



**Solid State Devices, Inc.**

14701 Firestone Blvd \* La Mirada, Ca 90638  
 Phone: (562) 404-4474 \* Fax: (562) 404-1773  
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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 <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**

- 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 <sup>2/</sup>
- Replacement for: 1N645-1, UR-1 thru 1N649-1, UR-1

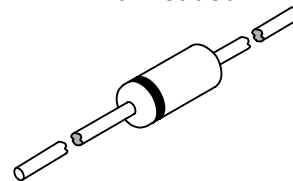
**MAXIMUM RATINGS <sup>3/</sup>**

RATING		SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage And DC Blocking Voltage	645-1	$V_{RRM}$ $V_{RWM}$ $V_R$	225	Volts
	646-1		300	
	647-1		400	
	648-1		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	$^\circ C/W$

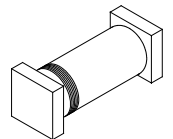
**NOTES:**

- <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.

**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 #: RC0109A**

**DOC**



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

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 <sub>F</sub> = 400mA)	<b>V<sub>F</sub></b>	1.0	Volts
Maximum Reverse Leakage Current (Rated V <sub>R</sub> , T <sub>A</sub> = +25°C)	<b>I<sub>R1</sub></b>	200	nA
Maximum Reverse Leakage Current (Rated V <sub>R</sub> , T <sub>A</sub> = +100°C)	645-1	15	μA
	646-1	15	
	647-1	20	
	648-1	20	
	649-1	25	
Typical Junction Capacitance (-12 V)	<b>C<sub>O</sub></b>	9	pF

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- 2/ Screened to MIL-PRF-19500.
- 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**