



# PRODUCT DISCONTINUANCE NOTIFICATION

EOL-000114

Date: **5APR2016**

P1/3

<input checked="" type="checkbox"/>	Semtech Corporation, 200 Flynn Road, Camarillo CA 93012
<input type="checkbox"/>	Semtech Canada Corporation, 4281 Harvester Road, Burlington, Ontario L7L 5M4 Canada
<input type="checkbox"/>	Semtech Irvine, 5141 California Ave., Suite 150, Irvine CA 92617
<input type="checkbox"/>	Semtech Neuchatel Sarl, Route des Gouttes d'Or 40, CH-2000 Neuchatel Switzerland
<input type="checkbox"/>	Nanotech Semiconductor, Semtech Corporation, 2 West Point Court, Bristol, United Kingdom, BS32 4PY
<input type="checkbox"/>	Semtech Corpus Christi SA de CV, Carretera Matamorros Edificio 7, Reynosa, Tamaulipas, Mexico 88780
<input type="checkbox"/>	

## Product Discontinuance Details

### Purpose, Description and Effect of Change:

This notification is to inform your company that Semtech is discontinuing the manufacture of the products listed below. In accordance with Semtech's product discontinuation policy, we are hereby giving notice of these product changes in order for your company to make any final lifetime purchases of the discontinued product that are still in supply.

Products purchased under EOL are subject to No Credit/No Return and are exempt from On-going FA support.

Product Status: Q Status

### Part Number(s) Affected:

**μClamp0551Y.TFT**  
**RClamp1851Y.TFT**  
**RClamp3331Y.TFT**  
**RClamp2451Y.TFT**

### Customer Part Number(s) Affected: N/A

### Replacement or Alternate Part Number(s)

**μClamp0551Y.TFT -> μClamp5011ZATFT**  
**RClamp1851Y.TFT -> RClamp1851ZATFT**  
**RClamp3331Y.TFT -> RClamp3331ZATFT**  
**RClamp2451Y.TFT -> RClamp2451ZATFT**

N/A or Not Offered

<b>Last Time Buy (LTB) Date</b>	<b>2OCT2016</b>	<b>Must Accept Final Delivery by</b>	<b>31MAR2017</b>
<b>Sample Availability of Alt. Part</b>	<b>5APR2016</b> <input type="checkbox"/> N/A	<b>Qualification Report Availability of Alt. Part</b>	<b>5APR2016</b> <input type="checkbox"/> N/A

### Supporting Documents for Alternate or Replacement parts/Attachments:

**μClamp5011ZA: Product Data Sheet and Qualification Report**  
**RClamp1851ZA: Product Data Sheet and Qualification Report**  
**RClamp3331ZA: Product Data Sheet and Qualification Report**  
**RClamp2451ZA: Product Data Sheet and Qualification Report**



# PRODUCT DISCONTINUANCE NOTIFICATION

EOL-000114

Date: **5APR2016**

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## Last Time Buy Conditions

We request you carefully review this information and notify your purchasing offices and buyers to place your company's final purchases for available discontinued products as soon as possible according to the following last time buy terms and conditions.

1. **Availability:** The *Last Time Buy Date* and *Date to Accept Final Delivery* are noted above. All orders must have a *requested ship date before the Date to Accept Final Delivery* or the order will be rejected. *The Last Time Buy Date automatically expires when the final available inventory quantity has been scheduled and sold.*
2. **Pricing:** The product unit price will be subject to Semtech's individual price quotation of your company's last time buy requirements.
3. **Order Acceptance/Change Conditions:**
  - A. Semtech will accept last time orders from your company for the discontinued products as "Firm and Final". As such, these orders will not be subject to any reschedule, cancellation, or termination by your company without Semtech's prior written authorization and payment of full termination charges.
  - B. Semtech reserves its right to make changes in the scheduled delivery dates, or to terminate remaining undelivered quantities of your company's last time buy order, due to changes in Semtech's last time manufacturing capabilities, or for commercially impracticable circumstances which makes delivery not feasible.
4. **Quantities:** The following applies to final buy quantities for the available discontinued product:
  - A. **First:** The quantities in any existing unfilled orders and contracts acknowledged by Semtech will be honored, then
  - B. **Next:** The unfilled quantities in any volume agreement(s) or quantities in unexpired standalone quote(s) will be accepted, and
  - C. **Finally:** Any additional reasonable quantity of product that Semtech quotes based upon your company's identified requirements will be taken.

IN THE EVENT OF CONFLICT FOR THE LIMITED AVAILABILITY PRODUCT, QUANTITIES FOR CUSTOMER'S OR DISTRIBUTOR'S ORDERS WILL BE DETERMINED ON A FIRST-COME FIRST-SERVE BASIS; AND WILL BE SUBJECT TO SEMTECH'S AVAILABLE INVENTORY AND REMAINING MANUFACTURING CAPACITY FOR THE PRODUCT.



# PRODUCT DISCONTINUANCE NOTIFICATION

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Date: **5APR2016**

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## Limited Warranty

All discontinued product orders subject to this notice shall carry Semtech's standard limited warranty; or, if applicable, the warranty set forth in a duly executed formal contract between Semtech and your company will apply; except that:

1. Semtech will accept all valid warranty claims for credit only, unless a replacement order is otherwise agreed upon by Semtech and the replacement parts can be manufactured or delivered from remaining inventory.
2. The applicable warranty period for making any return claims for discontinued products will be no later than ninety (90) days following delivery of the discontinued products.
3. Any return claims must be made under Semtech's current Return Material Authorization "RMA" procedures.

## Additional Provisions

SEMTECH ACCEPTS NO LIABILITY FOR EXCESS REPROCUREMENT COSTS OR FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHATSOEVER ASSOCIATED WITH THIS NOTICE, WITH ITS PRODUCTS, OR WITH THE FINAL MANUFACTURE AND PERFORMANCE AGAINST ANY LAST TIME BUY ORDERS RELATED TO THE DISCONTINUED PRODUCTS COVERED BY THIS NOTICE.

We regret the inconvenience and impact this notice may cause your company. Semtech's sales, marketing, and distribution personnel stand ready to assist you in placing your company's final orders, or in providing the product information you require.

For product inquiries or purchase order information, please contact your local Semtech sales representative.

## Issuing Authority

Semtech Business Unit: Protection Business Unit

Semtech Contact Info:

Les Fang Yuen  
Senior Manager, Quality Assurance  
Semtech Corporation  
[lfangyen@semtech.com](mailto:lfangyen@semtech.com) ;  
Office: +1 949-269-4443

FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: <http://www.semtech.com/contact/index.html#support>

**PROTECTION PRODUCTS - RailClamp®**
**Description**

RClamp® TVS diodes are designed to protect sensitive electronics from damage or latch-up due to ESD. They are designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computers, and other portable electronics. This device offers desirable characteristics for board level protection including fast response time, low operating and clamping voltage, and no device degradation.

RClamp®1851ZA is specifically designed for protection of Near Field Communications (NFC) interfaces. It features extremely good ESD protection characteristics including a low typical dynamic resistance of 0.16 Ohms, low peak ESD clamping voltage, and high ESD withstand voltage (+/-17kV contact per IEC 61000-4-2). Low typical capacitance (0.35pF at VR=0V) means that harmonic distortion the the RF signal is minimized. This device is bidirectional and has a working voltage of 18V for use on NFC resonator circuits without signal clipping.

RClamp1851ZA is in a 2-pin SLP0603P2X3F package measuring 0.6 x 0.3 mm with a nominal height of only 0.25mm. Leads are finished with NiAu. The small package gives the designer the flexibility to protect single lines in applications where arrays are not practical. The combination of small size and high ESD surge capability makes them ideal for use in portable applications such as cellular phones, digital cameras, and tablet PC's.

**Features**

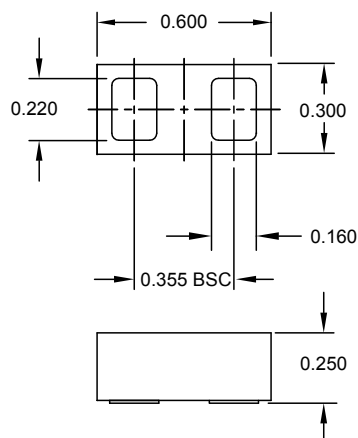
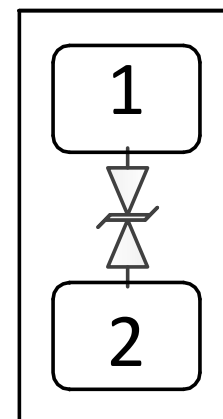
- ◆ High ESD withstand Voltage: +/-17kV (Contact) and +/- 20kV (Air) per IEC 61000-4-2
- ◆ Ultra-small package
- ◆ Protects one high speed data line
- ◆ Low ESD clamping voltage
- ◆ Working voltage: 18V
- ◆ Low capacitance: 0.35pF typical
- ◆ Low leakage current
- ◆ Extremely low dynamic resistance: 0.16 Ohms (Typ)
- ◆ Solid-state silicon-avalanche technology

**Mechanical Characteristics**

- ◆ SLP0603P2X3F package
- ◆ Pb-Free, Halogen Free, RoHS/WEEE Compliant
- ◆ Nominal Dimensions: 0.6 x 0.3 x 0.25 mm
- ◆ Lead Finish: NiAu
- ◆ Marking: Marking code
- ◆ Packaging: Tape and Reel

**Applications**

- ◆ Near Field Communication (NFC) lines
- ◆ RF signal lines
- ◆ Cellular Handsets
- ◆ Tablets
- ◆ FM Antenna

**Package Dimensions**

**Nominal Dimensions in mm**
**Schematic & Pin Configuration**

**SLP0603P2X3F (Bottom View)**

## PROTECTION PRODUCTS

### Absolute Maximum Ratings

Rating	Symbol	Value	Units
Peak Pulse Current (tp = 8/20μs)	I <sub>PP</sub>	3	A
ESD per IEC 61000-4-2 (Air) <sup>(1)</sup> ESD per IEC 61000-4-2 (Contact) <sup>(1)</sup>	V <sub>ESD</sub>	±20 ±17	kV
Operating Temperature	T <sub>J</sub>	-40 to +85	°C
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C

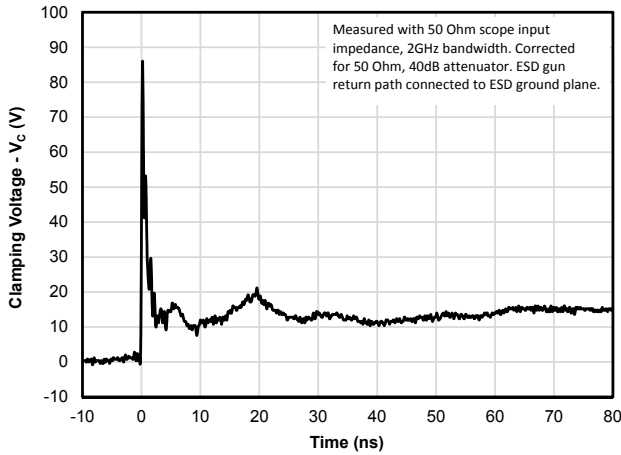
### Electrical Characteristics (T=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V <sub>RWM</sub>	T = -40 to +85°C			18	V
Breakdown Voltage	V <sub>BR</sub>	I <sub>BR</sub> = 10μA	18.5	22.5	26.5	V
Reverse Leakage Current	I <sub>R</sub>	V <sub>RWM</sub> = 18V		<1	50	nA
ESD Clamping Voltage <sup>2</sup>	V <sub>C</sub>	I <sub>PP</sub> = 4A tp = 0.2/100ns		5.5		V
ESD Clamping Voltage <sup>2</sup>	V <sub>C</sub>	I <sub>PP</sub> = 16A tp = 0.2/100ns		7.5		V
Dynamic Resistance <sup>2,3</sup>	R <sub>DYN</sub>	tp = 0.2/100ns		0.16		Ohms
Junction Capacitance	C <sub>J</sub>	VR = 0V; f = 1MHz		0.35	0.45	pF

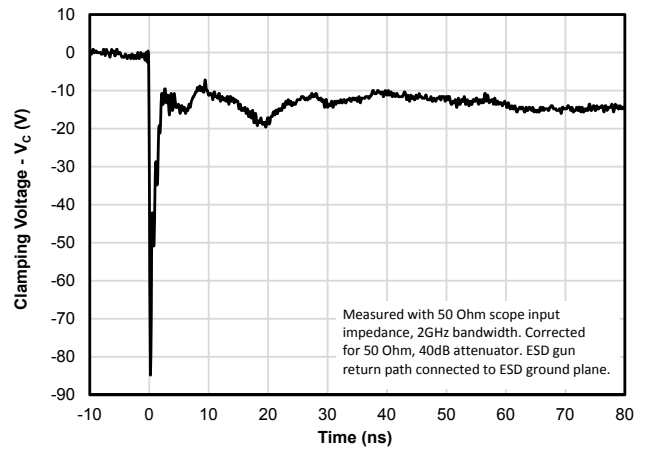
#### Notes

- 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: tp = 100ns, tr = 0.2ns, I<sub>TLP</sub> and V<sub>TLP</sub> averaging window: t1 = 70ns to t2 = 90ns.
- 3) Dynamic resistance calculated from I<sub>TLP</sub> = 4A to I<sub>TLP</sub> = 16A
- 4) Device is electrically symmetrical

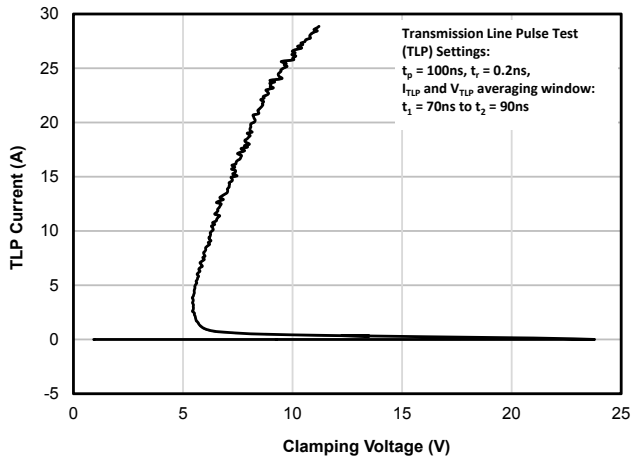
#### ESD Clamping (8kV Contact per IEC 61000-4-2)



