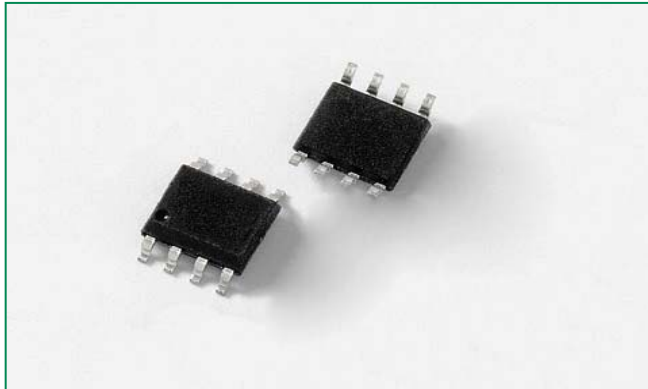




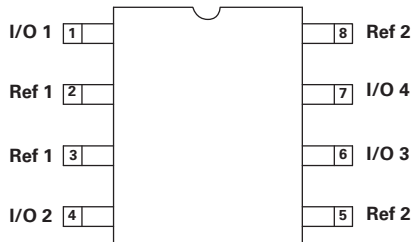
# THE DATASHEET OF SRDA3.3-4BTG



### SRDA3.3 Series 8pF 35A Diode Array



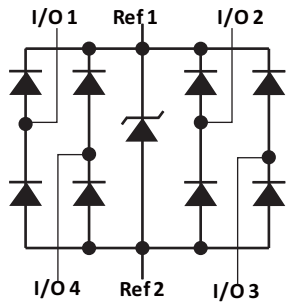
#### Pinout



SOIC-8 (Top View)

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

#### Functional Block Diagram



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.

#### Description

The SRDA3.3 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 device can safely absorb up to 35A 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.

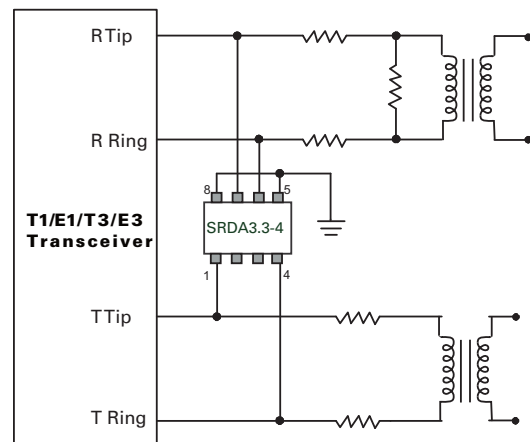
#### Features

- Lightning protection, IEC61000-4-5, 35A (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)

#### 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

#### 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)	35	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

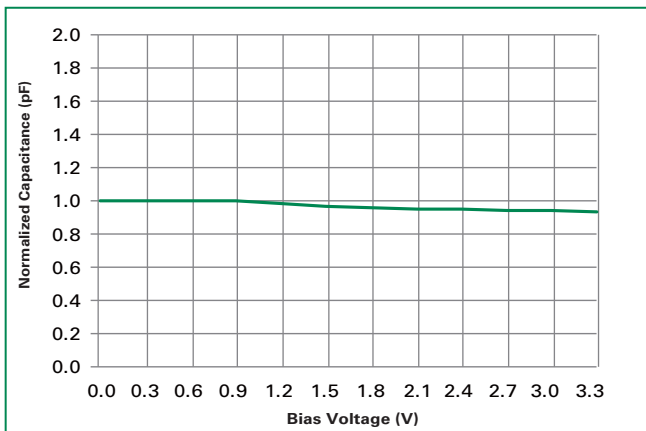
Parameter	Rating	Units
SOIC Package	170	°C/W
Operating Temperature Range	-40 to 125	°C
Storage Temperature Range	-55 to 150	°C
Maximum Junction Temperature	150	°C
Maximum Lead Temperature (Soldering 20-40s) (SOIC - Lead Tips Only)	260	°C

