



**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

**SDR100S20  
 thru  
 SDR100S50**

**100 Amp  
 STANDARD RECOVERY  
 HIGH POWER RECTIFIER  
 200-500 Volt  
 5 μsec**

**Designer's Data Sheet**

**Part Number/Ordering Information <sup>1/</sup>**  
**SDR100S**

└─ **Screening <sup>2/</sup>**    \_\_\_ = Not Screened  
                                  TX = TX Level  
                                  TXV = TXV Level  
                                  S = S Level

└─ **Pin Configuration** (See Table 1)  
                                  \_\_\_ = Normal (Cathode to Stud)  
                                  R = Reverse (Anode to Stud)

└─ **Family/Voltage**            20 = 200V  
    30 = 300V  
    40 = 400V  
    50 = 500V

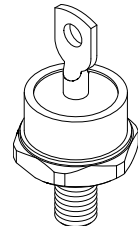
- Features:**
- Low Reverse Leakage Current
  - Single Chip Construction
  - PIV to 500V
  - Hermetically Sealed
  - Low Thermal Resistance
  - Higher Voltage Devices Up to 1KV Available\*
  - Fast and Ultra Fast Recovery Versions Available\*
  - For Reverse Polarity Add Suffix "R"
  - TX, TXV, and S-Level Screening Available <sup>2/</sup>
- \*Contact Factory

Maximum Ratings		Symbol	Value	Units
<b>Peak Repetitive Reverse and DC Blocking Voltage</b>	SDR100S20	$V_{RRM}$	200	Volts
	SDR100S30	$V_{RWM}$	300	
	SDR100S40	$V_R$	400	
	SDR100S50		500	
<b>Average Rectified Forward Current</b> (Resistive Load, 60 Hz Sine Wave, $T_A = 25^\circ C$ )		$I_o$	100	Amps
<b>Peak Surge Current</b> (8.3 ms Pulse, Half Sine Wave, $T_A = 25^\circ C$ )		$I_{FSM}$	1000	Amps
<b>Operating &amp; Storage Temperature</b>		$T_{OP} \ \& \ T_{STG}$	-65 to +200	°C
<b>Maximum Total Thermal Resistance</b> Junction to Case		$R_{\theta JC}$	0.85	°C/W

**Notes:**

- 1/ For ordering information, price, operating curves, and availability- contact factory.  
 2/ Screening based on MIL-PRF-19500. Screening flows available on request.