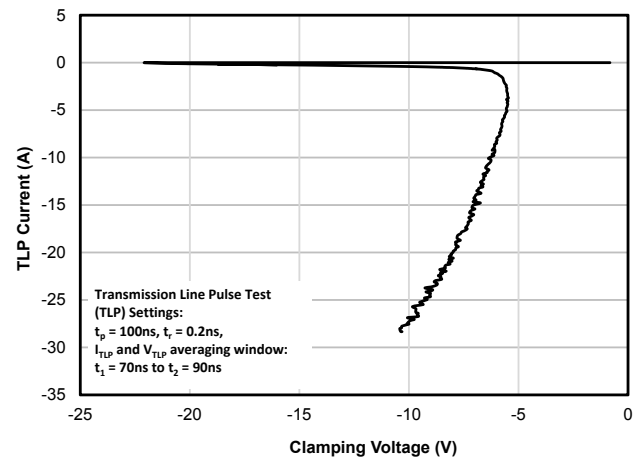
#### ESD Clamping (-8kV Contact per IEC 61000-4-2)



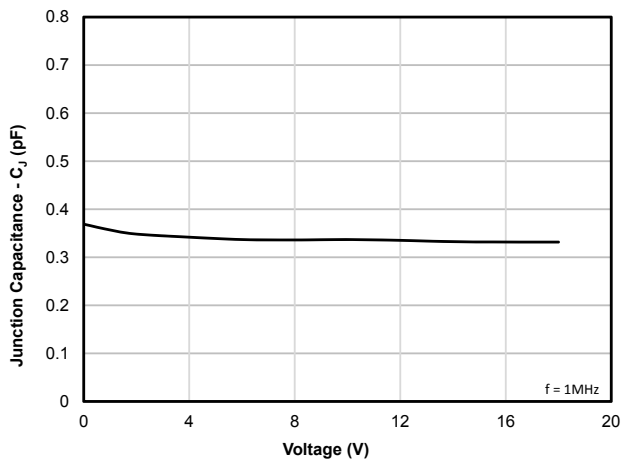
#### TLP Characteristic (Positive Pulse)



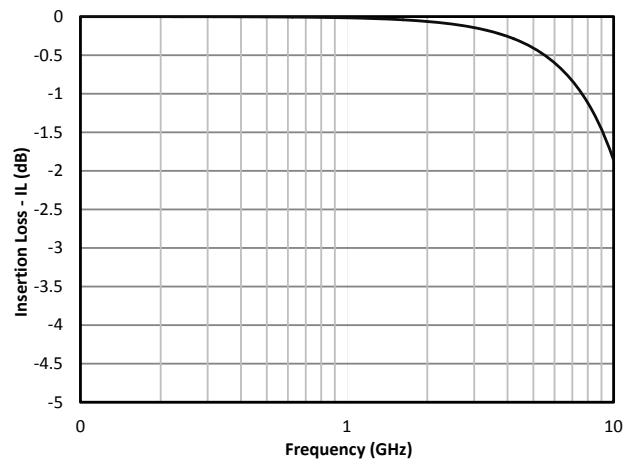
#### TLP Characteristic (Negative Pulse)



#### Capacitance vs. Reverse Voltage



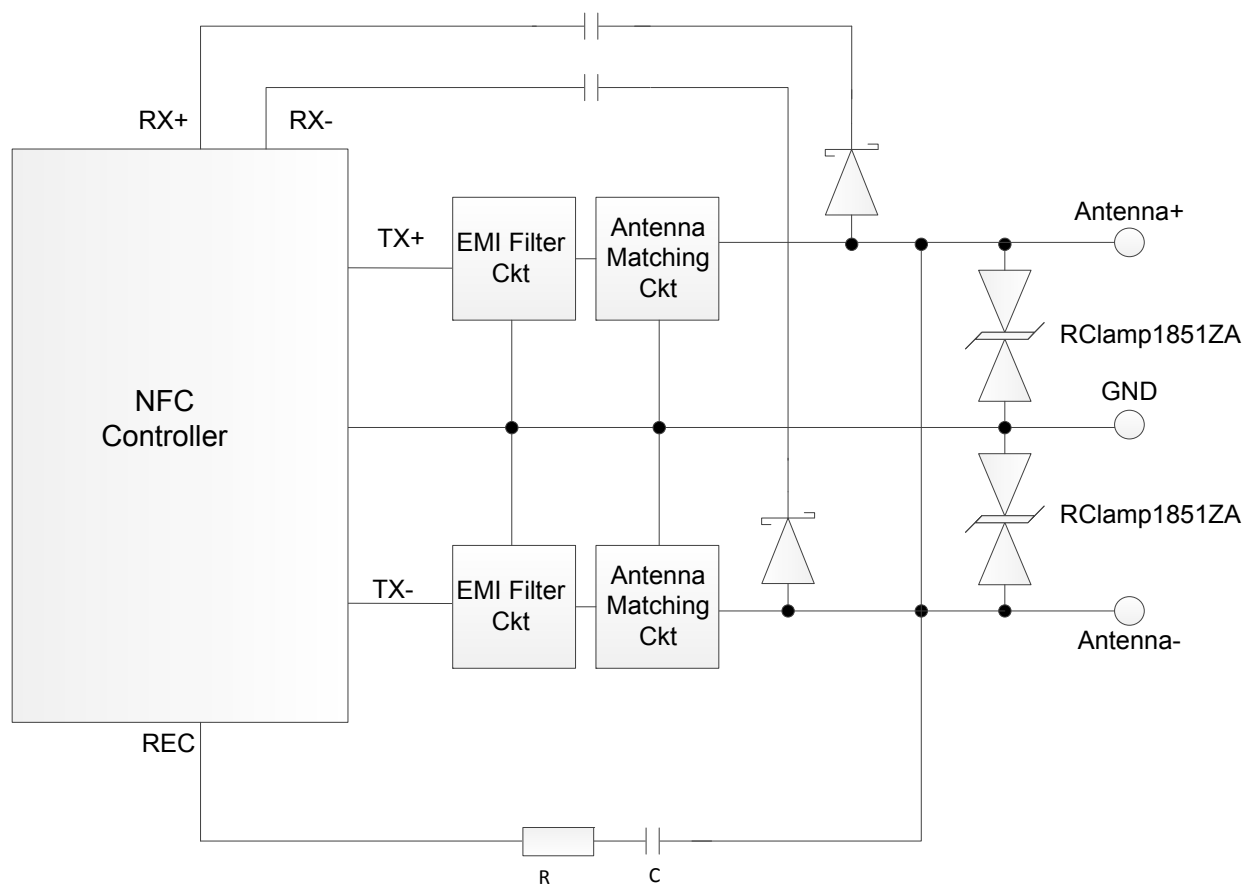
#### Insertion Loss - S21 (dB)



#### ESD Protection of NFC Interfaces

The Near Field Communication (NFC) antenna is usually connected to the NFC controller IC via contact points on the phone. These contact points are user accessible and therefore may be subjected to ESD strikes. External protection (TVS) devices should be placed between the antenna and the NFC chip interface. The working voltage of the TVS should be high enough as not to clip the NFC signal. Additionally, the capacitance of the device

should be minimized in order to avoid harmonic distortion of the RF signal. RClamp1851ZA meets these requirements and also features extremely low dynamic resistance resulting in low ESD clamping voltage. The low dynamic resistance also helps insure protection for Schottky diodes that may be used in the NFC circuit. RClamp1851ZA is designed to work on NFC circuits with AC signals as high as 18V. An example protection circuit is shown below in Figure 1.



**Figure 1 - NFC Protection Example**

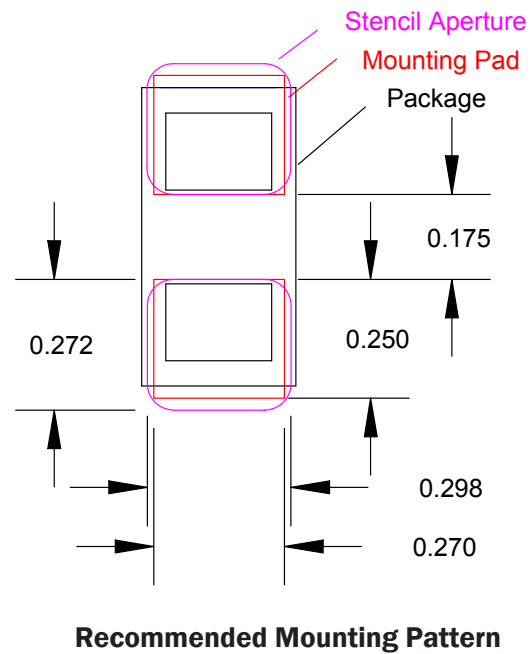
## PROTECTION PRODUCTS

### Applications Information

#### Assembly Guidelines

The small size of this device means that some care must be taken during the mounting process to insure reliable solder joint. The table below provides Semtech's recommended assembly guidelines for mounting this device. The figure at the right details Semtech's recommended aperture based on the below recommendations. Note that these are only recommendations and should serve only as a starting point for design since there are many factors that affect the assembly process. The exact manufacturing parameters will require some experimentation to get the desired solder application.

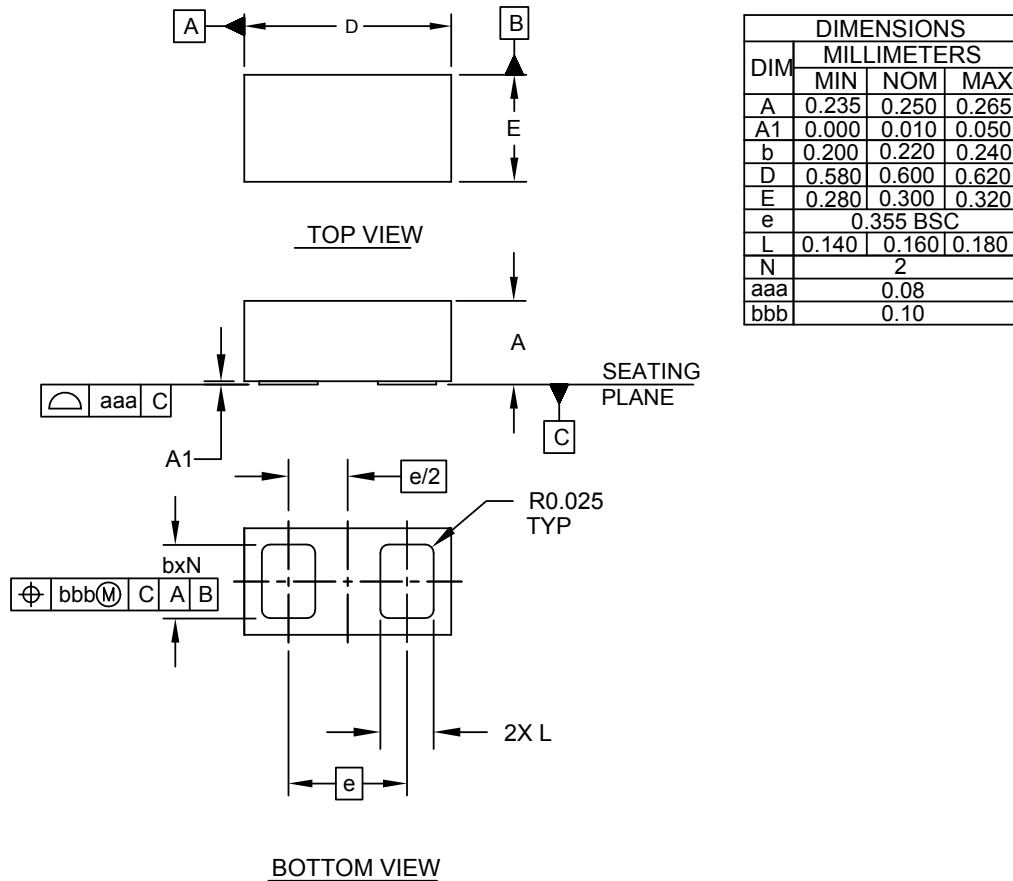
Assembly Parameter	Recommendation
Solder Stencil Design	Laser cut, Electro-polished
Aperture shape	Rectangular with rounded corners
Solder Stencil Thickness	0.100 mm (0.004")
Solder Paste Type	Type 4 size sphere or smaller
Solder Reflow Profile	Per JEDEC J-STD-020
PCB Solder Pad Design	Non-Solder mask defined
PCB Pad Finish	OSP OR NiAu





## PROTECTION PRODUCTS

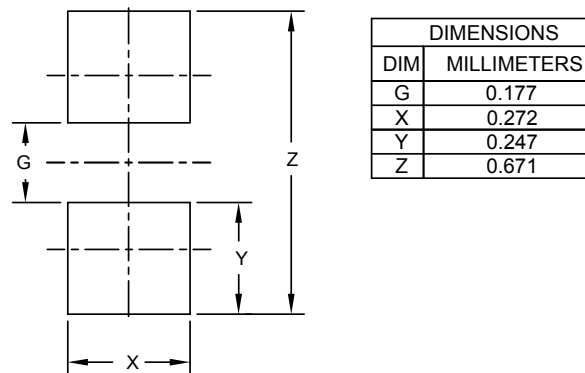
### Outline Drawing - SLP0603P2X3F



**NOTES:**

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).

### Land Pattern - SLP0603P2X3F

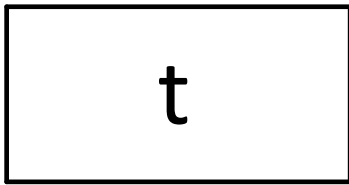


**NOTES:**

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

## PROTECTION PRODUCTS

### Marking



Notes: Device is Electrically Symmetrical

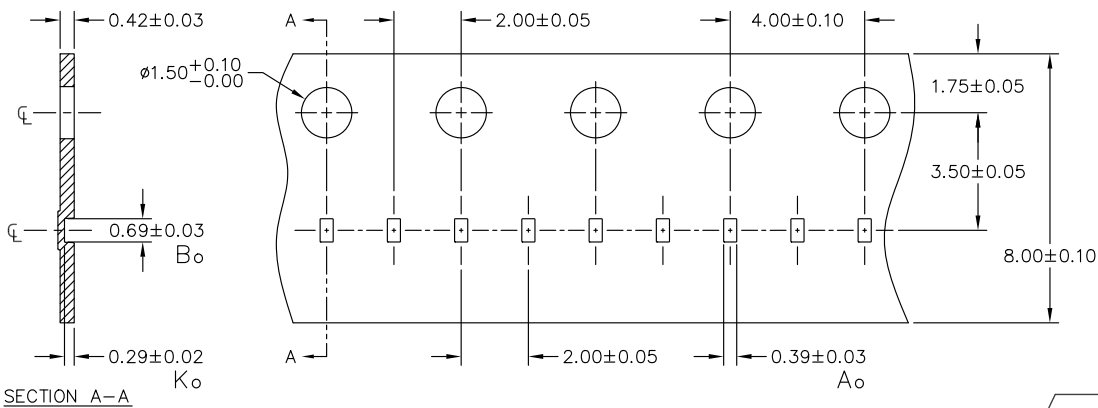
### Ordering Information

Part Number	Qty per Reel	Reel Size
RClamp1851ZATFT	15000	7"

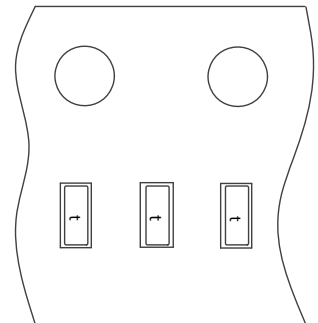
Notes:

1) RailClamp and RClamp are trademarks of Semtech Corporation.

