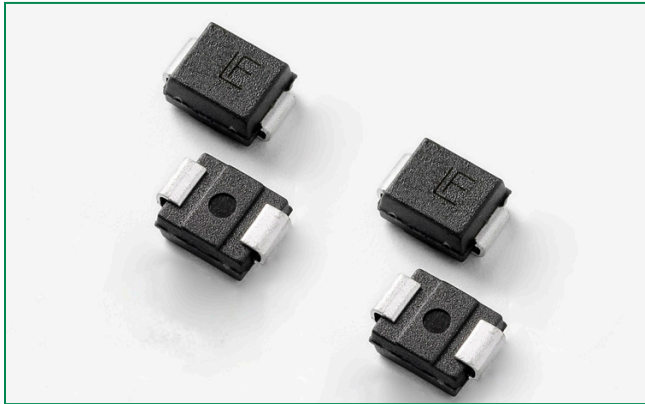



### Pxxx0SxL-A Series - DO-214AA



#### Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E133083

#### Schematic Symbol



#### Description

Pxxx0SxL-A series is designed to protect automotive grade equipments such as vehicle infotainment system, device communication line and automotive camera data lines from damaging overvoltage transients.

The series provides a surface mount solution that enables equipments to comply with global regulatory standards.

#### Features and Benefits

- Automotive grade AEC-Q101 qualified
- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within limit.
- Fails short circuit when surged in excess of currents
- Low capacitance
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)
- UL Recognized to UL 497B as an Isolated Loop Circuit Protector.

#### 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

\*A rated parts require series resistance

#### Electrical Characteristics

Part Number	Marking	$V_{DRM}$ @ $I_{DRM}=5\mu A$	$V_S$ @ $100V/\mu s$	$I_H$	$I_S$	$I_T$	$V_T$ @ $I_T=2.2 A$	Capacitance @ 1MHz, 2V bias	
		V min	V max	mA min	mA max	A max	V max	pF min	pF max
P0080SALRP-A	A-8A	6	25	50	800	2.2	4	20	35
P0220SALRP-A	A22A	15	32	50	800	2.2	4	20	40
P0300SALRP-A	A03A	25	47	50	800	2.2	4	15	40
P0640SALRP-A	A06A	58	77	150	800	2.2	4	15	40
P0720SALRP-A	A07A	65	88	150	800	2.2	4	15	40
P0900SALRP-A	A09A	75	98	150	800	2.2	4	15	40
P1100SALRP-A	A11A	90	130	150	800	2.2	4	15	40
P1300SALRP-A	A13A	120	160	150	800	2.2	4	15	40
P1500SALRP-A	A15A	140	180	150	800	2.2	4	15	40
P1800SALRP-A	A18A	170	220	150	800	2.2	4	15	35
P2100SALRP-A	A21A	180	240	150	800	2.2	4	15	35
P2300SALRP-A	A23A	190	260	150	800	2.2	4	15	35
P2600SALRP-A	A26A	220	300	150	800	2.2	4	15	35
P3100SALRP-A	A31A	275	350	150	800	2.2	4	15	35

**Surge Ratings**

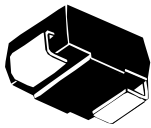
Series	$I_{PP}$									$I_{TSM}$ 50/60 Hz	di/dt
	0.2/310 <sup>1</sup>	2/10 <sup>1</sup>	8/20 <sup>1</sup>	10/160 <sup>1</sup>	10/560 <sup>1</sup>	5/320 <sup>1</sup>	10/360 <sup>1</sup>	10/1000 <sup>1</sup>	5/310 <sup>1</sup>		
	0.5/700 <sup>2</sup>	2/10 <sup>2</sup>	1.2/50 <sup>2</sup>	10/160 <sup>2</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/ $\mu$ s max
A	20	150	150	90	50	75	75	45	75	25	500

Notes:

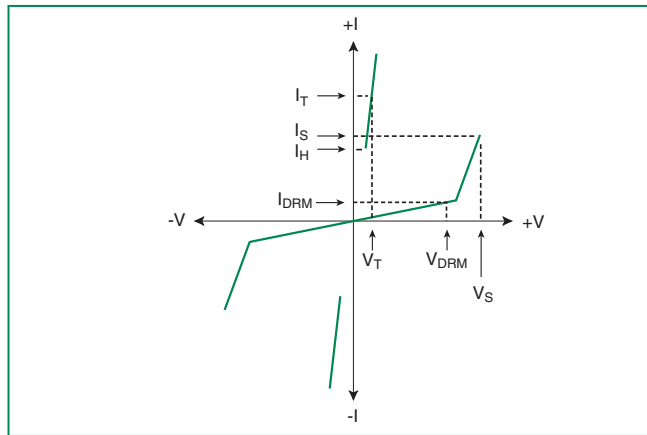
1 Current waveform in  $\mu$ s  
2 Voltage waveform in  $\mu$ s

- Peak pulse current rating ( $I_{PP}$ ) is repetitive and guaranteed for the life of the product.  
- 1ms non-repetitive square pulse at  $T_A=85^\circ\text{C}$  minimum surge current is 18A

