



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

**SDR75010U
 thru
 SDR75020U**

Designer's Data Sheet

Part Number/Ordering Information ^{1/}

SDR75 _ U _ _ _

- Screening ^{2/}
 - _ = Not Screened
 - TX = TX Level
 - TXV = TXV Level
 - S = S Level
- Lead Bend Options (TO-254, Z)
 - DB = Down Bend
 - UB = Up Bend
- Package
 - S1 = SMD1
 - M = TO-254
 - Z = TO-254Z
- Recovery Time
 - U = Ultra Fast

Family/Voltage 010 = 100V
 015 = 150V
 020 = 200V

**75 AMP
 ULTRAFAST RECTIFIER
 100 - 200 VOLTS
 50 nsec**

- FEATURES:**
- Ultra Fast Recovery: 45 ns typical
 - High Surge Rating
 - Low Reverse Leakage Current
 - Low Junction Capacitance
 - Hermetically Sealed Package, isolated (TO-254, Z) or hot case (SMD1)
 - Gold Eutectic Die Attach Available
 - Ultrasonic Aluminum Wire Bonds
 - TX, TXV, or Space Level Screening Available

Maximum Ratings		Symbol	Value	Units
Peak Repetitive Reverse and DC Blocking Voltage ^{3/}	SDR75010 SDR75015 SDR75020	V_{RRM} V_{RWM} V_R	100 150 200	Volts
Average Rectified Forward Current ^{4/} (Resistive Load, 60 Hz Sine Wave, $T_C = 100^\circ\text{C}$)		I_o	75	Amps
Peak Surge Current (8.3 ms Pulse, Half Sine Wave, $T_A = 25^\circ\text{C}$, per leg)		I_{FSM}	350	Amps
Operating & Storage Temperature		T_{OP} & T_{STG}	-65 to +200	°C
Maximum Total Thermal Resistance Junction to Case, SMD1 Junction to Case, TO-254, Z		$R_{\theta JC}$	1.0 1.2	°C/W

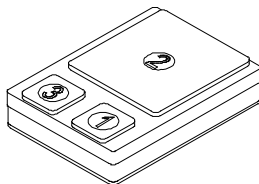
NOTES:

^{1/} For ordering information, price, and availability, contact factory.

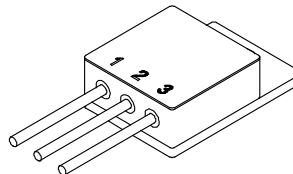
^{2/} Screening based on MIL-PRF-19500. Screening flows available on request.

^{3/} Higher voltages available.

