

# PxxxxS4xL Series

## SOD-123FL, 100A SIDACtor® Component



### Description

The PxxxxS4L component series is used to protect equipment such as TV/camera CVBS and/or other low voltage data communication from damaging overvoltage transients. The series provides a surface mount solution that enables equipment to comply with global regulatory standards.

### Features and Benefits

- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within its ratings.
- Fails short circuit when
- surged in excess of ratings
- Low capacitance
- 4kV 10/700 surge protection capability

### Additional Information



Resources



Accessories



Samples

### Agency Approvals

Agency	Agency File Number
	E133083

### Applicable Global Standards

- TIA-968-A\*
- TIA-968-B\*
- ITU K.20/21 Enhanced Level\*
- ITU K.20/21 Basic Level
- GR 1089 Inter-building\*
- GR 1089 Intra-building
- IEC 61000-4-5, 2nd Edition\*
- YD/T 1082
- YD/T 993
- YD/T 950

\* Line impedance required to pass operationally

### Schematic Symbol



### Electrical Characteristics

Part Number	Marking	$V_{DRM}$ @ $I_{DRM} = 5\mu A$	$V_S$ @ 100V/ $\mu s$	$I_H$	$I_S$	$I_T$	$V_T$ @ $I_T = 2.2$ Amps	Capacitance @ 1MHz, 2V bias	
		V min	V max	mA min	mA max	A max	V max	pF min	pF max
P0080S4BLRP	P-8B	6	25	50	800	2.2	4	15	25
P0220S4BLRP	P02B	15	32	50	800	2.2	4	10	30

**Notes:**

- Absolute maximum ratings measured at  $T_A = 25^\circ C$  (unless otherwise noted).
- Component is bi-directional (unless otherwise noted).

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### Surge Ratings

Series	$I_{PP}$										$I_{TSM}$ 50/60 Hz	di/dt
	0.2/310 <sup>1</sup>	2/10 <sup>1</sup>	8/20 <sup>1</sup>	10/160 <sup>1</sup>	10/560 <sup>1</sup>	5/320 <sup>1</sup>	10/360 <sup>1</sup>	10/1000 <sup>1</sup>	5/310 <sup>1</sup>	10/700 <sup>2</sup>		
	0.5/700 <sup>2</sup>	2/10 <sup>2</sup>	1.2/50 <sup>2</sup>	10/160 <sup>2</sup>	10/560 <sup>2</sup>	9/720 <sup>2</sup>	10/360 <sup>2</sup>	10/1000 <sup>2</sup>	10/700 <sup>2</sup>			
	A min	A min	A min	A min	A min	A min	A min	A min	A min	A min	Amps/μs max	
B	20	200	200	90	60	75	75	55	100	25	500	

**Notes:**

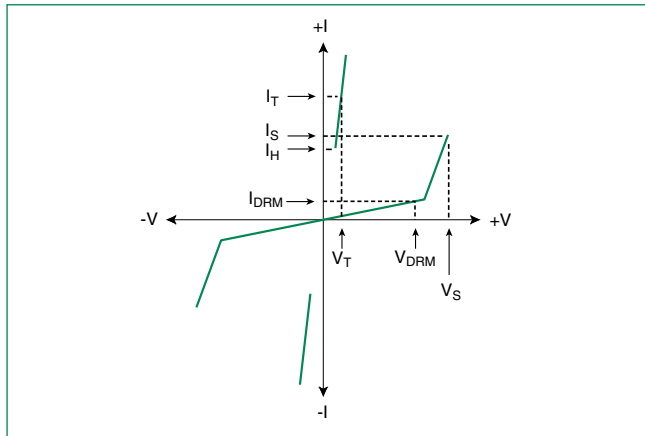
- 1 Current waveform in μs
- 2 Voltage waveform in μs

- Peak pulse current rating ( $I_{PP}$ ) is repetitive and guaranteed for the life of the product.
- $I_{PP}$  ratings applicable over temperature range of -40°C to +85°C
- The component must initially be in thermal equilibrium with -55°C ≤  $T_J$  ≤ +150°C

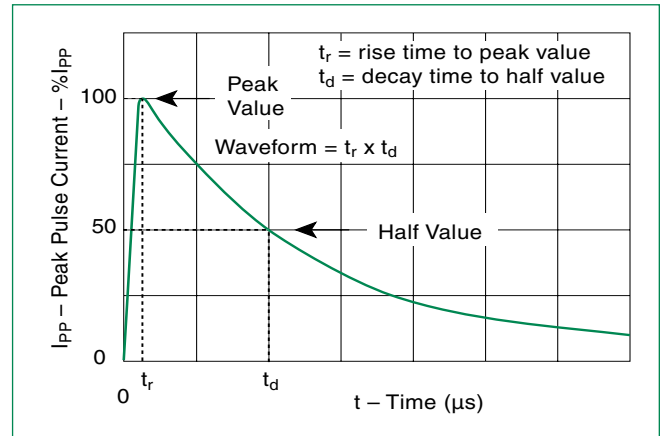
### Thermal Considerations

Symbol	Parameter	Value	Unit
$T_J$	Operating Junction Temperature Range	-55 to +150	°C
$T_S$	Storage Temperature Range	-55 to +150	°C
$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	90	°C/W