**DO-5**





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# SDR100S20 Thru SDR100S50

Electrical Characteristics	Symbol	Max	Typ	Units	
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = 25^\circ\text{C}$ , 300 $\mu\text{s}$ pulse)	$I_F = 10\text{A dc}$	$V_{F1}$	990	850	$\text{mV}_{\text{DC}}$
	$I_F = 25\text{A dc}$	$V_{F2}$	1100	900	
	$I_F = 50\text{A dc}$	$V_{F3}$	1200	950	
	$I_F = 75\text{A dc}$	$V_{F4}$	1250	990	
	$I_F = 100\text{A dc}$	$V_{F5}$	1325	1030	
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = -55^\circ\text{C}$ , 300 $\mu\text{s}$ pulse)	$I_F = 10\text{A dc}$	$V_{F6}$	-	950	$\text{mV}_{\text{DC}}$
	$I_F = 25\text{A dc}$	$V_{F7}$	-	1000	
	$I_F = 50\text{A dc}$	$V_{F8}$	1290	1040	
	$I_F = 75\text{A dc}$	$V_{F9}$	-	1080	
	$I_F = 100\text{A dc}$	$V_{F10}$	1310	1110	
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = 100^\circ\text{C}$ , 300 $\mu\text{s}$ pulse)	$I_F = 10\text{A dc}$	$V_{F11}$	-	750	$\text{mV}_{\text{DC}}$
	$I_F = 25\text{A dc}$	$V_{F12}$	-	815	
	$I_F = 50\text{A dc}$	$V_{F13}$	-	875	
	$I_F = 75\text{A dc}$	$V_{F14}$	-	930	
	$I_F = 100\text{A dc}$	$V_{F15}$	-	975	
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = 125^\circ\text{C}$ , 300 $\mu\text{s}$ pulse)	$I_F = 10\text{A dc}$	$V_{F16}$	-	720	$\text{mV}_{\text{DC}}$
	$I_F = 25\text{A dc}$	$V_{F17}$	-	780	
	$I_F = 50\text{A dc}$	$V_{F18}$	1100	850	
	$I_F = 75\text{A dc}$	$V_{F19}$	-	900	
	$I_F = 100\text{A dc}$	$V_{F20}$	1250	950	
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = 150^\circ\text{C}$ , 300 $\mu\text{s}$ pulse)	$I_F = 10\text{A dc}$	$V_{F21}$	-	680	$\text{mV}_{\text{DC}}$
	$I_F = 25\text{A dc}$	$V_{F22}$	-	750	
	$I_F = 50\text{A dc}$	$V_{F23}$	-	810	
	$I_F = 75\text{A dc}$	$V_{F24}$	-	870	
	$I_F = 100\text{A dc}$	$V_{F25}$	-	920	
<b>Reverse Leakage Current</b> (Rated $V_R$ , $T_A = 25^\circ\text{C}$ , 300 $\mu\text{s}$ pulse minimum)		$I_{R1}$	10	0.1	$\mu\text{A}$
<b>Reverse Leakage Current</b> (Rated $V_R$ , $T_A = 100^\circ\text{C}$ , 300 $\mu\text{s}$ pulse minimum)		$I_{R2}$	-	10	$\mu\text{A}$
<b>Reverse Leakage Current</b> (Rated $V_R$ , $T_A = 125^\circ\text{C}$ , 300 $\mu\text{s}$ pulse minimum)		$I_{R3}$	1000	25	$\mu\text{A}$
<b>Reverse Leakage Current</b> (Rated $V_R$ , $T_A = 150^\circ\text{C}$ , 300 $\mu\text{s}$ pulse minimum)		$I_{R4}$	-	75	$\mu\text{A}$
<b>Reverse Recovery Time</b> ( $I_F = 500\text{mA}$ , $I_R = 1\text{Amp}$ , $I_{RR} = 250\text{mA}$ , $T_A = 25^\circ\text{C}$ )		$t_{RR}$	3	5	$\mu\text{sec}$
<b>Junction Capacitance</b> ( $T_A = 25^\circ\text{C}$ , $f = 1\text{MHz}$ )	$V_R = 5\text{V}_{\text{DC}}$	$C_J$	-	420	$\text{pF}$
	$V_R = 10\text{V}_{\text{DC}}$		450	330	

Table 1- PIN ASSIGNMENT			
Code	Configuration	Terminal	Stud
—	Normal	Anode	Cathode
R	Reverse	Cathode	Anode

