



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

SDR75U20 thru SDR75U50

75 Amp ULTRAFAST RECOVERY HIGH POWER RECTIFIER 200-500 Volt 50 nsec

Designer's Data Sheet

Part Number/Ordering Information ^{1/}

SDR75U

- Screening ^{2/}
 - = 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

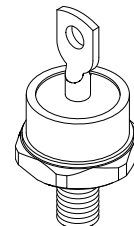
- Features:**
- Low Reverse Leakage Current
 - Single Chip Construction
 - PIV to 500V
 - Hermetically Sealed
 - Low Thermal Resistance
 - Higher Voltage Devices Up to 1KV Available*
 - Fast and Ultra Fast Recovery Versions Available*
 - For Reverse Polarity Add Suffix "R"
 - TX, TXV, and S-Level Screening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

Maximum Ratings		Symbol	Value	Units
Peak Repetitive Reverse and DC Blocking Voltage	SDR75U20	V_{RRM}	200	Volts
	SDR75U30	V_{RWM}	300	
	SDR75U40	V_R	400	
	SDR75U50		500	
Average Rectified Forward Current (Resistive Load, 60 Hz Sine Wave, $T_A = 25^\circ\text{C}$)		I_o	75	Amps
Peak Surge Current (8.3 ms Pulse, Half Sine Wave, $T_A = 25^\circ\text{C}$)		I_{FSM}	450	Amps
Operating & Storage Temperature		$T_{OP} \ \& \ T_{STG}$	-65 to +200	$^\circ\text{C}$
Maximum Total Thermal Resistance Junction to Case		$R_{\theta JC}$	0.85	$^\circ\text{C/W}$

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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**SDR75U20
 Thru
 SDR75U50**

Electrical Characteristics		Symbol	Max	Typ	Units
Instantaneous Forward Voltage Drop ($T_A = 25^\circ\text{C}$, 300 μs pulse)	$I_F = 10\text{A}_{dc}$	V_{F1}	1200	1060	mV_{DC}
	$I_F = 25\text{A}_{dc}$	V_{F2}	1500	1300	
	$I_F = 50\text{A}_{dc}$	V_{F3}	1800	1550	
	$I_F = 75\text{A}_{dc}$	V_{F4}	2000	1750	
Instantaneous Forward Voltage Drop ($T_A = -55^\circ\text{C}$, 300 μs pulse)	$I_F = 10\text{A}_{dc}$	V_{F6}	-	1050	mV_{DC}
	$I_F = 25\text{A}_{dc}$	V_{F7}	-	1200	
	$I_F = 50\text{A}_{dc}$	V_{F8}	1700	1350	
	$I_F = 75\text{A}_{dc}$	V_{F9}	-	1425	
Instantaneous Forward Voltage Drop ($T_A = 100^\circ\text{C}$, 300 μs pulse)	$I_F = 10\text{A}_{dc}$	V_{F11}	-	950	mV_{DC}
	$I_F = 25\text{A}_{dc}$	V_{F12}	-	1200	
	$I_F = 50\text{A}_{dc}$	V_{F13}	-	1500	
	$I_F = 75\text{A}_{dc}$	V_{F14}	-	1700	
Instantaneous Forward Voltage Drop ($T_A = 125^\circ\text{C}$, 300 μs pulse)	$I_F = 10\text{A}_{dc}$	V_{F16}	-	900	mV_{DC}
	$I_F = 25\text{A}_{dc}$	V_{F17}	-	1150	
	$I_F = 50\text{A}_{dc}$	V_{F18}	1900	1450	
	$I_F = 75\text{A}_{dc}$	V_{F19}	-	1650	
Instantaneous Forward Voltage Drop ($T_A = 150^\circ\text{C}$, 300 μs pulse)	$I_F = 10\text{A}_{dc}$	V_{F21}	-	850	mV_{DC}
	$I_F = 25\text{A}_{dc}$	V_{F22}	-	1100	
	$I_F = 50\text{A}_{dc}$	V_{F23}	-	1400	
	$I_F = 75\text{A}_{dc}$	V_{F24}	-	1625	
Reverse Leakage Current (Rated V_R , $T_A = 25^\circ\text{C}$, 300 μs pulse minimum)		I_{R1}	75	2	μA
Reverse Leakage Current (Rated V_R , $T_A = 100^\circ\text{C}$, 300 μs pulse minimum)		I_{R2}	-	250	μA
Reverse Leakage Current (Rated V_R , $T_A = 125^\circ\text{C}$, 300 μs pulse minimum)		I_{R3}	25	1	mA
Reverse Leakage Current (Rated V_R , $T_A = 150^\circ\text{C}$, 300 μs pulse minimum)		I_{R4}	-	3	mA
Reverse Recovery Time ($I_F = 500\text{mA}$, $I_R = 1\text{A}$, $I_{RR} = 250\text{mA}$, $T_A = 25^\circ\text{C}$)		t_{RR}	50	40	nsec
Junction Capacitance ($T_A = 25^\circ\text{C}$, $f = 1\text{MHz}$)	$V_R = 5V_{DC}$	C_J	-	420	pF
	$V_R = 10V_{DC}$		450	330	