### Tape and Reel Specification



NOTES: ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



### Contact Information

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

#### PROTECTION PRODUCTS - RailClamp®

#### Description

RailClamp® TVS diodes are ultra low capacitance devices designed to protect sensitive electronics from damage or latch-up due to ESD, EFT, and EOS. They are designed for use on high speed ports in applications such as cell phones, notebook computers, and other portable electronics. These devices offer desirable characteristics for board level protection including fast response time, low operating and clamping voltage, and no device degradation.

RClamp®2451ZA is specifically designed for protection of Near Field Communications (NFC) interfaces. It features extremely good ESD protection characteristics including a low typical dynamic resistance of 0.16 Ohms (typical), low peak ESD clamping voltage, and high ESD withstand voltage (+/-14kV contact per IEC 61000-4-2). Low typical capacitance (0.35pF at VR=0V) means that RClamp2451ZA will not create harmonic distortion in the RF signal. This device is bidirectional and has a working voltage of 24V for use on NFC resonator circuits without signal clipping.

RClamp2451ZA is in a 2-pin SLP0603P2X3F package measuring 0.6 x 0.3 mm with a nominal height of 0.25mm. Leads are finished with lead-free NiAu. The combination of working voltage, low dynamic resistance, and low capacitance makes this device ideal for use on NFC antenna circuits, RF signal lines, and FM antennas in portable devices.

#### Features

- ◆ High ESD withstand Voltage: **+/-14kV** (Contact) and **+/- 18kV** (Air) per **IEC 61000-4-2**
- ◆ Able to withstand over 1000 ESD strikes per IEC 61000-4-2 Level 4
- ◆ Ultra-small **0201 package**
- ◆ Protects one high speed data line
- ◆ Working voltage: +/- 24V
- ◆ Low capacitance: **0.35pF typical**
- ◆ Low dynamic resistance: **0.16 Ohms (Typ)**
- ◆ Low ESD clamping voltage
- ◆ Solid-state silicon-avalanche technology

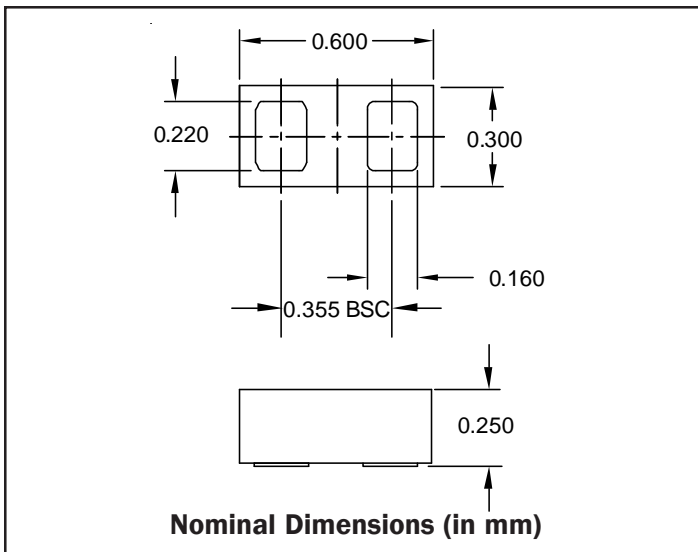
#### Mechanical Characteristics

- ◆ SLP0603P2X3F Package
- ◆ Pb-Free, Halogen Free, RoHS/WEEE Compliant
- ◆ Nominal Dimensions: 0.6 x 0.3 x 0.25 mm
- ◆ Lead Finish: NiAu
- ◆ Marking: Marking Code
- ◆ Packaging: Tape and Reel

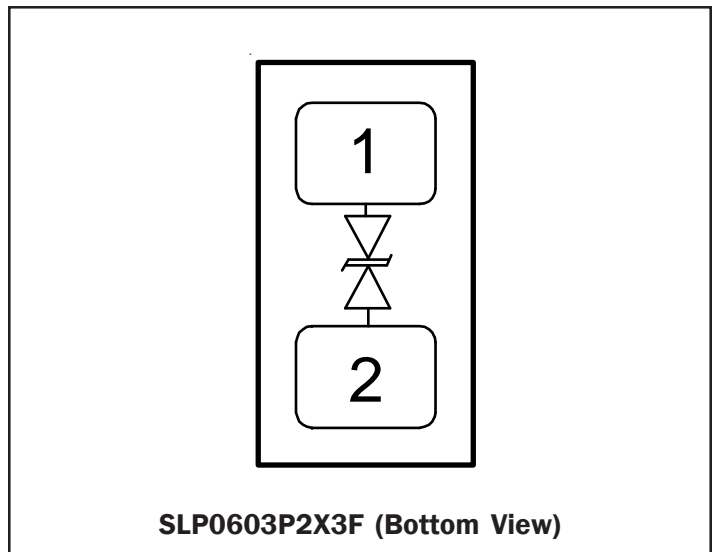
#### Applications

- ◆ Near Field Communication (NFC) lines
- ◆ RF signal lines
- ◆ FM Antenna

#### Nominal Dimensions



#### Schematic



## PROTECTION PRODUCTS

### Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	$P_{pk}$	60	Watts
Maximum Peak Pulse Current (tp = 8/20μs)	$I_{pp}$	3	Amps
ESD per IEC 61000-4-2 (Air) <sup>1</sup> ESD per IEC 61000-4-2 (Contact) <sup>1</sup>	$V_{ESD}$	+/- 18 +/- 14	kV
Operating Temperature	$T_J$	-40 to +85	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

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

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	$V_{RWM}$	Pin 1 to 2 or 2 to 1			24	V
Breakdown Voltage	$V_{BR}$	$I_{BR} = 10\mu A$	25.5	27.5	31	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 24V, T=25^\circ C$ Pin 1 to 2 or 2 to 1		<1	50	nA
ESD Clamping Voltage <sup>2</sup>	$V_C$	$I_{pp} = 4A,$ $t_{lp} = 0.2/100ns$		5		V
ESD Clamping Voltage <sup>2</sup>	$V_C$	$I_{pp} = 16A,$ $t_{lp} = 0.2/100ns$		7		V
Dynamic Resistance <sup>2, 3</sup>	$R_D$	$t_p = 0.2/100ns$		0.16		Ohms
Junction Capacitance	$C_J$	$V_R = 0V, f = 1MHz$		0.35	0.45	pF

#### Notes

1)ESD gun return path connected to ESD ground reference plane.

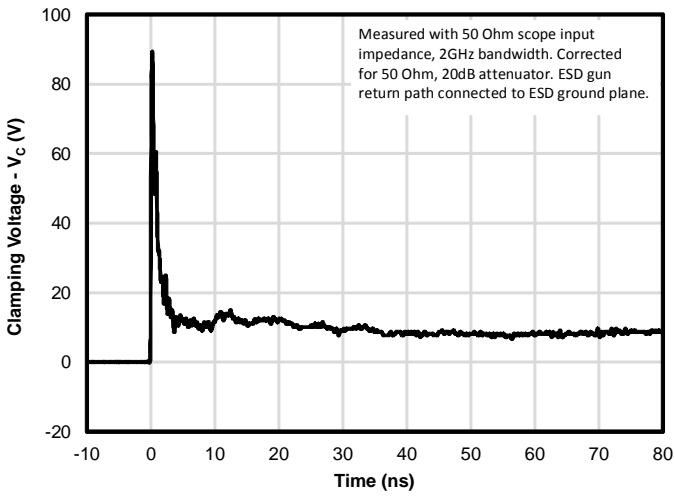
2)Transmission Line Pulse Test (TLP) Settings:  $t_p = 100ns$ ,  $t_r = 0.2ns$ ,  $I_{TLP}$  and  $V_{TLP}$  averaging window:  $t_1 = 70ns$  to  $t_2 = 90ns$ .

3) Dynamic resistance calculated from  $I_{TLP} = 4A$  to  $I_{TLP} = 16A$

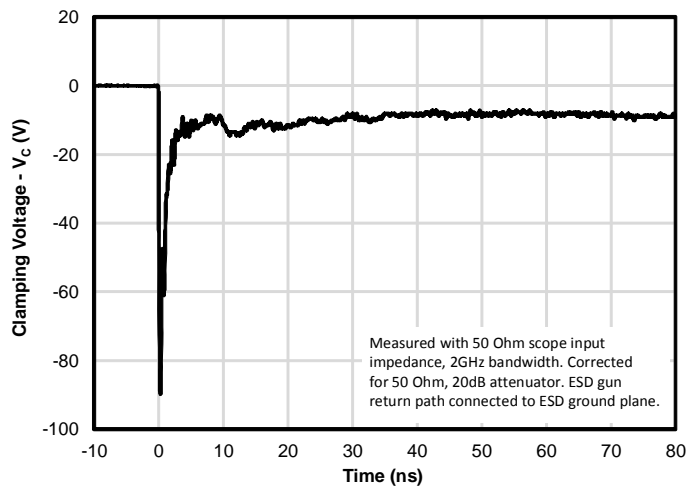
## PROTECTION PRODUCTS

### Typical Characteristics

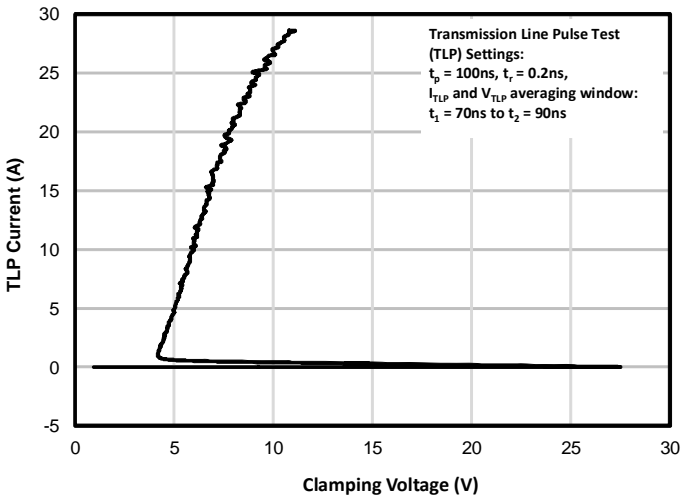
#### ESD Clamping (+8kV Contact per IEC 61000-4-2)



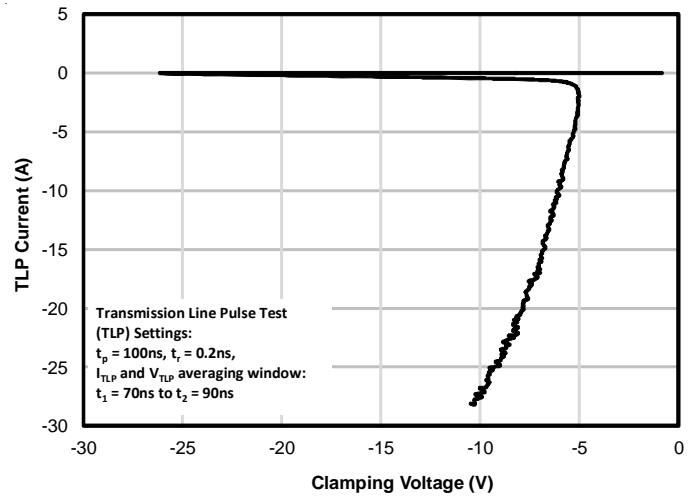
#### ESD Clamping (-8kV Contact per IEC 61000-4-2)



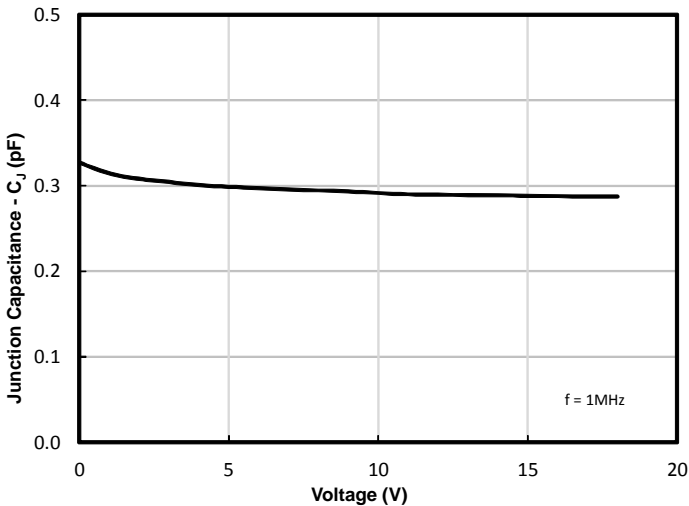
#### TLP Characteristic (Positive)



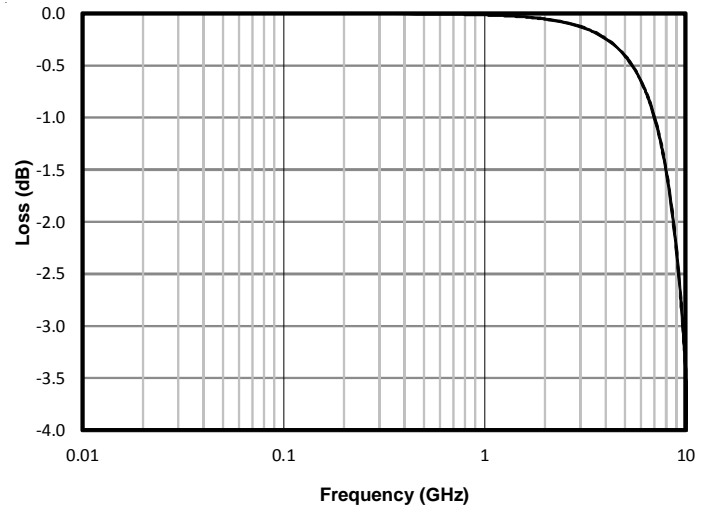
#### TLP Characteristic (Negative)



