

<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 100, 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

Change Details

Part Number(s) Affected: RClamp0524PATCT	Customer Part Number(s) Affected: <input checked="" type="checkbox"/> N/A
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Description, Purpose and Effect of Change:

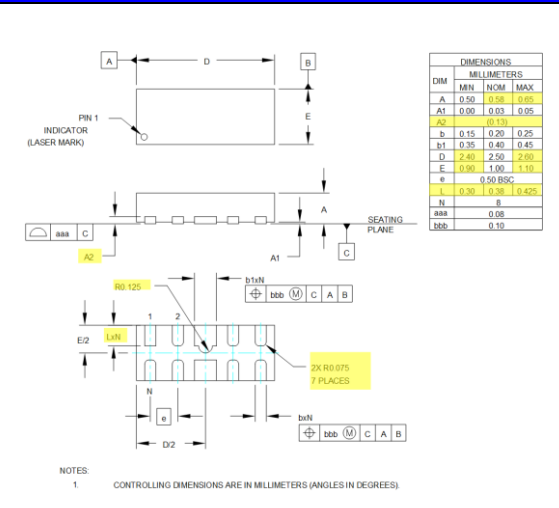
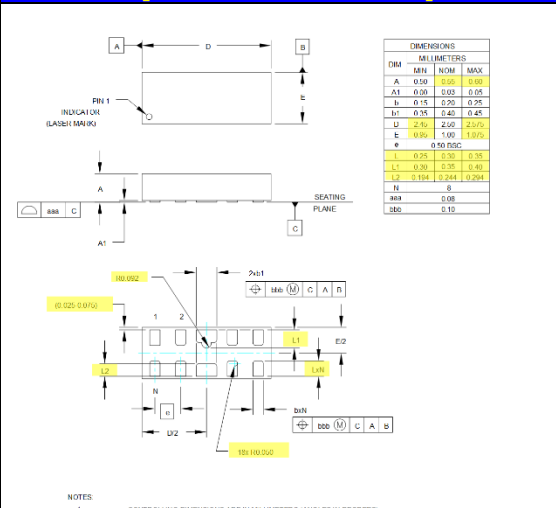
For the benefit of our customers, Semtech has qualified additional manufacturing capacity for the RClamp0524PATCT. A third assembly and test site, Semtech SCI USA, has been qualified to manufacture RClamp0524PATCT.

RClamp0524PA parts assembled and tested at Huatian and Diodes will continue to ship.

- a. Additional Assembly and Test Capacity – Semtech SCI, Colorado Springs, CO USA
- b. Current POR – Diodes Shanghai, China and Huatian Xian, China.

The land pattern remains unchanged.


In order to accommodate the third assembly site, minor POD changes were required. (See below)

Current Datasheet	POD for Additional Site [Included in Datasheet]																																																																																																
 <p>Current Datasheet Diagrams: Shows top and side views of the component with dimensions A, B, D, E, A1, b, b1, D, e, N, R, aaa, bbb. Includes a table of dimensions and a note: 'CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES)'</p> <table border="1"> <caption>DIMENSIONS - MILLIMETERS</caption> <thead> <tr> <th>DIM</th> <th>MIN</th> <th>NOM</th> <th>MAX</th> </tr> </thead> <tbody> <tr><td>A</td><td>0.50</td><td>0.58</td><td>0.65</td></tr> <tr><td>A1</td><td>0.00</td><td>0.03</td><td>0.05</td></tr> <tr><td>b</td><td>0.15</td><td>0.20</td><td>0.25</td></tr> <tr><td>b1</td><td>0.35</td><td>0.40</td><td>0.45</td></tr> <tr><td>D</td><td>2.40</td><td>2.50</td><td>2.60</td></tr> <tr><td>e</td><td>0.90</td><td>1.00</td><td>1.10</td></tr> <tr><td>N</td><td>0.30</td><td>0.38</td><td>0.425</td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>aaa</td><td></td><td>0.08</td><td></td></tr> <tr><td>bbb</td><td></td><td>0.10</td><td></td></tr> </tbody> </table>	DIM	MIN	NOM	MAX	A	0.50	0.58	0.65	A1	0.00	0.03	0.05	b	0.15	0.20	0.25	b1	0.35	0.40	0.45	D	2.40	2.50	2.60	e	0.90	1.00	1.10	N	0.30	0.38	0.425	R				aaa		0.08		bbb		0.10		 <p>POD for Additional Site Diagrams: Shows top and side views of the component with dimensions A, B, D, E, A1, b, b1, D, e, N, R, aaa, bbb, L1, L2, U2, 15x100.50. Includes a table of dimensions and a note: 'CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES)'</p> <table border="1"> <caption>DIMENSIONS - MILLIMETERS</caption> <thead> <tr> <th>DIM</th> <th>MIN</th> <th>NOM</th> <th>MAX</th> </tr> </thead> <tbody> <tr><td>A</td><td>0.50</td><td>0.58</td><td>0.65</td></tr> <tr><td>A1</td><td>0.00</td><td>0.03</td><td>0.05</td></tr> <tr><td>b</td><td>0.15</td><td>0.20</td><td>0.25</td></tr> <tr><td>b1</td><td>0.35</td><td>0.40</td><td>0.45</td></tr> <tr><td>D</td><td>2.40</td><td>2.50</td><td>2.60</td></tr> <tr><td>e</td><td>0.90</td><td>1.00</td><td>1.075</td></tr> <tr><td>L1</td><td>0.25</td><td>0.30</td><td>0.35</td></tr> <tr><td>L2</td><td>0.30</td><td>0.35</td><td>0.40</td></tr> <tr><td>U2</td><td>0.194</td><td>0.244</td><td>0.294</td></tr> <tr><td>N</td><td></td><td></td><td></td></tr> <tr><td>aaa</td><td></td><td>0.08</td><td></td></tr> <tr><td>bbb</td><td></td><td>0.10</td><td></td></tr> </tbody> </table>	DIM	MIN	NOM	MAX	A	0.50	0.58	0.65	A1	0.00	0.03	0.05	b	0.15	0.20	0.25	b1	0.35	0.40	0.45	D	2.40	2.50	2.60	e	0.90	1.00	1.075	L1	0.25	0.30	0.35	L2	0.30	0.35	0.40	U2	0.194	0.244	0.294	N				aaa		0.08		bbb		0.10	
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PRODUCT CHANGE NOTIFICATION
PCN-000615
Date: 27APR2020

