



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

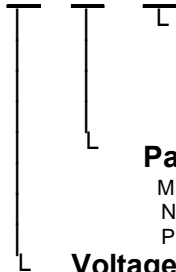
SDR50U080 thru SDR50U120 Series

50 AMP
Ultra Fast Recovery
Rectifier
800 -1200 Volts
50 nsec

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SDR50U



Screening ^{2/}

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

Package Type

- M = TO-254
- N = TO-258
- P = TO-259

Voltage/Family

- 080 = 800V
- 090 = 900V
- 100 = 1000V
- 110 = 1100V
- 120 = 1200V

Features:

- Ultra Fast Recovery: 45 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. ^{2/}

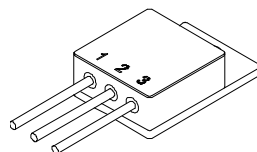
Maximum Ratings		Symbol	Value	Units
Peak Repetitive Reverse and DC Blocking Voltage	SDR50U080	V_{RRM}	800	Volts
	SDR50U090		900	
	SDR50U100	V_{RWM}	1000	
	SDR50U110		1100	
	SDR50U120	V_R	1200	
Average Rectified Forward Current (Resistive Load, 60 Hz Sine Wave, $T_A = 25^\circ\text{C}$) ^{3/}		I_o	50	Amps
Peak Surge Current (8.3 ms Pulse, Half Sine Wave, Allow Junction to Reach Equilibrium Between Pulses, $T_A = 25^\circ\text{C}$) ^{3/}		I_{FSM}	500	Amps
Operating & Storage Temperature		Top & Tstg	-65 to +200	$^\circ\text{C}$
Maximum Thermal Resistance Junction to End Tab ^{3/}		$R_{\theta JE}$	1.0	$^\circ\text{C/W}$

^{1/} For ordering information, price, operating curves, and availability - Contact factory.

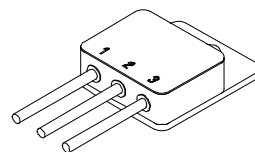
^{2/} Screening based on MIL-PRF-19500. Screening flows available on request.

^{3/} Pins 2 & 3 connected.

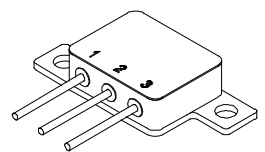
TO-254 (M)



TO-258 (N)



TO-259 (P)



NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.	DATA SHEET #: RU0117E	DOC
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**SDR50U080 thru SDR50U120
 Series**

Electrical Characteristics		Symbol	Typ	Max	Units	
Instantaneous Forward Voltage Drop ($T_A = 25^\circ\text{C}$, 300 μsec pulse)	$I_F = 20\text{A dc}$	V_{F1}	1.60	--	Volts	
	$I_F = 50\text{A dc}$		1.75	1.9		
	$I_F = 100\text{A dc}$		1.90	2.3		
Instantaneous Forward Voltage Drop	$T_A = -55^\circ\text{C}$	V_{F2}	1.65	--	Volts	
	$T_A = -55^\circ\text{C}$		$I_F = 20\text{A dc}$	1.80		1.95
	$T_A = 100^\circ\text{C}$		$I_F = 50\text{A dc}$	1.30		--
	$T_A = 100^\circ\text{C}$		$I_F = 20\text{A dc}$	1.55		1.7
Reverse Leakage Current (Rated V_R , $T_A = 25^\circ\text{C}$, 300 μsec pulse minimum)		I_{R1}	50	100	μA	
Reverse Leakage Current (Rated V_R , $T_A = 100^\circ\text{C}$, 300 μsec pulse minimum) (Rated V_R , $T_A = 125^\circ\text{C}$, 300 μsec pulse minimum) (Rated V_R , $T_A = 150^\circ\text{C}$, 300 μsec pulse minimum)		I_{R2}	2.50	10	mA	
			8.0	--		
			23	--		
Junction Capacitance ($V_R = 5\text{ Vdc}$, $T_A = 25^\circ\text{C}$, $f = 1\text{MHz}$) ($V_R = 10\text{ Vdc}$, $T_A = 25^\circ\text{C}$, $f = 1\text{MHz}$)		C_J	95	--	pF	
			90	150		
Reverse Recovery Time ($I_F = 500\text{ mA}$, $I_R = 1\text{A}$, $I_{RR} = 0.25\text{A}$) ($I_F = 500\text{ mA}$, $I_R = 1\text{A}$, $I_{RR} = 0.25\text{A}$) ($I_F = 10\text{ A}$, $dI_F/dt = 100\text{A/us}$) ($I_F = 10\text{ A}$, $dI_F/dt = 100\text{A/us}$) ($I_F = 10\text{ A}$, $dI_F/dt = 100\text{A/us}$) ($I_F = 10\text{ A}$, $dI_F/dt = 100\text{A/us}$)	$T_A = 25^\circ\text{C}$	t_{rr1}	45	50	nsec	
	$T_A = 100^\circ\text{C}$	t_{rr2}	110	--	nsec	
	$T_A = 25^\circ\text{C}$	t_{rr3}	55	--	nsec	
	$T_A = 25^\circ\text{C}$	I_{RM3}	4.0	--	A	
	$T_A = 100^\circ\text{C}$	t_{rr4}	140	--	nsec	
	$T_A = 100^\circ\text{C}$	I_{RM4}	7.0	--	A	