#### Junction Capacitance vs. Reverse Voltage



#### Typical Insertion Loss (S21)



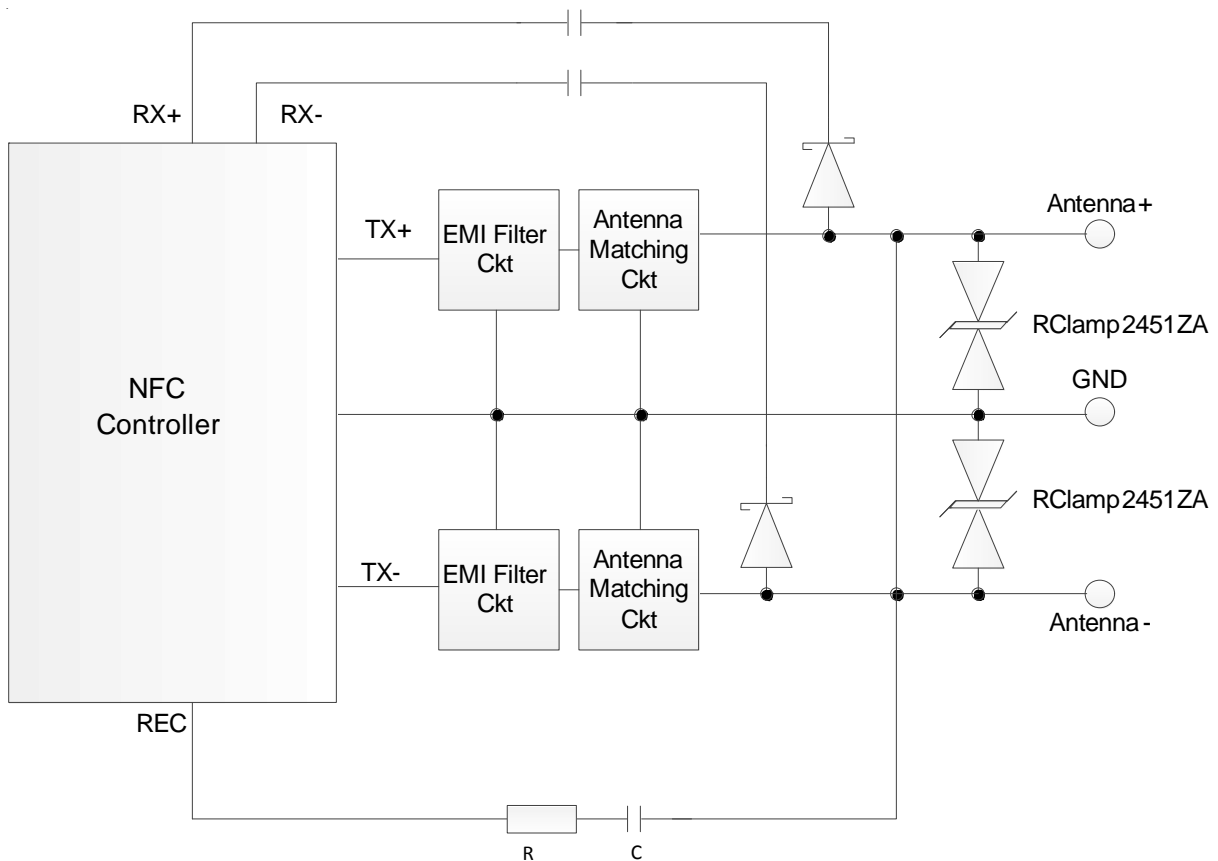
## PROTECTION PRODUCTS

### Applications Information

#### ESD Protection of NFC Interfaces

The Near Field Communication (NFC) antenna is usually connected to the NFC controller IC via contact points on the phone. These contact points are user accessible and therefore may be subjected to ESD strikes. External protection (TVS) devices should be placed between the antenna and the NFC chip interface. The working voltage of the TVS should be high enough as not to clip the NFC signal. Additionally, the capacitance of the device should be minimized in order to avoid harmonic distortion of the RF signal.

RClamp2451ZA meets these requirements and also features extremely low dynamic resistance (<0.1 Ohms) resulting in low ESD clamping voltage. The low dynamic resistance also helps insure protection for Schottky diodes that may be used in the NFC circuit. RClamp2451ZA is designed to work on NFC circuits with AC signals as high as 24V. An example protection circuit using RClamp2451ZA is shown below in Figure 1.

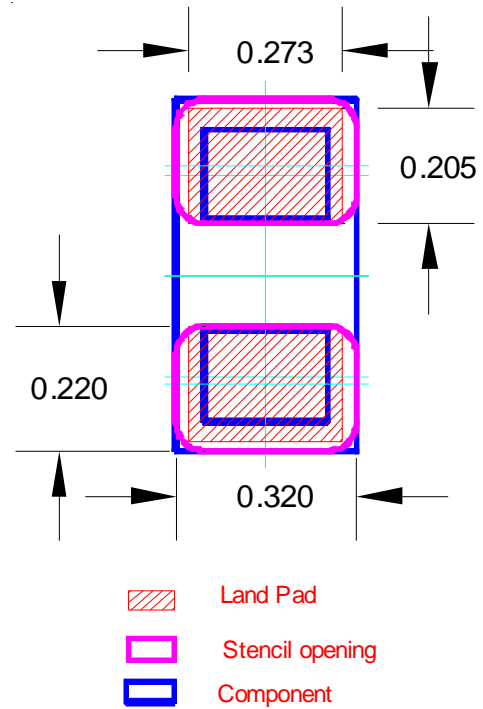


**Figure 1 - NFC Protection Example**

**PROTECTION PRODUCTS**
**Applications Information**
**Assembly Guidelines**

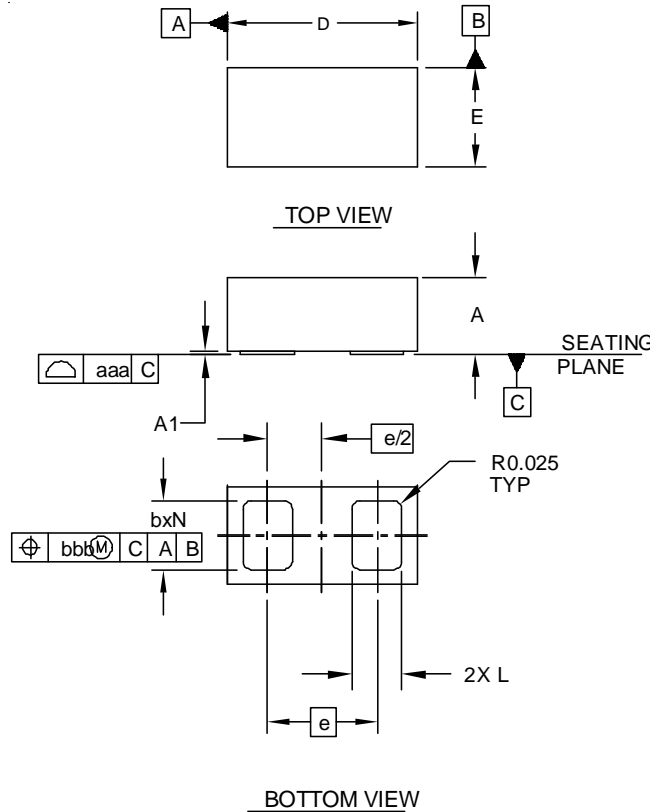
The small size of this device means that some care must be taken during the mounting process to insure reliable solder joints. The figure at the right details Semtech's recommended aperture based on the assembly guidelines detailed in the table below. Note that these are only recommendations and should serve only as a starting point for design since there are many factors that affect the assembly process. Exact manufacturing parameters will require some experimentation to get the desired solder application.

Assembly Parameter	Recommendation
Solder Stencil Design	Laser cut, Electro-polished
Aperture shape	Rectangular with rounded corners
Solder Stencil Thickness	0.100 mm (0.004")
Solder Paste Type	Type 4 size sphere or smaller
Solder Reflow Profile	Per JEDEC J-STD-020
PCB Solder Pad Design	Non-Solder mask defined
PCB Pad Finish	OSP OR NiAu


**Recommended Mounting Pattern**

PROTECTION PRODUCTS

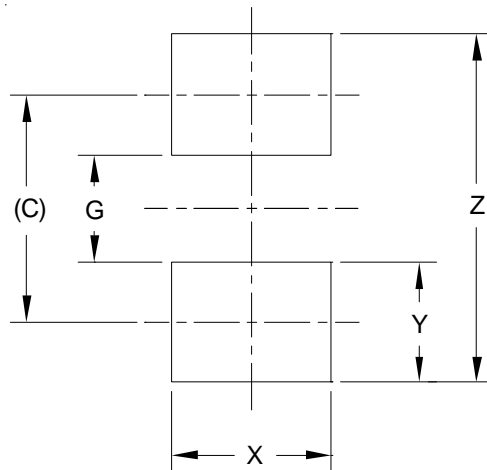
Outline Drawing - SLP0603P2X3F



DIMENSIONS			
MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.235	0.250	0.265
A1	0.000	0.010	0.050
b	0.200	0.220	0.240
D	0.580	0.600	0.620
E	0.280	0.300	0.320
e	0.355 BSC		
L	0.140	0.160	0.180
N	2		
aaa	0.08		
bbb	0.10		

- NOTES:  
 1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS(ANGLES IN DEGREES).

Land Pattern - SLP0603P2X3F



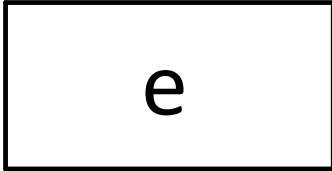
DIMENSIONS	
DIM	MILLIMETERS
C	(0.385)
G	0.181
X	0.273
Y	0.205
Z	0.590

- 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 .



## PROTECTION PRODUCTS

### Marking Code



### Ordering Information

Part Number	Qty per Reel	Pocket Pitch	Reel Size
RClamp2451ZATFT	15,000	2mm	7 Inch

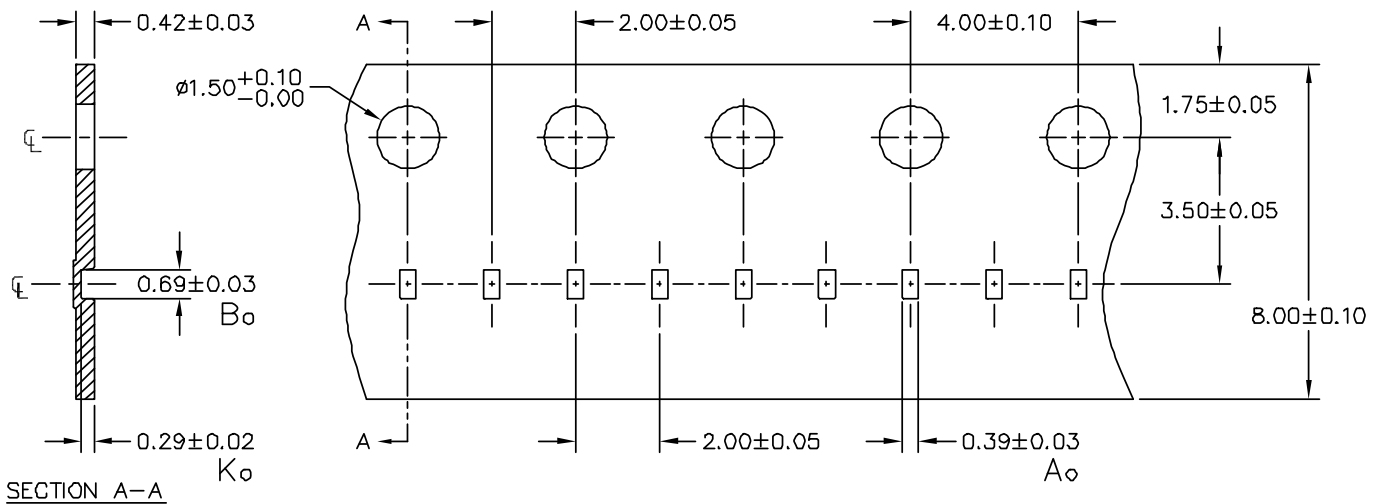
Notes:

RailClamp and RClamp are trademarks of Semtech Corporation

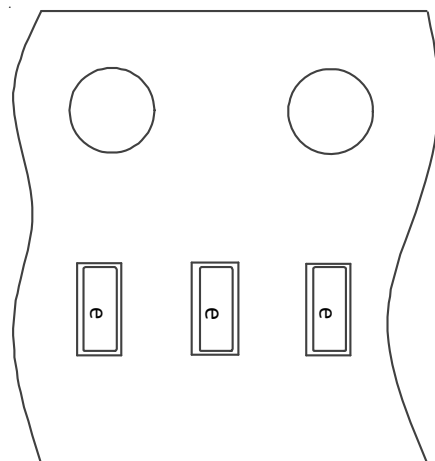
Note:

Device is electrically symmetrical

### Carrier Tape Specification



NOTES: ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



**Device Orientation in Tape**

**Contact Information**

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

## PROTECTION PRODUCTS - RailClamp®

### Description

RailClamp® TVS diodes are ultra low capacitance devices designed to protect sensitive electronics from damage or latch-up due to ESD, EFT, and EOS. They are designed for use on high speed ports in applications such as cell phones, notebook computers, and other portable electronics. These devices offer desirable characteristics for board level protection including fast response time, low operating and clamping voltage, and no device degradation.

RClamp®3331ZA features extremely good ESD protection characteristics including a low typical dynamic resistance of 0.20 Ohms, low peak ESD clamping voltage, and high ESD withstand voltage (+/-18kV contact per IEC 61000-4-2). Low typical capacitance (0.35pF at VR=0V) allows the RClamp3331ZA to be used in applications operating in excess of 5GHz without appreciable signal attenuation. Each device will protect one high speed data line operating at 3.3 Volts.

RClamp3331ZA is in a 2-pin SLP0603P2X3F package measuring 0.6 x 0.3 mm with a nominal height of 0.25mm. Leads are finished with lead-free NiAu. The small package gives the designer the flexibility to protect single lines in applications where arrays are not practical. The combination of low peak ESD clamping, low dynamic resistance, and low capacitance makes this device suitable for applications such as USB 3.0, MIPI and V-By-One interfaces in portable devices.

