This fixed voltage, unidirectional, modified DO-214 SIDACtor thyristor series is designed to protect SLICs (Subscriber Line Interface Circuit) from damaging overvoltage transients.

These components provide single port protection implementing voltage switching characteristics for negative polarity surges and a clamping diode for positive polarity surges.

**Features and Benefits**

- 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 diodes for positive voltage surges
- Single-port protection
- 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)

**Agency Approvals**

<table>
<thead>
<tr>
<th>Agency</th>
<th>Agency File Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL</td>
<td>E133083</td>
</tr>
</tbody>
</table>

**Pinout Designation**

<table>
<thead>
<tr>
<th>Pin 1 (T)</th>
<th>Pin 2 (G)</th>
<th>Pin 3</th>
</tr>
</thead>
</table>

**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
- Lightning, 150A (8/20 as defined in IEC 61000-4-5 2nd edition)
- YD/T 1082
- YD/T 993
- YD/T 950

* Series resistance required

**Additional Information**

- Datasheet
- Resources
- Samples
## Electrical Characteristics

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Marking</th>
<th>V_{\text{max}}</th>
<th>I_{\text{r}}</th>
<th>I_{\text{i}}</th>
<th>V_{\text{i}}</th>
<th>Capacitance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>V_{\text{max}}</td>
<td>@I_{\text{rms}}=5\mu\text{A}</td>
<td>@100\text{V/\mu}\text{s}</td>
<td>@I_{\text{r}}=2.2\text{ Amps}</td>
<td>Pin 1-2, 3-2</td>
</tr>
<tr>
<td>P0641CA2LRP</td>
<td>P62A</td>
<td>58</td>
<td>77</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P0721CA2LRP</td>
<td>P72A</td>
<td>65</td>
<td>88</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P0901CA2LRP</td>
<td>P92A</td>
<td>75</td>
<td>98</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P1101CA2LRP</td>
<td>P02A</td>
<td>95</td>
<td>130</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P1301CA2LRP</td>
<td>P131A</td>
<td>120</td>
<td>160</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P1501CA2LRP</td>
<td>P151A</td>
<td>140</td>
<td>185</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P1701CA2LRP</td>
<td>P17A</td>
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<td>200</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P0641CB2LRP</td>
<td>P62B</td>
<td>58</td>
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<td>120</td>
<td>800</td>
<td>2.2</td>
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<tr>
<td>P0721CB2LRP</td>
<td>P72B</td>
<td>65</td>
<td>88</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
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<tr>
<td>P0901CB2LRP</td>
<td>P92B</td>
<td>75</td>
<td>98</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
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<td>P1101CB2LRP</td>
<td>P02B</td>
<td>95</td>
<td>130</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P1301CB2LRP</td>
<td>P131B</td>
<td>120</td>
<td>160</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P1501CB2LRP</td>
<td>P151B</td>
<td>140</td>
<td>185</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
<tr>
<td>P1701CB2LRP</td>
<td>P17B</td>
<td>160</td>
<td>200</td>
<td>120</td>
<td>800</td>
<td>2.2</td>
</tr>
</tbody>
</table>

**Notes:**
- Absolute maximum ratings measured at T_{j} = 25°C (unless otherwise noted).
- Components are not appropriate for positive ringing systems.

## Capacitance Values

<table>
<thead>
<tr>
<th>Part Number</th>
<th>pF Pin 1-2, 3-2</th>
<th>pF Pin 1-3 Tip-Ring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MIN</td>
<td>MAX</td>
</tr>
<tr>
<td>P0641CA2LRP</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td>P0721CA2LRP</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>P0901CA2LRP</td>
<td>30</td>
<td>65</td>
</tr>
<tr>
<td>P1101CA2LRP</td>
<td>25</td>
<td>55</td>
</tr>
<tr>
<td>P1301CA2LRP</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>P1501CA2LRP</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>P0641CB2LRP</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td>P0721CB2LRP</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>P0901CB2LRP</td>
<td>30</td>
<td>65</td>
</tr>
<tr>
<td>P1101CB2LRP</td>
<td>25</td>
<td>55</td>
</tr>
<tr>
<td>P1301CB2LRP</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>P1501CB2LRP</td>
<td>25</td>
<td>45</td>
</tr>
</tbody>
</table>

