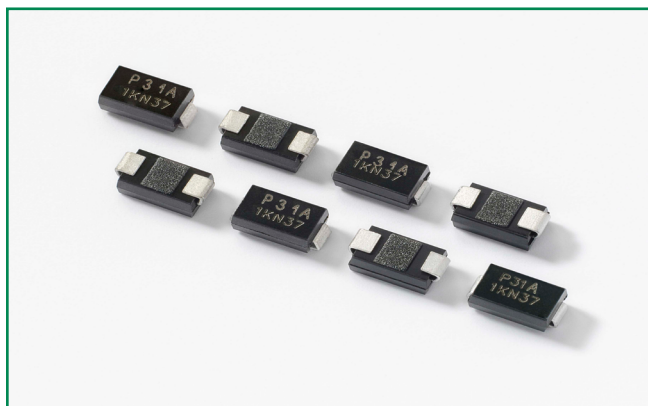


### SIDACtor® Series - SMA



#### Agency Approvals

Agency	Agency File Number
	E133083

#### Applicable Global Standards

- TIA-968-A\*
- TIA-968-B\*
- ITU K.20/21/45 Enhanced Level\*
- ITU K.20/21/45 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

\* Line impedance required to pass operationally

#### 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
P0080S1ALRP	P-8A	6	25	50	800	2.2	4	25	35
P0220S1ALRP	P22A	15	32	50	800	2.2	4	10	30
P0300S1ALRP	P03A	25	40	50	800	2.2	4	10	30
P0640S1ALRP	P06A	58	77	150	800	2.2	4	10	30
P1800S1ALRP	P18A	170	220	150	800	2.2	4	10	30
P2300S1ALRP	P23A	190	260	150	800	2.2	4	10	30
P2600S1ALRP	P26A	220	300	150	800	2.2	4	10	30
P3100S1ALRP	P31A	275	350	150	800	2.2	4	10	30
P3500S1ALRP	P35A	320	400	150	800	2.2	4	10	30
P0080S1BLRP	P-8B	6	25	50	800	2.2	4	20	35
P0220S1BLRP	P22B	15	32	50	800	2.2	4	10	30
P0300S1BLRP	P03B	25	40	50	800	2.2	4	10	30
P0640S1BLRP	P06B	58	77	120	800	2.2	4	10	30
P1800S1BLRP	P18B	170	220	120	800	2.2	4	10	30
P2300S1BLRP	P23B	190	260	120	800	2.2	4	10	30
P2600S1BLRP	P26B	220	300	120	800	2.2	4	10	30
P3100S1BLRP	P31B	275	350	120	800	2.2	4	10	30
P3500S1BLRP	P35B	320	400	120	800	2.2	4	10	30

Notes:

- Absolute maximum ratings measured at  $T_a = 25^\circ C$  (unless otherwise noted).
- Components are bi-directional (unless otherwise noted).

#### Description

SIDACtor® SMA Thyristors Series are designed to protect baseband equipment such as phones, faxes, modems, line cards, CPE and DSL from damaging overvoltage transients.

The series provides a surface mount solution that enables equipment to comply with global regulatory standards.

#### Features and Benefits

- Low voltage overshoot
- Low on-state voltage
- Does not degrade surge capability after multiple surge events within limit.
- RoHS Compliant and Halogen-Free
- Fails short circuit when surged in excess of ratings
- 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)

#### Schematic Symbol

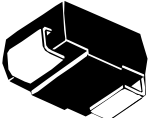


**Surge Ratings**

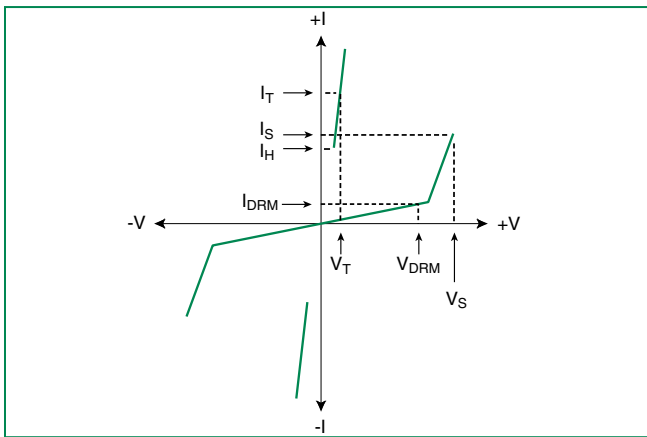
Series	$I_{PP}$									$I_{TSM}$ 50/60 Hz	di/dt
	0.2/310 <sup>1</sup>	2/10 <sup>1</sup>	8/20 <sup>1</sup>	10/160 <sup>1</sup>	10/560 <sup>1</sup>	5/320 <sup>1</sup>	10/360 <sup>1</sup>	10/1000 <sup>1</sup>	5/310 <sup>1</sup>		
	0.5/700 <sup>2</sup>	2/10 <sup>2</sup>	1.2/50 <sup>2</sup>	10/160 <sup>2</sup>	10/560 <sup>2</sup>	9/720 <sup>2</sup>	10/360 <sup>2</sup>	10/1000 <sup>2</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	Amps/μs max
A	20	150	150	90	50	75	75	50	75	20	500
B	-	250	250	90	60	75	75	55	75	25	500

