



# Solid State Devices, Inc.

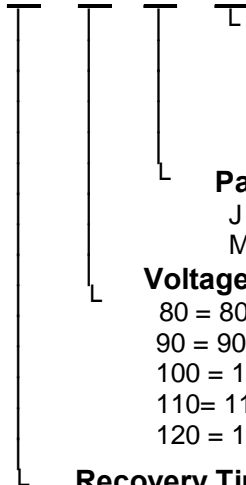
14701 Firestone Blvd \* La Mirada, Ca 90638  
 Phone: (562) 404-4474 \* Fax: (562) 404-1773  
 ssdi@ssdi-power.com \* www.ssdi-power.com

## SDR30U080J thru SDR30U120J and SDR40U080M thru SDR40U120M

### DESIGNER'S DATA SHEET

#### Part Number / Ordering Information <sup>1/</sup>

SDR55



#### Screening <sup>2/</sup>

- = Not Screened
- TX = TX Level
- TXV = TXV Level
- S = S Level

#### Package Type

- J = TO-257
- M = TO-254

#### Voltage/Family

- 80 = 800V
- 90 = 900V
- 100 = 1000V
- 110 = 1100V
- 120 = 1200V

#### Recovery Time

- UF = Ultra Fast

**30/40 AMP**  
**Ultra Fast Recovery**  
**Rectifier**  
**800 - 1200 Volts**  
**50 nsec**

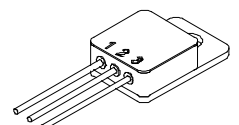
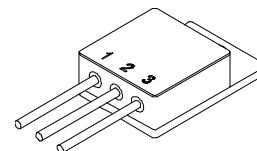
#### Features:

- Ultra Fast Recovery: 40 nsec typical
- High Surge Rating
- Low Reverse Leakage Current
- Low Forward Voltage Drop
- Low Junction Capacitance
- Hermetically Sealed Package
- Gold Eutectic Die Attach available
- Ultrasonic Aluminum Wire Bonds
- Ceramic Seals for improved hermeticity available
- TX, TXV, Space Level Screening Available Consult Factory. <sup>2/</sup>

Maximum Ratings		Symbol	Value	Units
Peak Repetitive Reverse and DC Blocking Voltage	SDR30U080/SDR40U080	$V_{RRM}$	800	Volts
	SDR30U090/SDR40U090		900	
	SDR30U100/SDR40U100	$V_{RWM}$	1000	
	SDR30U110/SDR40U110		1100	
	SDR30U120/SDR40U120	$V_R$	1200	
Average Rectified Forward Current (Resistive Load, 60 Hz Sine Wave, $T_A = 25^\circ\text{C}$ ) <sup>3/</sup>	TO-257	$I_o$	30	Amps
	TO-254		40	
Peak Surge Current (8.3 ms Pulse, Half Sine Wave Superimposed on $I_o$ , Allow Junction to Reach Equilibrium Between Pulses, $T_A = 25^\circ\text{C}$ ) <sup>3/</sup>		$I_{FSM}$	250	Amps
Operating & Storage Temperature		Top & Tstg	-65 to +200	$^\circ\text{C}$
Maximum Thermal Resistance Junction to End Tab <sup>3/</sup>		$R_{\theta JE}$	1.25	$^\circ\text{C/W}$

TO-254 (M)

TO-257 (J)



<sup>1/</sup> For ordering information, price, operating curves, and availability - Contact factory.

<sup>2/</sup> Screening based on MIL-PRF-19500. Screening flows available on request.

<sup>3/</sup> Pins 2 & 3 connected.

