




**THE DATASHEET OF  
P0721SCRP**



### Fixed Voltage Series - DO-214



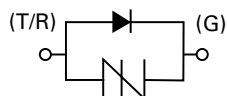
#### Agency Approvals

Agency	Agency File Number
	E133083

#### Pinout Designation



#### Schematic Symbol



#### Description

Fixed Voltage Series DO-214 are uni-directional SIDACtor® components designed to protect SLICs (Subscriber Line Interface Circuit) from damaging overvoltage transients. The series provides single line protection using a fixed voltage switching component for negative surges. All positive surges are routed through an internal diode to a ground reference.

#### Features and Benefits

- RoHS compliant, lead-free, and halogen-free
- 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 ratings
- Integrated diode for positive voltage surges
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)

#### 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	$V_{DRM}$	$V_S$	$I_H$	$I_S$	$I_T$	$V_T$	$V_F$	Capacitance	
		@ $I_{DRM}=5\mu A$	@ 100V/ $\mu s$				@ $I_T=2.2$ Amps		@ 1MHz, -2V bias	
		V min	V max	mA min	mA max	A max	V max		V max	pF min
P0641SALRP	P61A	58	77	120	800	2.2	4	5	50	90
P0721SALRP	P71A	65	88	120	800	2.2	4	5	45	85
P0901SALRP	P91A	75	98	120	800	2.2	4	5	45	80
P1101SALRP	P01A	95	130	120	800	2.2	4	5	40	70
P1301SALRP	P131A	120	160	120	800	2.2	4	5	40	70
P1701SALRP	P17A	160	200	120	800	2.2	4	5	30	55
P0641SCLRP	P61C	58	77	120	800	2.2	4	5	65	200
P0721SCLRP	P71C	65	88	120	800	2.2	4	5	60	190
P0901SCLRP	P91C	75	98	120	800	2.2	4	5	60	180
P1101SCLRP	P01C	95	130	120	800	2.2	4	5	50	160
P1201SCLRP	P121C	105	140	120	800	2.2	4	5	50	160
P1301SCLRP	P131C	120	160	120	800	2.2	4	5	50	160
P1701SCLRP	P17C	160	200	120	800	2.2	4	5	40	130
P0641SDLRP	P61D	58	77	120	800	2.2	4	5	65	200
P0721SDLRP	P71D	65	88	120	800	2.2	4	5	60	190
P0901SDLRP	P91D	75	98	120	800	2.2	4	5	60	180
P1101SDLRP	P01D	95	130	120	800	2.2	4	5	50	160
P1301SDLRP	P131D	120	160	120	800	2.2	4	5	50	160
P1701SDLRP	P17D	160	200	120	800	2.2	4	5	40	130


Notes:  
 - Absolute maximum ratings measured at  $T_a=25^\circ C$  (unless otherwise noted).  
 - Components are not appropriate for positive ringing systems.

**Surge Ratings**

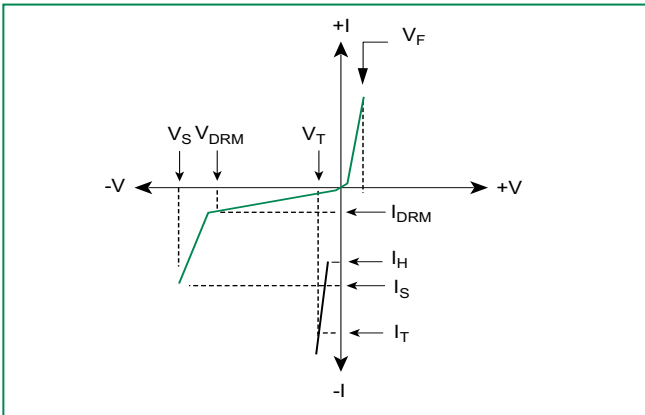
Series	$I_{PP}$									$I_{TSM}$ 50/60 Hz	di/dt
	0.2/310 <sup>1</sup> 0.5/700 <sup>2</sup>	2/10 <sup>1</sup> 2/10 <sup>1</sup>	8/20 <sup>1</sup> 1.2/50 <sup>2</sup>	10/160 <sup>1</sup> 10/160 <sup>2</sup>	10/560 <sup>1</sup> 10/560 <sup>2</sup>	5/320 <sup>1</sup> 9/720 <sup>2</sup>	10/360 <sup>1</sup> 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	20	500
C	50	500	400	200	150	200	175	100	200	30	500
D	—	1000	800	—	—	—	—	200	350	50	1000

