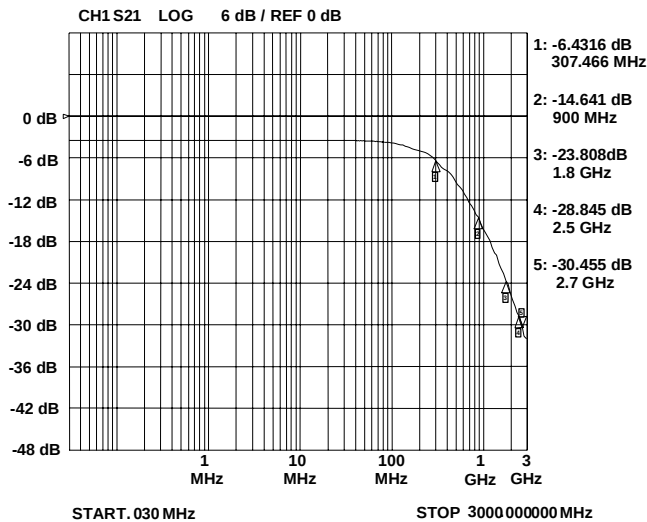
### Electrical Characteristics (T=25°C)

| Parameter                     | Symbol     | Conditions                                         | Minimum | Typical | Maximum | Units |
|-------------------------------|------------|----------------------------------------------------|---------|---------|---------|-------|
| TVS Reverse Stand-Off Voltage | $V_{RWM}$  |                                                    |         |         | 5       | V     |
| TVS Reverse Breakdown Voltage | $V_{BR}$   | $I_t = 1mA$                                        | 6       | 8       | 10      | V     |
| TVS Reverse Leakage Current   | $I_R$      | $V_{RWM} = 5.0V$                                   |         |         | 0.5     | μA    |
| Reset Series Resistors        | $R_{RST}$  | Each Line                                          | 85      | 100     | 115     | Ohms  |
| Clk Series Resistors          | $R_{CLK}$  | Each Line                                          | 40      | 47      | 55      | Ohms  |
| Data Series Resistors         | $R_{DATA}$ | Each Line                                          | 85      | 100     | 115     | Ohms  |
| Total Capacitance             | $C_{in}$   | Input to Gnd,<br>Each Line<br>$V_R = 0V, f = 1MHz$ | 16      | 20      | 24      | pF    |

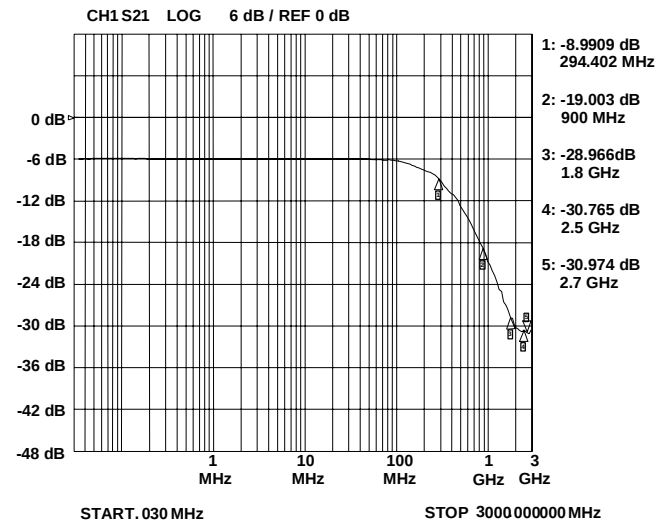
## PROTECTION PRODUCTS

### Typical Characteristics

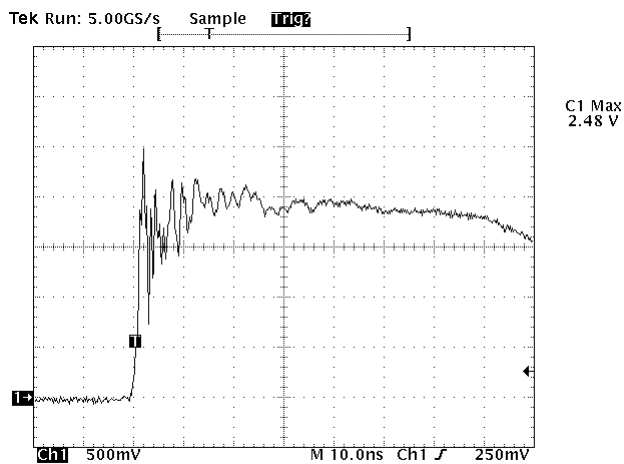
Typical Insertion Loss S21 (Pin 2 to 7)