Notes:  
 1 Current waveform in μs - Peak pulse current rating ( $I_{pp}$ ) is repetitive and guaranteed for the life of the product that remains in thermal equilibrium.  
 2 Voltage waveform in μs -  $I_{pp}$  ratings applicable over temperature range of -40°C to +85°C  
 - The component must initially be in thermal equilibrium with -40°C ≤  $T_J$  ≤ +150°C

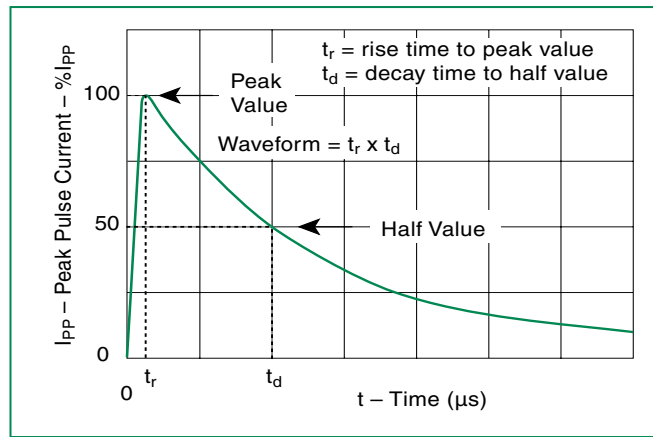
**Thermal Considerations**

Package	Symbol	Parameter	Value	Unit
DO-214AC 	$T_J$	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

