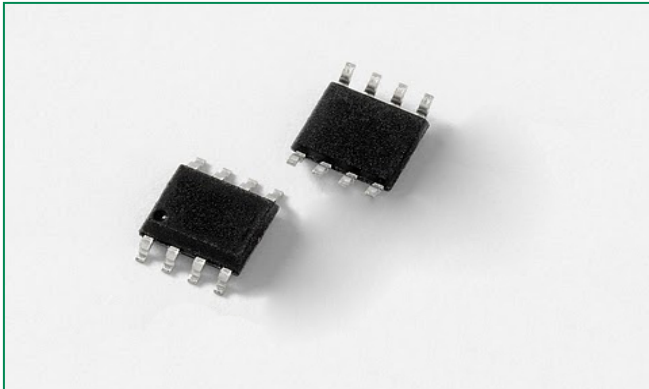


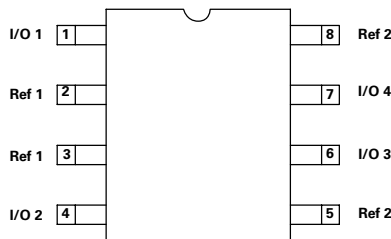
SRDA05 Series 8pF 30A Diode Array



**Description**

The SRDA05 integrates low capacitance rail-to-rail diodes with an additional zener diode to protect I/O pins against ESD and lightning induced surge events. This robust device can safely absorb up to 30A per IEC61000-4-5 ( $t_p=8/20\mu s$ ) without performance degradation and a minimum  $\pm 30kV$  ESD per IEC61000-4-2 international standard. Its low loading capacitance makes it ideal for high-speed interface protection.

**Pinout**



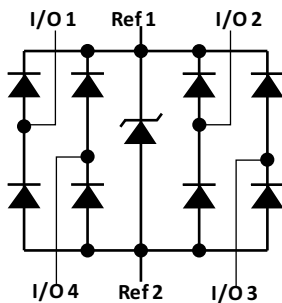
SOIC-8 (Top View)

Note: Pinout diagrams above shown as device footprint on circuit board.

**Features**

- Lightning protection, IEC61000-4-5, 30A (8/20 $\mu s$ )
- EFT, IEC61000-4-4, 50A (5/50ns)
- ESD, IEC61000-4-2,  $\pm 30kV$  contact,  $\pm 30kV$  air
- Low clamping voltage
- Low leakage current
- SOIC-8 surface mount package (JEDEC MS-012)

**Functional Block Diagram**



**Applications**

- Tertiary (IC Side) Protection:
  - T1/E1/T3/E3
  - HDSD/SDSL
  - Ethernet
- RS232, RS485
- Video Line Protection
- Security Cameras
- Storage DVRs
- Network Equipment
- Instrumentation, Medical Equipment

**Additional Information**



Datasheet



Resources



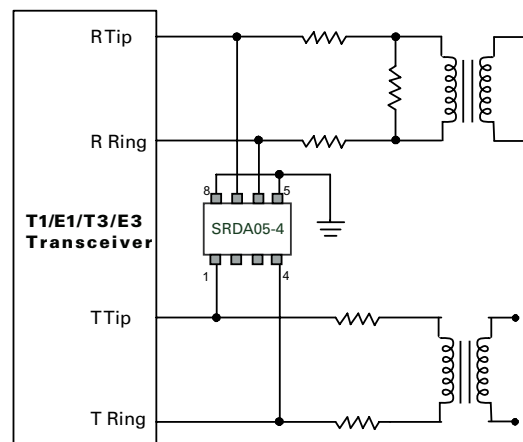
Samples

Life Support Note:

**Not Intended for Use in Life Support or Life Saving Applications**

The products shown herein are not designed for use in life sustaining or life saving applications unless otherwise expressly indicated.

**Application Example**



T1/E1/T3/E3 Interface Protection

### Absolute Maximum Ratings

Symbol	Parameter	Value	Units
$P_{pk}$	Peak Pulse Power (8/20 $\mu$ s)	600	W
$I_{pp}$	Peak Pulse Current (8/20 $\mu$ s)	30	A
$T_{op}$	Operating Temperature	-40 to 125	°C
$T_{stor}$	Storage Temperature	-55 to 150	°C

