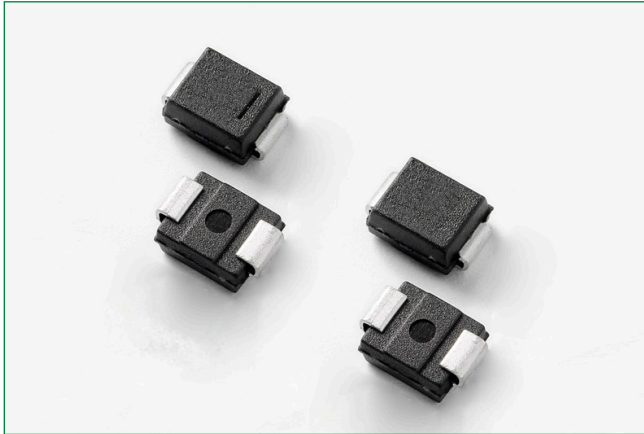


# Pxxx2SxLHL Series- Low IH Twin-Chip SIDACtor® - D0214AA

## Broadband Optimized™ Protection



### 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

### Agency Approvals

Agency	Agency File Number
	E133083

### Schematic Symbol



### 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	$V_{DRM}$ @ $I_{DRM}=5\mu A$	$V_S$ @ $100V/\mu s$	$I_H$	$I_S$	$I_T$	$V_T$ @ $I_T=2.2$ 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  $T_A=25^\circ C$  (unless otherwise noted).
- Components are bi-directional (unless otherwise noted).

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### 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>	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		
C	50	500	500	200	150	200	175	100	200	30	500	

**Notes:**

1 Current waveform in  $\mu s$

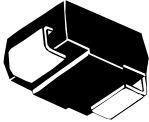
2 Voltage waveform in  $\mu s$

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

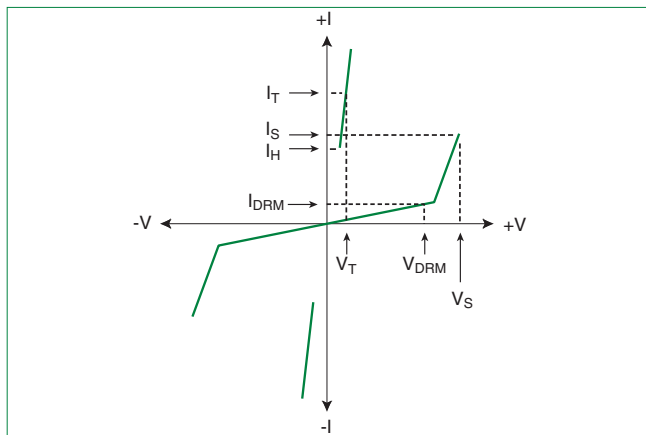
- IPP ratings applicable over temperature range of -40°C to +85°C

- The component must initially be in thermal equilibrium with -40°C < T<sub>J</sub> < +150°C

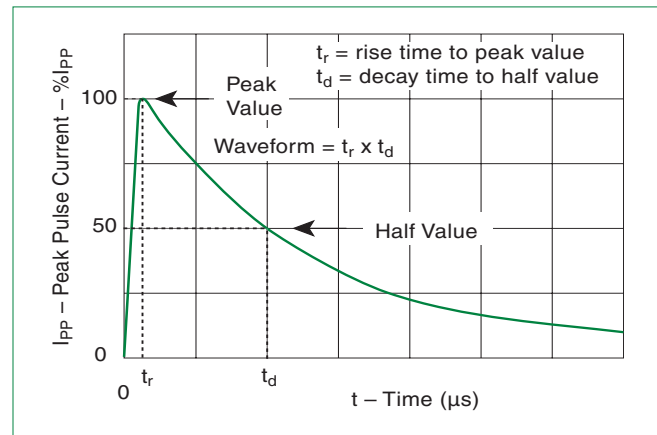
### Thermal Considerations

Package	Symbol	Parameter	Value	Unit
 DO-214AA	T <sub>J</sub>	Operating Junction Temperature Range	-40 to +150	°C
	T <sub>S</sub>	Storage Temperature Range	-65 to +150	°C
	R <sub>θJA</sub>	Thermal Resistance: Junction to Ambient	90	°C/W