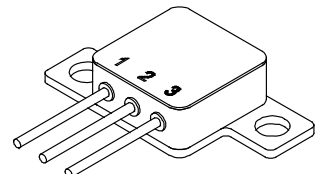
SMD1



TO-254



TO-254Z



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

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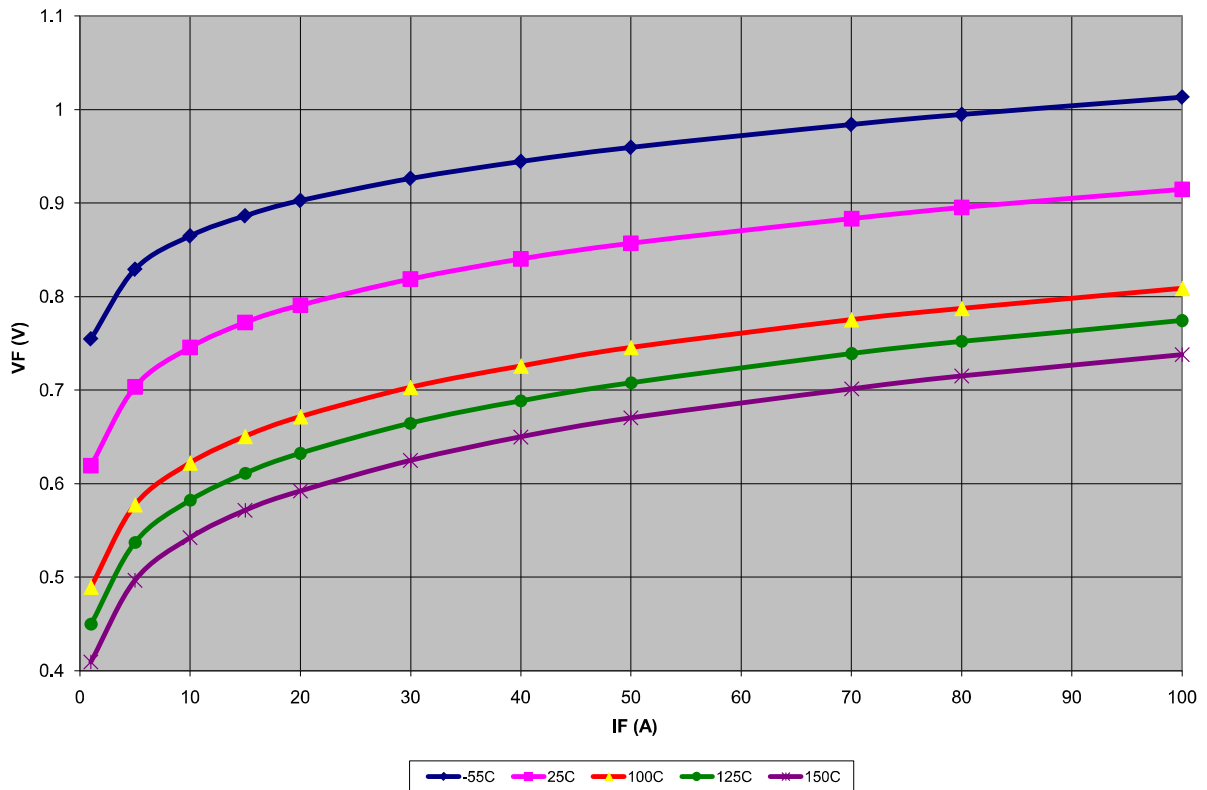
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Electrical Characteristic		Symbol	Typ	Max	Units
Instantaneous Forward Voltage Drop ($T_A = 25^\circ\text{C}$, 300 – 500 μsec Pulse)	$I_F = 20\text{ A}$	V_{F1}	0.80	0.95	V_{DC}
	$I_F = 50\text{ A}$	V_{F2}	0.84	0.98	
	$I_F = 80\text{ A}$	V_{F3}	0.88	1.10	
Instantaneous Forward Voltage Drop ($T_A = -55^\circ\text{C}$, 300 – 500 μsec Pulse)	$I_F = 20\text{ A}$	V_{F4}	0.90	1.1	V_{DC}
	$I_F = 50\text{ A}$	V_{F5}	0.95	1.15	
	$I_F = 80\text{ A}$	V_{F6}	0.98	1.2	
Instantaneous Forward Voltage Drop ($T_A = 125^\circ\text{C}$, 300 – 500 μsec Pulse)	$I_F = 20\text{ A}$	V_{F7}	0.64	0.80	V_{DC}
	$I_F = 50\text{ A}$	V_{F8}	0.70	0.86	
	$I_F = 80\text{ A}$	V_{F9}	0.74	0.90	
Reverse Leakage Current (100% of rated V_R , 300 μs pulse min.)	$T_A = 25^\circ\text{C}$	I_{R1}	0.3	25	μA
	$T_A = 100^\circ\text{C}$	I_{R2}	5	-	
	$T_A = 125^\circ\text{C}$	I_{R3}	20	250	
	$T_A = 150^\circ\text{C}$	I_{R4}	75	-	
Reverse Recovery Time ($I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $I_{RR} = 0.25\text{ A}$, $T_A = 25^\circ\text{C}$)		t_{RR1}	45	50	nsec
Reverse Recovery Time ($I_F = 10\text{ A}$, $di_F/dt = 100\text{ A}/\mu\text{s}$)	$T_A = 25^\circ\text{C}$	t_{RR2}	45	-	nsec
		I_{RM2}	3.5	-	A
Junction Capacitance ($T_A = 25^\circ\text{C}$, $f = 1\text{ MHz}$)	$V_R = 5\text{ V}_{DC}$	C_J	970	-	pF
	$V_R = 10\text{ V}_{DC}$		760	900	