### Features

- ◆ High ESD withstand Voltage: +/-**18kV** (Contact/Air) per **IEC 61000-4-2**
- ◆ Able to withstand over 1000 ESD strikes per IEC 61000-4-2 Level 4
- ◆ Ultra-small **0201 package**
- ◆ Protects one high speed data line
- ◆ Working voltage: +/- 3.3V
- ◆ Low capacitance: **0.35pF typical**
- ◆ Extremely low dynamic resistance: **0.20 Ohms (Typ)**
- ◆ Low ESD clamping voltage
- ◆ Solid-state silicon-avalanche technology

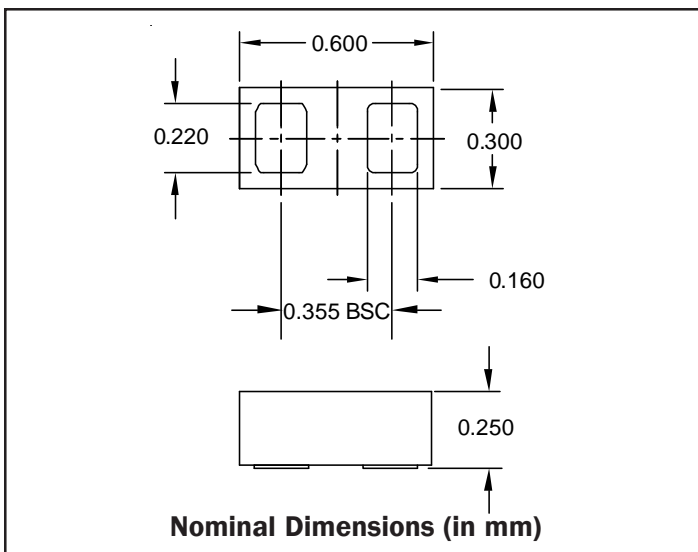
### Mechanical Characteristics

- ◆ SLP0603P2X3F Package
- ◆ Pb-Free, Halogen Free, RoHS/WEEE Compliant
- ◆ Nominal Dimensions: 0.6 x 0.3 x 0.25 mm
- ◆ Lead Finish: NiAu
- ◆ Marking: Marking Code
- ◆ Packaging: Tape and Reel

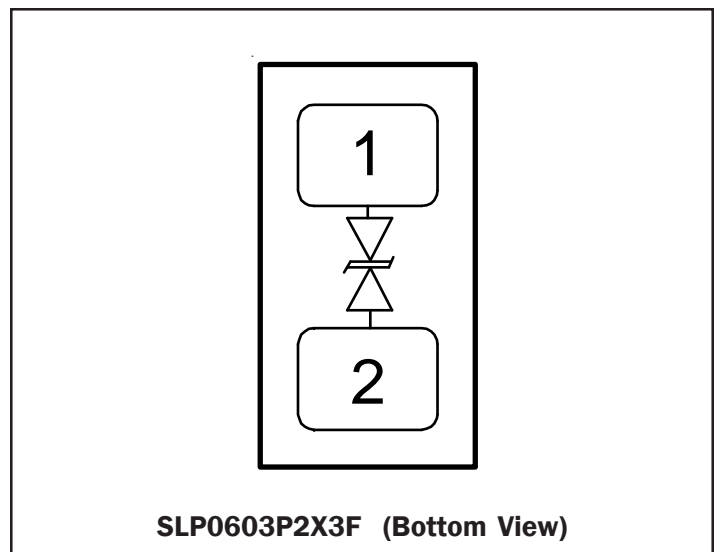
### Applications

- ◆ USB 2.0 / USB 3.0
- ◆ MIPI / MDDI
- ◆ V-By-One
- ◆ eDP
- ◆ MHL
- ◆ LVDS

### Nominal Dimensions



### Schematic



## PROTECTION PRODUCTS

### Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	$P_{pk}$	30	Watts
Maximum Peak Pulse Current (tp = 8/20μs)	$I_{pp}$	4	Amps
ESD per IEC 61000-4-2 (Air) <sup>1</sup> ESD per IEC 61000-4-2 (Contact) <sup>1</sup>	$V_{ESD}$	+/- 18 +/- 18	kV
Operating Temperature	$T_J$	-40 to +85	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

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

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	$V_{RWM}$	Pin 1 to 2 or 2 to 1			3.3	V
Breakdown Voltage	$V_{BR}$	$I_{BR} = 10\mu A$ Pin 1 to 2 or 2 to 1	5.5	8	10.5	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 3.3V, T=25^\circ C$ Pin 1 to 2 or 2 to 1		<1	50	nA
Clamping Voltage	$V_C$	$I_{pp} = 1A, tp = 8/20\mu s$ Pin 1 to 2 or 2 to 1		3.8	5.5	V
Clamping Voltage	$V_C$	$I_{pp} = 4A, tp = 8/20\mu s$ Pin 1 to 2 or 2 to 1		5.5	7.5	V
ESD Clamping Voltage <sup>2</sup>	$V_C$	IPP = 4A, t <sub>lp</sub> = 0.2/100ns		4.5		V
ESD Clamping Voltage <sup>2</sup>	$V_C$	IPP = 16A, t <sub>lp</sub> = 0.2/100ns		7		V
Dynamic Resistance <sup>2,3</sup>	$R_D$	tp = 0.2/100ns		0.20		Ohms
Junction Capacitance	$C_J$	$V_R = 0V, f = 1MHz$		0.35	0.45	pF

#### Notes

1)ESD gun return path connected to ESD ground reference plane.

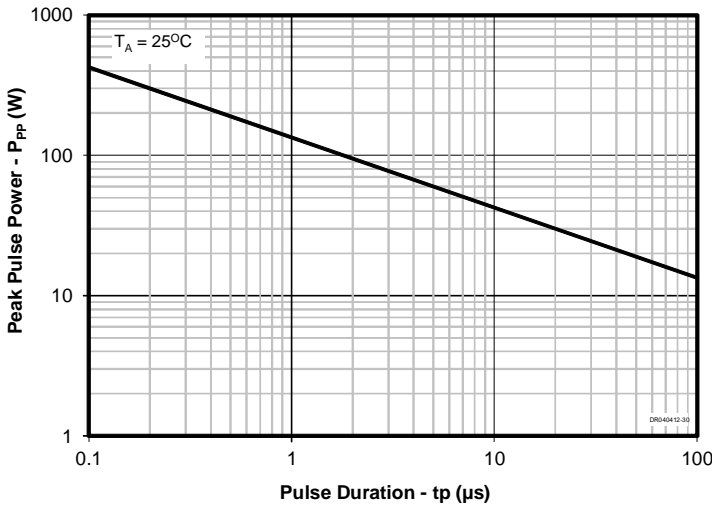
2)Transmission Line Pulse Test (TLP) Settings:  $t_p = 100ns, t_r = 0.2ns, I_{TLP}$  and  $V_{TLP}$  averaging window:  $t_1 = 70ns$  to  $t_2 = 90ns$ .

3) Dynamic resistance calculated from  $I_{TLP} = 4A$  to  $I_{TLP} = 16A$

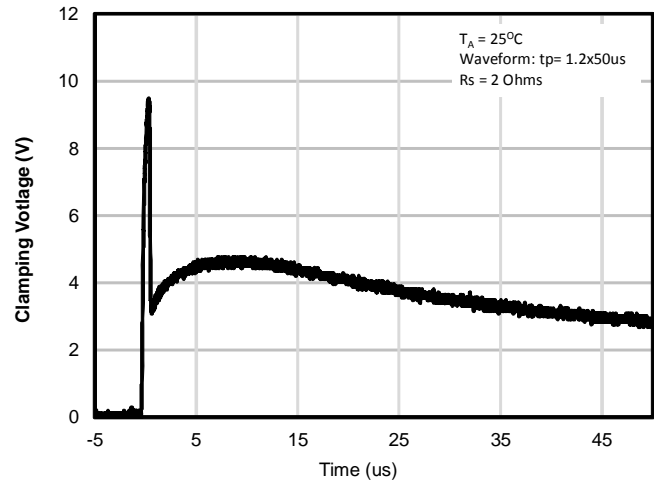
## PROTECTION PRODUCTS

### Typical Characteristics

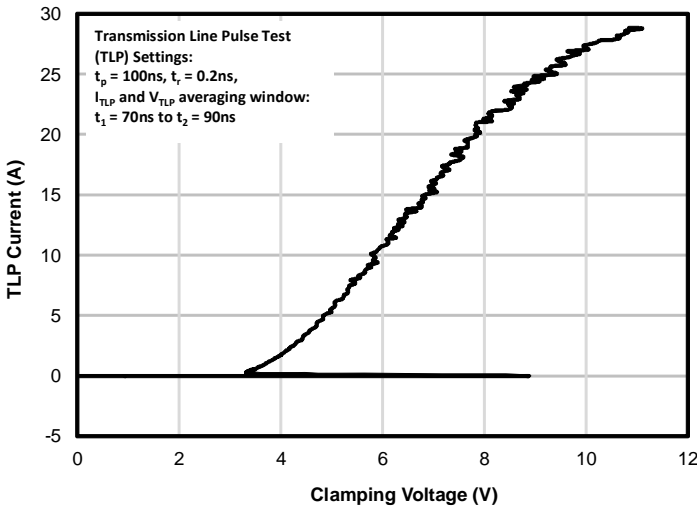
**Non-Repetitive Peak Pulse Power vs. Pulse Time**



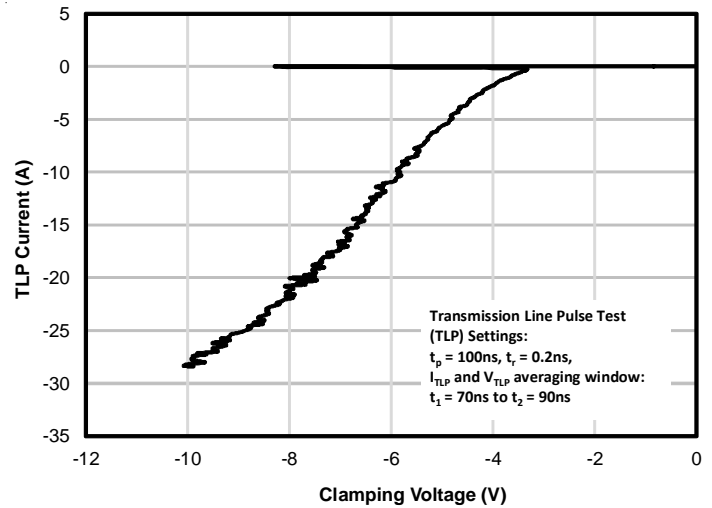
**Clamping Waveform (tp=1.2/50us)**



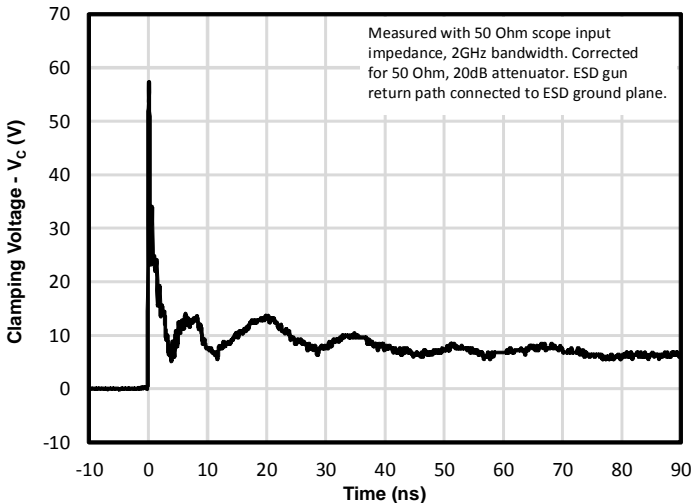
**TLP Characteristic (Positive)**



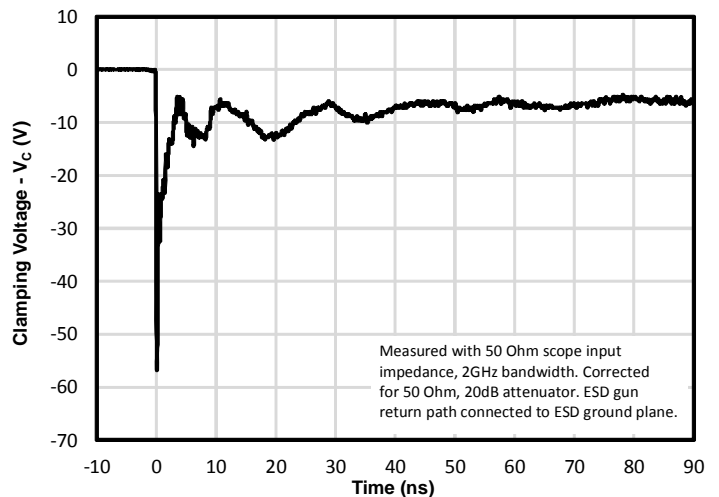
**TLP Characteristic (Negative)**

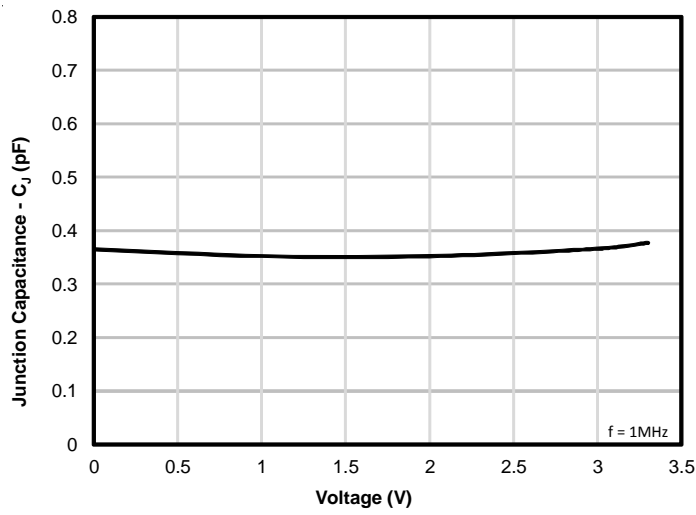
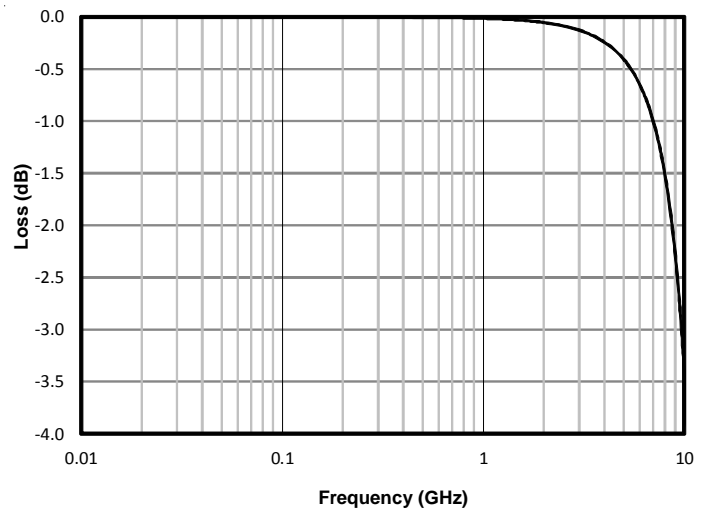


**ESD Clamping (+8kV Contact per IEC 61000-4-2)**



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



**PROTECTION PRODUCTS**
**Typical Characteristics**
**Junction Capacitance vs. Reverse Voltage**

**Typical Insertion Loss S21**


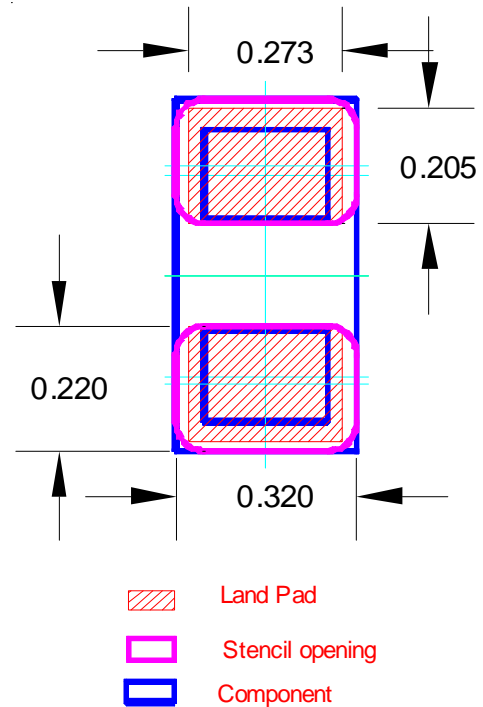
## PROTECTION PRODUCTS

### Applications Information

#### Assembly Guidelines

The small size of this device means that some care must be taken during the mounting process to insure reliable solder joints. The figure at the right details Semtech's recommended aperture based on the assembly guidelines detailed in the table below. Note that these are only recommendations and should serve only as a starting point for design since there are many factors that affect the assembly process. Exact manufacturing parameters will require some experimentation to get the desired solder application.