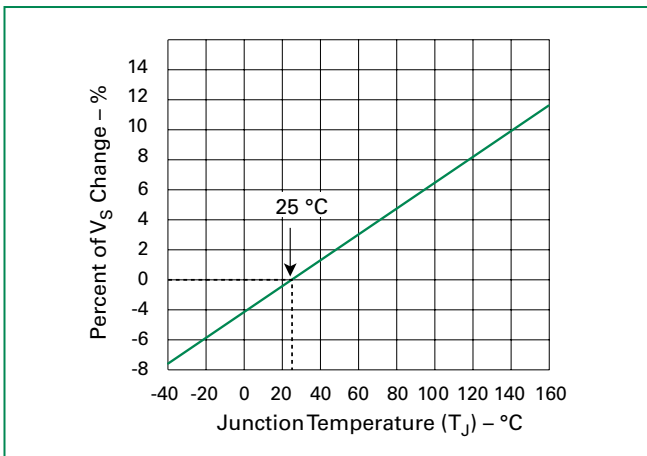
**V-I Characteristics**



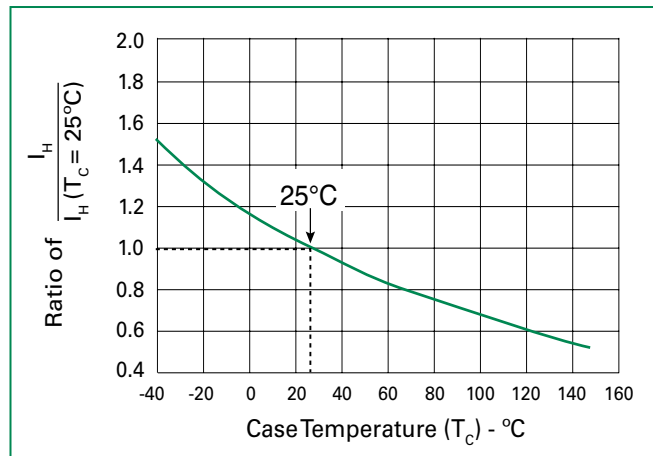
**$t_r \times t_d$  Pulse Waveform**



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

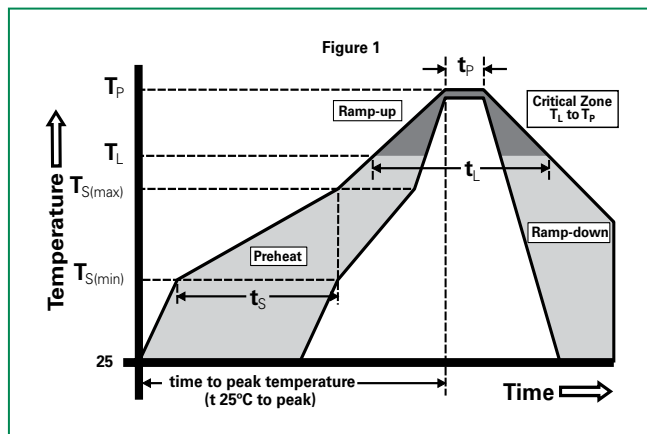


**Normalized DC Holding Current vs. Case Temperature**



### 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 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

<b>Lead Material</b>	Copper Alloy
<b>Terminal Finish</b>	100% Matte-Tin Plated
<b>Body Material</b>	UL Recognized epoxy meeting flammability classification 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

### Additional Information



Datasheet

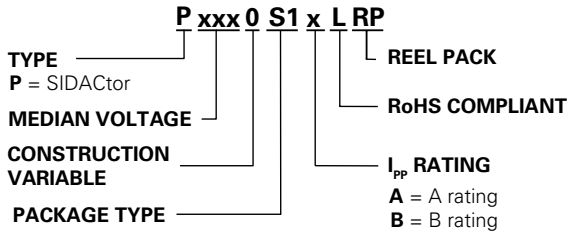


Resources

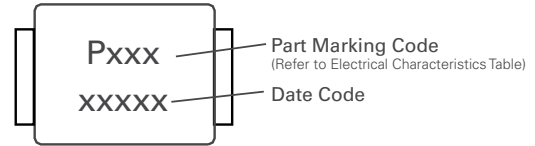


Samples

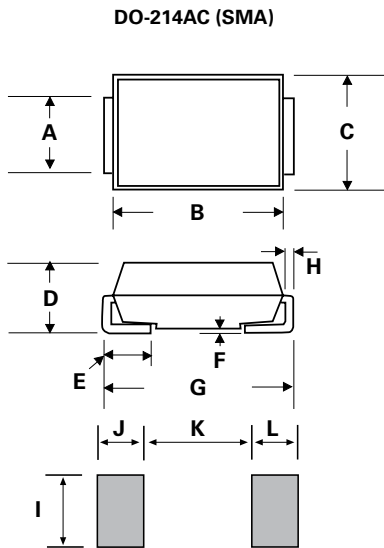
**Part Numbering**



**Part Marking**



**Dimensions**

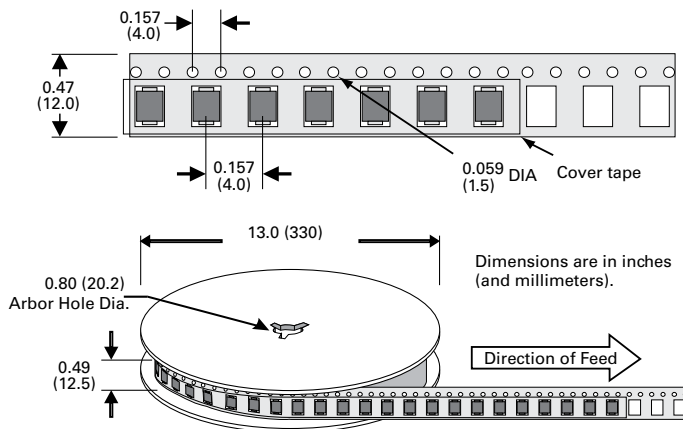


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.049	0.065	1.250	1.650
B	0.157	0.177	3.990	4.500
C	0.100	0.110	2.540	2.790
D	0.078	0.090	1.980	2.290
E	0.030	0.060	0.780	1.520
F	-	0.008	-	0.203
G	0.194	0.208	4.930	5.280
H	0.006	0.012	0.152	0.305
I	0.070	-	1.800	-
J	0.082	-	2.100	-
K	-	0.090	-	2.300
L	0.082	-	2.100	-

**Packing Options**

Package Type	Description	Packing Options Quantity	Added Suffix	Industry Standard
S1	DO-214AC Tape & Reel Pack 12mm/13" tape	5000	RP	EIA-481

**Tape and Reel Specification — DO-214AC**



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