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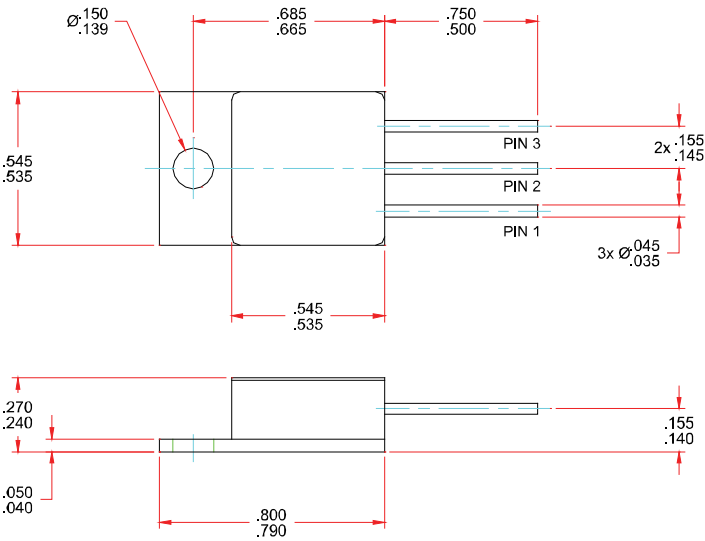
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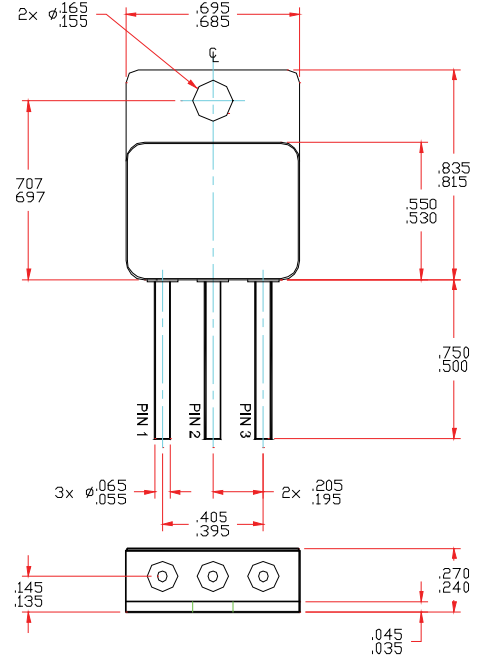
Case Outline: TO-254

Pin1: Cathode
Pin2: Anode
Pin3: Anode



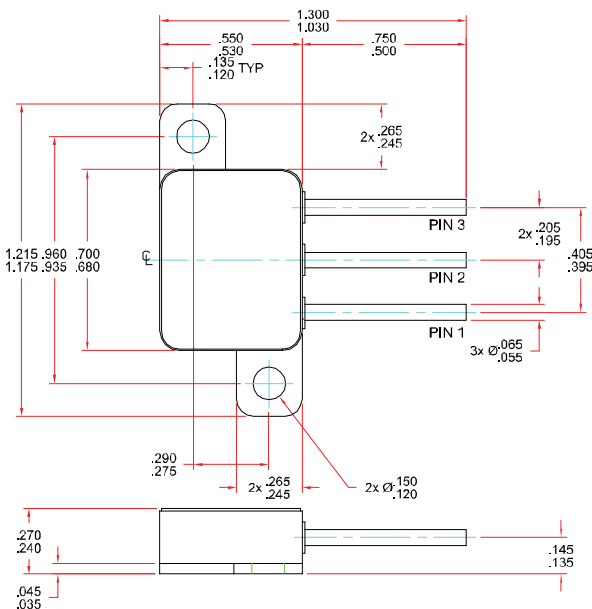
Case Outline: TO-258

Pin1: Cathode
Pin2: Anode
Pin3: Anode



Case Outline: TO-259

Pin1: Cathode
Pin2: Anode
Pin3: Anode



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