Notes:  
 1 Current waveform in  $\mu s$  - 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  $\mu s$  -  $I_{pp}$  ratings applicable over temperature range of  $-40^{\circ}C$  to  $+85^{\circ}C$   
 3 2/10 of P0641SDLRP and P0721SDLRP is 800A min - The component must initially be in thermal equilibrium with  $-40^{\circ}C \leq T_j \leq +150^{\circ}C$

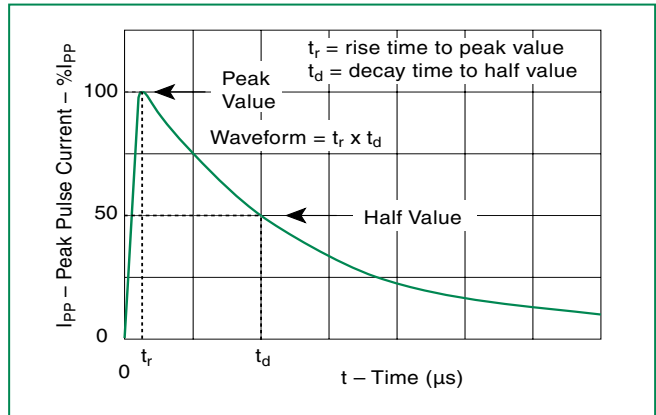
**Thermal Considerations**

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

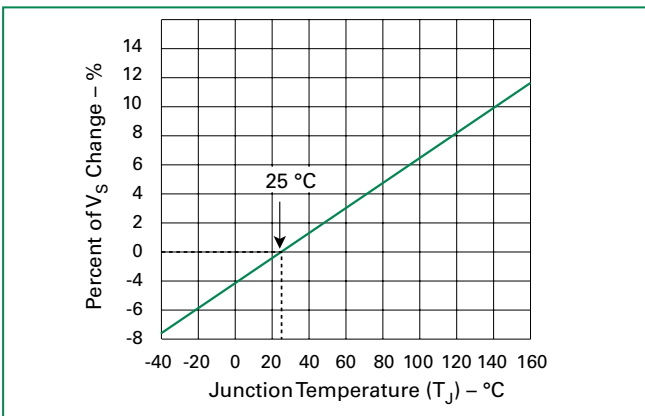
**V-I Characteristics**



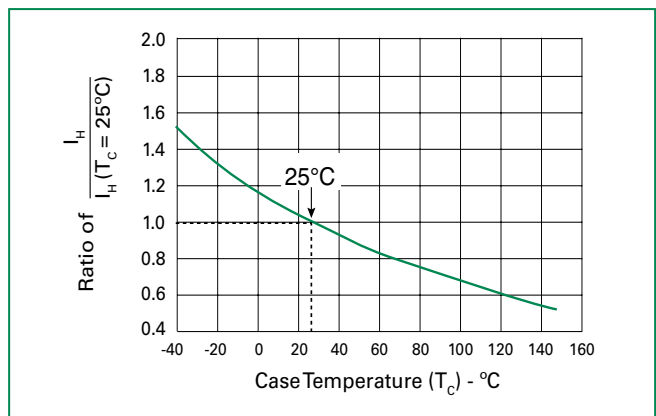
**$t_r \times t_d$  Pulse Waveform**



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

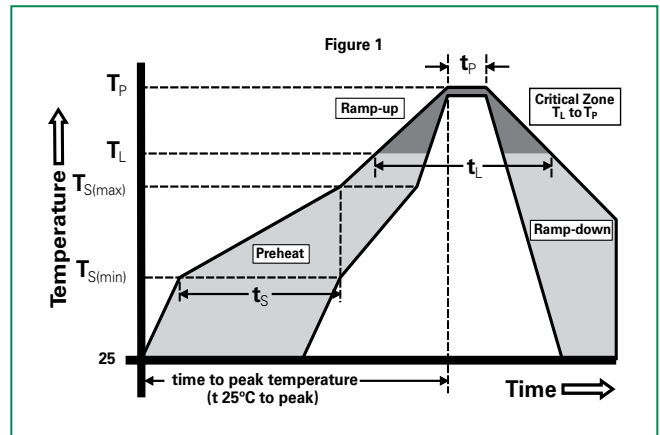