P2/2

Change Classification	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor	Impact to Form, Fit, Function	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Impact to Data Sheet	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	New Revision or Date	<input checked="" type="checkbox"/> N/A
Impact to Performance, Characteristics or Reliability:			
<ul style="list-style-type: none"> • NO impact to performance, characteristics; or reliability • NO change to the land pattern. • Minor POD changes, shown above. 			
Implementation Date	1AUG2020	Work Week	TBD
Last Time Ship (LTS) <small>Of unchanged product</small>	Not Applicable Additional Capacity	Affecting Lot No. / Serial No. (SN)	N/A
Sample Availability	Immediate	Qualification Report Availability	Included with Notification
Supporting Documents for Change Validation/Attachments:			
<ul style="list-style-type: none"> a. Product Qualification Report. b. Datasheet c. Test Summary 			
Issuing Authority			
Semtech Business Unit:	Protection		
Semtech Contact Info:	Les Fang Yuen Semtech Corporation Sr. Eng Manager, QA 200 Flynn Road Camarillo, CA 93012 Email: lfangyuen@semtech.com Phone: (949) 269-4443 [office]		
FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: http://www.semtech.com/contact/index.html#support			

RCLAMP0524PA

Semtech Job#	7040
Accepted Date	09-10-2019
Job Type	New Device with un-qualified package and qualified process
Business Unit	Protection
Package Type	SMF2510P8
Package Lead	8
Assembly Designator	SCI
Master Process	PALM E
Fab Designator	Tower
Rel Job Status	Rel Testing Complete Passes All Requirements

Comment:

Qualification of RClamp0524PA SMF2510P8 Z-Ultra using Alpha WS9160-M7 Flux and Surfx Plasma

Completed Tasks

Sub Lot #	Part	Lot	Assembly Lot	Date Code	
1	RClamp0524PA	AER-6263	AER-6263	1937	
Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	09-19-2019
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	10-15-2019
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	10-18-2019
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	10-03-2019
5	BI_BD_Valid	105	Meet HTOL Schematics	0	10-03-2019
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	10-04-2019
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	10-07-2019
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	10-02-2019
9	HTS_0168	77	Pass on Zero Fails	0	10-02-2019
10	HTS_0500	77	Pass on Zero Fails	0	10-09-2019
11	HTS_1000	77	Pass on Zero Fails	0	10-23-2019
12	ROSE Clean/ Test	174	Pass on Zero Fails	0	09-20-2019
13	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	10-08-2019
14	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	10-08-2019
15	85/85_120hr_On/Off	20	Pass on Zero Fails	0	10-08-2019
16	Pre_Conditioning_Level_1	NA	MSL 1	0	09-19-2019
17	Pre_Elect_Precond	154	Pass on Zero Fails	0	09-23-2019
18	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	09-23-2019
19	Precond_HTS_24hr	154	Pass on Zero Fails	0	09-23-2019
20	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	09-24-2019
21	Precond_260°C_IR_Ref_Char	154	Pass on Zero Fails	0	10-02-2019
22	T/C_Pre_Elect	77	Pass on Zero Fails	0	10-02-2019

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
23	T/C_wPre_0250	77	Pass on Zero Fails	0	10-02-2019
24	T/C_wPre_0500	77	Pass on Zero Fails	0	10-08-2019
25	T/C_wPre_1000	77	Pass on Zero Fails	0	10-14-2019
26	Cross_Section TC 1000 Cyc	5	Pass on Zero Fails	0	10-23-2019
27	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	10-02-2019
28	85°C/85%RH_BD_Valid	105	Pass on Zero Fails	0	10-03-2019
29	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	1	10-03-2019
30	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	10-10-2019
31	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	10-24-2019
32	Cross_Section 85°C/85%RH	5	Pass on Zero Fails	0	11-14-2019
33	CSAM Analysis	22	Pass on Zero Fails	0	11-06-2019
34	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	11-07-2019
35	Precond_HTS_24hr	22	Pass on Zero Fails	0	11-07-2019
36	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	11-08-2019
37	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	11-15-2019
38	CSAM Analysis	22	Pass on Zero Fails	0	01-09-2020
39	Construct_Package	5 unique packaged devices minimum.	No Major Findings, Q&R to review construction analysis report.	0	08-09-2019
40	Pack_Clos	0	0	0	01-10-2020

Sub Lot #	Part	Lot	Assembly Lot	Date Code	
2	RClamp0524PA	AER6264	AER6264	1937	
Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	09-19-2019
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	10-08-2019
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	10-09-2019
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	10-04-2019
5	BI_BD_Valid	105	Meet HTOL Schematics	0	10-04-2019
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	10-04-2019
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	10-07-2019
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	10-02-2019
9	HTS_0168	77	Pass on Zero Fails	0	10-02-2019
10	HTS_0500	77	Pass on Zero Fails	0	10-09-2019
11	HTS_1000	77	Pass on Zero Fails	0	10-23-2019
12	ROSE Clean/ Test	174	Pass on Zero Fails	0	09-20-2019
13	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	10-08-2019
14	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	10-08-2019
15	85/85_120hr_On/Off	20	Pass on Zero Fails	0	10-09-2019
16	Pre_Conditioning_Level_1	NA	MSL 1	0	09-19-2019
17	Pre_Elect_Precond	154	Pass on Zero Fails	0	09-23-2019
18	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	09-23-2019
19	Precond_HTS_24hr	154	Pass on Zero Fails	0	09-23-2019
20	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	09-24-2019
21	Precond_260°C_IR_Ref_Char	154	Pass on Zero Fails	0	10-02-2019
22	T/C_Pre_Elect	77	Pass on Zero Fails	0	10-02-2019
23	T/C_wPre_0250	77	Pass on Zero Fails	0	10-02-2019
24	T/C_wPre_0500	77	Pass on Zero Fails	0	10-08-2019
25	T/C_wPre_1000	77	Pass on Zero Fails	0	10-14-2019
26	Cross_Section TC 1000 Cyc	5	Pass on Zero Fails	0	10-23-2019
27	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	10-02-2019
28	85°C/85%RH_BD_Valid	105	Pass on Zero Fails	0	10-09-2019

29	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	10-24-2019
30	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	10-31-2019
31	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	11-14-2019
32	Cross_Section 85°C/85%RH	5	Pass on Zero Fails	0	12-05-2019
33	CSAM Analysis	22	Pass on Zero Fails	0	11-06-2019
34	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	11-07-2019
35	Precond_HTS_24hr	22	Pass on Zero Fails	0	11-07-2019
36	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	11-08-2019
37	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	11-15-2019
38	CSAM Analysis	22	Pass on Zero Fails	0	01-10-2020
39	Pack_Clos	0	0	0	01-10-2020

