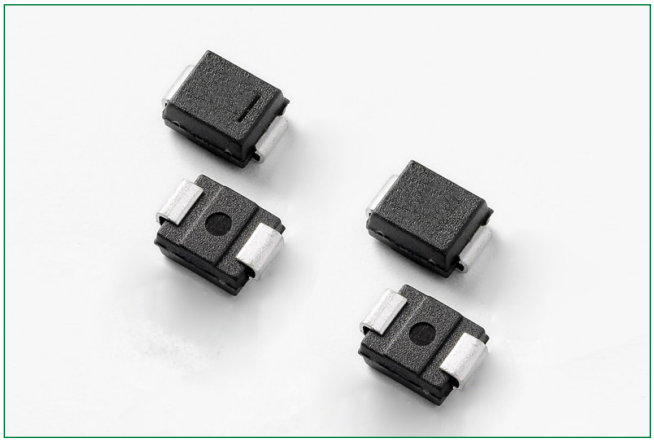
Pxxx2SxLHL Series

Low IH Two-Chip SIDACtor® - DO214AA Broadband Optimized Protection



Additional Information

Resources | Accessories | Samples

Agency Approvals

Agency	Agency File Number
	E133083

Schematic Symbol

Description

Pxxx2SxLHL Series DO-214AA are very low capacitance SIDACtor® components designed to protect broadband equipment such as VoIP, DSL modems and DSLAMs from damaging overvoltage transients. This series provides a surface mount solution that enables equipment to comply with global regulatory standards, while limiting the impact to broadband signals.

Features and Benefits

- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within limit
- Low distortion
- Fails short circuit when surged in excess of ratings
- 40% lower than comparable product
- RoHS Compliant and Halogen-Free
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)
- Recognized to UL 497B as an Isolated Loop Circuit Protector

Applicable Global Standards

- TIA/968-A/B
- TU K.20/21/45
- EC 61000-4-5 2nd edition
- GR 1089 Intra-building
- YD/T 1082
- YD/T 993
- YD/T 950ITU K.20/21/45
- Enhanced*
- GR 1089 Inter-building*

* Additional series resistance may be required to comply

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	@1MHz, 2V bias	
		V min	V max	mA min	mA max	A max	V max	pF min	pF max
P6002SCLHLRP	P602CL	550	700	20	800	2.2	8	10	30

Notes:

- Absolute maximum ratings measured at T_A= 25°C (unless otherwise noted).
- Components are bi-directional (unless otherwise noted).

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Surge Ratings

Series	I_{PP}									I_{TSM}	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]	50/60 Hz	
	A min	A min	A min	A min	A min	A min	A min	A min	A min	A min	A/µs
C	50	500	500	200	150	200	175	100	200	30	500

Notes:

1 Current waveform in µs

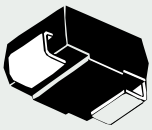
2 Voltage waveform in µs

- Peak pulse current rating (IPP) is repetitive and guaranteed for the life of the product.

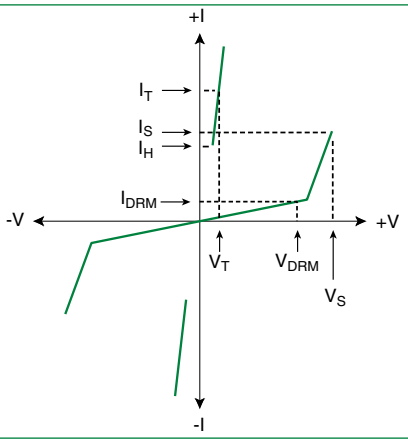
- IPP ratings applicable over temperature range of -40°C to +85°C

- The component must initially be in thermal equilibrium with -40°C < TJ < +150°C