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

### Thermal Information

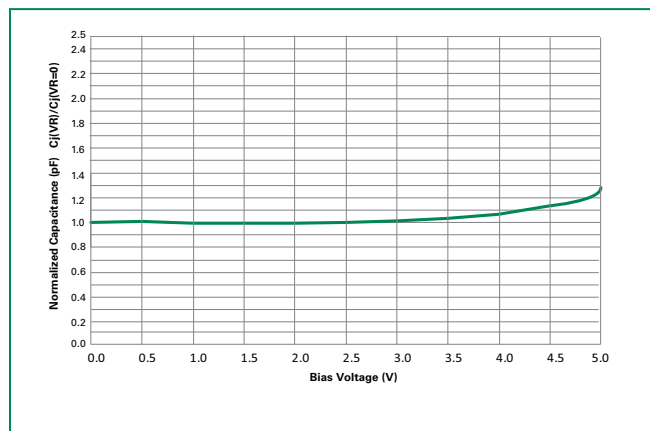
Parameter	Rating	Units
SOIC Package	170	°C/W
Operating Temperature Range	-40 to 125	°C
Storage Temperature Range	-55 to 150	°C
Maximum Junction Temperature	150	°C
Maximum Lead Temperature (Soldering 20-40s) (SOIC - Lead Tips Only)	260	°C

### Electrical Characteristics ( $T_{op} = 25^{\circ}\text{C}$ )

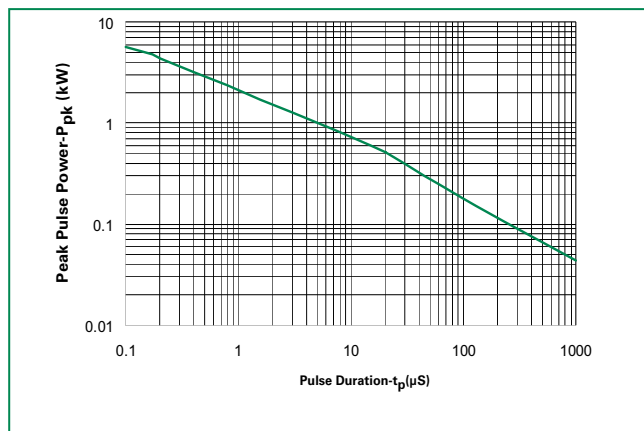
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	$V_{RWM}$	$I_T \leq 1\mu\text{A}$	-	-	5.0	V
Reverse Leakage Current	$I_R$	$V_R = 5\text{V}$	-	-	10	$\mu\text{A}$
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	6	-	-	V
Clamping Voltage, Line-Ground <sup>1</sup>	$V_C$	$I_{pp} = 1\text{A}, t_p = 8/20\mu\text{s}$	-	9.2	-	V
Clamping Voltage, Line-Ground <sup>1</sup>	$V_C$	$I_{pp} = 2\text{A}, t_p = 8/20\mu\text{s}$	-	10.0	-	V
Clamping Voltage, Line-Ground <sup>1</sup>	$V_C$	$I_{pp} = 10\text{A}, t_p = 8/20\mu\text{s}$	-	14.5	-	V
Clamping Voltage, Line-Ground <sup>1</sup>	$V_C$	$I_{pp} = 25\text{A}, t_p = 8/20\mu\text{s}$	-	21.0	-	V
Dynamic Resistance, Line-Ground <sup>1</sup>	$R_{DYN}$	$(V_{C2} - V_{C1}) / (I_{PP2} - I_{PP1})$	-	0.8	-	$\Omega$
ESD Withstand Voltage <sup>1</sup>	$V_{ESD}$	IEC61000-4-2 (Contact Discharge)	$\pm 30$	-	-	kV
		IEC61000-4-2 (Air Discharge)	$\pm 30$	-	-	kV
Diode Capacitance <sup>1</sup>	$C_{I/O-I/O}$	Reverse Bias=0V	-	4.0	-	pF
	$C_{I/O-GND}$	Reverse Bias=0V	-	8.0	-	pF

<sup>1</sup> Parameter is guaranteed by design and/or device characterization.

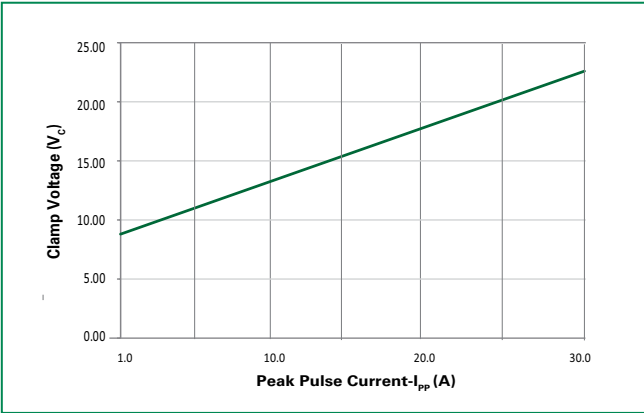
### Normalized Capacitance vs. Bias Voltage