Sub Lot #	Part	Lot	Assembly Lot	Date Code
3	RClamp0524PA	AER-6265	AER-6265	1937

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	09-19-2019
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	10-23-2019
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	11-04-2019
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	10-04-2019
5	BI_BD_Valid	105	Meet HTOL Schematics	0	10-04-2019
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	10-04-2019
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	10-07-2019
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	10-02-2019
9	HTS_0168	77	Pass on Zero Fails	0	10-02-2019
10	HTS_0500	77	Pass on Zero Fails	0	10-09-2019
11	HTS_1000	77	Pass on Zero Fails	0	10-23-2019
12	ROSE Clean/ Test	174	Pass on Zero Fails	0	09-20-2019
13	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	10-09-2019
14	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	10-09-2019
15	85/85_120hr_On/Off	20	Pass on Zero Fails	0	10-09-2019
16	Pre_Conditioning_Level_1	NA	MSL 1	0	09-19-2019

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
17	Pre_Elect_Precond	154	Pass on Zero Fails	0	09-23-2019
18	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	09-23-2019
19	Precond_HTS_24hr	154	Pass on Zero Fails	0	09-23-2019
20	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	09-24-2019
21	Precond_260°C_IR_Ref_Char	154	Pass on Zero Fails	0	10-02-2019
22	T/C_Pre_Elect	77	Pass on Zero Fails	0	10-02-2019
23	T/C_wPre_0250	77	Pass on Zero Fails	0	10-02-2019
24	T/C_wPre_0500	77	Pass on Zero Fails	0	10-08-2019
25	T/C_wPre_1000	77	Pass on Zero Fails	0	10-14-2019
26	Cross_Section TC 1000 Cyc	5	Pass on Zero Fails	0	10-23-2019
27	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	10-02-2019
28	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	10-08-2019
29	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	10-14-2019
30	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	10-21-2019
31	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	11-04-2019
32	Cross_Section 85°C/85%RH	5	Pass on Zero Fails	0	11-26-2019
33	CSAM Analysis	22	Pass on Zero Fails	0	11-06-2019
34	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	11-07-2019
35	Precond_HTS_24hr	22	Pass on Zero Fails	0	11-07-2019
36	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	11-08-2019
37	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	11-15-2019
38	CSAM Analysis	22	Pass on Zero Fails	0	01-09-2020
39	Pack_Clos	0	0	0	01-10-2020

PROTECTION PRODUCTS

Description

RailClamp® TVS arrays are ultra low capacitance ESD protection devices designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

RClamp0524PA has a typical capacitance of only 0.3 pF between I/O pins. ESD characteristics are highlighted by high ESD withstand voltage ($\pm 12\text{kV}$ per IEC 61000-4-2), each device will protect four lines operating at 5 volts.

RClamp0524PA is in a DFN 10 Lead package. The leads are finished with lead-free NiPdAu. The flow-through package design simplifies PCB layout.

Features

- Transient Protection to
 - ♦ IEC 61000-4-2 (ESD) $\pm 17\text{ kV}$ (Air), $\pm 12\text{ kV}$ (Contact)
 - ♦ IEC 61000-4-4 (EFT) 40A (5/50ns)
 - ♦ IEC 61000-4-5 (Lightning) 5A (8/20 μs)
- Protects four High-Speed Data Lines
- Package design optimized for high speed lines
- Working voltage: 5V
- Low clamping voltage
- Low capacitance: 0.3 pF typical (I/O to I/O)
- Solid-State Silicon-Avalanche Technology

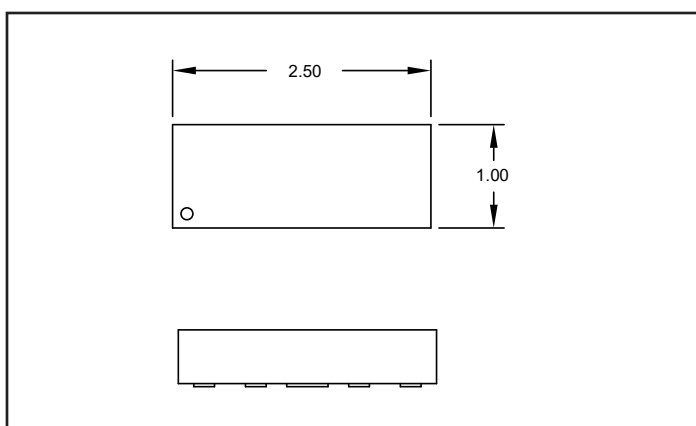
Mechanical Characteristics

- Package: DFN 10-Lead
- Pb-Free, Halogen Free, RoHS/WEEE Compliant
- Lead Finish: NiPdAu
- Marking : Marking Code + Date Code
- Packaging : Tape and Reel

Applications

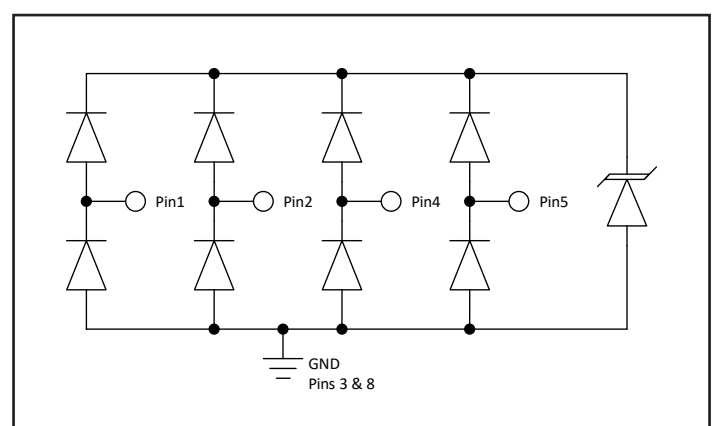
- High Definition Multi-Media Interface (HDMI)
- Embedded Display Port (eDP)
- Display Port
- LVDS
- V-by-One