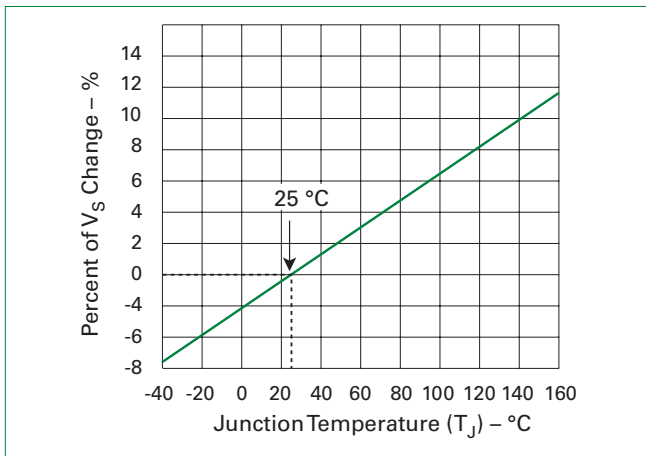
#### V-I Characteristics



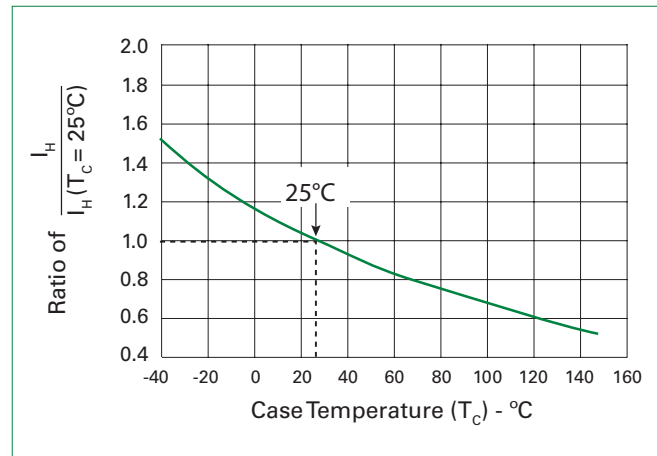
#### $t_r \times t_d$ Pulse Waveform



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



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

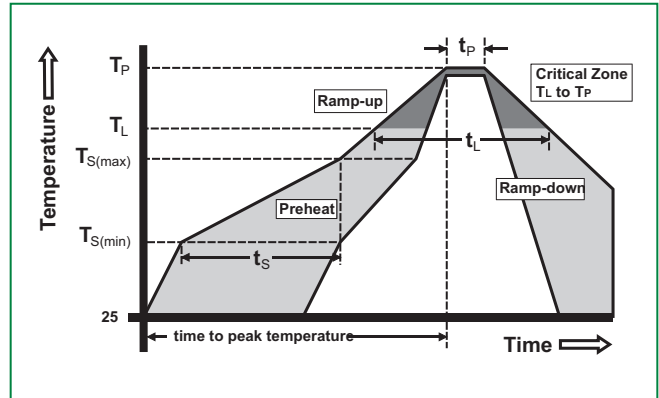


# Pxxx2SxLHL Series- Low IH Twin-Chip SIDACtor® - D0214AA

## Broadband Optimized™ Protection

### Soldering Parameters

<b>Reflow Condition</b>		Pb-Free assembly
<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



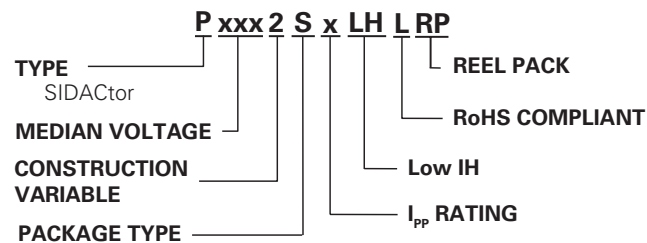
### Physical Specifications

<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

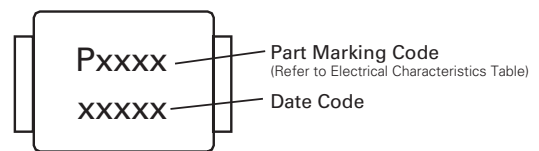
### Environmental Specifications

<b>High Temp Voltage Blocking</b>	80% Rated $V_{DRM}$ ( $V_{AC Peak}$ ) +125°C or +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>	52 $V_{DC}$ (+85°C) 85%RH, 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



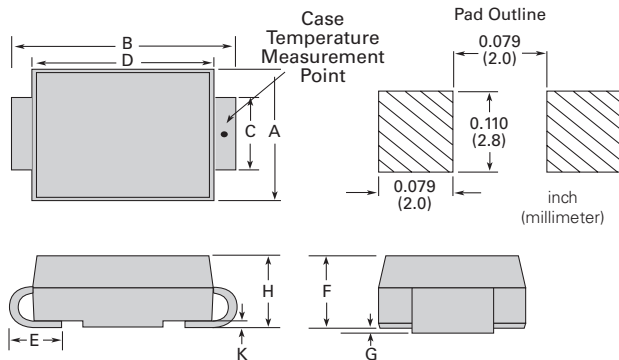
### Part Marking



# Pxxx2SxLHL Series- Low IH Twin-Chip SIDACtor® - D0214AA

## Broadband Optimized™ Protection

### Package Dimensions — DO-214AA

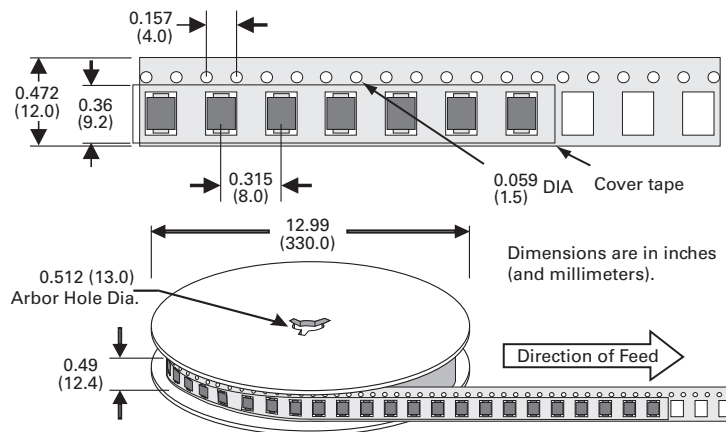


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.156	3.30	3.95
B	0.201	0.220	5.10	5.60
C	0.077	0.087	1.95	2.20
D	0.159	0.181	4.05	4.60
E	0.030	0.063	0.75	1.60
F	0.075	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
K	0.006	0.016	0.15	0.41

### 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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