Typical Insertion Loss S21 (Pin 1 to 8 and Pin 3 to 6)

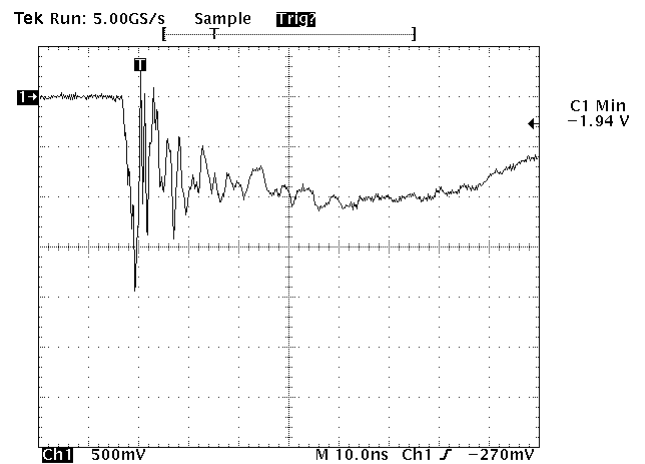


ESD Clamping (+8kV Contact)



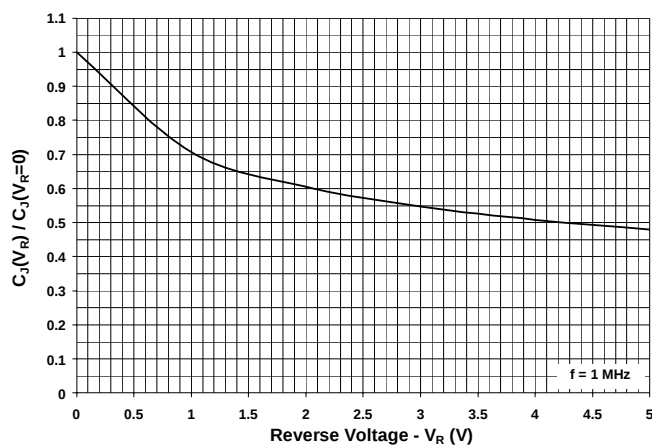
Note: Data is taken with a 10x attenuator

ESD Clamping (-8kV Contact)