Nominal Dimension



Nominal Dimensions in mm

Functional Schematic



Device Schematic

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Current (tp = 8/20μs)	I _{PP}	5	A
ESD per IEC 61000-4-2 (Contact) ⁽¹⁾ ESD per IEC 61000-4-2 (Air) ⁽¹⁾	V _{ESD}	±12 ±17	kV
Operating Temperature	T _{OP}	-55 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}	Any I/O pin to GND			5	V
Reverse Breakdown Voltage	V _{BR}	I _t = 1 mA, Any I/O pin to GND	6			V
Reverse Leakage Current	I _R	V _{RWM} = 5V			1	μA
Clamping Voltage	V _C	I _{PP} = 1 A, tp = 8/20μs, Any I/O pin to GND			15	V
ESD Clamping Voltage ⁽²⁾	V _C	I _{PP} = 4 A, tp = 0.2/100ns (TLP) Any I/O pin to GND		10.8		V
		I _{PP} = 16 A, tp = 0.2/100ns (TLP) Any I/O pin to GND		13.0		
Junction Capacitance	C _J	V _R = 0V, f = 1MHz Any I/O pin to GND			0.8	pF
		V _R = 0V, f = 1MHz Between I/O pins		0.30	0.40	

Notes:

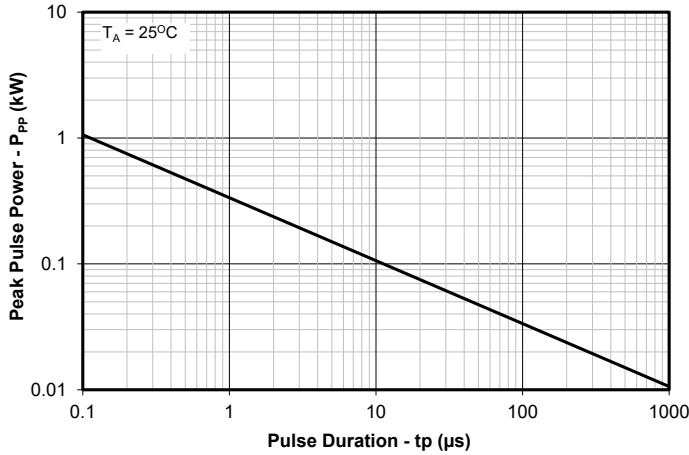
(1) ESD gun return path connected to Ground Reference Plane (GRP)

(2) Transmission Line Pulse Test (TLP) Settings: tp = 100ns, tr = 0.2ns, ITLP and VTLP averaging window: t1 = 70ns to t2 = 90ns.

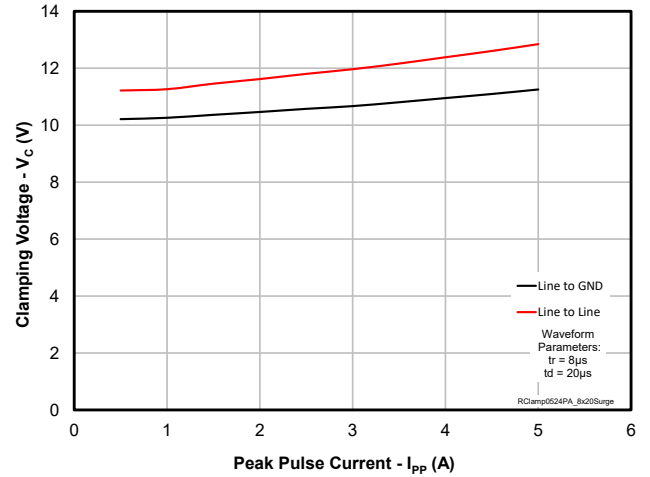
(3) Dynamic resistance calculated from I_{TLP} = 4A to I_{TLP} = 16A

Typical Characteristics

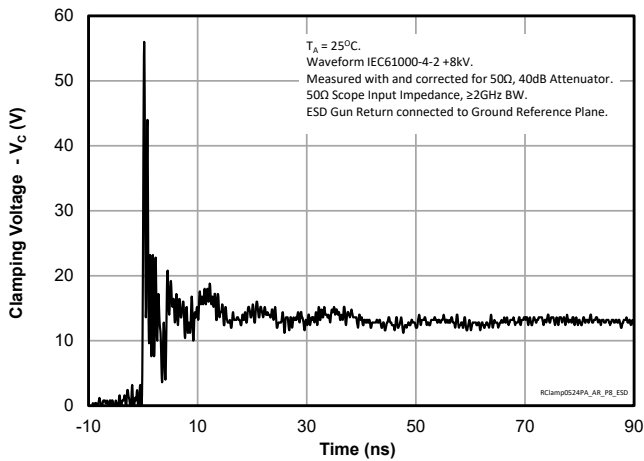
Non-Repetitive Peak Pulse Power vs. Pulse Time



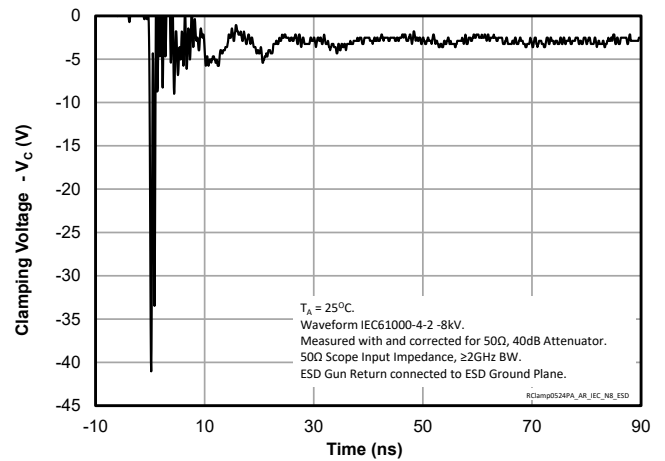
8/20µs Surge Clamping Characteristic



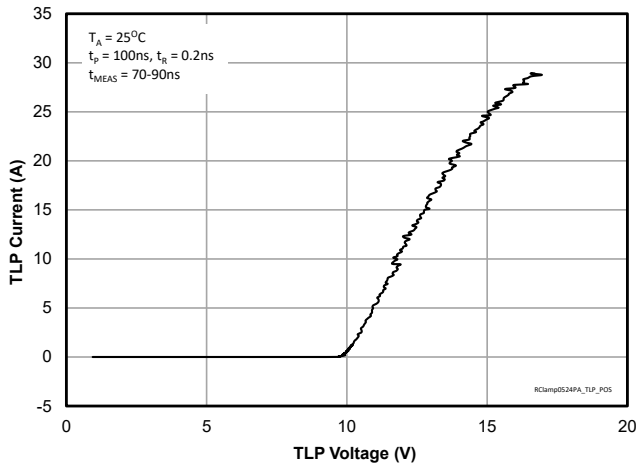
ESD Clamping (+8kV Contact per IEC 61000-4-2)



