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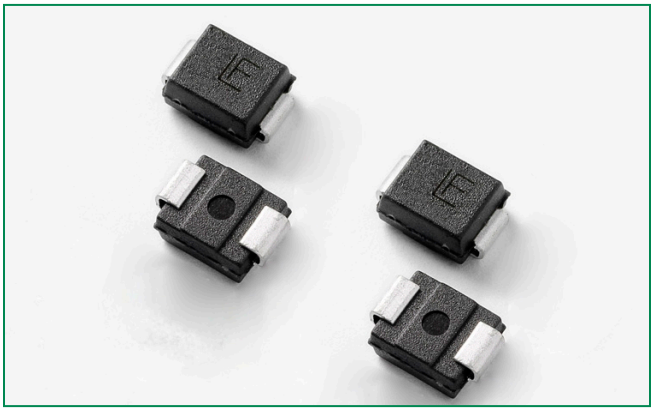
SIDACtor® Protection Thyristors
Baseband Protection (Voice-DS1)

Pxxx0SxL-A Series - DO-214AA

AUTOMOTIVE GRADE HF RoHS



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.

Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E133083

Schematic Symbol

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}=5µA	V_S @100V/µs	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
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

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Surge Ratings

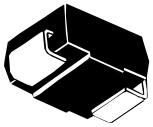
Series	I_{PP}									I_{TSM} 50/60 Hz	di/dt
	0.2/310 [1] 0.5/700 [2]	2/10 [1] 2/10 [2]	8/20 [1] 1.2/50 [2]	10/160 [1] 10/160 [2]	10/560 [1] 10/560 [2]	5/320 [1] 9/720 [2]	10/360 [1] 10/360 [2]	10/1000 [1] 10/1000 [2]	5/310 [1] 10/700 [2]		
	A min	A min	A min	A min	A min	A min	A min	A min	A min	A min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

Notes:

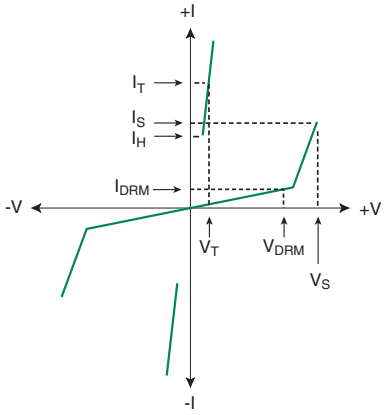
1 Current waveform in µs
2 Voltage waveform in µs

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

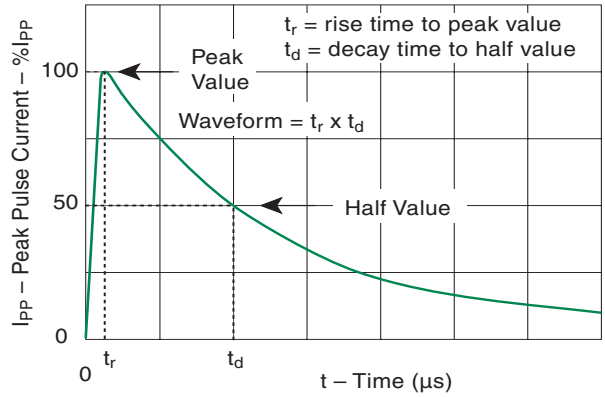
Thermal Considerations

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

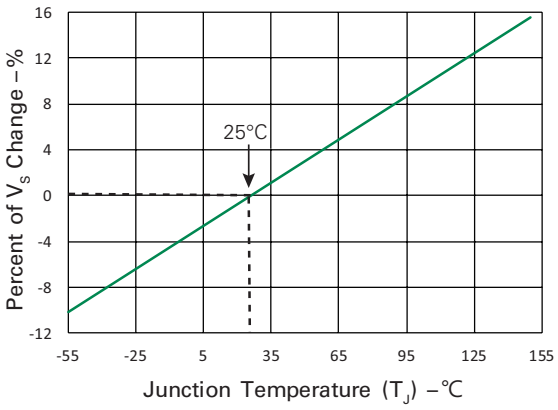
V-I Characteristics



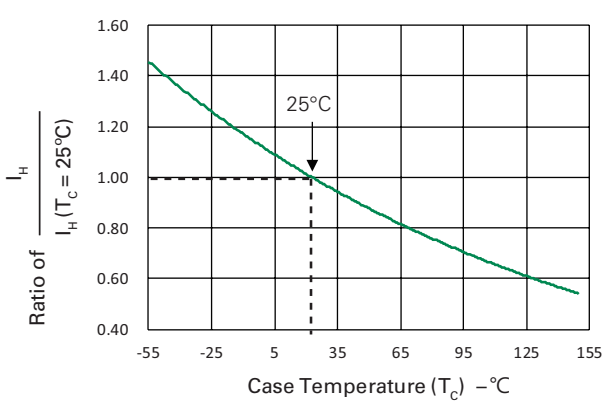
t_r x t_d Pulse Waveform



Normalized V_S Change vs. Junction Temperature



Normalized DC Holding Current vs. Case Temperature



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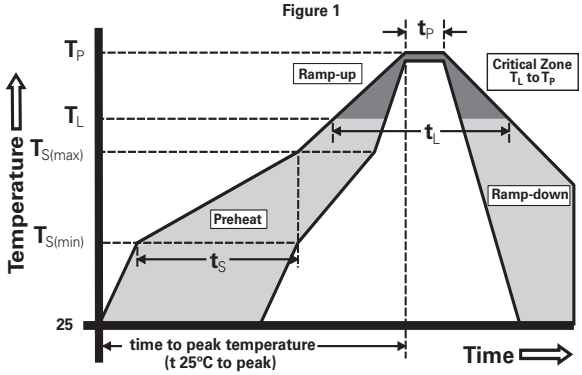
Soldering Parameters

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 Peak Temp (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

Figure 1



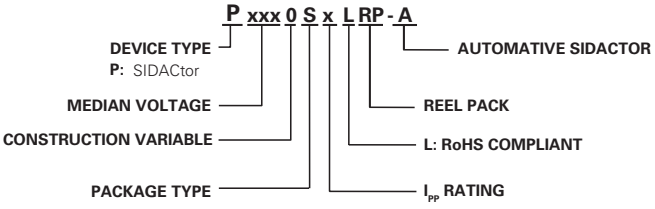
Physical Specifications

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

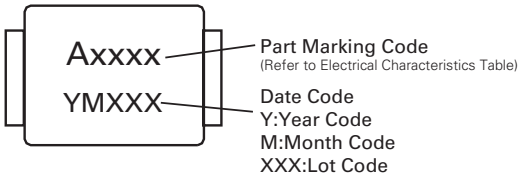
Environmental Specifications

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



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