



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, Ca 90638
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**SDR643CTS1
 thru
 SDR647CTS1**

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

DESIGNER'S DATA SHEET

SDR64 CT

Screening ^{2/}
 ___ = Not Screened
 TX = TX Level
 TXV = TXV
 S = S Level

Package
 S1= SMD1

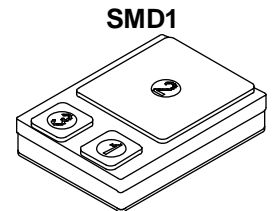
Voltage/Family
 3 = 300 V
 4 = 400 V
 5 = 500 V
 6 = 600 V
 7 = 700 V

- 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, $T_A = 25^\circ\text{C}$) | | I_o | 50 | Amps |
| Peak Surge Current note 3 (8.3 ms Pulse, Half Sine Wave Superimposed on I_o , Allow Junction to Reach Equilibrium Between Pulses, $T_A = 25^\circ\text{C}$) | | I_{FSM} | 500 | Amps |
| Operating & Storage Temperature | | Top & Tstg | -65 to +200 | $^\circ\text{C}$ |
| Maximum Thermal Resistance Junction to Case, each individual diode Junction to Case, note 3 | | $R_{\theta JC}$ | 2.00 1.20 | $^\circ\text{C/W}$ |

- 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

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





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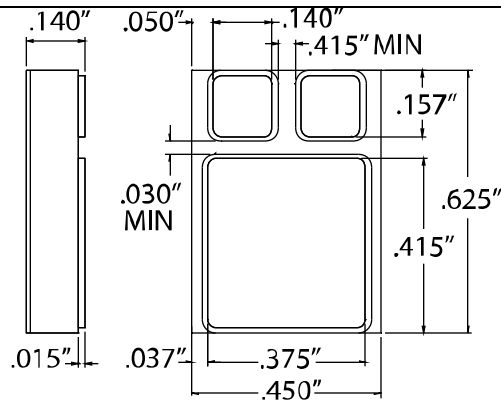
**SDR643CTS1
 thru
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Electrical Characteristics (Per Leg)

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



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

DATA SHEET #: RU0087C

DOC