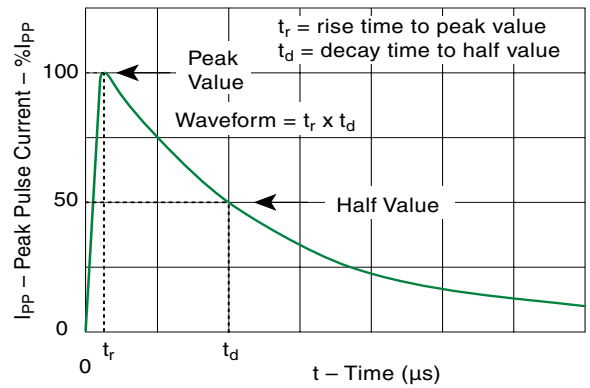
Thermal Considerations

Package	Symbol	Parameter	Value	Unit
DO-214AA 	T_J	Operating Junction Temperature Range	-40 to +150	°C
	T_S	Storage Temperature Range	-65 to +150	°C
	$R_{\theta JA}$	Thermal Resistance: Junction to Ambient	90	°C/W

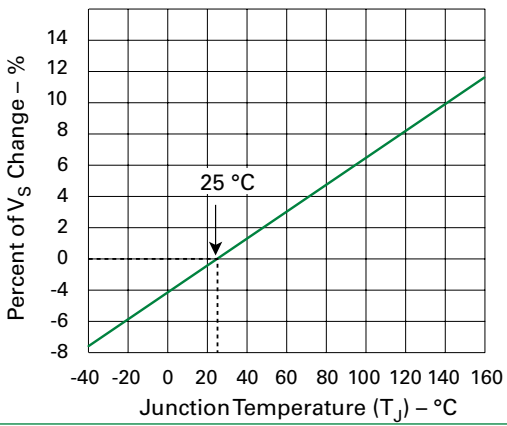
V-I Characteristics



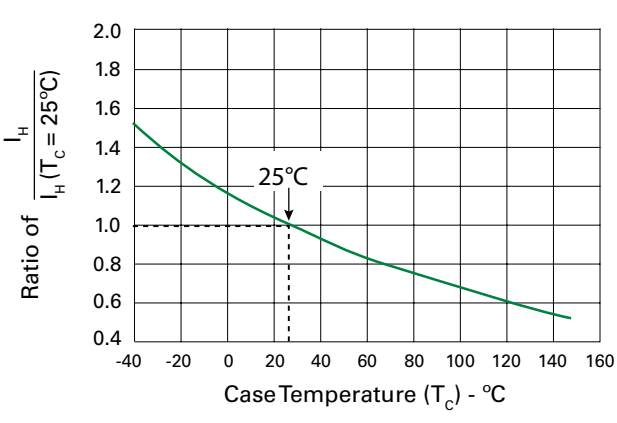
t_r x t_d Pulse Waveform



Normalized V_S Change vs. Junction Temperature



Normalized DC Holding Current vs. Case Temperature



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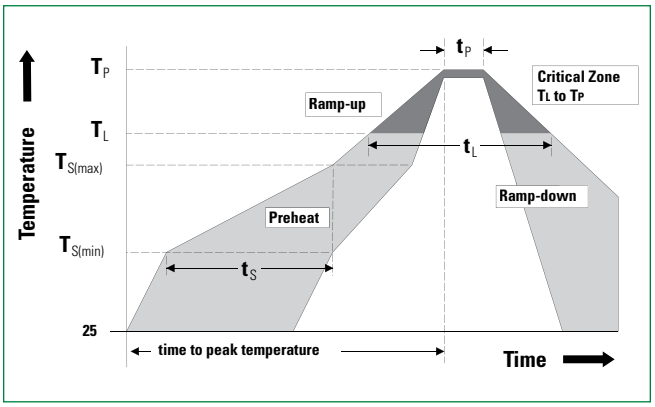
Soldering Parameters

Reflow Condition		Pb-Free assembly
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



