

# Pxxx0SxL-A Series

## Baseband Protection (Voice-DS1) - DO-214AA



### 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.

### Additional Information



Resources



Accessories

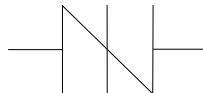


Samples

### 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	$V_{DRM}$ @ $I_{DRM}=5\mu A$	$V_S$ @ 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
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
P1800SCLRP-A	A18C	170	220	150	800	2.2	4	25	70
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 <sup>1</sup> 0.5/700 <sup>2</sup>	2/10 <sup>1</sup> 2/10 <sup>2</sup>	8/20 <sup>1</sup> 1.2/50 <sup>2</sup>	10/160 <sup>1</sup> 10/160 <sup>2</sup>	10/560 <sup>1</sup> 10/560 <sup>2</sup>	5/320 <sup>1</sup> 9/720 <sup>2</sup>	10/360 <sup>1</sup> 10/360 <sup>2</sup>	10/1000 <sup>1</sup> 10/1000 <sup>2</sup>	5/310 <sup>1</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	20	150	150	90	50	75	75	45	75	25	500
C	50	500	400	200	150	200	175	100	200	35	500

**Notes:**

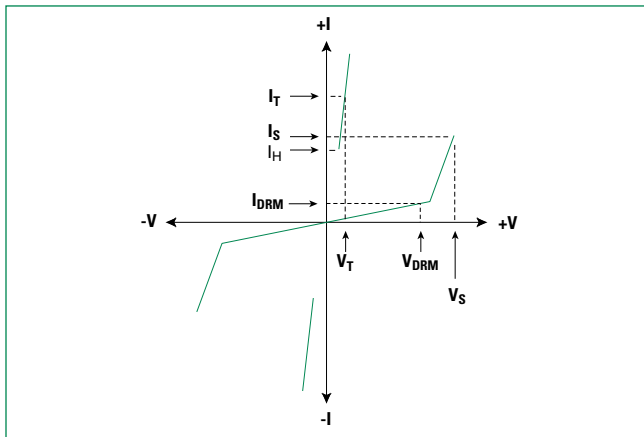
1. Current waveform in  $\mu s$
2. Voltage waveform in  $\mu s$

