**Solid State Devices, Inc.**
14701 Firestone Blvd * La Mirada, Ca 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
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NEW!

# SPD645-1 thru SPD649-1
# and
# SPD645-1SMS thru SPD649-1SMS

**400 mAMPS**
**225 – 600 VOLTS**
**STANDARD RECOVERY RECTIFIER**

## Designer's Data Sheet

**Part Number/Ordering Information** [1/]

**SPD** ___ ___ ___

**Screening** [2/]
__ = Not Screened
TX = TX Level
TXV = TXV
S = S Level

**Package Type**
__ = Axial Leaded
SMS = Surface Mount Square Tab

**Voltage/Family**
645-1 = 225V
646-1 = 300V
647-1 = 400V
648-1 = 500V
649-1 = 600V

## FEATURES:

- **Standard Reverse Recovery (Faster Versions Available)**
- **$V_R$ to 600 Volts (Higher Voltages Available)**
- **Hermetically Sealed Glass Package**
- **Metallurgically Bonded**
- **High Surge Capability**
- **No Thermal Fatigue**
- **Available in Axial & Square Tab Versions**
- **TX, TXV, and S-Level Screening Available** [2/]
- **Replacement for: 1N645-1, UR-1 thru 1N649-1, UR-1**

## MAXIMUM RATINGS [3/]

| RATING | | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage And DC Blocking Voltage | 645-1<br>646-1<br>647-1<br>648-1<br>649-1 | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 225<br>300<br>400<br>500<br>600 | Volts |
| Average Rectified Forward Current | $T_A$ = 25°C<br>$T_A$ = 150°C | $I_{O1}$<br>$I_{O2}$ | 400<br>150 | mAmps |
| Power Dissipation (at 3/8" from the body, $T_L$ = 75°C) | | $P_{tot}$ | 600 | mWatts |
| Surge Current ($T_A$ = 25°C to 150°C, for 1 Second) | | $I_{FSM}$ | 3 | Amps |
| Operating & Storage Temperature | | $T_O$ and $T_{STG}$ | -65 to +175 | °C |
| Thermal Impedance | | $Z_{qJX}$ | 35 | °C/W |

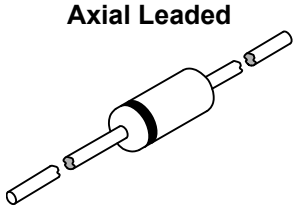
**NOTES:**

**1/** For Ordering Information, Price, Operating Curves, and Availability- Contact Factory.

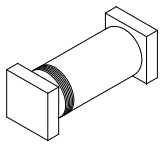
**2/** Screening Based on MIL-PRF-19500. Screening Flows Available on Request.

**3/** Unless Otherwise Specified, All Electrical Characteristics @25ºC.

**Axial Leaded**



**SMS**



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# SPD645-1 thru SPD649-1 and SPD645-1SMS thru SPD649-1SMS

## ELECTRICAL CHARACTERISTICS 3/

| CHARACTERISTICS | | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Minimum Breakdown Voltage (100μA) | 645-1<br>646-1<br>647-1<br>648-1<br>649-1 | $B_V$ | 275<br>360<br>480<br>600<br>720 | Volts |
| Maximum Forward Voltage Drop ($I_F$ = 400mA) | | $V_F$ | 1.0 | Volts |
| Maximum Reverse Leakage Current (Rated $V_R$, $T_A$ = +25°C) | | $I_{R1}$ | 200 | nA |
| Maximum Reverse Leakage Current (Rated $V_R$, $T_A$ =+100°C) | 645-1<br>646-1<br>647-1<br>648-1<br>649-1 | $I_{R2}$ | 15<br>15<br>20<br>20<br>25 | μA |
| Typical Junction Capacitance ( -12 V) | | $C_O$ | 9 | pF |

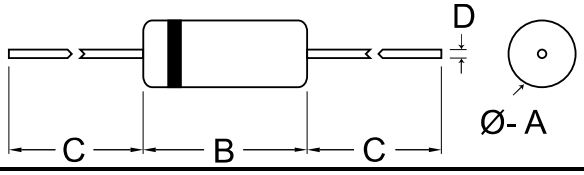
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**3/** Unless Otherwise Specified, All Electrical Characteristics @25ºC.

## Package Outlines:

| DIMENSIONS (inches) | | | DIMENSIONS (inches) | | |
|---|---|---|---|---|---|
| DIM. | Minimum | Maximum | DIM. | Minimum | Maximum |
| A | .060 | .090 | A | .098 | .102 |
| B | .120 | .200 | B | .170 | .250 |
| C | 1.00 | --- | C | .022 | .028 |
| D | .018 | .022 | D | .002 | --- |

**AXIAL**




**SMS**