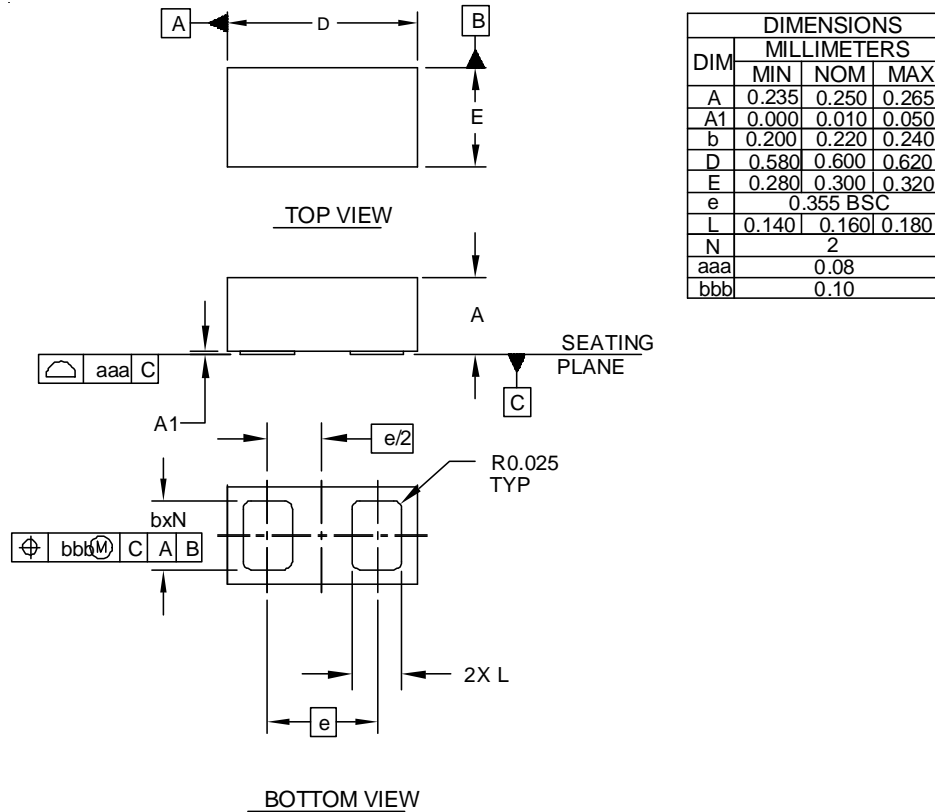
Assembly Parameter	Recommendation
Solder Stencil Design	Laser cut, Electro-polished
Aperture shape	Rectangular with rounded corners
Solder Stencil Thickness	0.100 mm (0.004")
Solder Paste Type	Type 4 size sphere or smaller
Solder Reflow Profile	Per JEDEC J-STD-020
PCB Solder Pad Design	Non-Solder mask defined
PCB Pad Finish	OSP OR NiAu



**Recommended Mounting Pattern**

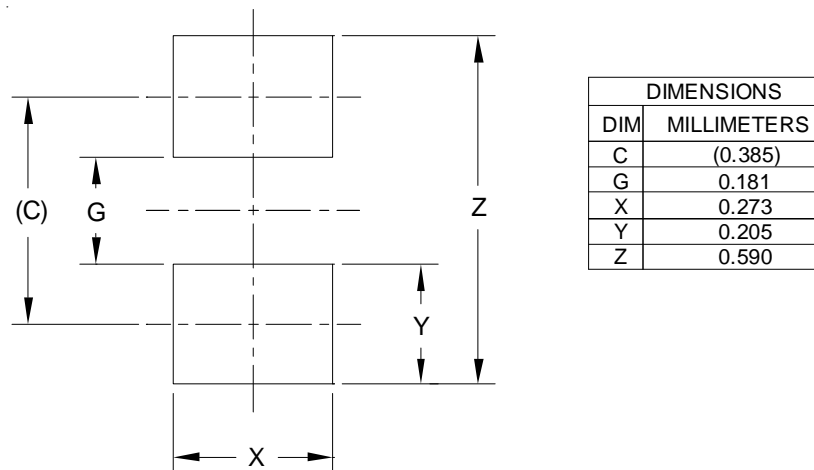
## PROTECTION PRODUCTS

### Outline Drawing - SLP0603P2X3F



- NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS(ANGLES IN DEGREES).

### Land Pattern - SLP0603P2X3F

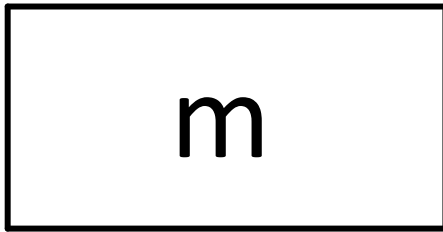


- NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS ( ANGLES IN DEGREES ).
  2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY .  
CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR  
COMPANY'S MANUFACTURING GUIDELINES ARE MET .



## PROTECTION PRODUCTS

### Marking Code



### Ordering Information

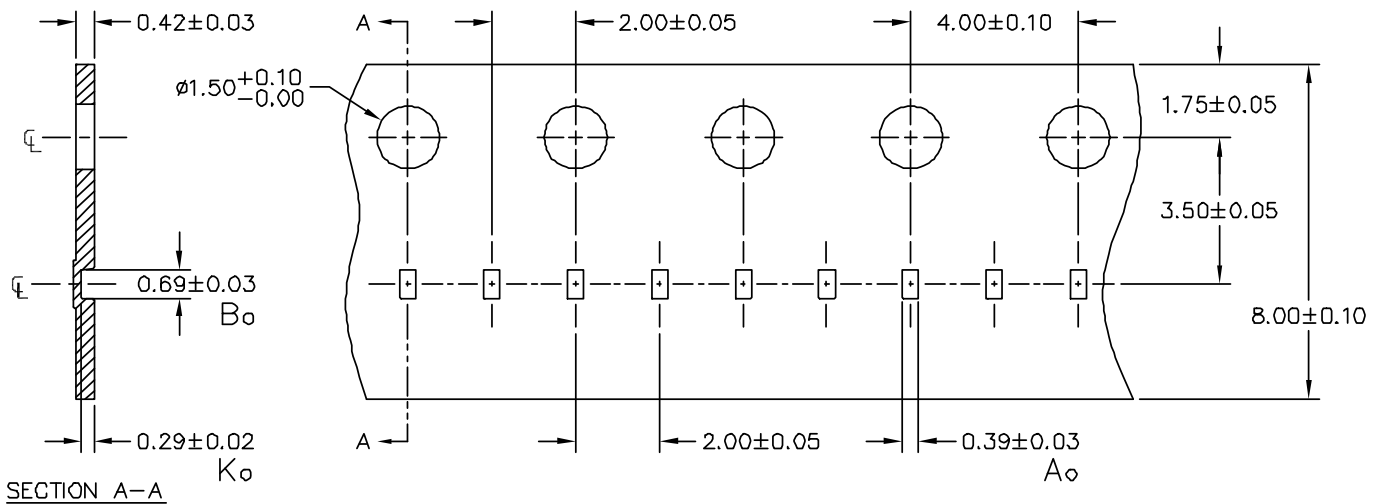
Part Number	Qty per Reel	Pocket Pitch	Reel Size
RClamp3331ZATFT	15,000	2mm	7 Inch

Notes:

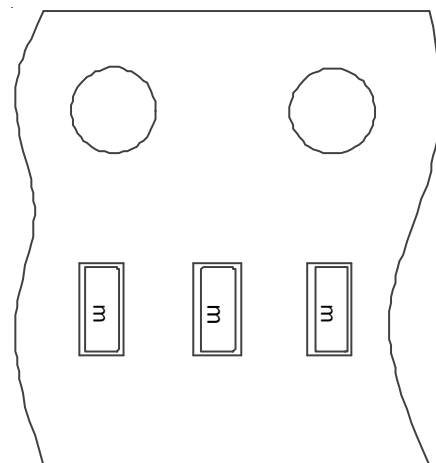
RailClamp and RClamp are trademarks of Semtech Corporation

Note:  
Device is electrically symmetrical

### Carrier Tape Specification



NOTES: ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



**Device Orientation in Tape**

**Contact Information**

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

## PROTECTION PRODUCTS - μClamp®

### Description

μClamp® TVS diodes are designed to protect sensitive electronics from damage or latch-up due to ESD. They are designed to replace 0201 size multilayer varistors (MLVs) in portable applications such as cell phones, notebook computers, and other portable electronics. It features large cross-sectional area junctions for conducting high transient currents. This device offers desirable characteristics for board level protection including fast response time, low operating and clamping voltage, and no device degradation.

μClamp®5011ZA features extremely good ESD protection characteristics highlighted by low typical dynamic resistance of 0.15 Ohms, low peak ESD clamping voltage, and high ESD withstand voltage (+/-15kV contact per IEC 61000-4-2). Low maximum capacitance (5pF at VR=0V) minimizes loading on sensitive circuits. Each device will protect one data or power line operating at 5 Volts.

μClamp5011ZA is in a 2-pin SLP0603P2X3F package. It measures 0.6 x 0.3 mm with a nominal height of only 0.25mm. Leads are finished with NiAu. The small package gives the designer the flexibility to protect single lines in applications where arrays are not practical. The combination of small size and high ESD surge capability makes them ideal for use in portable applications such as cellular phones, digital cameras, and tablet PC's.

### Features

- ◆ High ESD withstand Voltage: +/-15kV (Contact) and +/- 18kV (Air) per IEC 61000-4-2
- ◆ Ultra-small package
- ◆ Protects one data line
- ◆ Low ESD clamping voltage
- ◆ Working voltage: 5V
- ◆ Low capacitance: 5pF maximum
- ◆ Low leakage current
- ◆ Extremely low dynamic resistance: 0.15 Ohms (Typ)
- ◆ Solid-state silicon-avalanche technology

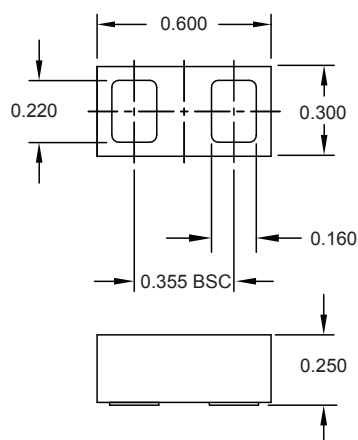
### Mechanical Characteristics

- ◆ SLP0603P2X3F package
- ◆ Pb-Free, Halogen Free, RoHS/WEEE Compliant
- ◆ Nominal Dimensions: 0.6 x 0.3 x 0.25 mm
- ◆ Lead Finish: NiAu
- ◆ Marking: Marking code
- ◆ Packaging: Tape and Reel

### Applications

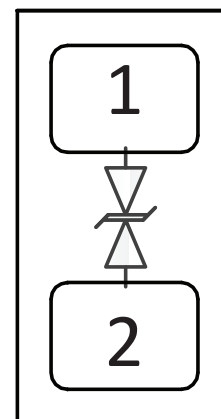
- ◆ Cellular Handsets & Accessories
- ◆ Notebook Computers
- ◆ Tablet PC
- ◆ Portable Instrumentation
- ◆ Peripherals

### Package Dimensions



**Nominal Dimensions in mm**

### Schematic & Pin Configuration



**SLP0603P2X3F (Bottom View)**

## PROTECTION PRODUCTS

### Absolute Maximum Ratings

Rating	Symbol	Value	Units
Peak Pulse Power (tp = 8/20μs)	$P_{PK}$	30	W
Peak Pulse Current (tp = 8/20μs)	$I_{PP}$	2.5	A
ESD per IEC 61000-4-2 (Air) <sup>(1)</sup> ESD per IEC 61000-4-2 (Contact) <sup>(1)</sup>	$V_{ESD}$	±18 ±15	kV
Operating Temperature	$T_J$	-40 to +125	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

### Electrical Characteristics (T=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	$V_{RWM}$	Pin 1 to 2 or Pin 2 to 1			5	V
Reverse breakdown Voltage	$V_{BR}$	$I_{BR} = 1mA$ Pin 1 to 2 or Pin 2 to 1	6.5	8.5	10.5	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V$ Pin 1 to 2 or Pin 2 to 1		5	20	nA
Clamping Voltage	$V_C$	$I_{PP} = 2.5A$ , tp = 8/20μs			12	V
ESD Clamping Voltage <sup>2</sup>	$V_C$	$I_{PP} = 4A$ tp = 0.2/100ns		8		V
ESD Clamping Voltage <sup>2</sup>	$V_C$	$I_{PP} = 16A$ tp = 0.2/100ns		9.8		V
Dynamic Resistance <sup>2,3</sup>	$R_{DYN}$	tp = 100ns		0.15		Ohms
Junction Capacitance	$C_J$	I/O pin to GND f = 1MHz		$V_R = 0V$ 4.2	5	pF

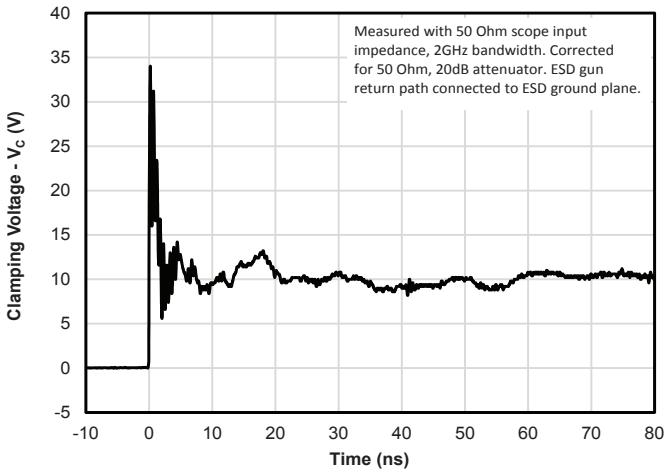
#### Notes

- 1) Measured with a 20dB attenuator, 50 Ohm scope input impedance, 2GHz bandwidth. ESD gun return path connected to ESD ground plane.
- 2) Transmission Line Pulse Test (TLP) Settings: tp = 100ns, tr = 0.2ns,  $I_{TLP}$  and  $V_{TLP}$  averaging window: t1 = 70ns to t2 = 90ns.
- 3) Dynamic resistance calculated from  $I_{TLP} = 4A$  to  $I_{TLP} = 16A$

