



## Solid State Devices, Inc.

14701 Firestone Blvd \* La Mirada, Ca 90638  
 Phone: (562) 404-4474 \* Fax: (562) 404-1773  
 ssdi@ssdi-power.com \* www.ssdi-power.com

### Designer's Data Sheet

#### Part Number/Ordering Information <sup>1/</sup>

SPD

— — —

#### Screening <sup>2/</sup>

— = Not Screened

TX = TX Level

TXV = TXV

S = S Level

#### Package Type

— = Axial Leaded

SMS = Surface Mount Square Tab

#### Voltage/Family

205 = 50V

210 = 100V

220 = 200V

230 = 300V

SPD205 thru SPD230

and

SPD205SMS thru SPD230SMS

2.0 AMPS

50 — 300 VOLTS

25 ns HYPERFAST RECOVERY  
RECTIFIER

#### FEATURES:

- Hyper Fast Reverse Recovery: 25ns Maximum <sup>4/</sup>
- PIV to 300 Volts
- Hermetically Sealed
- Low Forward Voltage Drop
- Void Free Chip Construction
- For High Efficiency Applications
- Available in Axial & Square Tab Versions
- TX, TXV, and S-Level Screening Available <sup>2/</sup>
- Replacement for: 1N 5802, US thru 1N5806, US

#### MAXIMUM RATINGS <sup>3/</sup>

| RATING                                                                                                                                                    |                                                              | SYMBOL              | VALUE       | UNIT               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------|-------------|--------------------|
| Peak Repetitive Reverse Voltage<br>And<br>DC Blocking Voltage                                                                                             | SPD205                                                       | $V_{RRM}$           | 50          | Volts              |
|                                                                                                                                                           | SPD210                                                       | $V_{RRM}$           | 100         |                    |
|                                                                                                                                                           | SPD220                                                       | $V_{RWM}$           | 200         |                    |
|                                                                                                                                                           | SPD230                                                       | $V_R$               | 300         |                    |
| Average Rectified Forward Current                                                                                                                         | (Resistive Load, 60Hz, Sine Wave, $T_A = 25^\circ\text{C}$ ) | $I_O$               | 2.0         | Amps               |
| Peak Surge Current<br>(8.3ms pulse, half sine wave superimposed on $I_O$ , allow junction to reach equilibrium between pulses, $T_A = 25^\circ\text{C}$ ) |                                                              | $I_{FSM}$           | 50          | Amps               |
| Operating & Storage Temperature                                                                                                                           |                                                              | $T_J$ and $T_{STG}$ | -65 to +175 | $^\circ\text{C}$   |
| Thermal Resistance                                                                                                                                        | Junction to Lead for Axial, L = .375"                        | $R_{\theta JL}$     | 38          | $^\circ\text{C/W}$ |
|                                                                                                                                                           | Junction to End Tab for Surface Mount                        | $R_{\theta JE}$     | 25          |                    |

#### NOTES:

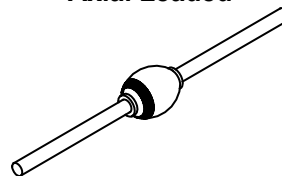
<sup>1/</sup> For Ordering Information, Price, Operating Curves, and Availability- Contact Factory.

<sup>2/</sup> Screened to MIL-PRF-19500.

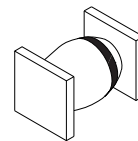
<sup>3/</sup> Unless Otherwise Specified, All Electrical Characteristics @25°C.

<sup>4/</sup>  $I_F = 500\text{mA}$ ,  $I_R = 1\text{A}$ ,  $I_{RR} = 250\text{mA}$ ,  $T_A = 25^\circ\text{C}$

Axial Leaded



SMS



**NOTE:** All specifications are subject to change without notification.  
 SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: RH0099E

DOC

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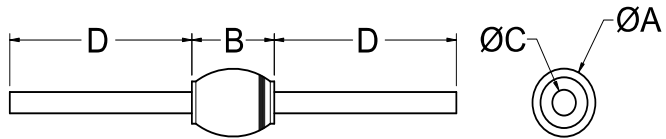
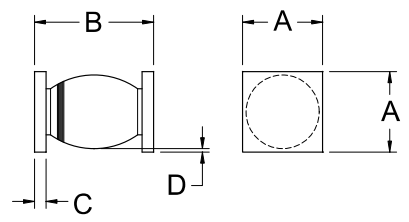
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**SPD205 thru SPD230  
 and  
 SPD205SMS thru SPD230SMS**

**ELECTRICAL CHARACTERISTICS <sup>3/</sup>**

| CHARACTERISTICS                                                                                                       |                                                                              | SYMBOL   | VALUE      | UNIT          |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------|------------|---------------|
|                                                                                                                       |                                                                              |          | <b>MAX</b> |               |
| Instantaneous Forward Voltage Drop                                                                                    | $I_F = 2.0 \text{ Adc}, T_A = +25^\circ\text{C}, 300 - 500\mu\text{s pulse}$ | $V_{F1}$ | 1.0        | Vdc           |
|                                                                                                                       | $I_F = 2.0 \text{ Adc}, T_A = -55^\circ\text{C}, 300 - 500\mu\text{s pulse}$ | $V_{F2}$ | 1.2        |               |
| Reverse Leakage Current                                                                                               | (Rated $V_R, T_A = +25^\circ\text{C}$ )                                      | $I_{R1}$ | 10         | $\mu\text{A}$ |
|                                                                                                                       | (Rated $V_R, T_A = +100^\circ\text{C}$ )                                     | $I_{R2}$ | 1          | mA            |
| Junction Capacitance<br>$V_R = 10 \text{ Vdc}, f = 1\text{MHz}, T_A = 25^\circ\text{C}$                               |                                                                              | $C_J$    | 45         | pF            |
| Maximum Reverse Recovery Time<br>$I_F = 500\text{mA}, I_R = 1\text{A}, I_{RR} = 250\text{mA}, T_A = 25^\circ\text{C}$ |                                                                              | $t_{rr}$ | 25         | ns            |

**NOTES:****1/** For Ordering Information, Price, Operating Curves, and Availability- Contact Factory.**2/** Screened to MIL-PRF-19500.**3/** Unless Otherwise Specified, All Electrical Characteristics @25°C.**4/**  $I_F = 500\text{mA}, I_R = 1\text{A}, I_{RR} = 250\text{mA}, T_A = 25^\circ\text{C}$ **Package Outlines:**

| DIMENSIONS (inches)                                                                                     |         |         | DIMENSIONS (inches)                                                                                     |         |         |
|---------------------------------------------------------------------------------------------------------|---------|---------|---------------------------------------------------------------------------------------------------------|---------|---------|
| DIM.                                                                                                    | Minimum | Maximum | DIM.                                                                                                    | Minimum | Maximum |
| A                                                                                                       | ---     | .140    | A                                                                                                       | .134    | .155    |
| B                                                                                                       | .190    | .230    | B                                                                                                       | .230    | .280    |
| C                                                                                                       | .027    | .033    | C                                                                                                       | .022    | .028    |
| D                                                                                                       | 1.00    | ---     | D                                                                                                       | .002    | ---     |
| <b>AXIAL</b><br><br> |         |         | <b>SMS</b><br><br> |         |         |

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