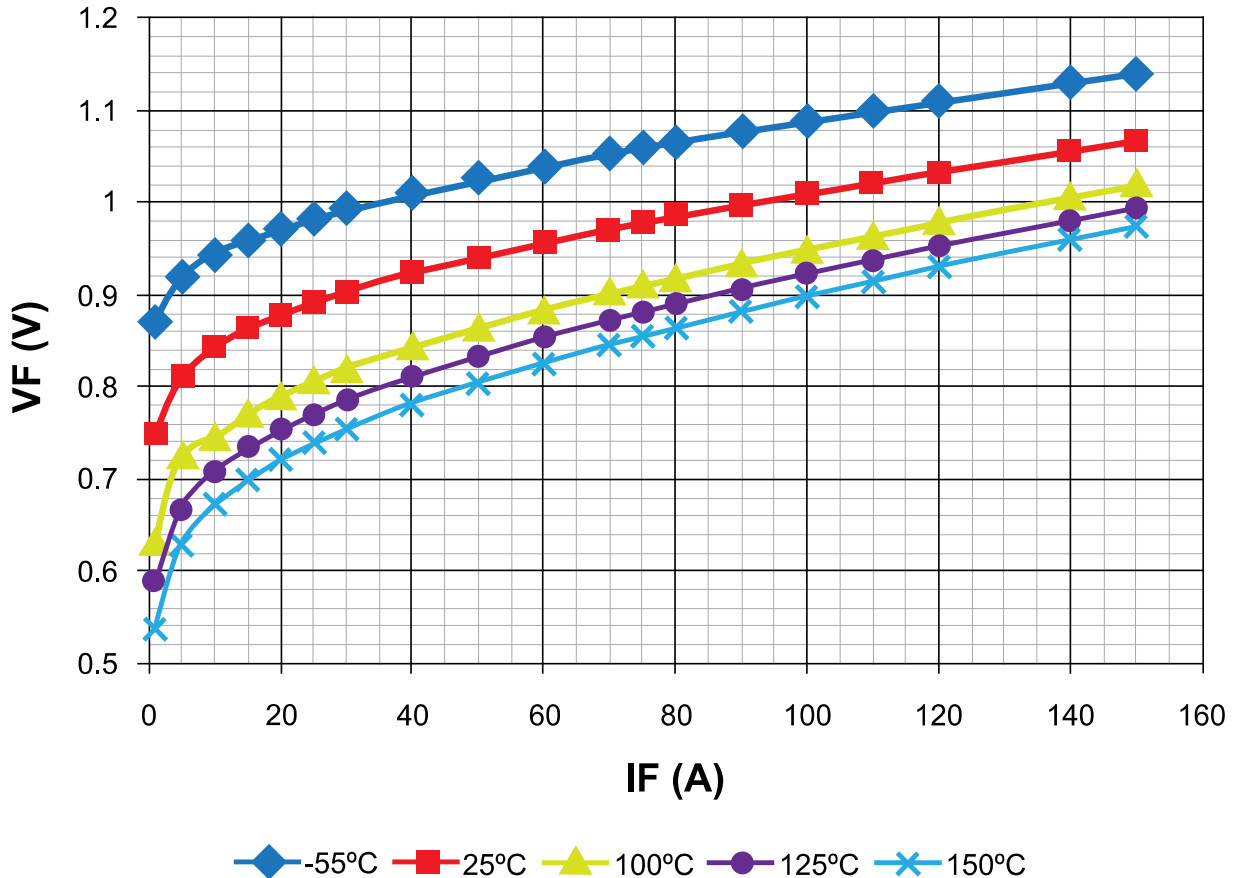
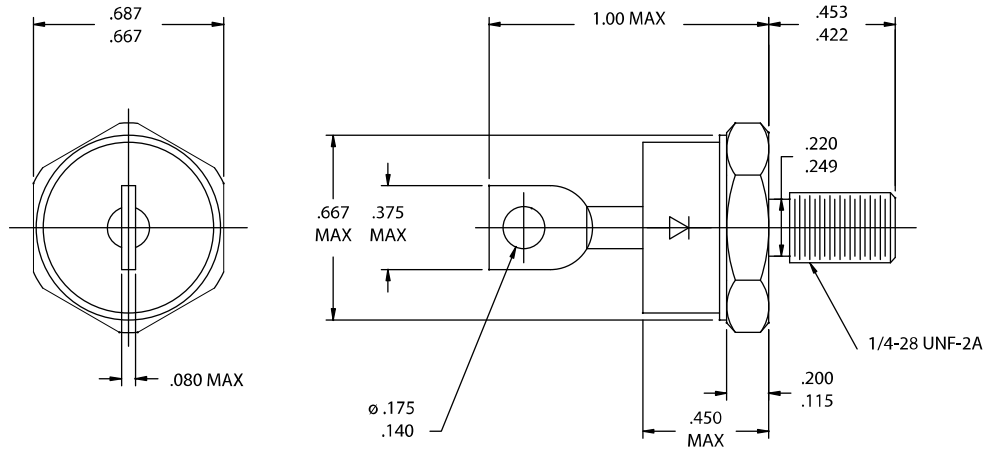


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# SDR100S20 Thru SDR100S50

## DO-5 Outline (Normal Pin Configuration Shown):



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

**DATA SHEET #: RC0153A**

**DOC**