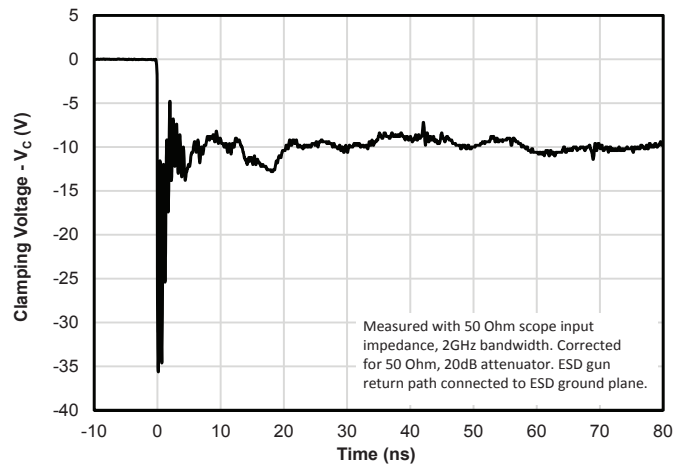
PROTECTION PRODUCTS

Typical Characteristics

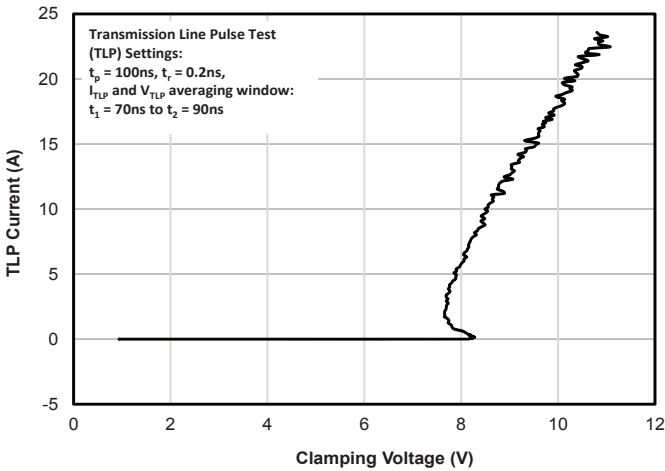
ESD Clamping (8kV Contact per IEC 61000-4-2)



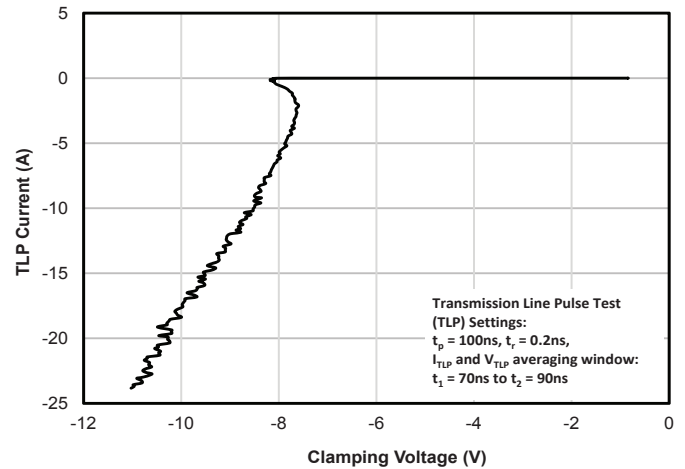
ESD Clamping (-8kV Contact per IEC 61000-4-2)



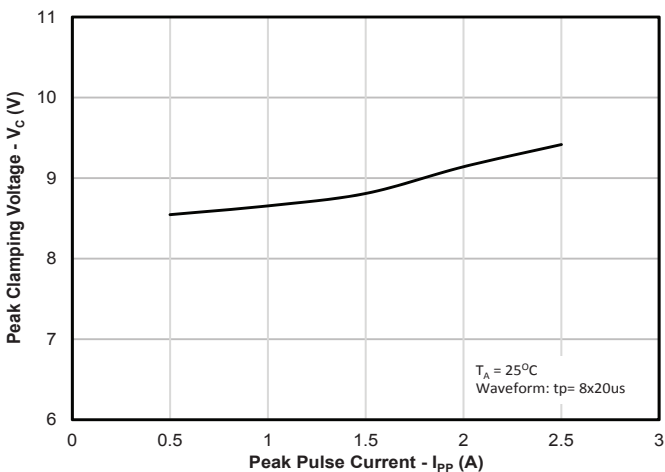
TLP Characteristic (Positive Pulse)



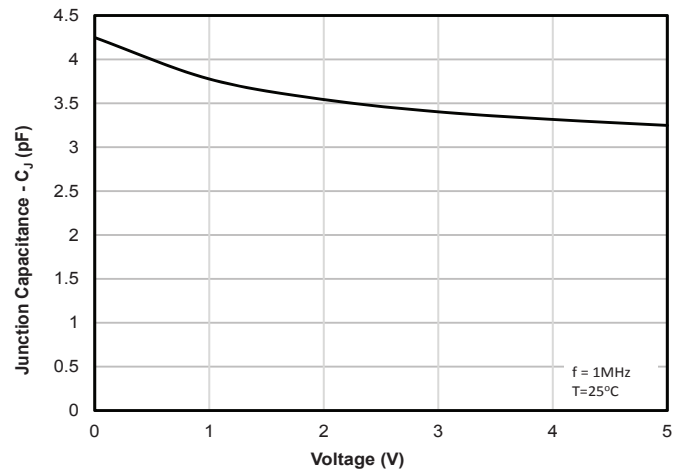
TLP Characteristic (Negative Pulse)



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



Junction Capacitance vs. Reverse Voltage



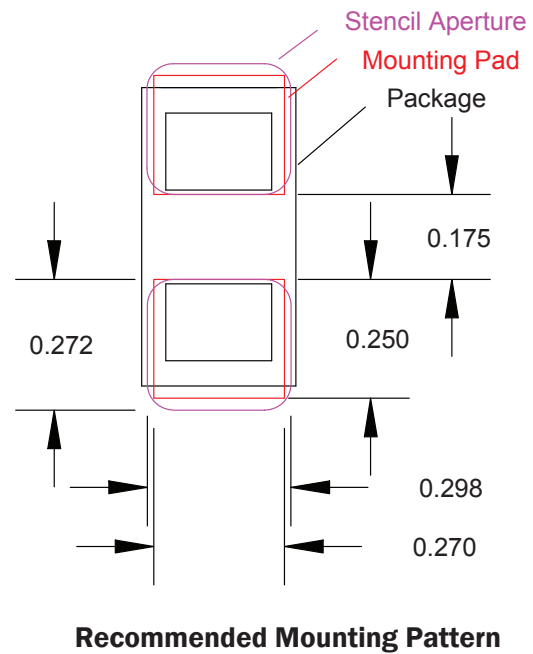
PROTECTION PRODUCTS

Applications Information

**Assembly Guidelines**

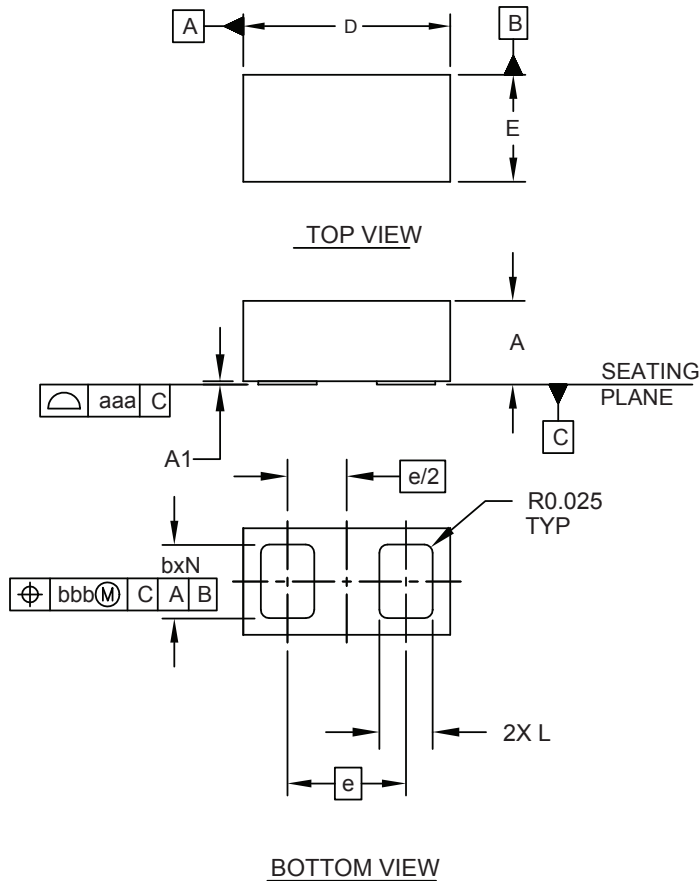
The small size of this device means that some care must be taken during the mounting process to insure reliable solder joint. The table below provides Semtech's recommended assembly guidelines for mounting this device. The figure at the right details Semtech's recommended aperture based on the below recommendations. Note that these are only recommendations and should serve only as a starting point for design since there are many factors that affect the assembly process. The exact manufacturing parameters will require some experimentation to get the desired solder application.

Assembly Parameter	Recommendation
Solder Stencil Design	Laser cut, Electro-polished
Aperture shape	Rectangular with rounded corners
Solder Stencil Thickness	0.100 mm (0.004")
Solder Paste Type	Type 4 size sphere or smaller
Solder Reflow Profile	Per JEDEC J-STD-020
PCB Solder Pad Design	Non-Solder mask defined
PCB Pad Finish	OSP OR NiAu



PROTECTION PRODUCTS

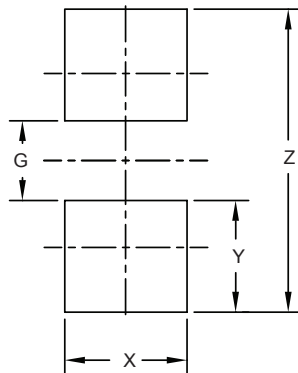
Outline Drawing - SLP0603P2X3F



DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.235	0.250	0.265
A1	0.000	0.010	0.050
b	0.200	0.220	0.240
D	0.580	0.600	0.620
E	0.280	0.300	0.320
e	0.355 BSC		
L	0.140	0.160	0.180
N	2		
aaa	0.08		
bbb	0.10		

NOTES:  
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).

Land Pattern - SLP0603P2X3F



DIM	MILLIMETERS
	G
X	0.272
Y	0.247
Z	0.671

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

PROTECTION PRODUCTS

Marking



Notes: Device is Electrically Symmetrical

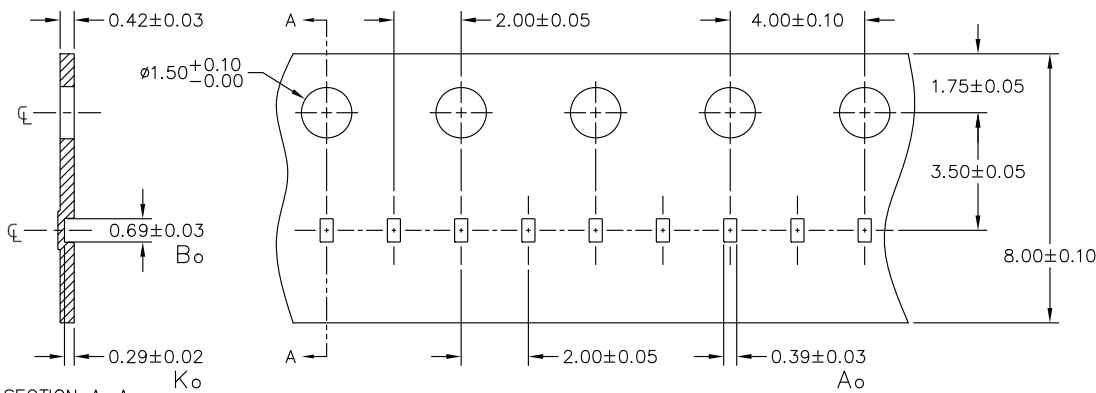
Ordering Information

Part Number	Qty per Reel	Reel Size
μClamp5011ZATFT	15000	7"

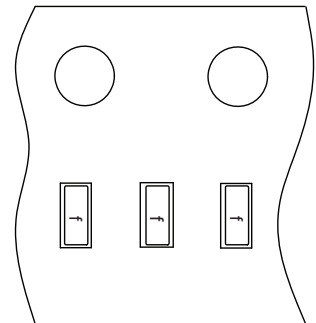
Notes:

1) MicroClamp, uClamp and μClamp are trademarks of Semtech Corporation.