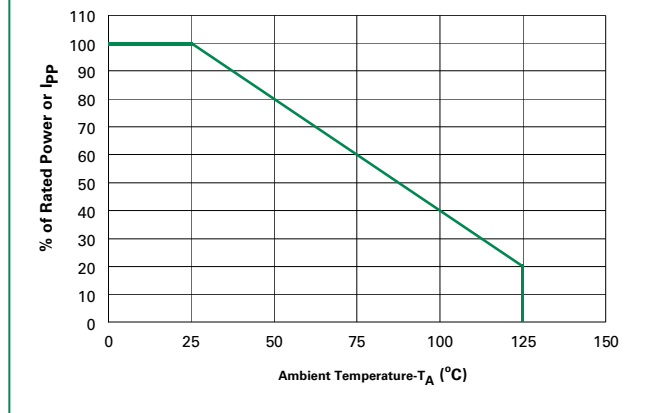
### Non-Repetitive Peak Pulse Power vs. Pulse Time



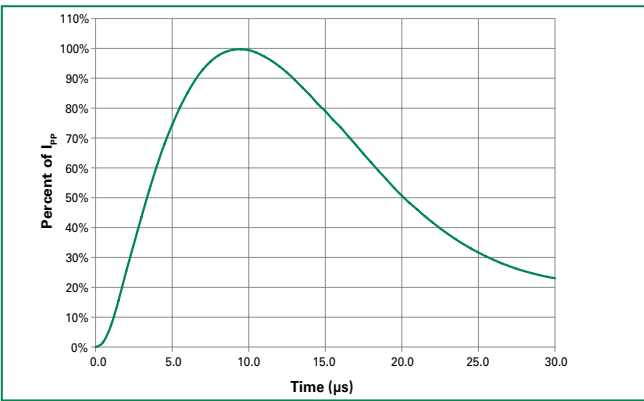
**Clamping Voltage vs.  $I_{pp}$**



**Power Derating Curve**



**Pulse Waveform**



**Product Characteristics**

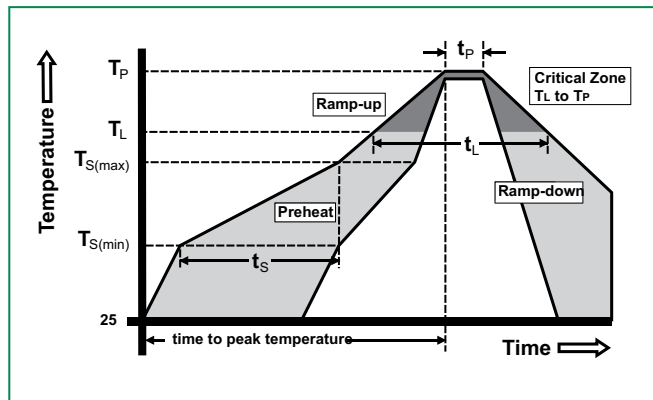
<b>Lead Plating</b>	Matte Tin
<b>Lead Material</b>	Copper Alloy
<b>Lead Coplanarity</b>	0.0004 inches (0.102mm)
<b>Substitute Material</b>	Silicon
<b>Body Material</b>	Molded Epoxy
<b>Flammability</b>	UL 94 V-0

Notes :

1. All dimensions are in millimeters
2. Dimensions include solder plating.
3. Dimensions are exclusive of mold flash & metal burr.
4. Blo is facing up for mold and facing down for trim/form, i.e. reverse trim/form.
5. Package surface matte finish VDI 11-13.

**Soldering Parameters**

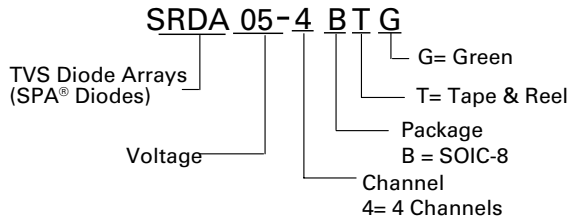
<b>Reflow Condition</b>		Pb – Free assembly
<b>Pre Heat</b>	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 – 180 secs
<b>Average ramp up rate (Liquidus) Temp (<math>T_L</math>) to peak</b>		3°C/second max
<b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>		3°C/second max
<b>Reflow</b>	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Temperature ( $t_l$ )	60 – 150 seconds
<b>Peak Temperature (<math>T_p</math>)</b>		260 <sup>+0/-5</sup> °C
<b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>		20 – 40 seconds
<b>Ramp-down Rate</b>		6°C/second max
<b>Time 25°C to peak Temperature (<math>T_p</math>)</b>		8 minutes Max.
<b>Do not exceed</b>		260°C