Note: Off-state capacitance \(C_{o}\) is measured at 1 MHz with a 2 V bias.
SIDACtor® Protection Thyristors

SLIC Protection

Surge Ratings

<table>
<thead>
<tr>
<th>Series</th>
<th>IPP</th>
<th>ITSM</th>
<th>di/dt</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2/310 1</td>
<td>2/10 1</td>
<td>8/20 1</td>
<td>10/160 1</td>
</tr>
<tr>
<td>0.5/700 2</td>
<td>2/10 2</td>
<td>1.25/2 1</td>
<td>10/160 2</td>
</tr>
<tr>
<td>A min</td>
<td>A min</td>
<td>A min</td>
<td>A min</td>
</tr>
<tr>
<td>20</td>
<td>150</td>
<td>90</td>
<td>50</td>
</tr>
<tr>
<td>25</td>
<td>250</td>
<td>150</td>
<td>90</td>
</tr>
</tbody>
</table>

Notes:

1. Current waveform in µs
2. Voltage waveform in µs

Thermal Considerations

<table>
<thead>
<tr>
<th>Package</th>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified DO-214AA</td>
<td>T&lt;sub&gt;j&lt;/sub&gt;</td>
<td>Operating Junction Temperature Range</td>
<td>-40 to +150</td>
<td>°C</td>
</tr>
<tr>
<td></td>
<td>T&lt;sub&gt;s&lt;/sub&gt;</td>
<td>Storage Temperature Range</td>
<td>-65 to +150</td>
<td>°C</td>
</tr>
<tr>
<td></td>
<td>R&lt;sub&gt;ja&lt;/sub&gt;</td>
<td>Thermal Resistance: Junction to Ambient</td>
<td>85</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

V-I Characteristics

Normalized V<sub>S</sub> Change vs. Junction Temperature

Normalized DC Holding Current vs. Case Temperature

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Specifications are subject to change without notice.
Revised: 05/08/18
Soldering Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflow Condition</td>
<td>Pb-Free assembly (see Fig. 1)</td>
</tr>
<tr>
<td>Pre Heat</td>
<td>- Temperature Min (T_{S(min)}) +150°C</td>
</tr>
<tr>
<td></td>
<td>- Temperature Max (T_{S(max)}) +200°C</td>
</tr>
<tr>
<td></td>
<td>- Time (Min to Max) (t_s) 60-180 secs.</td>
</tr>
<tr>
<td>Average ramp up rate (Liquidus Temp (T_L) to peak)</td>
<td>3°C/sec. Max.</td>
</tr>
<tr>
<td>(T_{S(max)}) to (T_L) - Ramp-up Rate</td>
<td>3°C/sec. Max.</td>
</tr>
<tr>
<td>Reflow</td>
<td>- Temperature (T_L) (Liquidus) +217°C</td>
</tr>
<tr>
<td></td>
<td>- Temperature (t_L) 60-150 secs.</td>
</tr>
<tr>
<td>Peak Temp (T_P)</td>
<td>+260(+0/5)°C</td>
</tr>
<tr>
<td>Time within 5°C of actual Peak Temp (t_P)</td>
<td>30 secs. Max.</td>
</tr>
<tr>
<td>Ramp-down Rate</td>
<td>6°C/sec. Max.</td>
</tr>
<tr>
<td>Time 25°C to Peak Temp (t_P)</td>
<td>8 min. Max.</td>
</tr>
<tr>
<td>Do not exceed</td>
<td>+260°C</td>
</tr>
</tbody>
</table>

