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

SDR643CTS1 thru SDR647CTS1

DESIGNER'S DATA SHEET

SDR64 ___ CT ___ ___

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

Package
S1= SMD1

Voltage/Family
3 = 300 V
4 = 400 V
5 = 500 V
6 = 600 V
7 = 700 V

50 AMP
300-700 Volts
35 nsec
Ultra Fast
Centertap Rectifier

Features:

- **Ultra Fast Recovery: 25 nsec typical**
- **High Surge Rating**
- **Low Reverse Leakage Current**
- **Low Junction Capacitance**
- **Hermetically Sealed Power Surface Mount Package**
- **Ceramic Seals Available**
- **Higher Currents & Voltages Available – Contact Factory**
- **TX, TXV, and S-Level Screening Available** [2/]

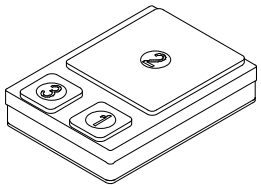
Maximum Ratings		Symbol	Value	Units
Peak Repetitive Reverse and DC Blocking Voltage	**SDR643CTS1** **SDR644CTS1** **SDR645CTS1** **SDR646CTS1** **SDR647CTS1**	V_{RRM} V_{RWM} V_R	300 400 500 600 700	**Volts**
Average Rectified Forward Current note 3 (Resistive Load, 60 Hz Sine Wave, T_A = 25ºC)		**Io**	50	**Amps**
Peak Surge Current note 3 (8.3 ms Pulse, Half Sine Wave Superimposed on Io, Allow Junction to Reach Equilibrium Between Pulses, T_A = 25ºC)		I_{FSM}	500	**Amps**
Operating & Storage Temperature		**Top & Tstg**	-65 to +200	**ºC**
Maximum Thermal Resistance Junction to Case, each individual diode Junction to Case, note 3		$R_{\theta JC}$	2.00 1.20	**ºC/W**

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

2/ Screened to MIL-PRF-19500; contact factory for screening flow.

3/ Both legs tied together

SMD1



*Also available in other packages: TO-254, TO-254Z, TO-257, and 28 Pin CLCC – Consult Factory

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Electrical Characteristics (Per Leg)

Characteristics		Symbol	Typical	Maximum	Unit
Instantaneous Forward Voltage Drop					
(I_F = 5Adc, T_A = 25ºC, 300 msec pulse)		V_{F1}	0.94	-	**Volts**
(I_F = 10Adc, T_A = 25ºC, 300 msec pulse)		V_{F2}	1.0	-	
(I_F = 15Adc, T_A = 25ºC, 300 msec pulse)		V_{F3}	1.05	1.35	
(I_F = 20Adc, T_A = 25ºC, 300 msec pulse)		V_{F4}	1.07	-	
(I_F = 30Adc, T_A = 25ºC, 300 msec pulse)		V_{F5}	1.1	1.5	
Instantaneous Forward Voltage Drop					
(I_F = 15Adc, T_A = 100ºC, 300 msec pulse)		V_{F6}	0.93	1.25	**Volts**
(I_F = 30Adc, T_A = 100ºC, 300 msec pulse)		V_{F7}	1.00	-	
(I_F = 15Adc, T_A = -55ºC, 300 msec pulse)		V_{F8}	1.15	1.5	
(I_F = 30Adc, T_A = -55ºC, 300 msec pulse)		V_{F9}	1.20	-	
Reverse Leakage Current	SDR647CTS1	I_{R1}	30	150	**µA**
(Rated V_R, T_A = 25ºC, 300 msec pulse min)	ALL OTHER		10	50	
Reverse Leakage Current					
(Rated V_R, T_A = 100ºC, 300 msec pulse min)		I_{R2}	2	10	**mA**
(Rated V_R, T_A = 125ºC, 300 msec pulse min)		I_{R3}	8	-	
(Rated V_R, T_A = 150ºC, 300 msec pulse min)		I_{R4}	25	-	
Junction Capacitance					
(V_R = 10 Vdc, T_A = 25ºC, f = 1MHz)		C_J	60	120	**pF**
Reverse Recovery Time		t_{rr1}	25	35	**nsec**
(I_F = 0.5 A, I_R = 1A, I_{RR} = 0.25A, T_A = 25ºC)		t_{rr2}	70	-	**nsec**
(I_F = 0.5 A, I_R = 1A, I_{RR} = 0.25 A, T_A = 100ºC)		t_{rr3}	35	-	**nsec**
(I_F = 10 A, dI_F/dt = 100A/us, T_A = 25ºC)		I_{RM3}	2.7	-	**A**
		t_a/t_b	1.83	-	**-**
(I_F = 10 A, dI_F/dt = 100A/us, T_A = 100ºC)		t_{rr4}	80	-	**nsec**
		I_{RM4}	3.6	-	**A**
		t_a/t_b	1.0	-	**-**

Case Outline: SMD1

PIN OUT:
PIN 1: ANODE 1
PIN 2: CATHODE
PIN 3: ANODE 2