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

**DATA SHEET #: RC0143A**

**DOC**

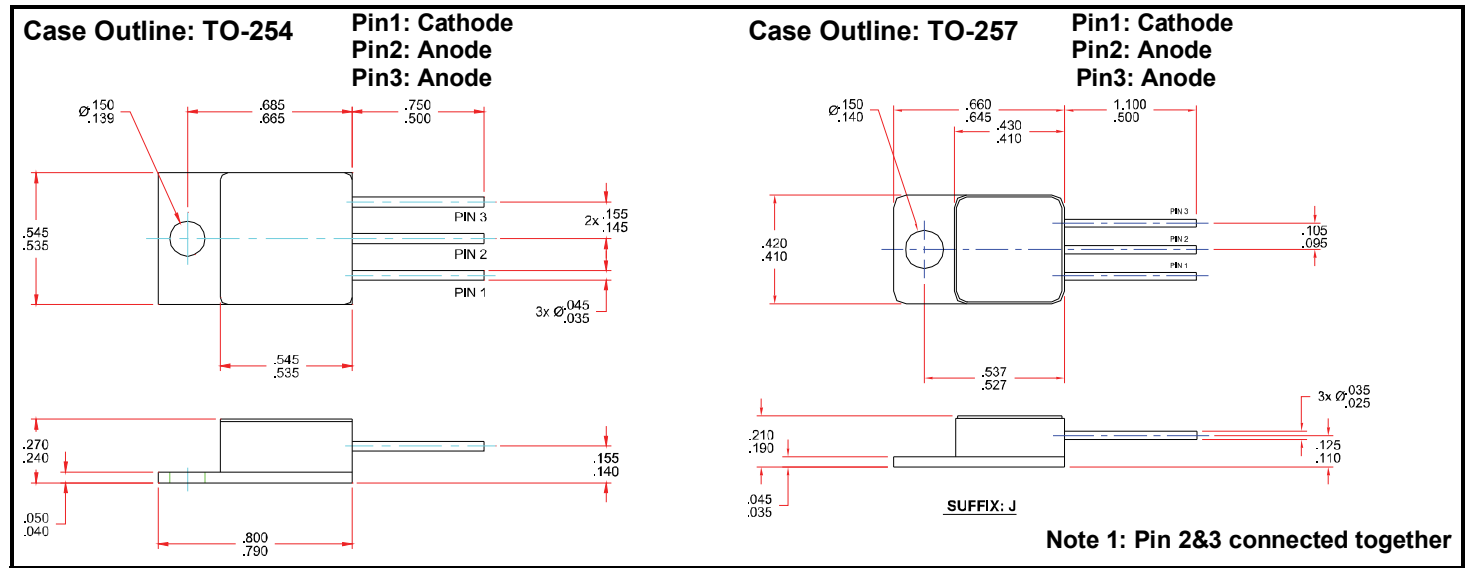


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**SDR30U080J thru SDR30U120J  
 and  
 SDR40U080M thru SDR40U120M**

Electrical Characteristics		Symbol	Typ	Max	Units	
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = 25^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse)	$I_F = 5\text{A dc}$	$V_{F1}$	1.65	--	Volts	
	$I_F = 10\text{A dc}$		1.73	1.9		
	$I_F = 20\text{A dc}$		1.85	2.1		
	$I_F = 30\text{A dc}$		1.92	2.2		
	$I_F = 50\text{A dc}$		2.1	2.5		
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = -55^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse)	$I_F = 5\text{A dc}$	$V_{F2}$	1.7	--	Volts	
	$I_F = 10\text{A dc}$		1.75	1.95		
	$I_F = 20\text{A dc}$		1.85	2.1		
	$I_F = 30\text{A dc}$		1.92	2.2		
	$I_F = 50\text{A dc}$		2.05	2.5		
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = 125^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse)	$I_F = 5\text{A dc}$	$V_{F3}$	1.12	--	Volts	
	$I_F = 10\text{A dc}$		1.3	1.6		
	$I_F = 20\text{A dc}$		1.52	1.8		
	$I_F = 30\text{A dc}$		1.65	2.0		
	$I_F = 50\text{A dc}$		1.88	2.35		
<b>Reverse Leakage Current</b> (Rated $V_R$ , $T_A = 25^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse minimum)		$I_{R1}$	20	100	$\mu\text{A}$	
<b>Reverse Leakage Current</b> (Rated $V_R$ , $T_A = 100^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse minimum) (Rated $V_R$ , $T_A = 125^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse minimum) (Rated $V_R$ , $T_A = 150^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse minimum)		$I_{R2}$	1.5	--	mA	
			5	20		
			15	--		
<b>Junction Capacitance</b> ( $V_R = 5\text{ Vdc}$ , $T_A = 25^\circ\text{C}$ , $f = 1\text{MHz}$ ) ( $V_R = 10\text{ Vdc}$ , $T_A = 25^\circ\text{C}$ , $f = 1\text{MHz}$ )		$C_J$	50 45	-- 75	pF	
<b>Reverse Recovery Time</b> ( $I_F = 500\text{ mA}$ , $I_R = 1\text{ A}$ , $I_{RR} = 0.25\text{ A}$ ) ( $I_F = 500\text{ mA}$ , $I_R = 1\text{ A}$ , $I_{RR} = 0.25\text{ A}$ ) ( $I_F = 10\text{ A}$ , $dI_F/dt = 100\text{ A/us}$ ) ( $I_F = 10\text{ A}$ , $dI_F/dt = 100\text{ A/us}$ ) ( $I_F = 10\text{ A}$ , $dI_F/dt = 100\text{ A/us}$ ) ( $I_F = 10\text{ A}$ , $dI_F/dt = 100\text{ A/us}$ )		$T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$ $T_A = 25^\circ\text{C}$ $T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$ $T_A = 100^\circ\text{C}$	$t_{rr1}$ $t_{rr2}$ $t_{rr3}$ $I_{RM3}$ $t_{rr4}$ $I_{RM4}$	35 100 50 3.7 110 6	50 -- -- -- -- --	nsec nsec nsec A nsec A



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