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

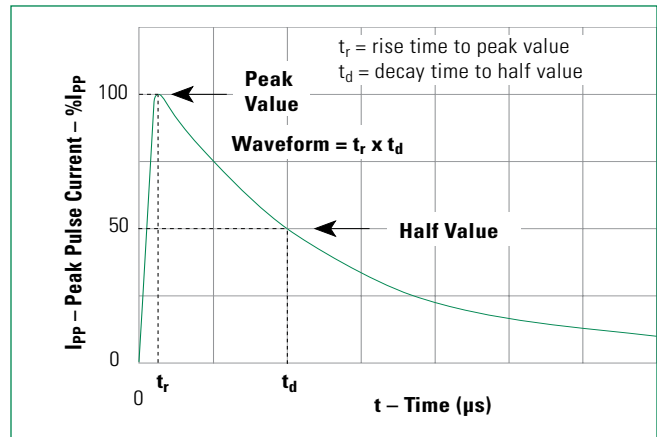
### Thermal Considerations

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

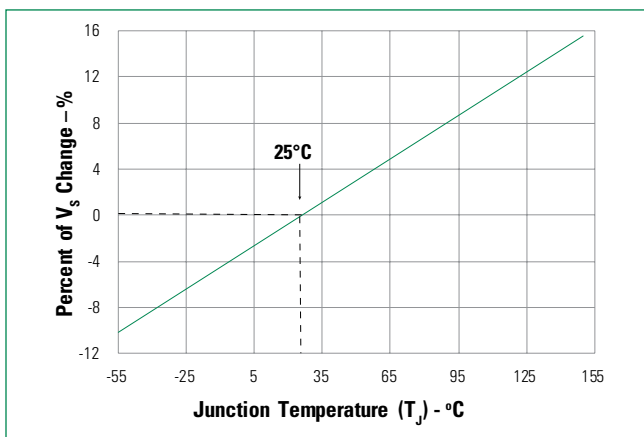
### V-I Characteristics



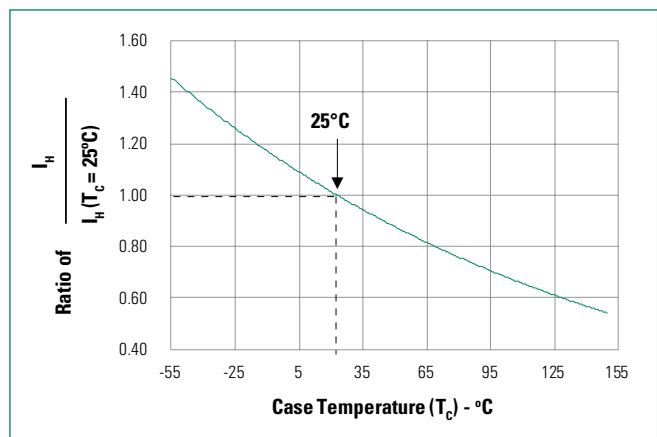
### tr x td Pulse Waveform



### Normalized VS Change vs. Junction Temperature



### Normalized DC Holding Current vs. Case Temperature

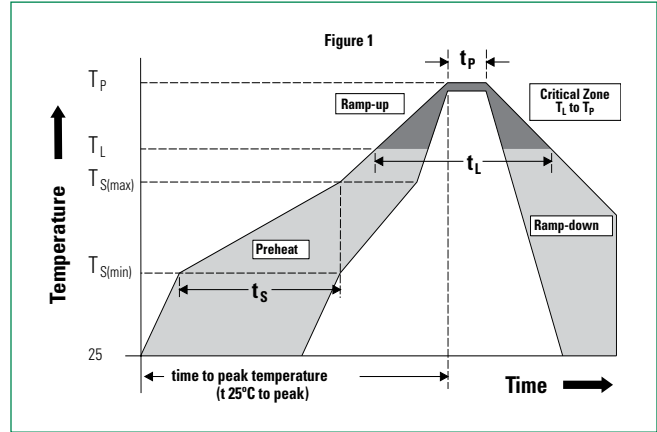


# Pxxx0SxL-A Series

## Baseband Protection (Voice-DS1) - DO-214AA

### 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) ( $t_s$ )	60-180 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 ( $t_L$ )	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



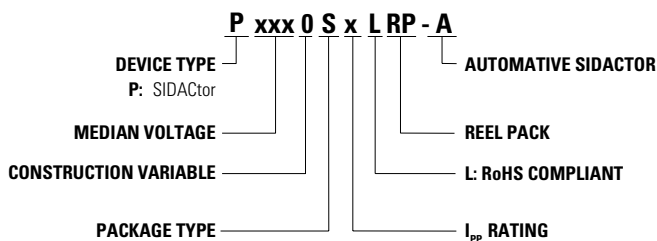
### Physical Specifications

<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

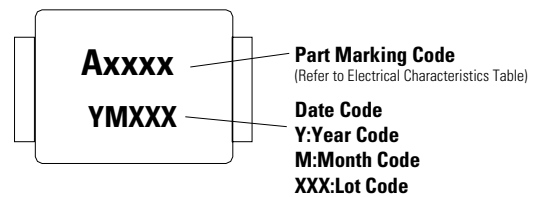
### Environmental Specifications

<b>High Temp Voltage Blocking</b>	80% Rated VDRM (VAC Peak) +150 °C, 504 or 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101
<b>Temp Cycling</b>	-65 °C to +150 °C, 15 min. dwell, 10 up to 100 cycles. MIL-STD-750 (Method 1051) EIA/JEDEC, JESD22-A104
<b>Biased Temp &amp; Humidity</b>	80% rated VDRM (+85 °C) 85%RH, and not exceed 100 V or limit of chamber. 504 up to 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>Low Temp Storage</b>	-65 °C, 1008 hrs.
<b>Thermal Shock</b>	0 °C to +100 °C, 5 min. dwell, 10 sec. transfer, 10 cycles. MIL-STD-750 (Method 1056) JEDEC, JESD22-A-106
<b>Autoclave (Pressure Cooker Test)</b>	+121 °C, 100% RH, 2atm, 24 up to 168 hrs. EIA/JEDEC, JESD22-A-102
<b>Resistance to Solder Heat</b>	+260 °C, 30 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



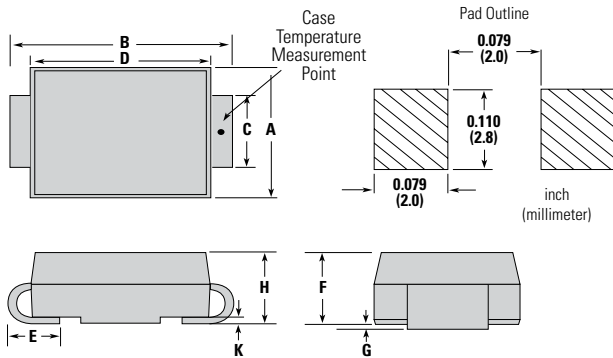
### Part Marking



# Pxxx0SxL-A Series

## Baseband Protection (Voice-DS1) - DO-214AA

### Dimensions – DO-214AA

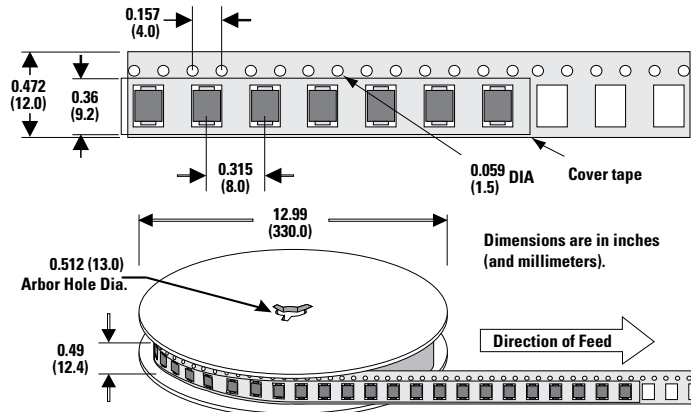


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.156	3.30	3.95
B	0.201	0.220	5.10	5.60
C	0.077	0.087	1.95	2.20
D	0.159	0.181	4.05	4.60
E	0.030	0.063	0.75	1.60
F	0.075	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
K	0.006	0.016	0.15	0.41

### 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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