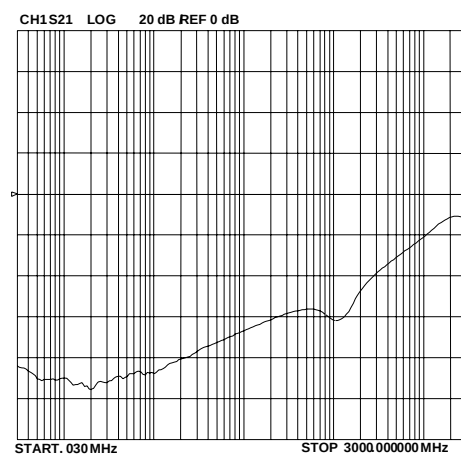


Note: Data is taken with a 10x attenuator

Normalized Capacitance vs. Reverse Voltage

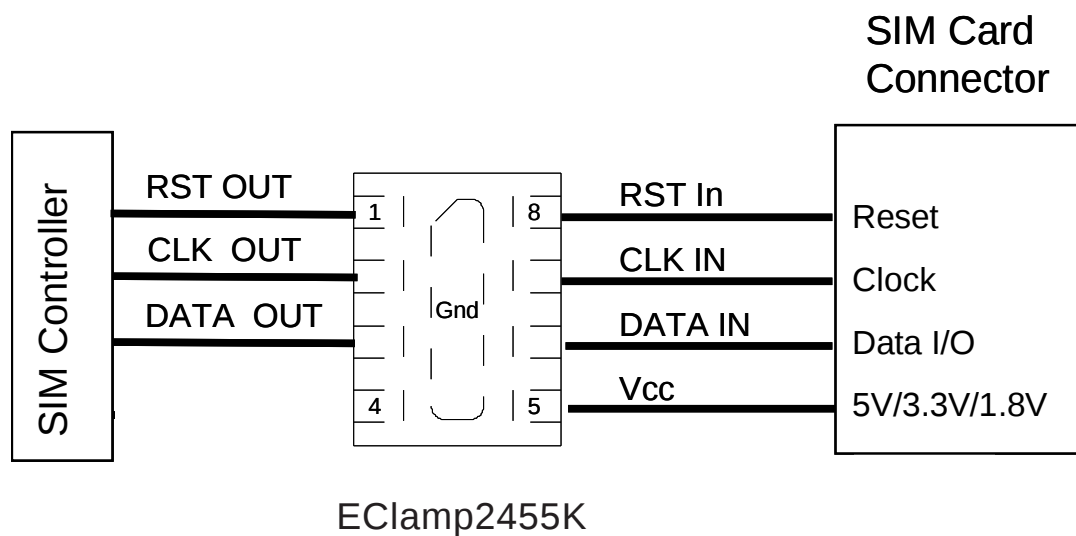
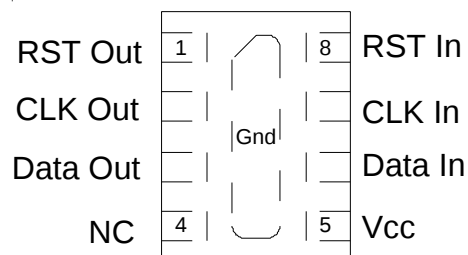


Analog Crosstalk (Each Line)



**PROTECTION PRODUCTS**
**Device Connection**

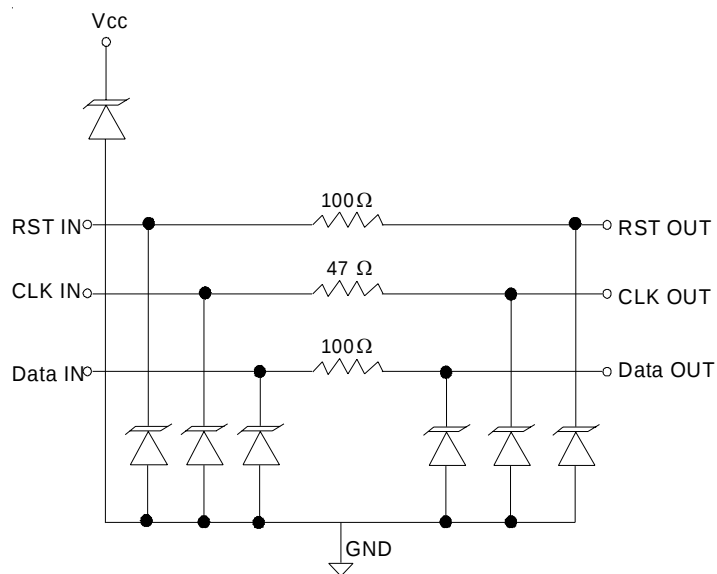
The EClamp2455K designed with ease of layout in mind. The package has flow through design which allows the designer to route the signals straight in and out between the SIM port connector and the SIM controller. The device is in a 8-pin SLP package. Electrical connection is made to the 8 pins located at the bottom of the device. A center tab serves as the ground connection. Pin connections are noted in Figure 1. All path lengths should be kept as short as possible to minimize the effects of parasitic inductance in the board traces.