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

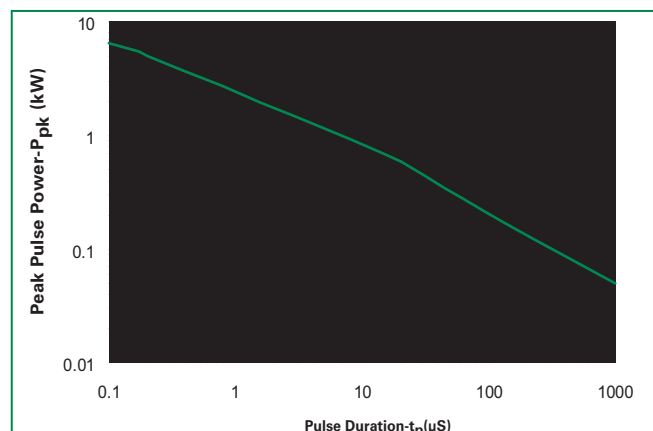
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Stand-Off Voltage	$V_{RWM}$	$I_T \leq 1\mu\text{A}$	-	-	3.3	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 2\mu\text{A}$	3.5	-	-	V
Snap Back Voltage	$V_{SB}$	$I_T = 50\text{mA}$	2.9	-	-	V
Reverse Leakage Current	$I_R$	$V_R = 3.3\text{V}$	-	-	1	$\mu\text{A}$
Clamping Voltage, Line-Ground <sup>1</sup>	$V_C$	$I_{pp} = 1\text{A}, t_p = 8/20 \mu\text{s}$	-	5.7	-	V
Clamping Voltage, Line-Ground <sup>1</sup>	$V_C$	$I_{pp} = 10\text{A}, t_p = 8/20 \mu\text{s}$	-	10.1	-	V
Clamping Voltage, Line-Ground <sup>1</sup>	$V_C$	$I_{pp} = 30\text{A}, t_p = 8/20 \mu\text{s}$	-	17.7	-	V
Dynamic Resistance, Line-Ground <sup>1</sup>	$R_{DYN}$	$(V_{C2} - V_{C1}) / (I_{PP2} - I_{PP1})$	-	0.5	-	$\Omega$
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.

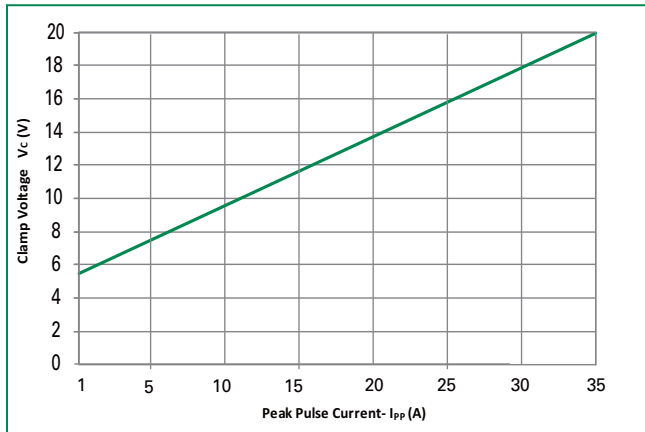
### Normalized Capacitance vs. Bias Voltage



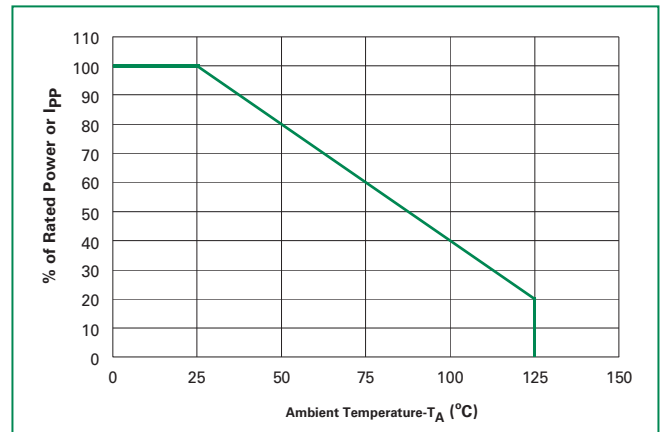
### Non-Repetitive Peak Pulse Power vs. Pulse Time



