



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

SPD6638, SPD6642, SPD6643 SERIES

300 mA
50 - 125 VOLTS
**4.5 - 6.0 nsec HYPER FAST 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
- └─ Device Type (VRWM)
 - 6638 = 125 V
 - 6642 = 75 V
 - 6643 = 50 V

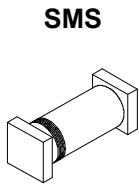
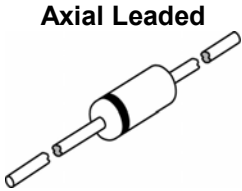
- FEATURES:**
- Hyper Fast Reverse Recovery Time 4.5 - 6 ns Max
 - Hermetically Sealed
 - Planar Passivated Chip
 - For High Efficiency Applications
 - Available in Axial & Subminiature Square Tab Versions
 - TX, TXV, and S-Level Screening Available^{2/}
 - Replacement for 1N6638, 1N6642, 1N6643

MAXIMUM RATINGS ^{3/}

RATING	SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage DC Blocking Voltage	SPD6638 SPD6642 SPD6643	V_{RWM} V_R	125 75 50 Volts
Average Rectified Forward Current (Resistive Load, 60 Hz, Sine Wave, $T_C = 25^\circ C$)		I_O	300 mAmps
Peak Surge Current (8.3 msec Pulse, Half Sine Wave Superimposed on I_O , allow junction to reach equilibrium between pulses, $T_C = 25^\circ C$)		I_{FSM}	2.5 Amps
Operating & Storage Temperature		T_{OP} and T_{STG}	-65 to +175 °C
Thermal Resistance SMS- Junction to End Tab Axial- Junction to Lead @ .375"		$R_{\theta JE}$ $R_{\theta JL}$	65 220 °C/W

NOTES:

- 1/ For Ordering Information, Price, 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.



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

DATA SHEET #: RH0004D

DOC



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SERIES**

ELECTRICAL CHARACTERISTICS ^{3/}

CHARACTERISTICS	SYMBOL	VALUE	UNIT	
Maximum Instantaneous Forward Voltage Drop (Pulsed, T _A = 25°C)	SPD6638 @ I _F = 10mA SPD6642 @ I _F = 10mA SPD6643 @ I _F = 10mA	V _{F1}	0.8 0.8 1.0	Vdc
	SPD6638 @ I _F = 200mA SPD6642 @ I _F = 100mA SPD6643 @ I _F = 100mA	V _{F2}	1.1 1.2 1.2	Vdc
Maximum Instantaneous Forward Voltage Drop (Pulsed)	I _F = 100mA, T _A = -55°C	V _{F3}	1.3	Vdc
Minimum Breakdown Voltage I _r = 100 μA	SPD6638 SPD6642 SPD6643	B _{VR}	125 100 75	Vdc
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T _A = 25°C)	SPD6638 @ V _R = 20V SPD6642 @ V _R = 20V SPD6643 @ V _R = 20V	I _{R1}	35 25 50	nA
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T _A = 25°C)	SPD6638 @ V _R = 100V SPD6642 @ V _R = 75V SPD6643 @ V _R = 50V	I _{R2}	500 500 500	nA
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T _A = 150°C)	SPD6638 @ V _R = 20V SPD6642 @ V _R = 20V SPD6643 @ V _R = 20V	I _{R3}	50 50 75	μA
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T _A = 150°C)	SPD6638 @ V _R = 100V SPD6642 @ V _R = 75V SPD6643 @ V _R = 50V	I _{R4}	100 100 160	μA
Maximum Junction Capacitance (T _A = 25°C , f = 1MHz) V _R = 0V	SPD6638 SPD6642 SPD6643	C _{J1}	2.5 5.0 5.0	pf
Maximum Junction Capacitance (T _A = 25°C , f = 1MHz) V _R = 1.5V	SPD6638 SPD6642 SPD6643	C _{J2}	2.0 2.8 2.8	pf
Maximum Reverse Recovery Time (I _F = I _R = 10 mA, I _{RR} = 1 mA)	SPD6638 SPD6642 SPD6643	t _{rr}	4.5 5.0 6.0	nsec

