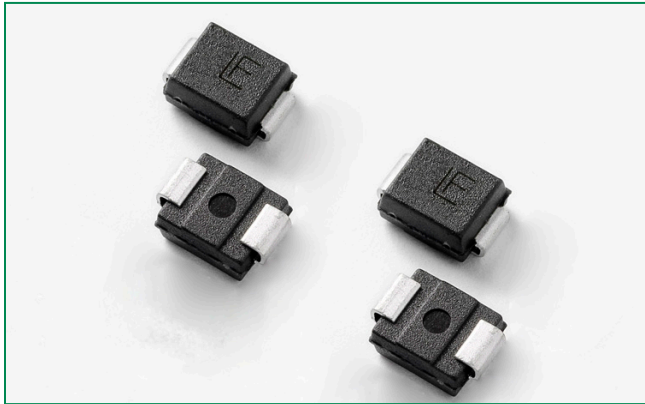



Pxxx0SxL-A Series - DO-214AA



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

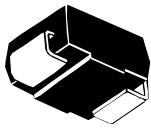
Series	I_{PP}									I_{TSM} 50/60 Hz	di/dt
	0.2/310 ¹	2/10 ¹	8/20 ¹	10/160 ¹	10/560 ¹	5/320 ¹	10/360 ¹	10/1000 ¹	5/310 ¹		
	0.5/700 ²	2/10 ²	1.2/50 ²	10/160 ²	10/560 ²	9/720 ²	10/360 ²	10/1000 ²	10/700 ²		
	A min	A min	A min	A min	A min	A min	A min	A min	A min	A min	Amps/ μ s max
A	20	150	150	90	50	75	75	45	75	25	500

Notes:

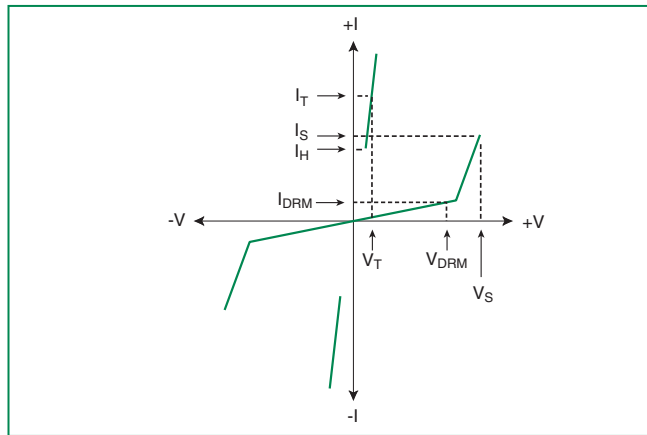
1 Current waveform in μ s
2 Voltage waveform in μ s

