**Description**

SIDACtor® Series DO-214AB (Surface Mount) package are designed to protect low data rate interface and outdoor data interface such as RS-232 or RS-423 in industrial market. They provide a surface mount solution that enables equipment to comply with global regulatory standards. The component’s switching threshold $V_s$ and on-state voltage $V_T$ are much lower than traditional Gas Discharge Tube (GDT) technology.

**Features and Benefits**

- Low voltage overshoot
- Low on-state voltage
- Component properties do not degrade after multiple surge events within its limits
- Fails short circuit when surged in excess of ratings
- Fast response in microseconds
- 2nd level interconnect is Pb-free per IPC/JEDEC J-STD-009A.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
- YD/T 1082
- YD/T 993
- YD/T 950

**Electrical Characteristics**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Marking</th>
<th>$V_{drm}$ @ $I_{drms}$=5µA</th>
<th>$V_s$ @ 100V/µs</th>
<th>$I_h$</th>
<th>$I_s$</th>
<th>$I_t$ @ $I_t$=2.2A</th>
<th>$V_T$</th>
<th>Capacitance @1MHz, 2V bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0080S3NLRP</td>
<td>P-8N</td>
<td>6</td>
<td>25</td>
<td>50</td>
<td>800</td>
<td>2.2</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>P0300S3NLRP</td>
<td>P03N</td>
<td>30</td>
<td>45</td>
<td>50</td>
<td>800</td>
<td>2.2</td>
<td>4</td>
<td>80</td>
</tr>
</tbody>
</table>

**Surge Ratings**

<table>
<thead>
<tr>
<th>Series</th>
<th>$I_{pp}$</th>
<th>$I_{tsm}$</th>
<th>$di/dt$</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>2500</td>
<td>250</td>
<td>630</td>
</tr>
</tbody>
</table>

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

Notes:
1. Current waveform in µs
2. Voltage waveform in µs
- Peak pulse current rating $I_{pp}$ is repetitive and guaranteed for the life of the product.
- $I_{pp}$ ratings applicable over temperature range of -40°C to +85°C
- The device must initially be in thermal equilibrium with $-40°C < T_J < +150°C$
**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>DO-214AB</td>
<td>( T_j )</td>
<td>Operating Junction Temperature Range</td>
<td>-65 to +150</td>
<td>°C</td>
</tr>
<tr>
<td></td>
<td>( T_s )</td>
<td>Storage Temperature Range</td>
<td>-65 to +150</td>
<td>°C</td>
</tr>
<tr>
<td></td>
<td>( R_{JA} )</td>
<td>Thermal Resistance: Junction to Ambient</td>
<td>75</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

**V-I Characteristics**

**Normalized \( V_S \) Change vs. Junction Temperature**

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

**\( t_r \times t_d \) Pulse Waveform**

- \( t_r \): rise time to peak value
- \( t_d \): decay time to half value

Waveform = \( t_r \times t_d \)

- \( I_{PP} \): Peak Pulse Current - %\( I_{PP} \)
- \( V_S \): Junction Temperature (\( T_j \))
- \( T_j \): Operating Junction Temperature Range
- \( T_c \): Case Temperature

---

© 2016 Littelfuse, Inc.
Specifications are subject to change without notice.
Revised: 05/24/16
Soldering Parameters

Reflow Condition
- Temperature Min ($T_{\text{min}}$) +150°C
- Temperature Max ($T_{\text{max}}$) +200°C
- Time (Min to Max) ($t_{\text{T}}$) 60-180 secs.

Pre Heat
- Average ramp up rate (Liquidus Temp ($T_{L}$) to peak) 3°C/sec. Max.

Peak Temp ($T_{\text{p}}$) +260(+0/-5)°C
- Time within 5°C of actual Peak Temp ($t_{\text{ts}}$) 30 secs. Max.

Ramp-down Rate 6°C/sec. Max.
- Time 25°C to Peak Temp ($T_{\text{p}}$) 8 min. Max.

Do not exceed +260°C

Physical Specifications

Lead Material
Copper Alloy

Terminal Finish
100% Matte-Tin Plated

Body Material
UL recognized epoxy meeting flammability classification V-0

Environmental Specifications

High Temp Voltage Blocking
80% Rated $V_{\text{ceq, Peak}}$ (+125°C or +150°C, 504 or 1008 hrs. MilSTD-750 (Method 1040) EIA/JEDEC, JESD22-A-101

Temp Cycling
-65°C to +150°C, 15 min. dwell, 10 up to 100 cycles. MilSTD-750 (Method 1051) EIA/JEDEC, JESD22-A-104

Biased Temp & Humidity
$V_{\text{ce}}$ (+85°C) 85%RH, 504 up to 1008 hrs. EIA/JEDEC, JESD22-A-101

High Temp Storage
+150°C 1008 hrs. MilSTD-750 (Method 1031) EIA/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. MilSTD-750 (Method 1056) JEDEC, JESD22-A-106

Autoclave (Pressure Cooker Test)
+121°C, 100%RH, 2atl, 24 up to 168 hrs. EIA/JEDEC, JESD22-A-102

Resistance to Solder Heat
+260°C, 30 secs. MilSTD-750 (Method 2031)

Moisture Sensitivity Level

Part Numbering

- TYPE: SIDACtor
- MEDIAN VOLTAGE
- CONSTRUCTION VARIABLE
- PACKAGE TYPE
- IPP RATING
- REEL PACK
- RoHS COMPLIANT

Part Marking

Pxxxx 0S3 N L RP

Part Marking Code (Refer to Electrical Characteristics Table)

Date Code

© 2016 Littelfuse, Inc.
Specifications are subject to change without notice.
Revised: 05/24/16

SIDACtor® Series DO-214AB
Dimensions – DO-214AB

Packaging 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>S3</td>
<td>DO-214AB Tape and Reel Pack</td>
<td>3000</td>
<td>RP</td>
<td>EIA-481-D tape and reel specification</td>
</tr>
</tbody>
</table>

Tape and Reel Specification – DO-214AB