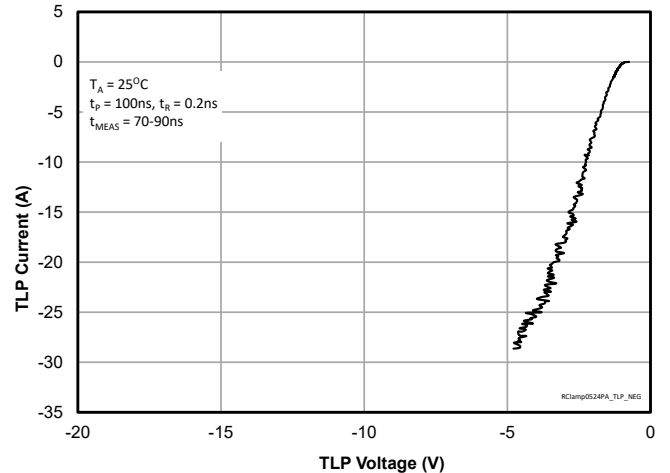
ESD Clamping (-8kV Contact per IEC 61000-4-2)



TLP Characteristic (Positive Pulse)

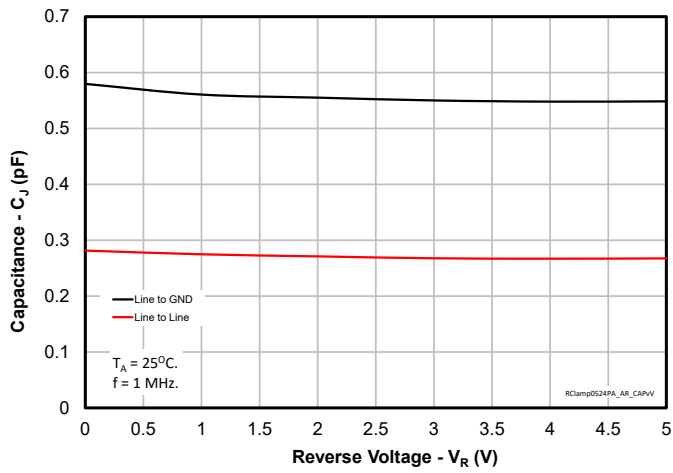


TLP Characteristic (Negative Pulse)

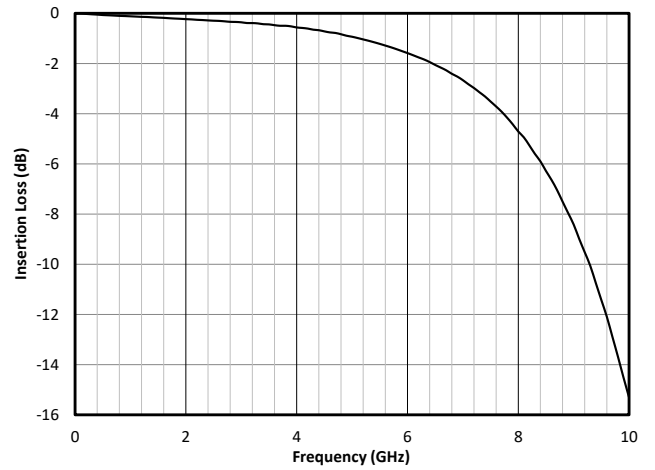


Typical Characteristics

Capacitance vs. Reverse Voltage



Insertion Loss (S21)



Applications Information

Assembly Guidelines

The small size of this device means that some care must be taken during the mounting process to ensure reliable solder joint. The figure at the right details Semtech's recommended mounting pattern. Recommended assembly guidelines are shown in Table 2. 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. Semtech's recommended mounting pattern is based on the following design guidelines:

Land Pattern

The recommended land pattern follows IPC standards and is designed for maximum solder coverage. Detailed dimensions are shown elsewhere in this document.

Solder Stencil

Stencil design is one of the key factors which will determine the volume of solder paste which is deposited onto the land pad. The area ratio of the stencil aperture will determine how well the stencil will print. The area ratio takes into account the aperture shape, aperture size, and stencil thickness. The area ratio of a rectangular aperture is given as:

$$\text{Area Ratio} = (L * W) / (2 * (L + W) * T)$$

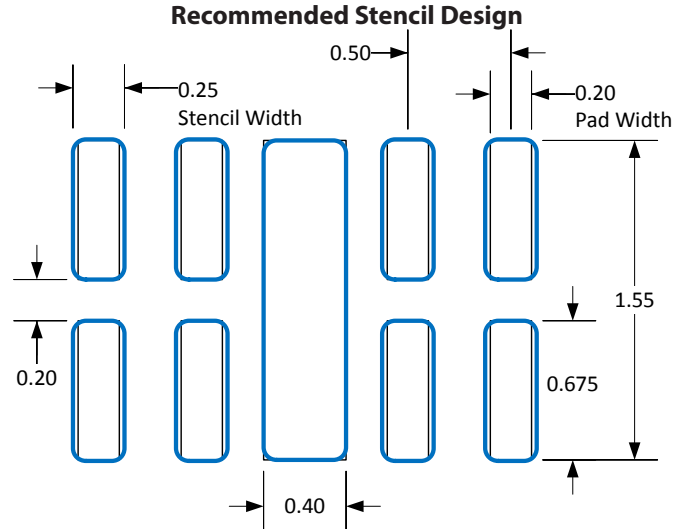
Where:

L = Aperture Length

W = Aperture Width

T = Stencil Thickness

Semtech recommends a stencil thickness of 0.100mm - 0.125mm for this device. The stencil should be laser cut with electro-polished finish. The stencil should have a positive taper of approximately 5 degrees. Electro polishing and tapering the walls results in reduced surface friction and better paste release. Due to the small aperture size, a solder paste with Type 4 or smaller particles is recommended. Assuming a 125um thick stencil, the aperture dimensions shown will yield an area ratio of 0.72 for the small pads and 1.25 for the large.