Environmental Specifications

<table>
<thead>
<tr>
<th>Test Condition</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Temp Voltage Blocking</td>
<td>80% Rated (V_{DRM}) ((V_{DRM}) Peak) +125°C or +150°C, 504 or 1008 hrs. MILSTD-750 (Method 1040) JEDEC, JESD22-A-101</td>
</tr>
<tr>
<td>Temp Cycling</td>
<td>-65°C to +150°C, 15 min. dwell, 10 up to 100 cycles. MILSTD-750 (Method 1051) EIA/JEDEC, JESD22-A-104</td>
</tr>
<tr>
<td>Biased Temp &amp; Humidity</td>
<td>52 (V_{DC}) (+85°C) 85%RH, 504 up to 1008 hrs. EIA/JEDEC, JESD22-A-101</td>
</tr>
<tr>
<td>High Temp Storage</td>
<td>+150°C 1008 hrs. MILSTD-750 (Method 1031) JEDEC, JESD22-A-101</td>
</tr>
<tr>
<td>Low Temp Storage</td>
<td>-65°C, 1008 hrs.</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>0°C to +100°C, 5 min. dwell, 10 sec. transfer, 10 cycles. MILSTD-750 (Method 1056) JEDEC, JESD22-A-106</td>
</tr>
<tr>
<td>Autoclave (Pressure Cooker Test)</td>
<td>+121°C, 100%RH, 2atm, 24 up to 168 hrs. EIA/JEDEC, JESD22-A-102</td>
</tr>
<tr>
<td>Resistance to Solder Heat</td>
<td>+260°C, 30 secs. MILSTD-750 (Method 2031)</td>
</tr>
</tbody>
</table>

Physical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Material</td>
<td>Copper Alloy</td>
</tr>
<tr>
<td>Terminal Finish</td>
<td>100% Matte-Tin Plated</td>
</tr>
<tr>
<td>Body Material</td>
<td>UL Recognized compound meeting flammability rating V-0.</td>
</tr>
</tbody>
</table>

Part Numbering

<table>
<thead>
<tr>
<th>Part Numbering</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P xxx 1 C x 2 L RP</td>
<td>Type and lead pack</td>
</tr>
<tr>
<td>P = SIDACtor</td>
<td>Median Voltage</td>
</tr>
<tr>
<td>CONSTRUCTION VARIABLE</td>
<td>Construction variable</td>
</tr>
<tr>
<td>REEL PACK</td>
<td>Reel pack</td>
</tr>
<tr>
<td>RoHS COMPLIANT</td>
<td>RoHS compliant</td>
</tr>
<tr>
<td>TwinSLIC IDENTIFIER</td>
<td>TwinSLIC identifier</td>
</tr>
<tr>
<td>(two chip device)</td>
<td></td>
</tr>
<tr>
<td>RATING</td>
<td>Rp (V)</td>
</tr>
</tbody>
</table>

Part Marking

<table>
<thead>
<tr>
<th>Part Marking</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xxxxxx</td>
<td>Part number code (refer to Electrical Characteristics table)</td>
</tr>
<tr>
<td>Xxxxxx</td>
<td>Date code</td>
</tr>
</tbody>
</table>
**SIDACtor® Protection Thyristors**

**SLIC Protection**

---

### Dimensions — Modified DO-214AA

![Diagram of the Package](image)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Inches</th>
<th>Millimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.130</td>
<td>3.30</td>
</tr>
<tr>
<td>B</td>
<td>0.201</td>
<td>5.10</td>
</tr>
<tr>
<td>C</td>
<td>0.077</td>
<td>1.95</td>
</tr>
<tr>
<td>D</td>
<td>0.159</td>
<td>4.05</td>
</tr>
<tr>
<td>E</td>
<td>0.030</td>
<td>0.75</td>
</tr>
<tr>
<td>F</td>
<td>0.075</td>
<td>1.90</td>
</tr>
<tr>
<td>G</td>
<td>0.002</td>
<td>0.05</td>
</tr>
<tr>
<td>H</td>
<td>0.077</td>
<td>1.95</td>
</tr>
<tr>
<td>K</td>
<td>0.006</td>
<td>0.15</td>
</tr>
<tr>
<td>M</td>
<td>0.022</td>
<td>0.56</td>
</tr>
<tr>
<td>N</td>
<td>0.027</td>
<td>0.69</td>
</tr>
<tr>
<td>P</td>
<td>0.052</td>
<td>1.32</td>
</tr>
</tbody>
</table>

Dimensions are in inches (and millimeters).

---

### Packing Options

<table>
<thead>
<tr>
<th>Package Type</th>
<th>Description</th>
<th>Quantity</th>
<th>Added Suffix</th>
<th>Industry Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Modified DO-214AA 3-leaded Tape and Reel Pack</td>
<td>2500</td>
<td>RP</td>
<td>EIA-481-D</td>
</tr>
</tbody>
</table>

---

### Tape and Reel Specification — Modified DO-214AA

![Diagram of the Tape and Reel](image)

- **Arbor Hole Dia.**: 0.512 (13.0)
- **Direction of Feed**: 

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