$V_{Fave} = f(I_F, T)$



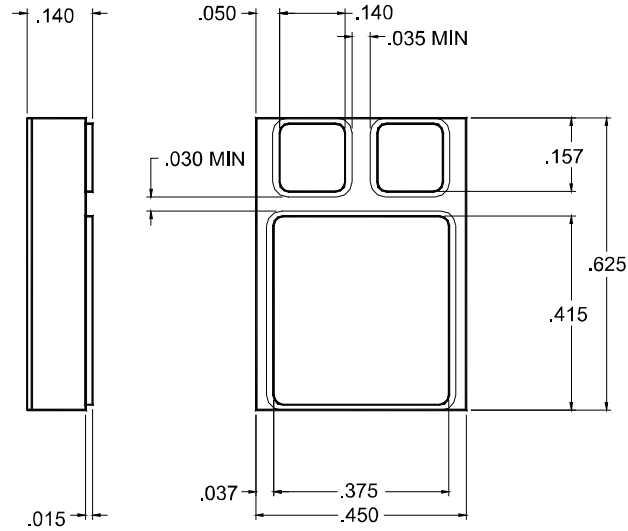


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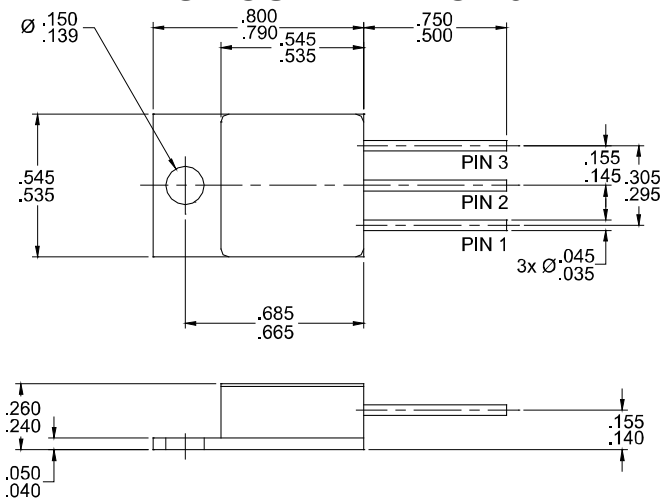
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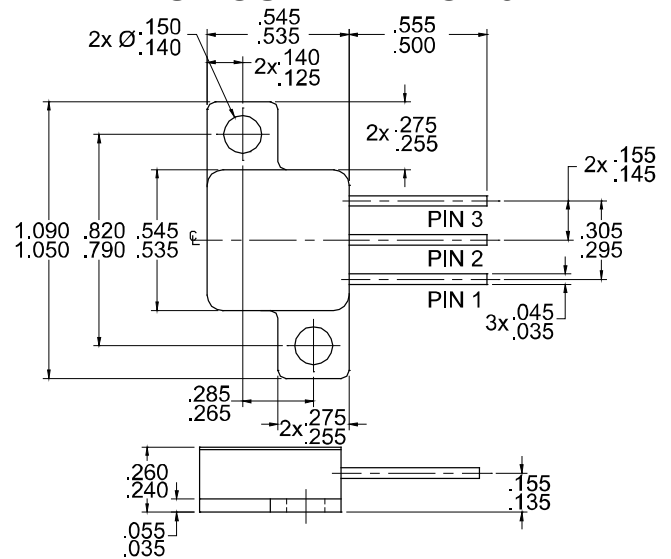
CASE OUTLINE: SMD1



CASE OUTLINE: TO-254

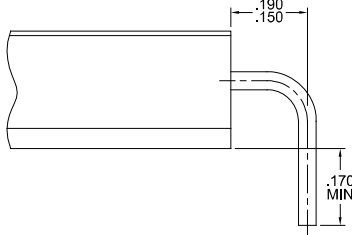


CASE OUTLINE: TO-254Z

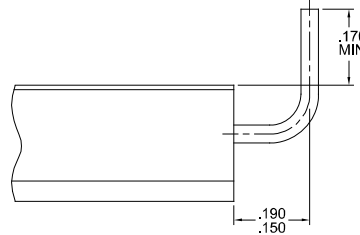


Optional Lead Bent Configuration

Down Bent (DB Suffix)



Up Bent (UB Suffix)



Pin Assignment

Package	Pin 1	Pin 2	Pin 3
SMD1	Anode	Cathode	Anode
TO-254	Cathode	Anode	Anode
TO-254Z	Cathode	Anode	Anode

For information on curves, contact the Factory Representative for Engineering Assistance.

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