



PRELIMINARY

Solid State Devices, Inc.

14830 Valley View Blvd \* La Mirada, Ca 90638

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ssdi@ssdi-power.com \* www.ssdi-power.com

# SDR6006 series

## 60Apk 60nsec 400 to 600 V Ultrafast Rectifier

**DESIGNER'S DATA SHEET**

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

**SDR60**

**Screening**<sup>2/</sup>

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

**Package**

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

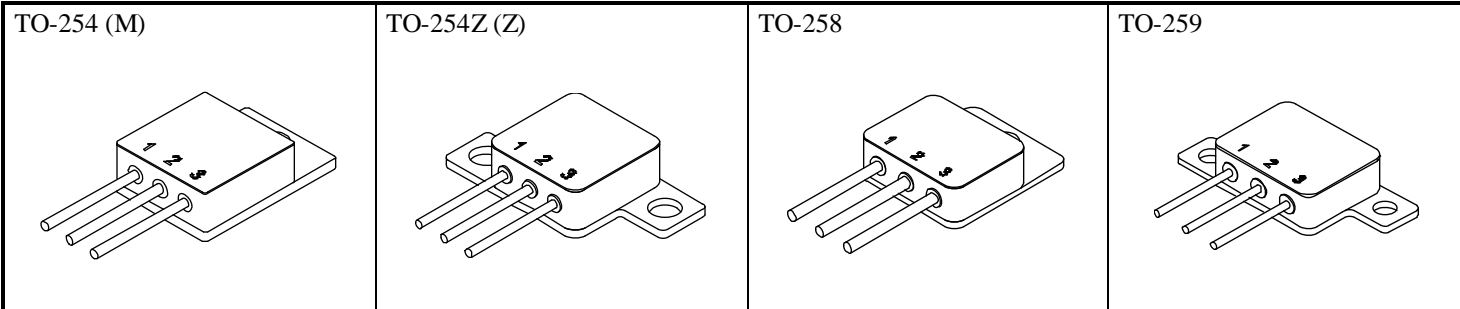
**Configuration** n/a (single diode)

**Voltage**

- 04 = 400 V
- 05 = 500 V
- 06 = 600 V

- Features:**
- Ultrafast Recovery: 100nsec Maximum
  - High Surge Rating
  - Low Reverse Leakage Current
  - Low Junction Capacitance
  - Hermetically Sealed, Isolated Package providing enhanced thermal performance
  - Eutectic Die Attach
  - TX, TXV, and S Level Screening iaw MIL-PRF-19500 Available
  - hyperfast version available (typ 30 ns)

Maximum Ratings		Symbol	Value	Units
Peak Repetitive Reverse Voltage	SDR6004 SDR6005 SDR6006	$V_{RRM}$	400 500 600	Volts
Average Rectified Forward Current (Resistive Load, 60 Hz Sine Wave, $T_C = 100\text{ }^\circ\text{C}$ )		$I_O$	60	Amps, pk
Continuous Rectified Forward Current ( $T_C = 25\text{ }^\circ\text{C}$ ; limited by construction)		$I_F$	45	Amps
Peak Surge Current (8.3 ms Pulse, Half Sine Wave, $T_A = 25\text{ }^\circ\text{C}$ , 1 pulse)		$I_{FSM}$	500	Amps
Operating & Storage Temperature		$T_{OP}$ & $T_{STG}$	-65 to +200	$^\circ\text{C}$
Maximum Total Thermal Resistance Junction to Case		$R_{\theta JC}$	1.0 (0.7 typ)	$^\circ\text{C/W}$





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Electrical Characteristic		Symbol	Min	Typ	Max	Units
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = 25^\circ\text{C}$ , 300 – 500 $\mu\text{sec}$ Pulse)	$I_F = 10\text{A}$	$V_{F1}$	—	915	980	$\text{mV}_{\text{DC}}$
	$I_F = 20\text{A}$	$V_{F2}$		1015	1100	
	$I_F = 40\text{A}$	$V_{F3}$		1170	1250	
	$I_F = 60\text{A}$	$V_{F4}$		1275	1400	
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = 125^\circ\text{C}$ , 300 – 500 $\mu\text{sec}$ Pulse)	$I_F = 10\text{A}$	$V_{F5}$	—	765	-	$\text{mV}_{\text{DC}}$
	$I_F = 20\text{A}$	$V_{F6}$		870	-	
	$I_F = 40\text{A}$	$V_{F7}$		1040	1150	
	$I_F = 60\text{A}$	$V_{F8}$		1150	-	
<b>Instantaneous Forward Voltage Drop</b> ( $T_A = -55^\circ\text{C}$ , 300 – 500 $\mu\text{sec}$ Pulse)	$I_F = 10\text{A}$	$V_{F9}$	—	1000	-	$\text{mV}_{\text{DC}}$
	$I_F = 20\text{A}$	$V_{F10}$		1100	-	
	$I_F = 40\text{A}$	$V_{F11}$		1250	1350	
	$I_F = 60\text{A}$	$V_{F12}$		1340	-	
<b>Reverse Leakage Current</b> (100% of rated $V_R$ , 300 $\mu\text{s}$ pulse min.)	$T_A = 25^\circ\text{C}$	$I_{R1}$	—	10	50	$\mu\text{A}$
	$T_A = 100^\circ\text{C}$	$I_{R2}$		1	-	$\text{mA}$
	$T_A = 125^\circ\text{C}$	$I_{R3}$		3	10	$\text{mA}$
	$T_A = 150^\circ\text{C}$	$I_{R4}$		10	-	$\text{mA}$
<b>Reverse Recovery Time</b> ( $I_F = 0.5\text{A}$ , $I_R = 1\text{A}$ , $I_{\text{RR}} = 0.25\text{A}$ , $T_A = 25^\circ\text{C}$ )		$t_{\text{RR}}$	—	60	100	nsec
<b>Junction Capacitance</b> ( $V_R = 10\text{V}_{\text{DC}}$ , $T_A = 25^\circ\text{C}$ , $f = 1\text{MHz}$ )		$C_J$	—	160	240	pF

**NOTES:** 1/ For Ordering Information, Price, and Availability Contact Factory.

2/ Screened to MIL-PRF-19500.

