



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

SDR6638, SDR6642, SDR6643, & SDR4150 SERIES

300 mA
50 - 125 VOLTS
4.5 - 6.0 nsec HYPER FAST RECOVERY RECTIFIER

Designer's Data Sheet

Part Number/Ordering Information ^{1/}

SDR _____

- L **Screening ^{2/}**
 - ___ = Not Screened
 - TX = TX Level
 - TXV = TXV
 - S = S Level (for SM, use -S)
- L **Package Type**
 - ___ = Axial Leaded
 - SM = Surface Mount Round Tab (MELF)
 - SMS = Surface Mount Square Tab
- L **Device Type (VRWM)**
 - 6638 = 125 V
 - 6642 = 75 V
 - 6643 = 50 V
 - 4150 = 75 V

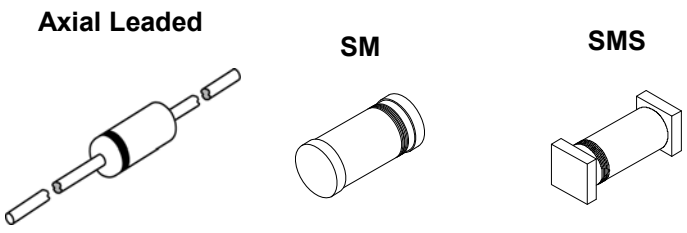
- FEATURES:**
- Hyper Fast Reverse Recovery Time 4.5 - 6 ns Max
 - Hermetically Sealed
 - Planar Passivated Chip
 - For High Efficiency Applications
 - Available in Axial, Subminiature Round Tab & Subminiature Square Tab Versions
 - TX, TXV, and S-Level Screening Available^{2/}
 - Replacement for 1N6638, 1N6642, 1N6643, & 1N4150-1
 - Metallurgical Class 3 Bond

MAXIMUM RATINGS ^{3/}

RATING	SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage DC Blocking Voltage	V_{RWM} V_R	125 75 50 75	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	$^\circ C$
Thermal Resistance SM and SMS- Junction to End Tab Axial- Junction to Lead @ .375"	$R_{\theta JE}$ $R_{\theta JL}$	100 325	$^\circ C/W$

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.





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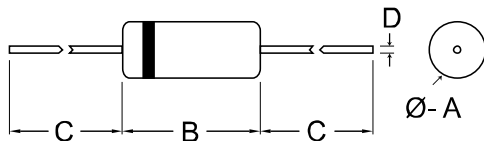
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**SDR6638, SDR6642, SDR6643,
& SDR4150 SERIES**

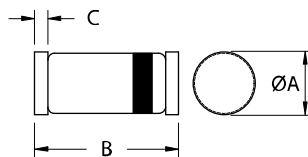
ELECTRICAL CHARACTERISTICS ^{3/}

CHARACTERISTICS		SYMBOL	LIMIT	UNIT
Maximum Instantaneous Forward Voltage Drop (Pulsed, T _A = 25°C) @ I _F = 10mA	SDR6638	V _{F1}	0.8	Vdc
	SDR6642		0.8	
	SDR6643		1.0	
	SDR4150		0.74	
	SDR6638 @ I _F = 200mA	V _{F2}	1.1	Vdc
	SDR6642 @ I _F = 100mA		1.2	
	SDR6643 @ I _F = 100mA		1.2	
	SDR4150 @ I _F = 100mA		0.92	
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	SDR6638	B _{VR}	125	Vdc
	SDR6642		100	
	SDR6643		75	
	SDR4150		75	
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T _A = 25°C)	SDR6638 @ V _R = 20V	I _{R1}	35	nA
	SDR6642 @ V _R = 20V		25	
	SDR6643 @ V _R = 20V		50	
	SDR4150 @ V _R = 50V		100	
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T _A = 25°C)	SDR6638 @ V _R = 100V	I _{R2}	500	nA
	SDR6642 @ V _R = 75V		500	
	SDR6643 @ V _R = 50V		500	
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T _A = 150°C)	SDR6638 @ V _R = 20V	I _{R3}	50	μA
	SDR6642 @ V _R = 20V		50	
	SDR6643 @ V _R = 20V		75	
	SDR4150 @ V _R = 50V		100	
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T _A = 150°C)	SDR6638 @ V _R = 100V	I _{R4}	100	μA
	SDR6642 @ V _R = 75V		100	
	SDR6643 @ V _R = 50V		160	
Maximum Junction Capacitance (T _A = 25°C , f = 1MHz) V _R = 0V	SDR6638	C _{J1}	2.5	pf
	SDR6642		5.0	
	SDR6643		5.0	
	SDR4150		2.5	
Maximum Junction Capacitance (T _A = 25°C , f = 1MHz) V _R = 1.5V	SDR6638	C _{J2}	2.0	pf
	SDR6642		2.8	
	SDR6643		2.8	
Maximum Reverse Recovery Time (I _F = I _R = 10 mA, I _{RR} = 1 mA)	SDR6638	t _{rr}	4.5	nsec
	SDR6642		5.0	
	SDR6643		6.0	
	SDR4150		4.0	

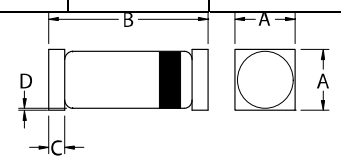
AXIAL		
DIMENSIONS		
DIM	MIN	MAX
A	.056"	.080"
B	.130"	.180"
C	1.00"	1.50"
D	.018"	.022"



SM		
DIMENSIONS		
DIM	MIN	MAX
A	.056"	.064"
B	.130"	.146"
C	.010"	.022"



SMS		
DIMENSIONS		
DIM	MIN	MAX
A	.070"	.085"
B	.180"	.210"
C	.022"	.028"
D	.001"	---



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

DATA SHEET #: RC0126B

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