Assembly Parameter	Recommendation
Solder Stencil Design	Laser Cut, Electro-Polished
Aperture Shape	Rectangular
Solder Stencil Thickness	0.100mm (0.004") - 0.125mm (0.005")
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

Applications Information

Layout Guidelines for Optimum ESD Protection

Good circuit board layout is critical not only for signal integrity, but also for effective suppression of ESD induced transients. For optimum ESD protection, the following guidelines are recommended:

- Place the device as close to the connector as possible. This practice restricts ESD coupling into adjacent traces and reduces parasitic inductance.
- The ESD transient return path to ground should be kept as short as possible. Whenever possible, use multiple micro vias connected directly from the device ground pad to the ground plane.
- Avoid running critical signals near board edges.

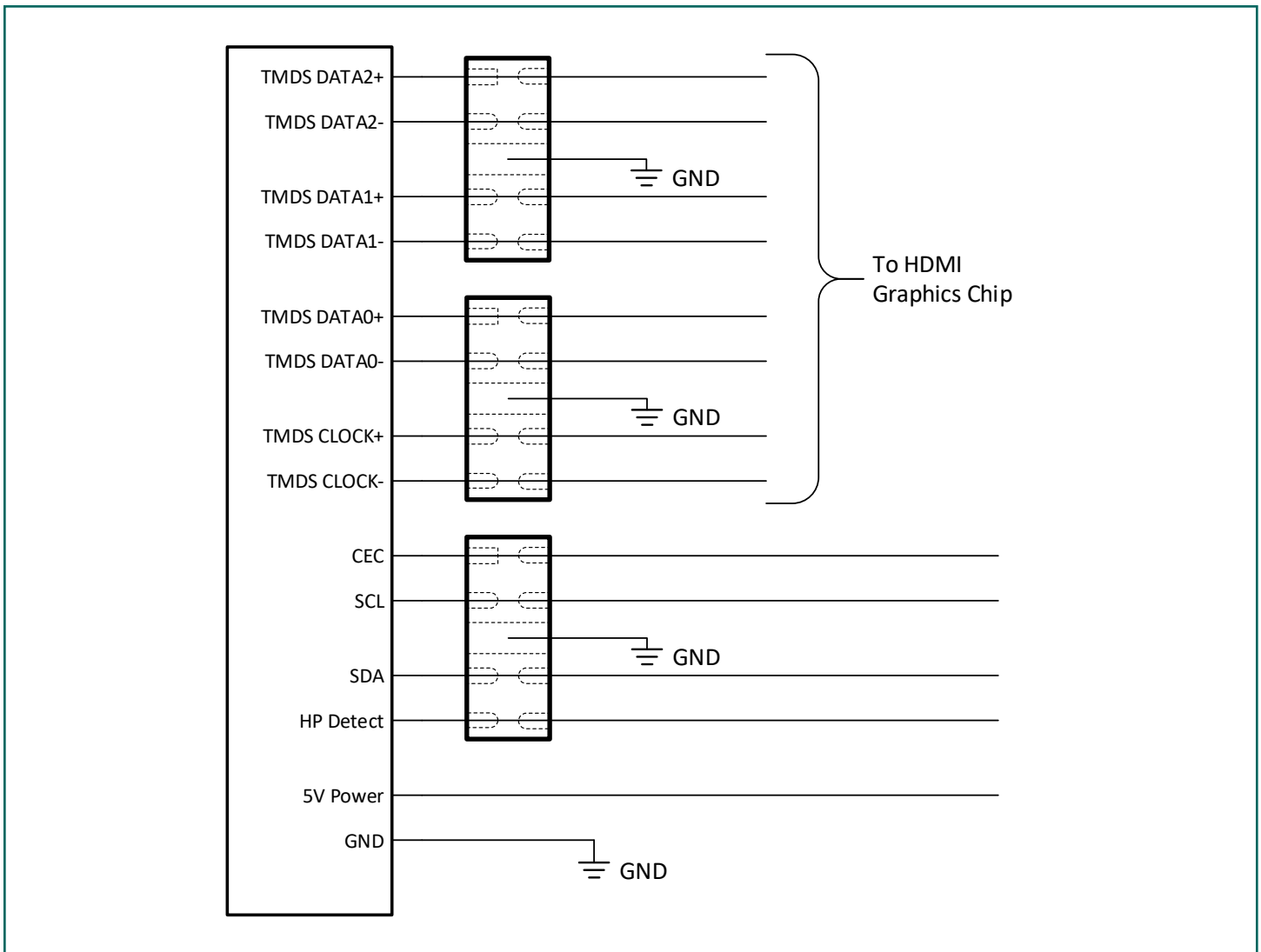
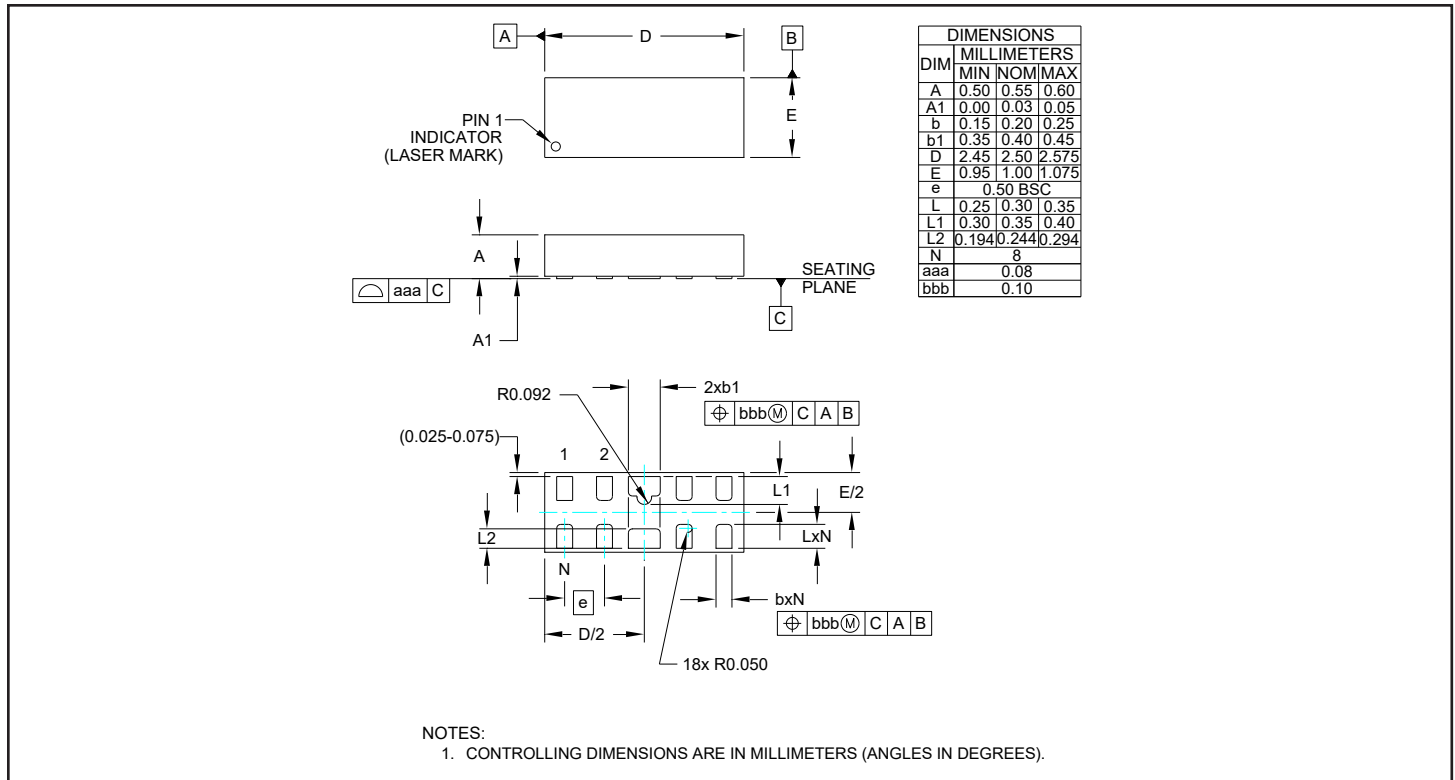
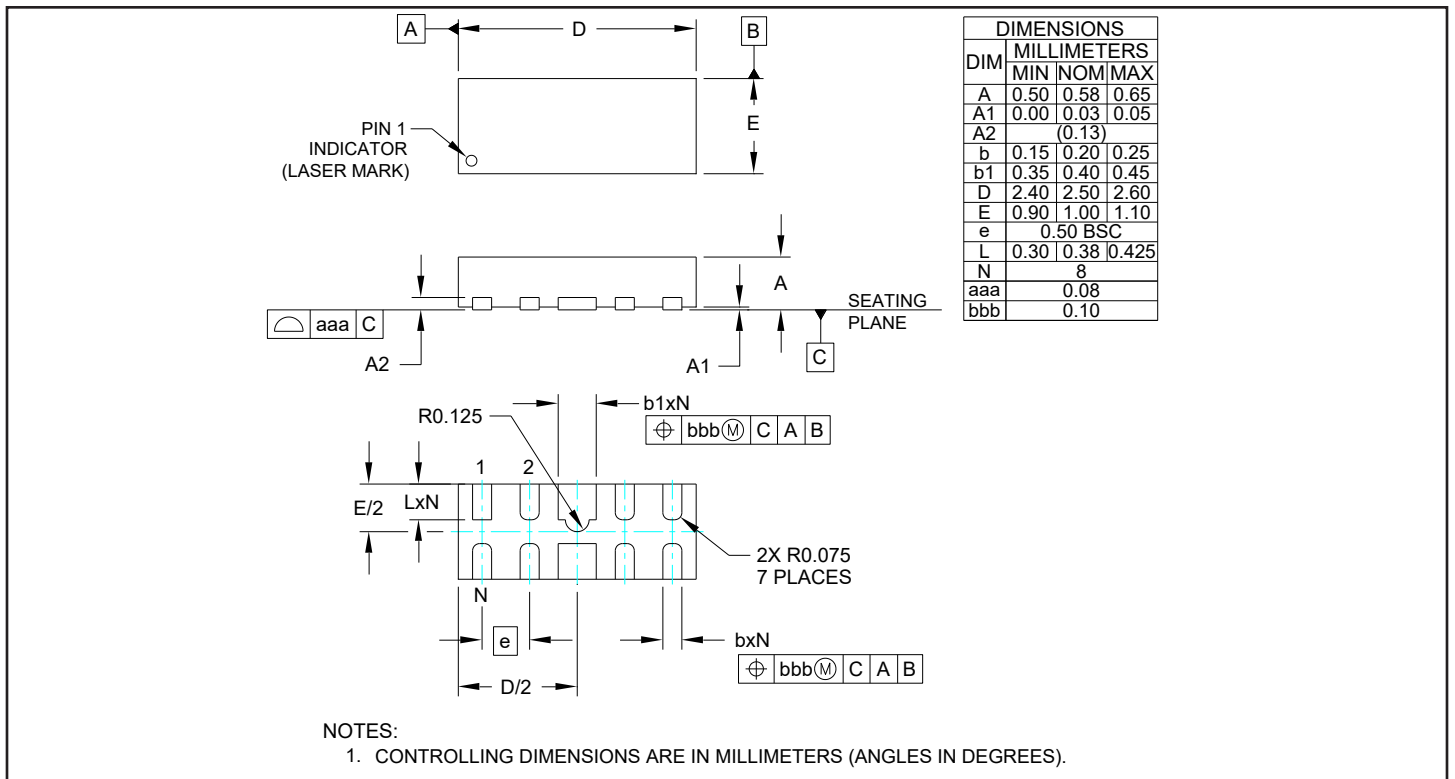