**Normalized DC Holding Current vs. Case Temperature**



**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

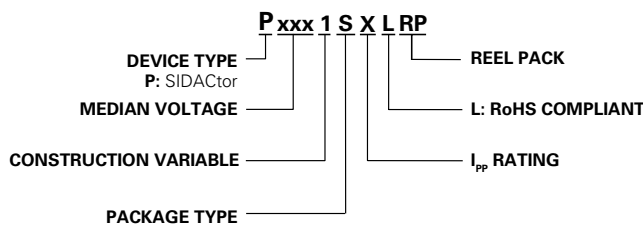


Resources

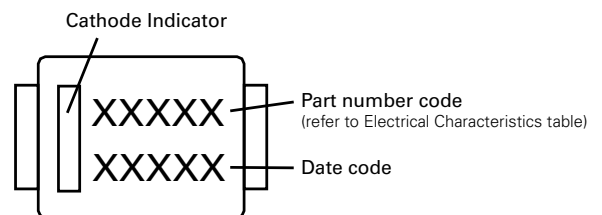


Samples

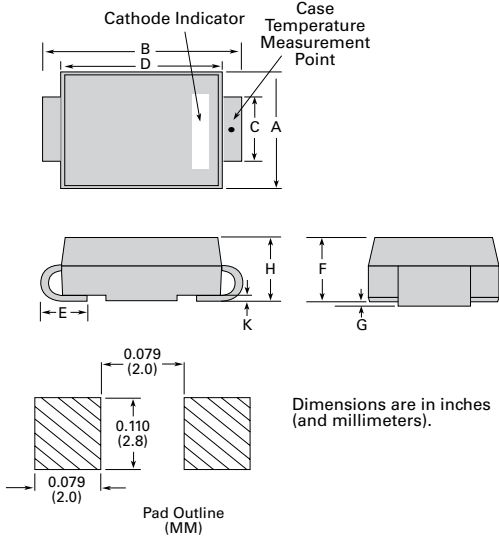
**Part Numbering**



**Part Marking**



**Dimensions – DO-214AA**

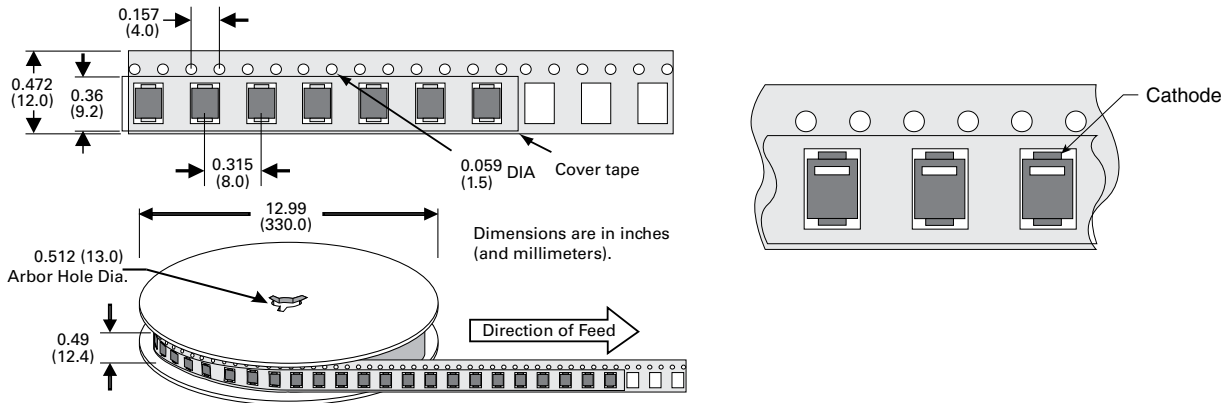


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.130	0.156	3.30	3.95
B	0.201	0.220	5.10	5.60
C	0.077	0.087	1.95	2.20
D	0.159	0.181	4.05	4.60
E	0.030	0.063	0.75	1.60
F	0.075	0.096	1.90	2.45
G	0.002	0.008	0.05	0.20
H	0.077	0.104	1.95	2.65
K	0.006	0.016	0.15	0.41

**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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