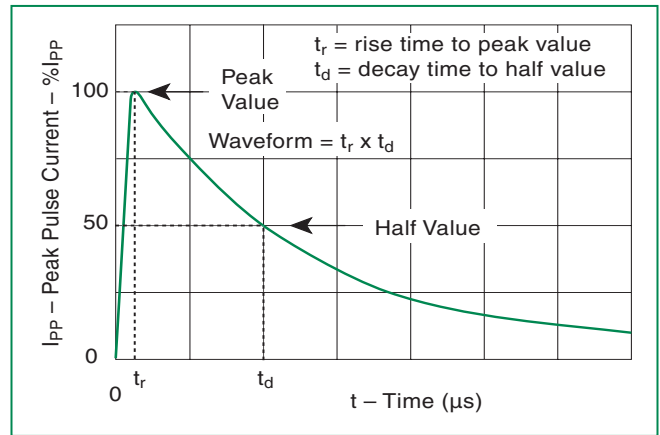
**Thermal Considerations**

Package	Symbol	Parameter	Value	Unit
 DO-214AA	$T_J$	Operating Junction Temperature Range	-55 to +150	$^\circ\text{C}$
	$T_S$	Storage Temperature Range	-65 to +150	$^\circ\text{C}$
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	90	$^\circ\text{C}/\text{W}$

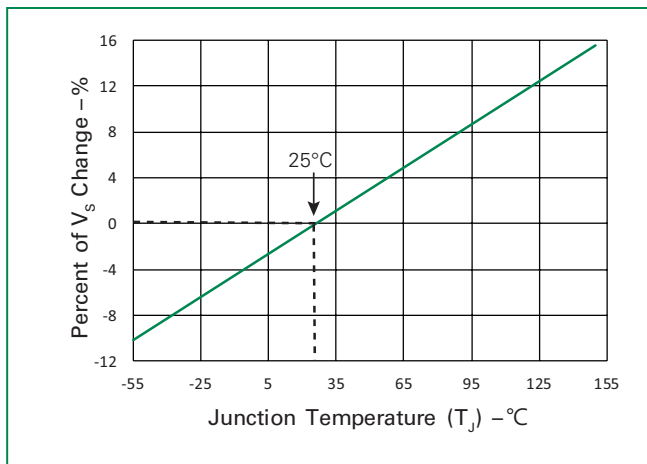
**V-I Characteristics**



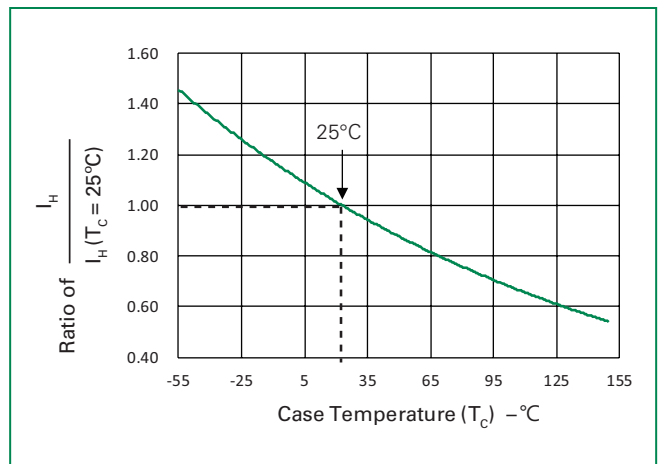
**$t_r \times t_d$  Pulse Waveform**



**Normalized  $V_S$  Change vs. Junction Temperature**

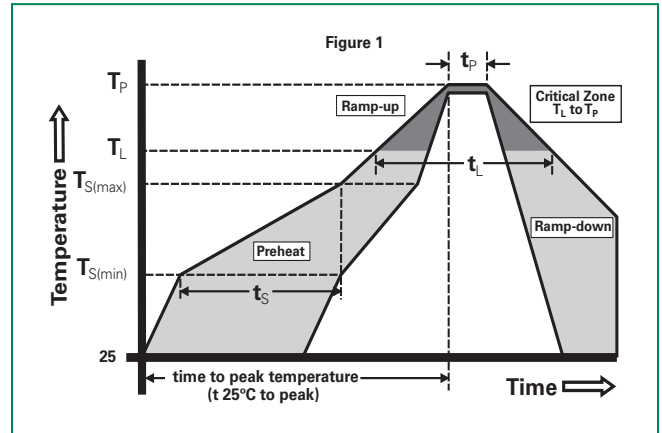


**Normalized DC Holding Current vs. Case Temperature**



**Soldering Parameters**

Reflow Condition	Pb-Free assembly (see Fig. 1)	
Pre Heat	-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/sec. Max.	
$T_{s(max)}$ to $T_L$ - Ramp-up Rate	3°C/sec. Max.	
Reflow	-Temperature ( $T_L$ ) (Liquidus)	+217°C
	-Temperature ( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )	+260(+0/-5)°C	
Time within 5°C of actual PeakTemp ( $t_p$ )	30 secs. Max.	
Ramp-down Rate	6°C/sec. Max.	
Time 25°C to Peak Temp ( $T_p$ )	8 min. Max.	
Do not exceed	+260°C	



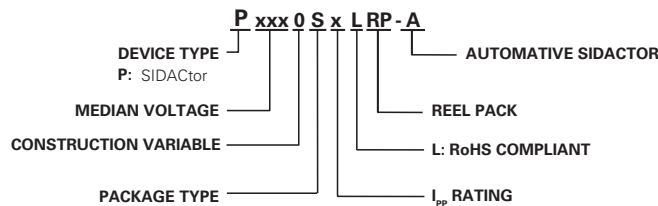
**Physical Specifications**

<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) +150°C, 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101
<b>Temp Cycling</b>	-55°C to +150°C, 15 min. dwell, 1000 cycles. MIL-STD-750 (Method 1051) EIA/JEDEC, JESD22-A104
<b>Biased Temp &amp; Humidity</b>	80% Rated $V_{DRM}$ (+85°C) 85%RH, 504 up to 1008 hrs. EIA/JEDEC, JESD22-A-101
<b>Unbiased Highly Accelerated Stress Test</b>	+130°C, 85%RH, 2atm, 96hrs. JESD22A-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**

