



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, Ca 90638
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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 | V_{RRM} | 225 | Volts |
| | 646-1 | | 300 | |
| | 647-1 | V_{RWM} | 400 | |
| | 648-1 | V_R | 500 | |
| | 649-1 | | 600 | |
| Average Rectified Forward Current | $T_A = 25^\circ C$ | I_{O1} | 400 | mAmps |
| | $T_A = 150^\circ C$ | I_{O2} | 150 | |
| Power Dissipation (at 3/8" from the body, $T_L = 75^\circ C$) | | P_{tot} | 600 | mWatts |
| Surge Current ($T_A = 25^\circ C$ to $150^\circ C$, for 1 Second) | | I_{FSM} | 3 | Amps |
| Operating & Storage Temperature | | T_O and T_{STG} | -65 to +175 | $^\circ C$ |
| Thermal Impedance | | Z_{qjX} | 35 | $^\circ C/W$ |

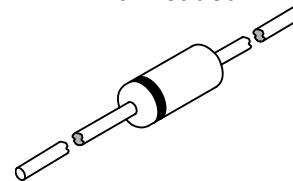
NOTES:

^{1/} For Ordering Information, Price, Operating Curves, and Availability- Contact Factory.

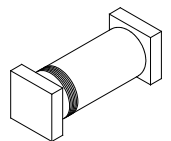
^{2/} Screening Based on MIL-PRF-19500. Screening Flows Available on Request.

^{3/} Unless Otherwise Specified, All Electrical Characteristics @25°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 #: RC0109B

DOC



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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 | 275 | Volts |
| | 646-1 | 360 | |
| | 647-1 | 480 | |
| | 648-1 | 600 | |
| | 649-1 | 720 | |
| 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 | 15 | μA |
| | 646-1 | 15 | |
| | 647-1 | 20 | |
| | 648-1 | 20 | |
| | 649-1 | 25 | |
| Typical Junction Capacitance (-12 V) | C _O | 9 | pF |

NOTES:

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- 2/ Screening Based on MIL-PRF-19500. Screening Flows Available on Request.
- 3/ Unless Otherwise Specified, All Electrical Characteristics @25°C.

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