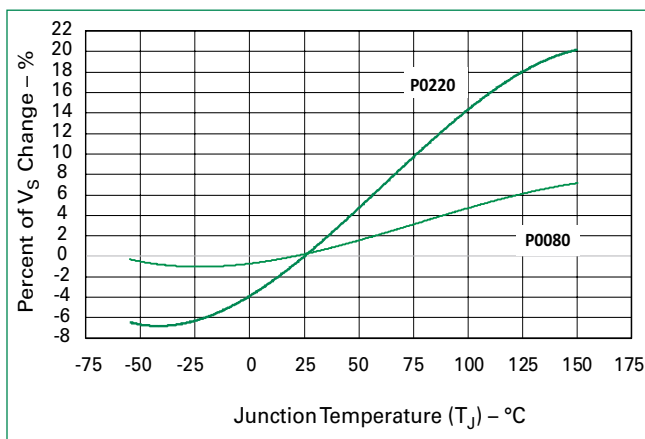
### V-I Characteristics



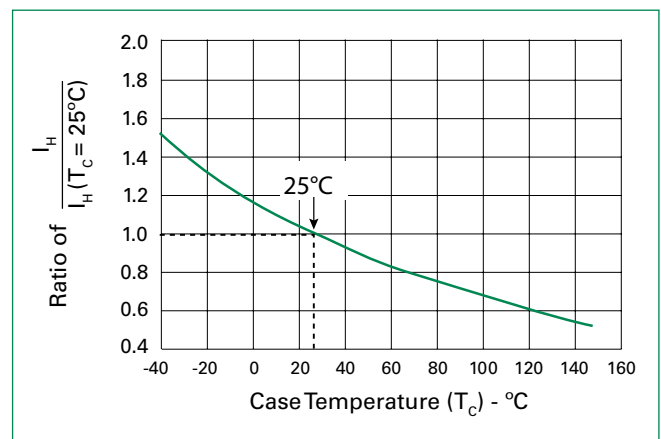
### tr x td Pulse Waveform



### Normalized VS Change vs. Junction Temperature



### Normalized DC Holding Current vs. Case Temperature

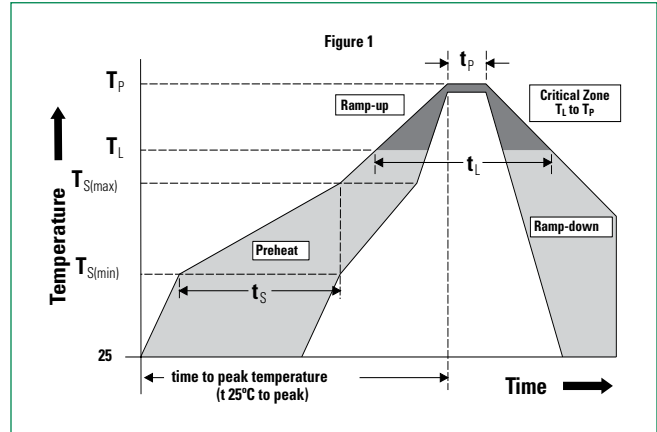


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### Soldering Parameters

<b>Reflow Condition</b>		Pb-Free assembly (see Fig. 1)
<b>Pre Heat</b>	- Temperature Min ( $T_{s(min)}$ )	+150°C
	- Temperature Max ( $T_{s(max)}$ )	+200°C
	- Time (Min to Max) ( $t_s$ )	60-120 secs.
<b>Average ramp up rate (Liquidus Temp (<math>T_L</math>) to peak)</b>		3°C/sec. Max.
<b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>		3°C/sec. Max.
<b>Reflow</b>	- Temperature ( $T_L$ ) (Liquidus)	+217°C
	- Temperature ( $t_r$ )	60-150 secs.
<b>Peak Temp (<math>T_p</math>)</b>		+260(+0/-5)°C
<b>Time within 5°C of actual Peak Temp (<math>t_p</math>)</b>		30 secs. Max.
<b>Ramp-down Rate</b>		6°C/sec. Max.
<b>Time 25°C to Peak Temp (<math>T_p</math>)</b>		8 min. Max.
<b>Do not exceed</b>		+260°C