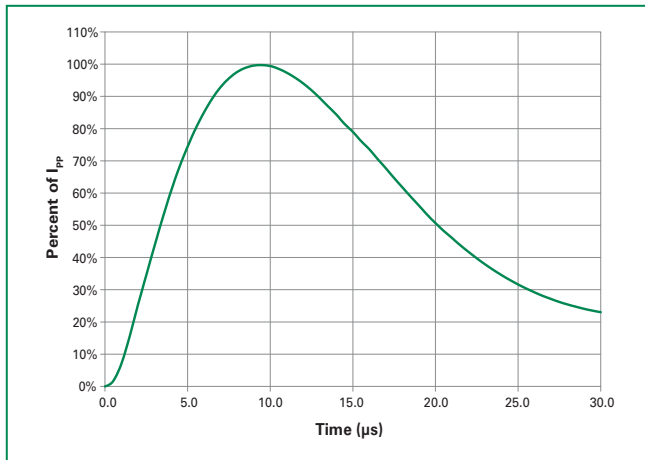
### Clamping Voltage vs. $I_{PP}$



### Power Derating Curve



### Pulse Waveform



### Product Characteristics

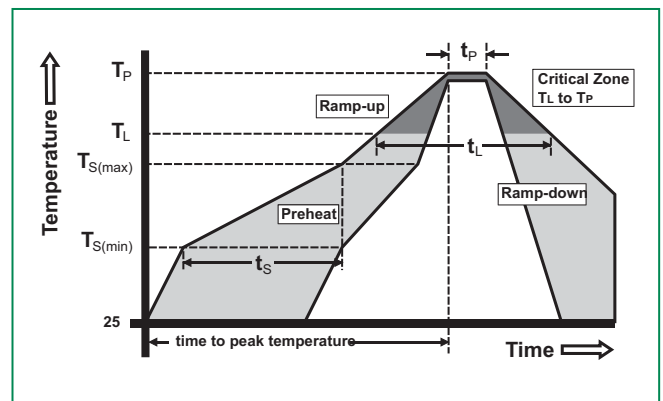
<b>Lead Plating</b>	Matte Tin
<b>Lead Material</b>	Copper Alloy
<b>Lead Coplanarity</b>	0.0004 inches (0.102mm)
<b>Substitute Material</b>	Silicon
<b>Body Material</b>	Molded Epoxy
<b>Flammability</b>	UL 94 V-0

Notes :

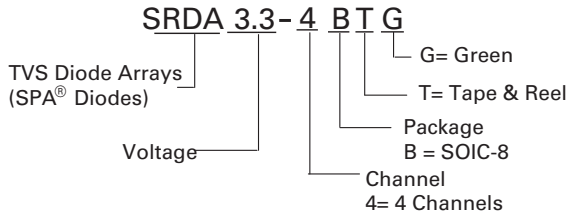
- All dimensions are in millimeters
- Dimensions include solder plating.
- Dimensions are exclusive of mold flash & metal burr.
- Blo is facing up for mold and facing down for trim/form, i.e. reverse trim/form.
- Package surface matte finish VDI 11-13.

### Soldering Parameters

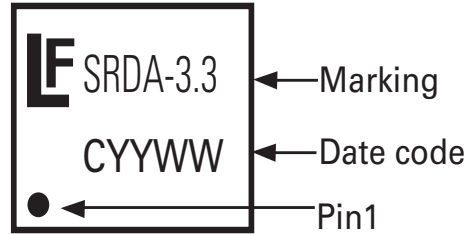
<b>Reflow Condition</b>		Pb – Free assembly
<b>Pre Heat</b>	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second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



**Part Numbering System**



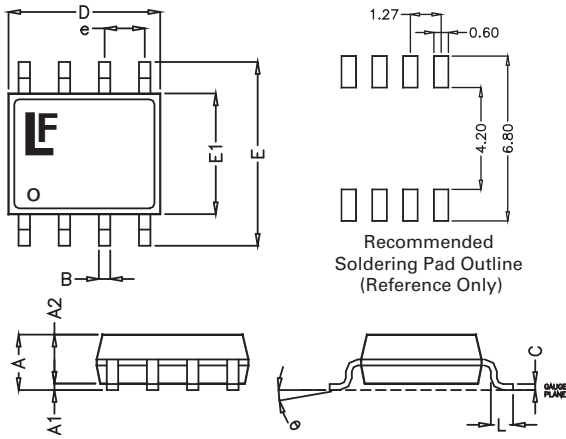
**Part Marking System**



**Ordering Information**

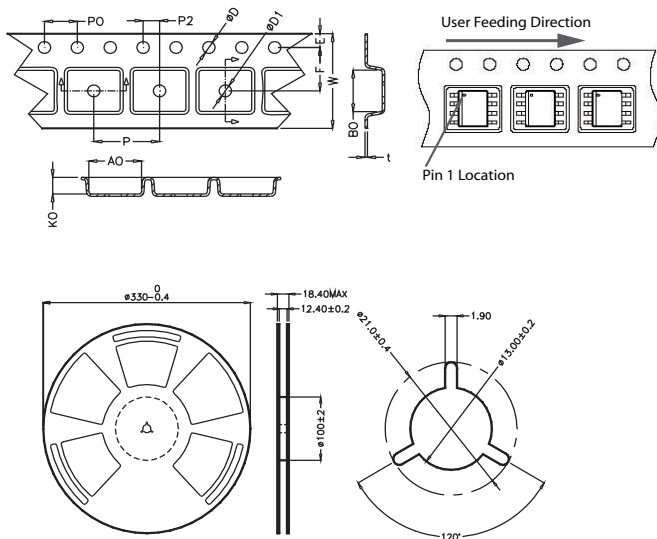
Part Number	Package	Marking	Min. Order Qty.
SRDA3.3-4BTG	SOIC-8	SRDA3.3	2500

**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>	4.80	5.00	0.189	0.197
<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	

## Looking for pricing, stock, or lifecycle information?

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- ⊖ [Littelfuse Inc. Information](#)

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- ✓ Shortage Management
- ✓ Alternative Solution
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