Figure 4. HDMI 1.4 Application using RClamp0524PA

Outline Drawing - DFN 2.5 x 1.0 x 0.55mm 10 Lead

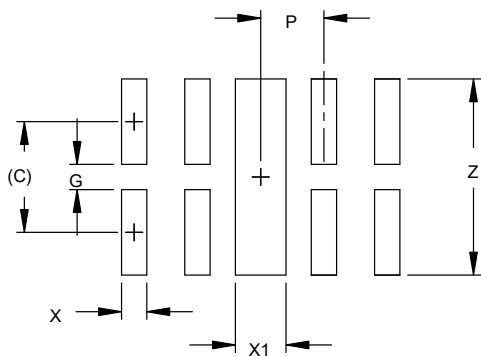


Outline Drawing - DFN 2.5 x 1.0 x 0.58mm 10 Lead



Note:
This device is available with two package outline drawings. Both are compatible with the recommended land pattern. Semtech reserves the right to ship either POD. Please review dimensions of each to guarantee either will work in your design.

Land Pattern - DFN 2.5 x 1.0mm 10 Lead

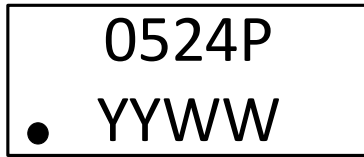


DIMENSIONS	
DIM	MILLIMETERS
C	(0.875)
G	0.20
P	0.50
X	0.20
X1	0.40
Y	0.675
Z	1.55

NOTES:

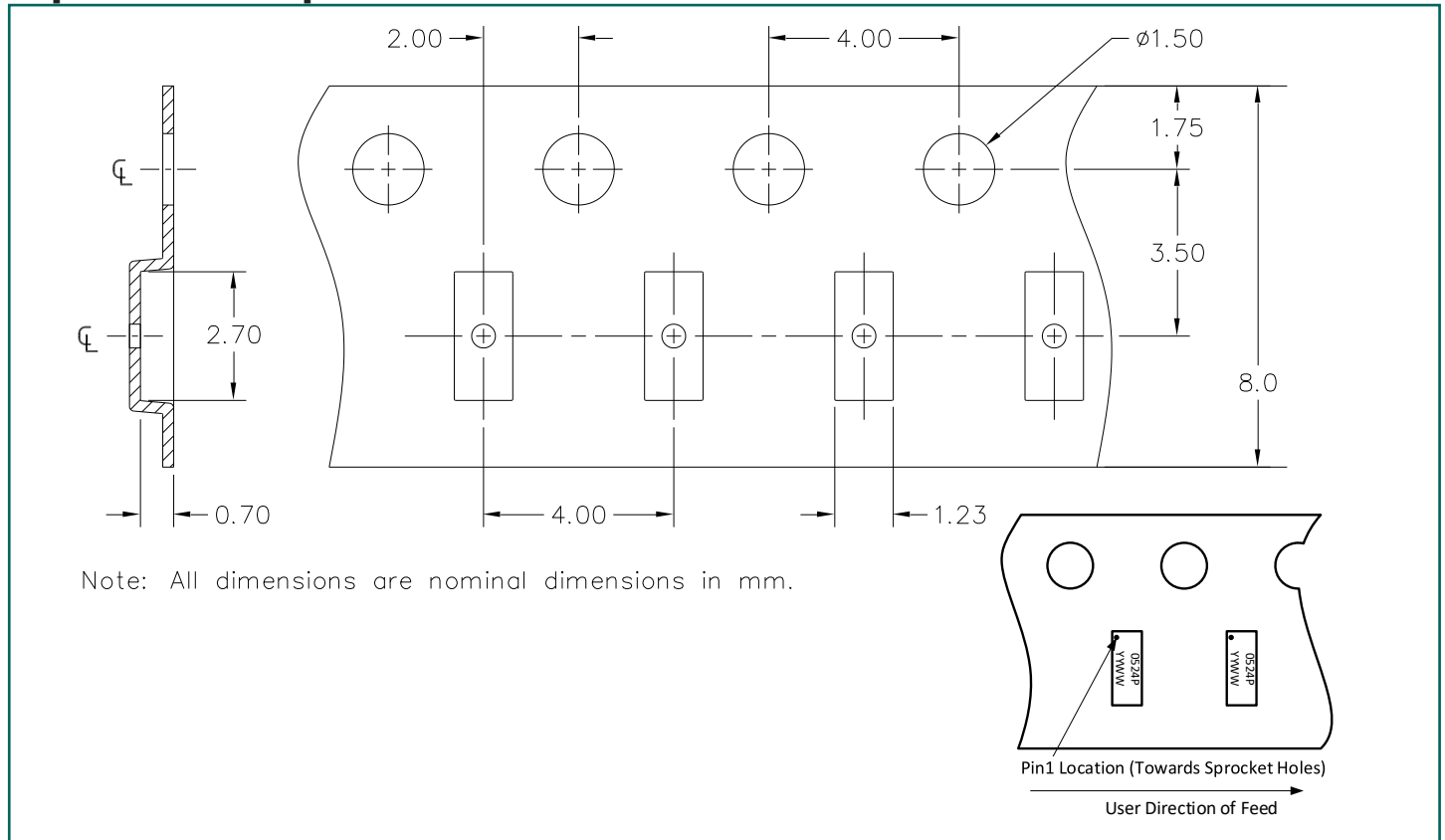
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY.
CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

Marking Code



Notes: Dot indicates pin 1 location

Tape and Reel Specification



Ordering Information

Part Number	Qty per Reel	Reel Size
RClamp0524PATCT	3,000	7"



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Contact Information

Semtech Corporation
200 Flynn Road, Camarillo, CA 93012
Phone: (805) 498-2111, Fax: (805) 498-3804
www.semtech.com



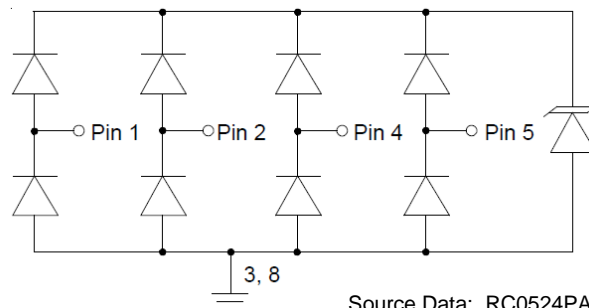
RClamp0524PA Z-ultra Test Summary

Les 20APR2020.r0

r0 – Initial Release

Test Summary

RClamp0524PA							POR	Z-Ultra
Parameter	Symbol	Conditions	Units	Min	Typ	Max	Average	Average
		T = 25C						
Reverse Stand-Off Voltage	V_{RWM}		V			5		
Reverse Breakdown Voltage	V_{BR}	$I_{BR} = 1mA, L-G$	V	6			9.12	9.96
Reverse Leakage Current	I_R	$V_{RWM} = 5V, L-G$	nA			1000	1.05	0.087
Clamping Voltage	V_C	$I_{PP} = 1.0A, L-G,$ $t_p = 8 / 20 \mu s$	V			15	10.32	10.35
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$ L-L	pF		0.3	0.4	0.29	0.3
		$V_R = 0V, f = 1MHz$ L-G				0.8	0.61	0.6
Peak Pulse Current	I_{pp}	$t_p = 8 / 20 \mu s$	A			5	11	6.2
ESD (IEC 61000-4-2)	+/- 12kV Contact						±12kV	±21kV
	+/- 17kV Air						±30kV	±28kV



Source Data: RC0524PA Z-ultra AER-6260 Characterization Review - Nadia Diwas 09/24/2019



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