**Figure 1 - Pin Identification and Configuration (Top Side View)**

**Figure 2 - SIM Protection**

## PROTECTION PRODUCTS

### Applications Information - Spice Model

#### EClamp2455K Spice Model & Parameters



**EClamp2455K Spice Model**

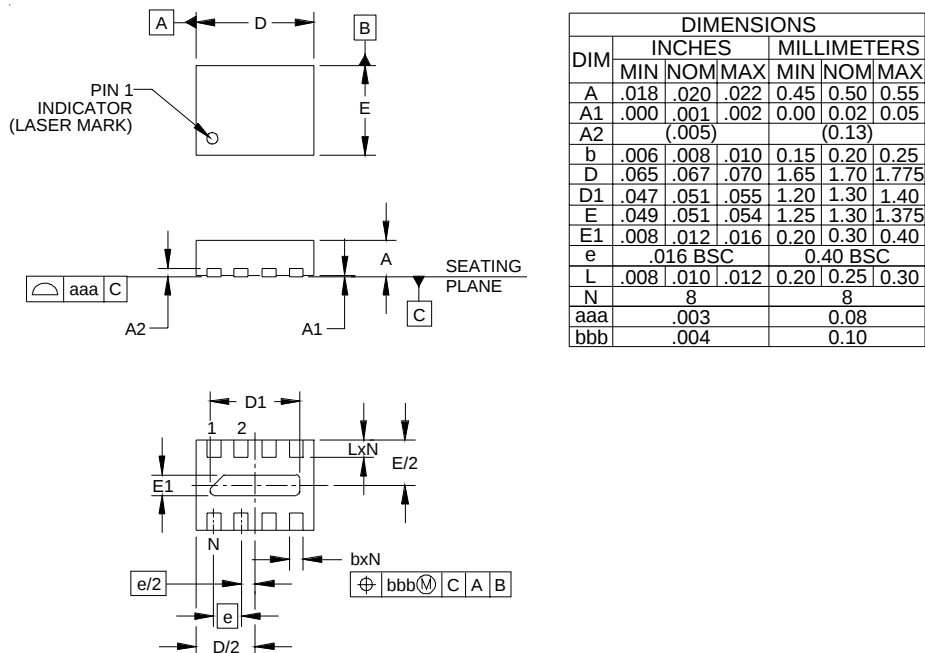
Note: All TVS shown in the circuit use D1 Parameters

**Table 1 - EClamp2455K Spice Parameters**

| Parameter | Unit  | D1 (TVS) |
|-----------|-------|----------|
| IS        | Amp   | 2E-15    |
| BV        | Volt  | 7.5      |
| VJ        | Volt  | 0.775    |
| RS        | Ohm   | 1.05     |
| IBV       | Amp   | 1E-3     |
| CJO       | Farad | 9E-12    |
| TT        | sec   | 2.541E-9 |
| M         | --    | 0.246    |
| N         | --    | 1.1      |
| EG        | eV    | 1.11     |

## PROTECTION PRODUCTS

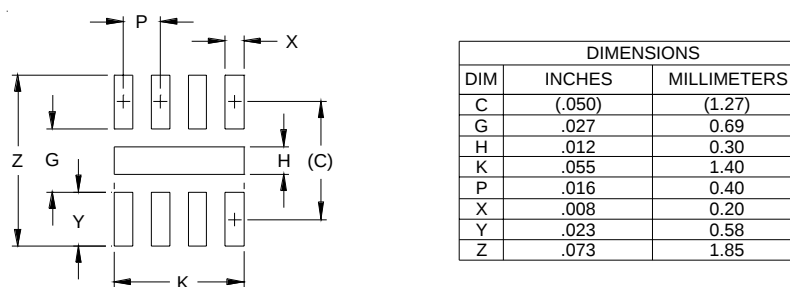
### Outline Drawing - SLP1713P8



#### NOTES:

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

### Land Pattern - SLP1713P8

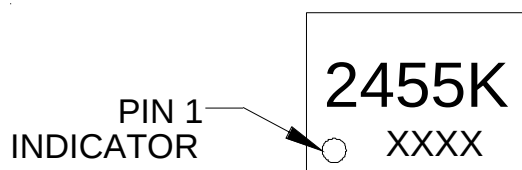


#### NOTES:

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.
3. THERMAL VIAS IN THE LAND PATTERN OF THE EXPOSED PAD SHALL BE CONNECTED TO A SYSTEM GROUND PLANE. FAILURE TO DO SO MAY COMPROMISE THE THERMAL AND/OR FUNCTIONAL PERFORMANCE OF THE DEVICE.