- 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

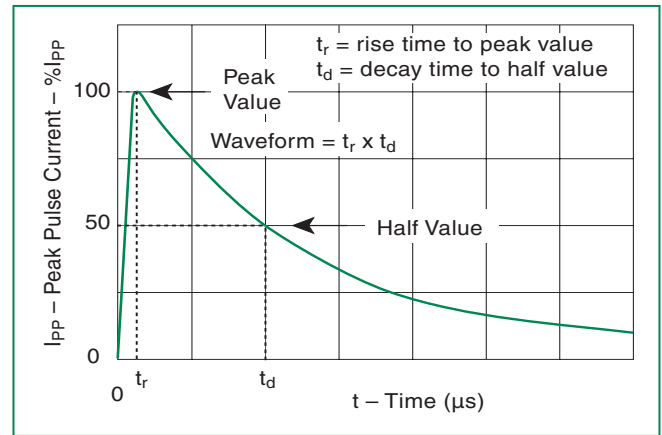
Thermal Considerations

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	$^\circ\text{C}/\text{W}$

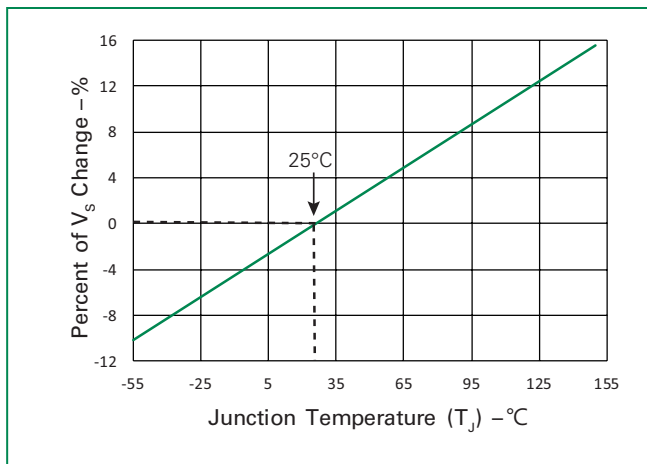
V-I Characteristics



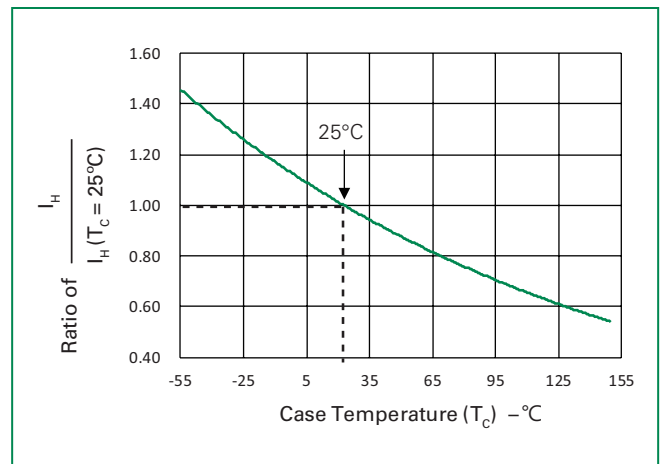
$t_r \times t_d$ Pulse Waveform



Normalized V_S Change vs. Junction Temperature

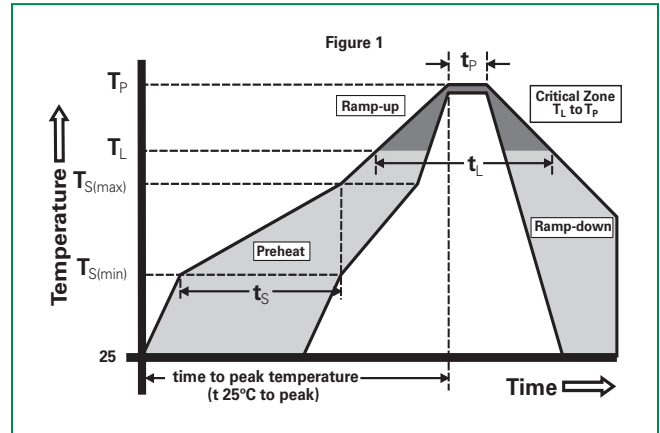


Normalized DC Holding Current vs. Case Temperature



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	



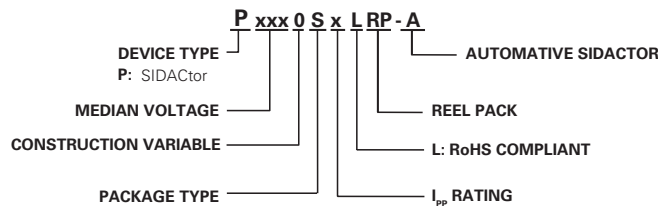
Physical Specifications

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

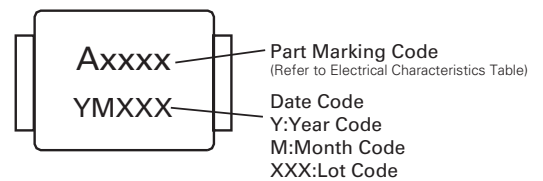
Environmental Specifications

High Temp Voltage Blocking	80% Rated V_{DRM} (V_{AC} Peak) +150°C, 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101
Temp Cycling	-55°C to +150°C, 15 min. dwell, 1000 cycles. MIL-STD-750 (Method 1051) EIA/JEDEC, JESD22-A104
Biased Temp & Humidity	80% Rated V_{DRM} (+85°C) 85%RH, 504 up to 1008 hrs. EIA/JEDEC, JESD22-A-101
Unbiased Highly Accelerated Stress Test	+130°C, 85%RH, 2atm, 96hrs. JESD22A-118
Resistance to Solder Heat	+260°C, 10 secs. MIL-STD-750 (Method 2031)
Moisture Sensitivity Level	85%RH, +85°C, 168 hrs., 3 reflow cycles (+260°C Peak). JEDEC-J-STD-020, Level 1

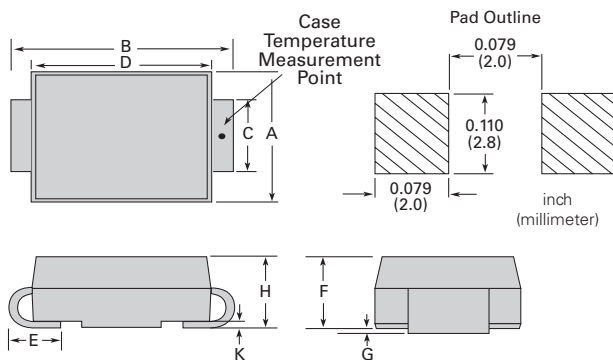
Part Numbering



Part Marking



Dimensions — DO-214AA

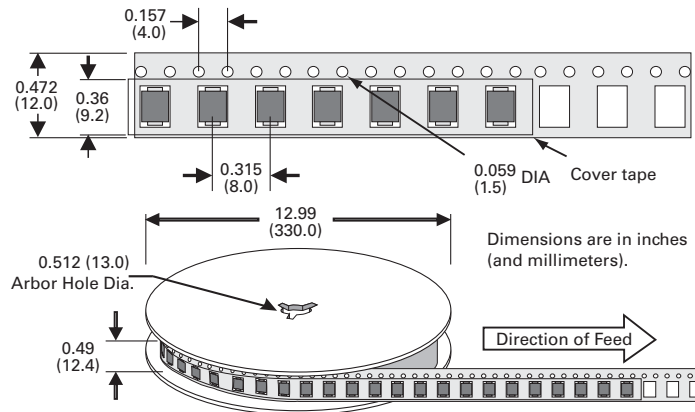


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.156	3.30	3.95
B	0.201	0.220	5.10	5.60
C	0.077	0.087	1.95	2.20
D	0.159	0.181	4.05	4.60
E	0.030	0.063	0.75	1.60
F	0.075	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
K	0.006	0.016	0.15	0.41

Packing Options

Package Type	Description	Quantity	Added Suffix	Industry Standard
S	DO-214AA Tape & Reel Pack	2500	RP	EIA-481-D

Tape and Reel Specification — DO-214AA



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