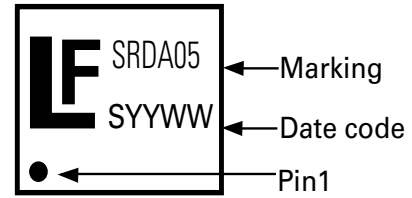
**Ordering Information**

Part Number	Package	Marking	Min. Order Qty.
SRDA05-4BTG	SOIC-8	LF SRDA05 SYYWW	2500

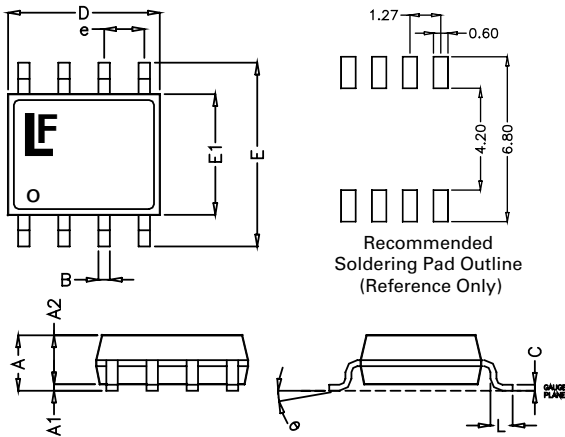
**Part Numbering System**



**Part Marking System**

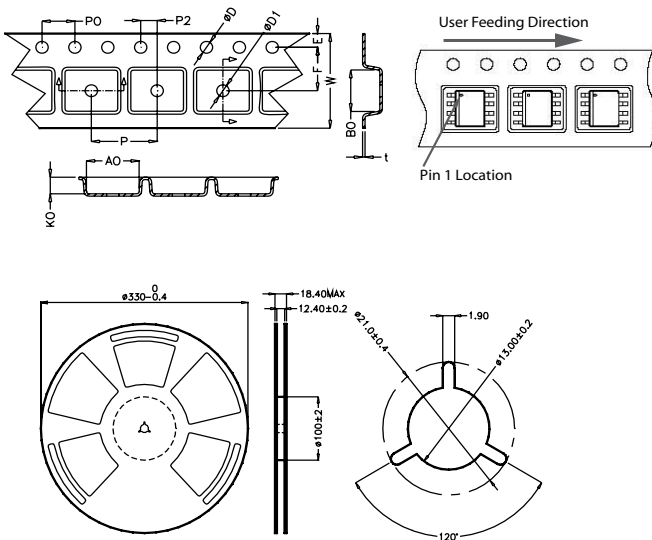


**Package Dimensions – Mechanical Drawings and Recommended Solder Pad Outline**



Package	SOIC			
Pins	8			
JEDEC	MS-012			
	Millimetres		Inches	
	Min	Max	Min	Max
<b>A</b>	1.35	1.75	0.053	0.069
<b>A1</b>	0.10	0.25	0.004	0.010
<b>A2</b>	1.25	1.65	0.050	0.065
<b>B</b>	0.31	0.51	0.012	0.020
<b>c</b>	0.17	0.25	0.007	0.010
<b>D</b>	4.70	5.10	0.185	0.201
<b>E</b>	5.80	6.20	0.228	0.244
<b>E1</b>	3.80	4.00	0.150	0.157
<b>e</b>	1.27 BSC		0.050 BSC	
<b>L</b>	0.40	1.27	0.016	0.050

**Embossed Carrier Tape & Reel Specification – SOIC Package**



	Millimetres		Inches	
	Min	Max	Min	Max
<b>E</b>	1.65	1.85	0.065	0.073
<b>F</b>	5.4	5.6	0.213	0.22
<b>P2</b>	1.95	2.05	0.077	0.081
<b>D</b>	1.5	1.6	0.059	0.063
<b>D1</b>	1.50 Min		0.059 Min	
<b>P0</b>	3.9	4.1	0.154	0.161
<b>10P0</b>	40.0 ± 0.20		1.574 ± 0.008	
<b>W</b>	11.9	12.1	0.468	0.476
<b>P</b>	7.9	8.1	0.311	0.319
<b>A0</b>	6.3	6.5	0.248	0.256
<b>B0</b>	5.1	5.3	0.2	0.209
<b>K0</b>	2	2.2	0.079	0.087
<b>t</b>	0.30 ± 0.05		0.012 ± 0.002	

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