## PROTECTION PRODUCTS

### Marking



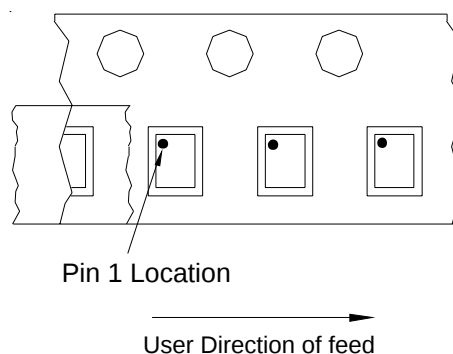
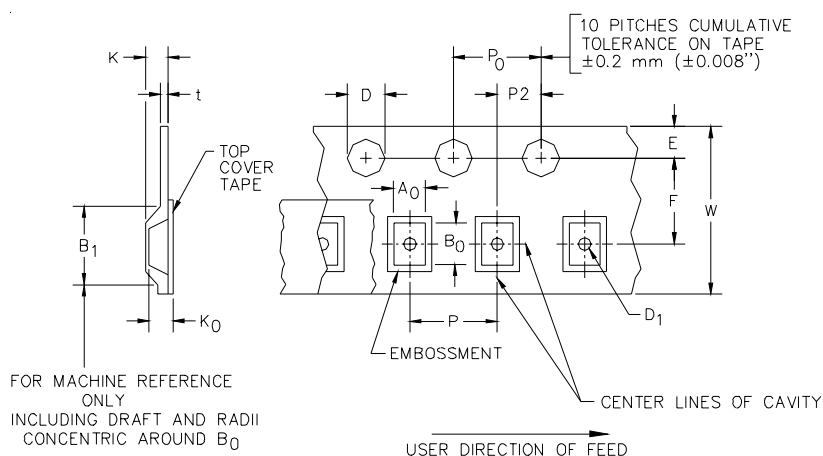
XXXX = Date Code

### Ordering Information

| Part Number     | Qty per Reel | Reel Size |
|-----------------|--------------|-----------|
| EClamp2455K.TCT | 3000         | 7 Inch    |

This is a lead-free RoHS/WEEE Compliant Device  
EMIClamp and EClamp are marks of Semtech Corporation

### Tape and Reel Specification



### Device Orientation in Tape

| A0              | B0              | K0              |
|-----------------|-----------------|-----------------|
| 1.51 +/-0.05 mm | 1.91 +/-0.05 mm | 0.66 +/-0.05 mm |

| Tape Width | B, (Max)      | D                                         | D1                  | E                        | F                       | K (MAX)       | P                       | P0                      | P2                     | T(MAX)        | W                                    |
|------------|---------------|-------------------------------------------|---------------------|--------------------------|-------------------------|---------------|-------------------------|-------------------------|------------------------|---------------|--------------------------------------|
| 8 mm       | 4.2 mm (.165) | 1.5 + 0.1 mm - 0.0 mm (0.59 +.005 - .000) | 0.8 mm ±0.05 (.031) | 1.750±.10 mm (.069±.004) | 3.5±0.05 mm (.138±.002) | 2.4 mm (.094) | 4.0±0.1 mm (.157±.00-4) | 4.0±0.1 mm (.157±.00-4) | 2.0±0.05mm (.079±.002) | 0.4 mm (.016) | 8.0 mm + 0.3 mm - 0.1 mm (.312±.012) |

### Contact Information

Semtech Corporation  
Protection Products Division  
200 Flynn Rd., Camarillo, CA 93012  
Phone: (805)498-2111 FAX (805)498-3804