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

**DATA SHEET #: RC0121A**

**DOC**



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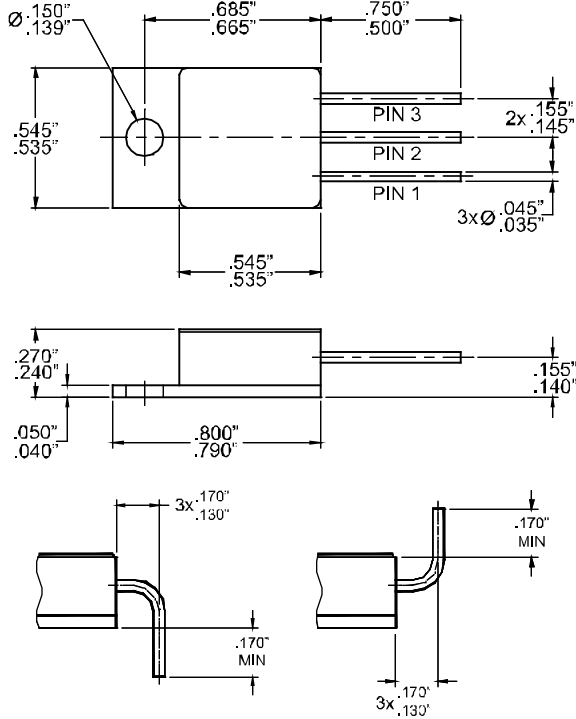
## Available Part Numbers:

SDR6004M, SDR6004Z, SDR6004N, SDR6004P  
 SDR6005M, SDR6005Z, SDR6005N, SDR6005P  
 SDR6006M, SDR6006Z, SDR6006N, SDR6006P

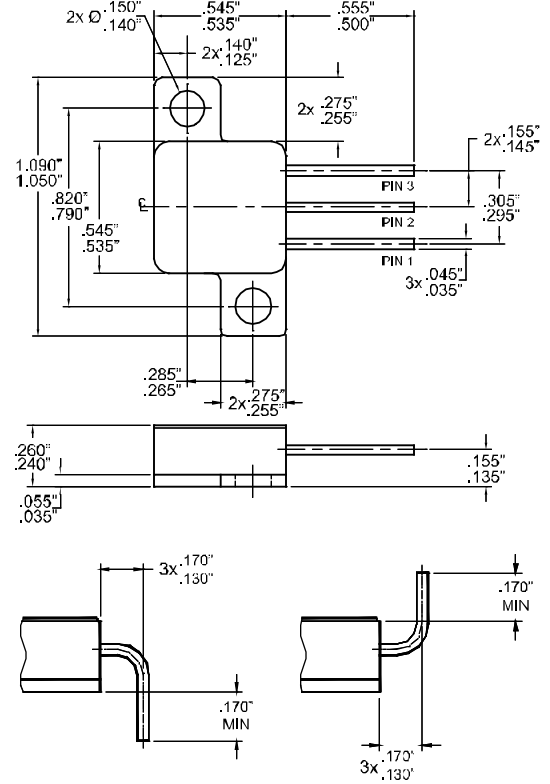
## PIN ASSIGNMENT

PACKAGE	Pin 1	Pin 2	Pin 3
ALL	Cathode	Anode	Anode

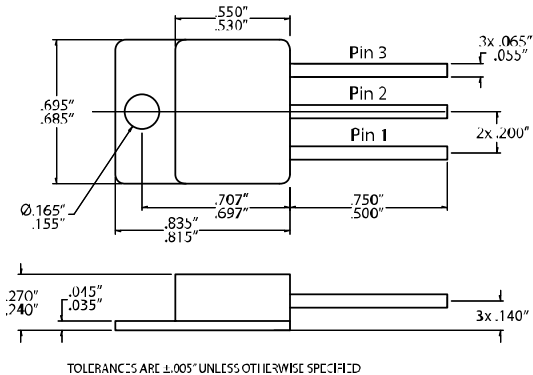
### TO-254:



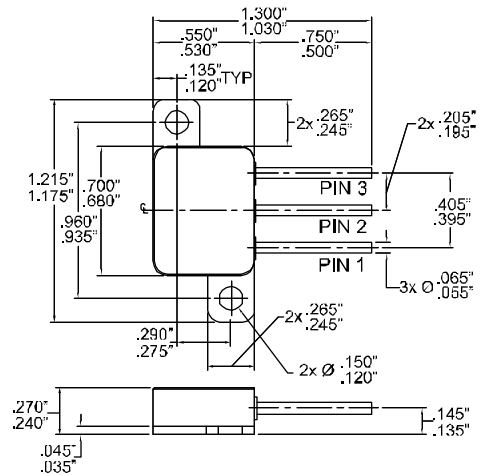
### TO-254Z:



### TO-258:



### TO-259:



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