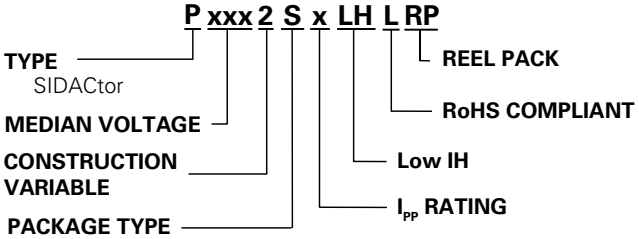
Physical Specifications

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

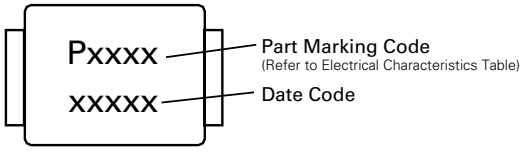
Environmental Specifications

High Temp Voltage Blocking	80% Rated V_{DRM} (V_{AC} Peak) +125°C or +150°C, 504 or 1008 hrs. MIL-STD-750 (Method 1040) JEDEC, JESD22-A-101
Temp Cycling	-65°C to +150°C, 15 min. dwell, 10 up to 100 cycles. MIL-STD-750 (Method 1051) EIA/JEDEC, JESD22-A104
Biased Temp & Humidity	52 V_{DC} (+85°C) 85%RH, 504 up to 1008 hrs. EIA/JEDEC, JESD22-A-101
High Temp Storage	+150°C 1008 hrs. MIL-STD-750 (Method 1031) JEDEC, JESD22-A-101
Low Temp Storage	-65°C, 1008 hrs.
Thermal Shock	0°C to +100°C, 5 min. dwell, 10 sec. transfer, 10 cycles. MIL-STD-750 (Method 1056) JEDEC, JESD22-A-106
Autoclave (Pressure Cooker Test)	+121°C, 100%RH, 2atm, 24 up to 168 hrs. EIA/JEDEC, JESD22-A-102
Resistance to Solder Heat	+260°C, 30 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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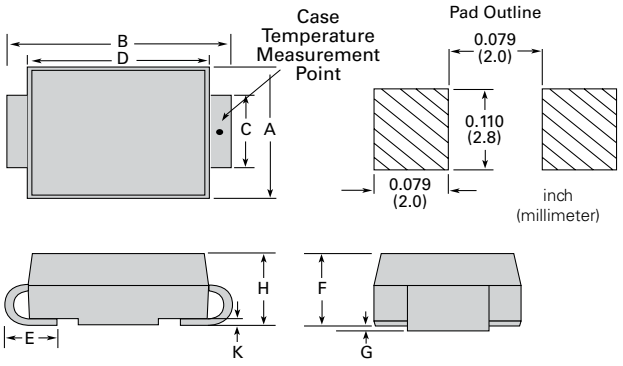
Package Dimensions — DO-214AA

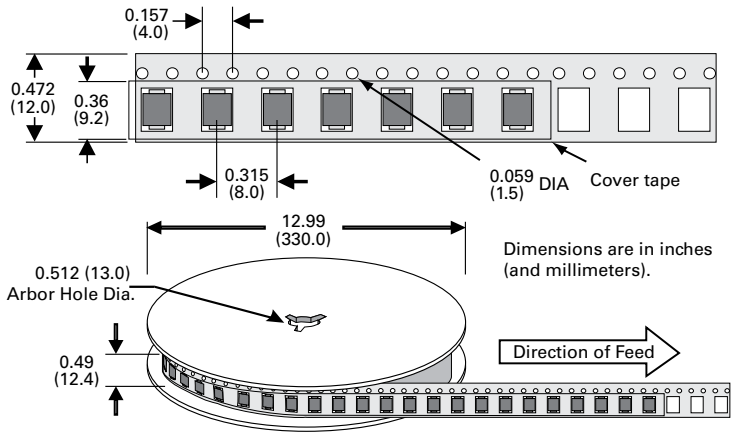


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.156	3.30	3.95
B	0.201	0.220	5.10	5.60
C	0.077	0.087	1.95	2.20
D	0.159	0.181	4.05	4.60
E	0.030	0.063	0.75	1.60
F	0.075	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
K	0.006	0.016	0.15	0.41

Packing Options

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

Tape and Reel Specification — DO-214AA



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