Tape and Reel Specification



NOTES: ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



Contact Information

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



# Rel Job Detail Report

by Sublot, by Sequence  
 Contact: Gurmail Sajjan  
 (805) 480 2142  
 gsajjan@semtech.com

<i>Businessunit</i>	<i>Protection</i>			
<i>Reljob#</i>	<i>Part_Number, Job Name/Type</i>	<i>Fab, Package</i>	<i>Rel Job Status</i>	<i>Key Dates:</i>
5878	uClamp0551Z, uClamp5011Z  Package (Z1A) Qualification  New Product on qualified process with un-qualified package	ASMC12TVS  Z1A	Rel Testing Complete Passes All Requirements	<i>Job Accepted:</i> 22-Aug-2014  <i>Requested CD:</i>  <i>Actual Start Date:</i> 27-Aug-2014  <i>ECD for Conditional:</i>  <i>Job ECD:</i> 22-Oct-2014

## Completed Tasks

<i>I.O</i>	<i>Lot</i>	<i>AssemblyLot</i>	<i>AER-002012</i>	<i>DateCode</i>			
	EP338580			1434			
<i>Seq</i>	<i>TaskCode</i>	<i>SampleSize</i>	<i>Criteria</i>	<i>Complete</i>	<i>Failures</i>	<i>DataSource</i>	<i>Results/Comments</i>
1	Data-Prep	None	None	27-Aug-2014	0	Camarillo	
2	HTRB_Pre_Elect_150°C_RT24	210	Pass on Zero Fails	04-Sep-2014	0	Camarillo	
3	HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	09-Sep-2014	0	Camarillo	
4	HTRB_Pre_Elect	105	Pass on Zero Fails	27-Aug-2014	0	Camarillo	
5	BI_BD_Valid	NA	Meet HTOL Schematics	28-Aug-2014	0	Camarillo	
6	HTRB_150°C_0072	105	Pass on Zero Fails	02-Sep-2014	0	Camarillo	
7	HTRB_150°C_0408	105	Pass on Zero Fails	15-Sep-2014	0	Camarillo	
8	HTS_Pre_Elect	77	Pass on Zero Fails	27-Aug-2014	0	Camarillo	
9	HTS_0168	77	Pass on Zero Fails	03-Sep-2014	0	Camarillo	
10	HTS_0500	77	Pass on Zero Fails	17-Sep-2014	0	Camarillo	
11	HTS_1000	77	Pass on Zero Fails	08-Oct-2014	0	Camarillo	
12	Pre_Conditioning_Level_1	NA	MSL 1	27-Aug-2014	0	Camarillo	
13	Rider_Card_Wash/Bake			27-Aug-2014	0	Camarillo	
14	Pre_Elect_Precond	154	Pass on Zero Fails	28-Aug-2014	0	Camarillo	
15	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	28-Aug-2014	0	Camarillo	

# Rel Job Detail Report

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16 Precond_HTS_24hr	154	Pass on Zero Fails	29-Aug-2014	0	Camarillo
17 Precond_85/85_NoElec168hr	154	Pass on Zero Fails	05-Sep-2014	0	Camarillo
18 Precond_260°C_IR_Ref_Char	154	Pass on Zero Fails	05-Sep-2014	0	Camarillo
19 T/C_Pre_Elect	77	Pass on Zero Fails	05-Sep-2014	0	Camarillo
20 T/C_wPre_0250	77	Pass on Zero Fails	11-Sep-2014	0	Camarillo
21 T/C_wPre_0500	77	Pass on Zero Fails	16-Sep-2014	0	Camarillo
22 T/C_wPre_1000	77	Pass on Zero Fails	26-Sep-2014	0	Camarillo
23 85/85_Pre Elec	77	Pass on Zero Fails	04-Sep-2014	0	Camarillo
24 85/85_Biased_168hr	77	Pass on Zero Fails	12-Sep-2014	0	Camarillo
25 85/85_on/off_500hrs	77	None	26-Sep-2014	0	Camarillo
26 85/85_on/off_1000hrs	77	None	21-Oct-2014	0	Camarillo
27 Pack_Clos	0	0	22-Oct-2014	0	Camarillo

2.0	Lot	EP3300.01	AssemblyLot	AER-002017	DateCode	1435
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Seq	TaskCode	SampleSize	Criteria	Complete	Failures	DataSource	Results/Comments
1	Data-Prep	None	None	03-Sep-2014	0	Camarillo	
2	HTRB_Pre_Elect_150°C_RT24	210	Pass on Zero Fails	10-Sep-2014	0	Camarillo	
3	HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	11-Sep-2014	0	Camarillo	
4	HTRB_Pre_Elect	105	Pass on Zero Fails	03-Sep-2014	0	Camarillo	
5	BI_BD_Valid	NA	Meet HTOL Schematics	03-Sep-2014	0	Camarillo	
6	HTRB_150°C_0072	105	Pass on Zero Fails	08-Sep-2014	0	Camarillo	
7	HTRB_150°C_0408	105	Pass on Zero Fails	22-Sep-2014	0	Camarillo	
8	HTS_Pre_Elect	77	Pass on Zero Fails	03-Sep-2014	0	Camarillo	
9	HTS_0168	77	Pass on Zero Fails	10-Sep-2014	0	Camarillo	
10	HTS_0500	77	Pass on Zero Fails	24-Sep-2014	0	Camarillo	
11	HTS_1000	77	Pass on Zero Fails	15-Oct-2014	0	Camarillo	
12	Pre_Elect_Precond	77	Pass on Zero Fails	03-Sep-2014	0	Camarillo	
13	Precond_Temp_Cyc_5cyc	77	Pass on Zero Fails	03-Sep-2014	0	Camarillo	

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14	Precond_HTS_24hr	77	Pass on Zero Fails	04-Sep-2014	0	Camarillo	
15	Precond_85/85_NoElec168hr	77	Pass on Zero Fails	11-Sep-2014	0	Camarillo	
16	Precond_IR_Refl_Char	77	Pass on Zero Fails	11-Sep-2014	0	Camarillo	
17	T/C_Pre_Elect	77	Pass on Zero Fails	11-Sep-2014	0	Camarillo	
18	T/C_wPre_0250	77	Pass on Zero Fails	17-Sep-2014	0	Camarillo	
19	T/C_wPre_0500	77	Pass on Zero Fails	22-Sep-2014	0	Camarillo	
20	T/C_wPre_1000	77	Pass on Zero Fails	02-Oct-2014	0	Camarillo	
21	85/85_Pre Elec	77	Pass on Zero Fails	03-Sep-2014	0	Camarillo	
22	85/85_Biased_168hr	77	Pass on Zero Fails	12-Sep-2014	0	Camarillo	
23	85/85_on/off_500hrs	77	None	26-Sep-2014	0	Camarillo	
24	85/85_on/off_1000hrs	77	None	21-Oct-2014	0	Camarillo	
25	FA_85/85_0168hr	1	FAs must be resolved, resulting in discounting the failure or corrective action taken.	12-Sep-2014	0	Camarillo	Continued to 500 hrs for further evaluation
26	FA_85/85_0500hr	1	FAs must be resolved, resulting in discounting the failure or corrective action taken.	29-Sep-2014	0	Camarillo	Continuing to 1000 hrs for final evaluation.
27	FA_85/85_1000hr	1	FAs must be resolved, resulting in discounting the failure or corrective action taken.	21-Oct-2014	0	Camarillo	Discounted, borderline passing at T0 marginally shifted due to tester variance.
28	Pack_Clos	0	0	22-Oct-2014	0	Camarillo	

3.0	Lot	EP3300.01	AssemblyLot	AER-002018	DateCode	1435
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Seq	TaskCode	SampleSize	Criteria	Complete	Failures	DataSource	Results/Comments
1	Data-Prep	None	None	05-Sep-2014	0	Camarillo	
2	HTRB_Pre_Elect_150°C_RT24	210	Pass on Zero Fails	11-Sep-2014	0	Camarillo	
3	HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	12-Sep-2014	0	Camarillo	
4	HTRB_Pre_Elect	105	Pass on Zero Fails	05-Sep-2014	0	Camarillo	

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5	BI_BD_Valid	NA	Meet HTOL Schematics	05-Sep-2014	0	Camarillo
6	HTRB_150°C_0072	105	Pass on Zero Fails	08-Sep-2014	0	Camarillo
7	HTRB_150°C_0408	105	Pass on Zero Fails	22-Sep-2014	0	Camarillo
8	HTS_Pre_Elect	77	Pass on Zero Fails	05-Sep-2014	0	Camarillo
9	HTS_0168	77	Pass on Zero Fails	12-Sep-2014	0	Camarillo
10	HTS_0500	77	Pass on Zero Fails	26-Sep-2014	0	Camarillo
11	HTS_1000	77	Pass on Zero Fails	21-Oct-2014	0	Camarillo
13	Pre_Elect_Precond	77	Pass on Zero Fails	10-Sep-2014	0	Camarillo
14	Precond_Temp_Cyc_5cyc	77	Pass on Zero Fails	10-Sep-2014	0	Camarillo
15	Precond_HTS_24hr	77	Pass on Zero Fails	11-Sep-2014	0	Camarillo
16	Precond_85/85_NoElec168hr	77	Pass on Zero Fails	18-Sep-2014	0	Camarillo
17	Precond_IR_Refl_Char	77	Pass on Zero Fails	18-Sep-2014	0	Camarillo
18	T/C_Pre_Elect	77	Pass on Zero Fails	18-Sep-2014	0	Camarillo
19	T/C_wPre_0250	77	Pass on Zero Fails	23-Sep-2014	0	Camarillo
20	T/C_wPre_0500	77	Pass on Zero Fails	29-Sep-2014	0	Camarillo
21	T/C_wPre_1000	77	Pass on Zero Fails	09-Oct-2014	0	Camarillo
22	85/85_Pre Elec	77	Pass on Zero Fails	05-Sep-2014	0	Camarillo
23	85/85_Biased_168hr	77	Pass on Zero Fails	12-Sep-2014	0	Camarillo
24	85/85_on/off_500hrs	77	None	26-Sep-2014	0	Camarillo
25	85/85_on/off_1000hrs	77	None	21-Oct-2014	0	Camarillo
26	Pack_Clos	0	0	22-Oct-2014	0	Camarillo

# TgnLqd'F gvc kltTgr qt v

d{ 'Uwdrtv' 'dl' 'Ugs wgppeg' "  
 Eqpw ev<'I wto chlUcllcp' "" "  
 \* 27+6: 2'4364' "" "  
 i ucllcpB ugo vgej Qgo "" "

<i>Dwlp guwplv</i>	<i>Protection</i>			
<i>Tgnlqd%</i>	<i>RctvaPwo dgt. 'Lqd'Pco gIV{rg</i>	<i>Hcd. 'Rcenci g</i>	<i>TgnLqd'Uc wu</i>	<i>Mg{ 'Fcvgu&lt;</i>
5884	RClamp2451ZA	Tower	Active Rel Job	<i>Lqd'Ceegrvgf&lt; 09-Sep-2014</i>
	RClamp2451ZA New Device Qual	SLP0603P2X3F		<i>Tgs wgiugf 'EF&lt;</i>
	New Product on qualified process and qualified package		"	<i>CewcnUctv'Fcvg&lt; 01-Oct-2014</i>
				<i>GEF 'lqt 'Eqpf lskpcn&lt;</i>
				<i>'Lqd'GEF&lt;23-Oct-2014</i>

## Ego rrvvgf 'Vcunu

<i>I.0</i>	<i>Nqv</i>	<i>Cugo dntNqv</i>	<i>FcvgEqfg</i>	<i>1439</i>			
<i>Ugs VcunEqfg</i>	<i>Uco rrvUkfg</i>	<i>Etktgk</i>	<i>Ego rrvvg</i>	<i>Hclwt gu</i>	<i>FcvUqwt eg</i>	<i>TgwnuEgo o gpvu</i>	
1 Data-Prep	None	None	01-Oct-2014	0	Camarillo		
2 HTRB_Pre_Elect_150°C_RT24	210	Pass on Zero Fails	01-Oct-2014	0	Camarillo		
3 HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	22-Oct-2014	0	Camarillo		
4 HTRB_Pre_Elect	105	Pass on Zero Fails	01-Oct-2014	0	Camarillo		
5 BI_BD_Valid	NA	Meet HTOL Schematics	01-Oct-2014	0	Camarillo		
6 HTRB_150°C_0072	105	Pass on Zero Fails	06-Oct-2014	0	Camarillo		
7 HTRB_150°C_0408	105	Pass on Zero Fails	20-Oct-2014	0	Camarillo		
8 85/85_Pre Elec	20	Pass on Zero Fails	01-Oct-2014	0	Camarillo		
9 85/85_120hr_On/Off	20	Pass on Zero Fails	06-Oct-2014	0	Camarillo		
10 Pack_Clos	0	0	23-Oct-2014	0	Camarillo		

# Rel Job Detail Report

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<i>Businessunit</i>	<i>Protection</i>			
<i>Reljob#</i>	<i>Part_Number, Job Name/Type</i>	<i>Fab, Package</i>	<i>Rel Job Status</i>	<i>Key Dates:</i>
5929	RClamp1851ZA  New Device Qual  New Product on qualified process and qualified package	Tower  SLP0603P2X3F	Rel Testing Complete Passes All Requirements	<i>Job Accepted:</i> 21-Jan-2015  <i>Requested CD:</i>  <i>Actual Start Date:</i> 17-Dec-2014  <i>ECD for Conditional:</i>  <i>Job ECD:</i> 19-Mar-2015

## Completed Tasks

<i>I.O</i>	<i>Lot</i>	<i>AssemblyLot</i>	<i>DateCode</i>				
	AER2241	AER2241	1504				
<i>Seq</i>	<i>TaskCode</i>	<i>SampleSize</i>	<i>Criteria</i>	<i>Complete</i>	<i>Failures</i>	<i>DataSource</i>	<i>Results/Comments</i>
1	Data-Prep	None	None	19-Feb-2015		Camarillo	
2	HTRB_Pre_Elect_150°C_RT24	210	Pass on Zero Fails	20-Feb-2015	0	Camarillo	
3	HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	06-Mar-2015	0	Camarillo	
4	HTRB_Pre_Elect	105	Pass on Zero Fails	19-Feb-2015	0	Camarillo	
5	HTRB_150°C_0072	105	Pass on Zero Fails	23-Feb-2015	0	Camarillo	
6	HTRB_150°C_0408	105	Pass on Zero Fails	06-Mar-2015	0	Camarillo	
7	85/85_Pre Elec	20	Pass on Zero Fails	19-Feb-2015	0	Camarillo	
8	85/85_120hr_On/Off	20	Pass on Zero Fails	24-Feb-2015	0	Camarillo	
9	Pack_Clos	0	0	07-Mar-2015		Camarillo	

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<i>Businessunit</i>	<i>Protection</i>			
<i>Reljob#</i>	<i>Part_Number, Job Name/Type</i>	<i>Fab, Package</i>	<i>Rel Job Status</i>	<i>Key Dates:</i>
5930	RClamp3331ZA  New Device Qual  New Product on qualified process and qualified package	Tower  SLP0603P2X3F	Finished Creating Reliability Test Plan	<i>Job Accepted:</i> 21-Jan-2015  <i>Requested CD:</i>  <i>Actual Start Date:</i> 17-Dec-2014  <i>ECD for Conditional:</i>  <i>Job ECD:</i> 19-Mar-2015

## Completed Tasks

<i>I.O</i>	<i>Lot</i>	<i>AssemblyLot</i>	<i>DateCode</i>				
	AER2243	AER2243	1504				
<i>Seq</i>	<i>TaskCode</i>	<i>SampleSize</i>	<i>Criteria</i>	<i>Complete</i>	<i>Failures</i>	<i>DataSource</i>	<i>Results/Comments</i>
1	Data-Prep	None	None	19-Feb-2015		Camarillo	
2	HTRB_Pre_Elect_150°C_RT24	210	Pass on Zero Fails	20-Feb-2015	0	Camarillo	
3	HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	27-Feb-2015	0	Camarillo	
4	HTRB_Pre_Elect	105	Pass on Zero Fails	19-Feb-2015	0	Camarillo	
5	HTRB_150°C_0072	105	Pass on Zero Fails	23-Feb-2015	0	Camarillo	
6	HTRB_150°C_0408	105	Pass on Zero Fails	06-Mar-2015	0	Camarillo	
7	85/85_Pre Elec	20	Pass on Zero Fails	19-Feb-2015	0	Camarillo	
8	85/85_120hr_On/Off	20	Pass on Zero Fails	24-Feb-2015	0	Camarillo	
9	Pack_Clos	0	0	09-Mar-2015		Camarillo	