Code	Configuration	Terminal	Stud
—	Normal	Anode	Cathode
R	Reverse	Cathode	Anode

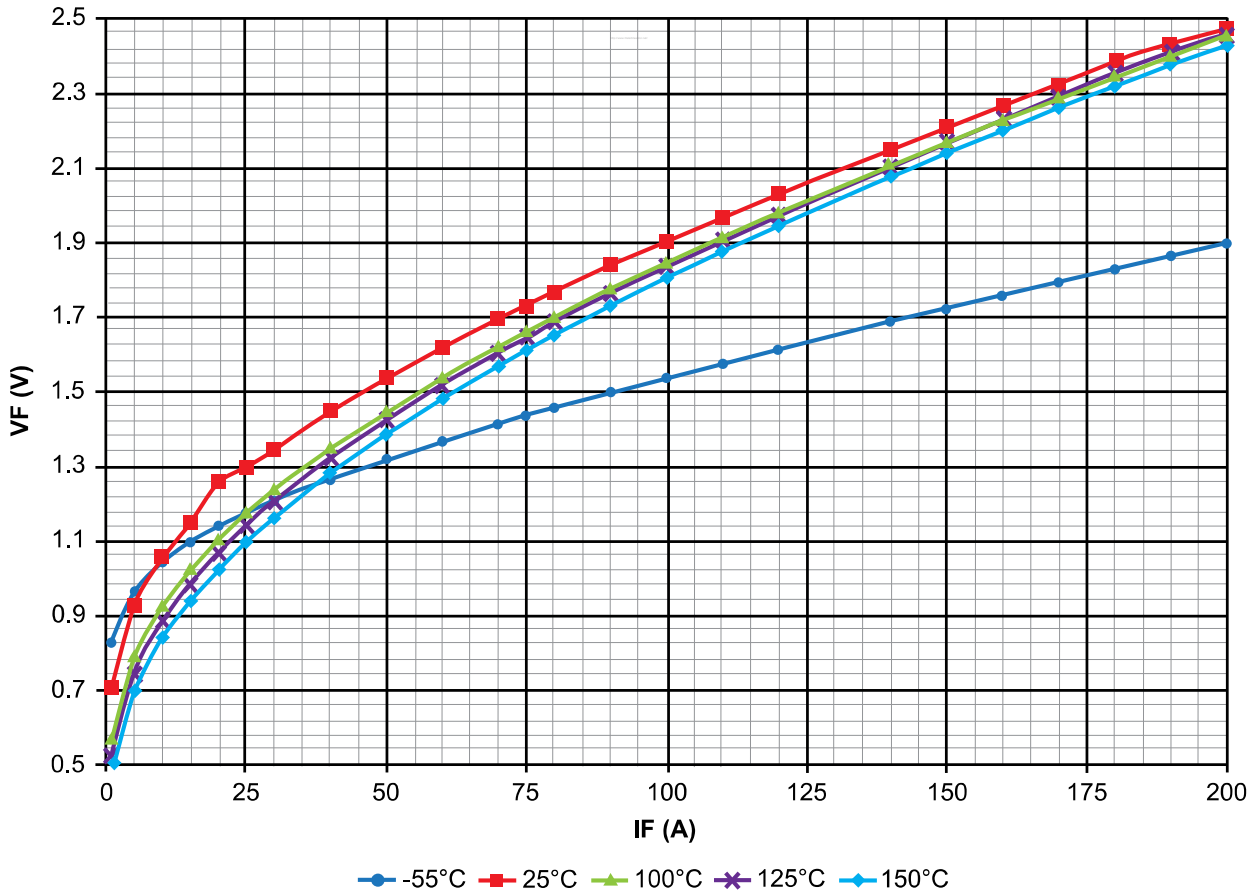
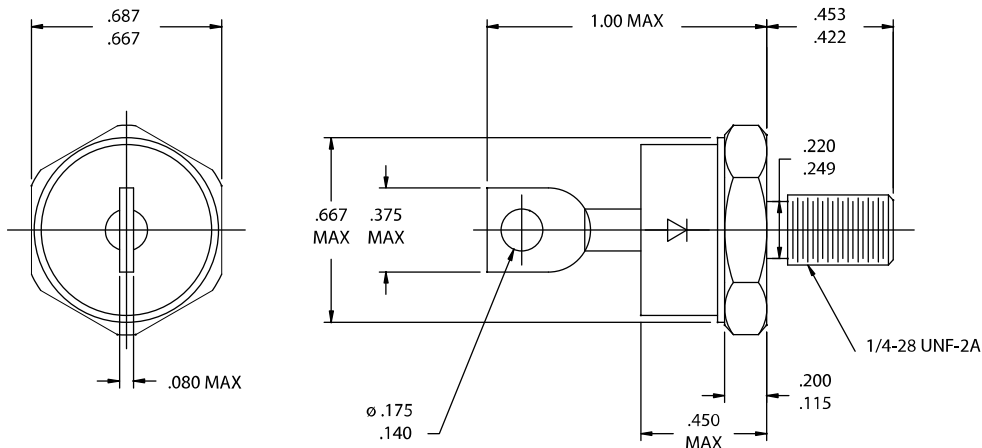
NOTE: All specifications are subject to change without notification.
 SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: RC0152A

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DO-5 Outline (Normal Pin Configuration Shown):



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