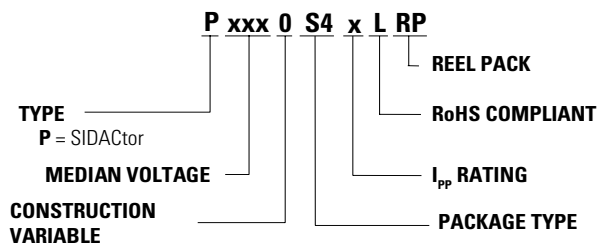
### Physical Specifications

<b>Lead Material</b>	Copper Alloy
<b>Terminal Finish</b>	100% Matte-Tin Plated
<b>Body Material</b>	UL Recognized compound meeting flammability rating V-0

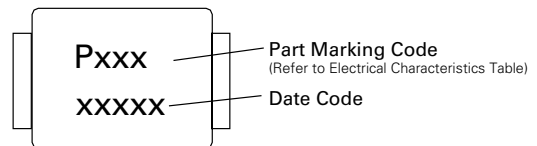
### Environmental Specifications

<b>High Temp Voltage Blocking</b>	80% Rated $V_{DRM}$ ( $V_{AC}$ Peak) $T_J$ , 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101
<b>Temp Cycling</b>	1000 cycles. JEDEC, JESD22-A104
<b>Biased Temp &amp; Humidity</b>	52 $V_{DC}$ (+85°C) 85%RH, 1008 hrs. EIA/ JEDEC, JESD22-A-101
<b>High Temp Storage</b>	+150°C 1008 hrs. MIL-STD-750 (Method 1031) JEDEC, JESD22-A-101
<b>UHASt</b>	+130°C, 85%RH, 2atm, 96 hrs. EIA/ JEDEC, JESD22-A-118
<b>Resistance to Solder Heat</b>	+260°C, 10 secs. MIL-STD-750 (Method 2031)
<b>Moisture Sensitivity Level</b>	85%RH, +85°C, 168 hrs., 3 reflow cycles (+260°C Peak). JEDEC-J-STD-020, Level 1

### Part Numbering



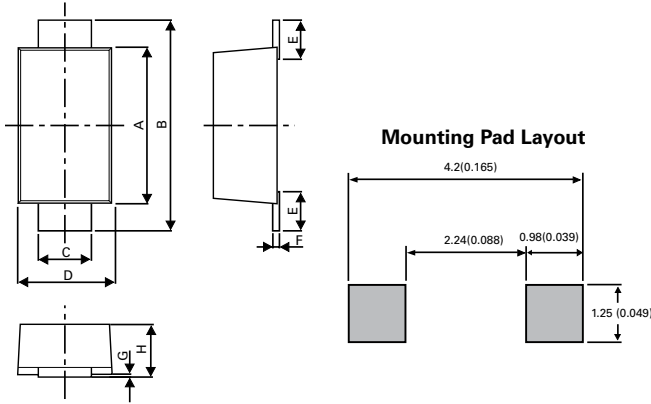
### Part Marking



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## SOD-123FL, 100A SIDACtor® Component

### Dimensions - SOD-123FL Package

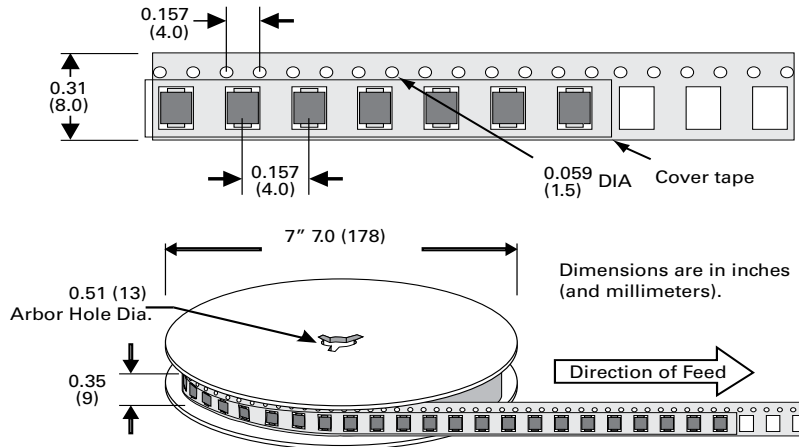


Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	2.90	3.10	0.114	0.122
B	3.50	3.90	0.138	0.154
C	0.85	1.05	0.033	0.041
D	1.70	2.00	0.067	0.079
E	0.43	0.83	0.017	0.033
F	0.10	0.25	0.004	0.010
G	0.00	0.10	0.000	0.004
H	0.90	1.08	0.035	0.043

### Packing Option

Package Type	Description	Packing Options Quantity	Added Suffix	Industry Standard
S4	SOD-123FL Tape & Reel Pack 8mm/7" tape	3000	RP	EIA-481

### Tape and Reel Specification



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