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## SDR953M \& Z <br> Thru SDR956M \& Z

## Designer's Data Sheet

Part Number/Ordering Information ${ }^{1 /}$ SDR95

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## 50A, 35nsec, 300-600 V Hyper Fast Rectifier

## Features:

- Hyper Fast Recovery: 35nsec Maximum ${ }^{\text {3/ }}$
- High Surge Rating
- Low Reverse Leakage Current
- Low Junction Capacitance
- Hermetically Sealed Low Profile Package
- Gold Eutectic Die Attach Available
- Ultrasonic Aluminum Wire Bonds
- Higher Voltages and Faster Recovery Times Available, Contact Factory
- Ceramic Seal for Improve d Hermeticity Available
- TX, TXV, and S-Level Screening Available ${ }^{2 /}$

| Maximum Ratings | Symbol | Value | Units |
| :---: | :---: | :---: | :---: |
|  SDR953M \& Z <br> Peak Repetitive Reverse Voltage SDR954M \& Z <br> And DC Blocking Voltage SDR955M \& Z <br>  SDR956M \& Z | $\begin{gathered} \mathbf{V}_{\mathrm{RRM}} \\ \mathbf{V}_{\mathrm{RWM}} \\ \mathbf{V}_{\mathbf{R}} \end{gathered}$ | $\begin{aligned} & 300 \\ & 400 \\ & 500 \\ & 600 \end{aligned}$ | Volts |
| Average Rectified Forward Current (Resistive Load, 60 Hz Sine Wave, $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ ) | Io | 50 | Amps |
| Peak Surge Current ${ }^{5 /}$ $\left(8.3 \mathrm{~ms}\right.$ Pulse, Half Sine Wave, or equivalent DC) ${ }^{\text {4/ }}$ | $\mathrm{I}_{\mathrm{FSM}}$ | 450 | Amps |
| Operating \& Storage Temperature | $\mathrm{T}_{\mathrm{OP}} \& \mathrm{~T}_{\text {STG }}$ | -65 to +200 | ${ }^{\circ} \mathrm{C}$ |
| Maximum Total Thermal Resistance Junction to Case | $\mathbf{R}_{\text {өJC }}$ | 0.7 | ${ }^{\circ} \mathrm{C} / \mathrm{W}$ |

- Notes:

1/ For ordering information, Price, Operating Curves, and Availability- Contact Factory.
2/ Screened to MIL-PRF-19500.
3/ Recovery Conditions: $I_{F}=.5 \mathrm{Amp}, \mathrm{I}_{\mathrm{R}}=1 \mathrm{~A}, \mathrm{I}_{\mathrm{RR}}=.25 \mathrm{~A}$.
4/ Pins 2 and 3 Tied Together.
5/ Available with higher surge ratings.


TO-254Z (Z)


Thru SDR956M \& Z

| Electrical Characteristics |  | Symbol | Max | Units |
| :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \begin{array}{l} \text { Instantaneous Forward Voltage Drop }{ }^{4 /} \\ \left(\begin{array}{l} \left.\mathrm{I}_{\mathrm{F}}=25 \mathrm{~A}, \text { Pulse }\right) \\ \left(\mathrm{I}_{\mathrm{F}}=50 \mathrm{~A}, \text { Pulse }\right) \end{array}\right. \\ \hline \end{array} \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C} \\ & \mathrm{~T}_{\mathrm{A}}=25^{\circ} \mathrm{C} \end{aligned}$ | $\begin{aligned} & \mathbf{V}_{\mathrm{F} 1} \\ & \mathbf{V}_{\mathrm{F} 2} \end{aligned}$ | $\begin{aligned} & 1.30 \\ & 1.65 \end{aligned}$ | $\mathbf{V}_{\text {DC }}$ |
| Instantaneous Forward Voltage Drop 4/ ( $\mathrm{I}_{\mathrm{F}}=25 \mathrm{Adc}$, Pulse) | $\begin{aligned} & \mathrm{T}_{\mathrm{A}}=-55^{\circ} \mathrm{C} \\ & \mathrm{~T}_{\mathrm{A}}=100^{\circ} \mathrm{C} \end{aligned}$ | $\begin{aligned} & \hline \mathbf{V}_{\mathrm{F} 3} \\ & \mathbf{V}_{\mathrm{F} 4} \end{aligned}$ | $\begin{aligned} & 1.4 \\ & 1.2 \end{aligned}$ | $\mathbf{V}_{\text {DC }}$ |
| Reverse Leakage Current | $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$, Rated $\mathrm{V}_{\mathrm{R}}$, Pulse $\mathrm{T}_{\mathrm{A}}=100^{\circ} \mathrm{C}$, Rated $\mathrm{V}_{\mathrm{R},}$ Pulse | $\begin{aligned} & \mathbf{I}_{\mathbf{R} 1} \\ & \mathbf{I}_{\mathbf{R} \mathbf{2}} \end{aligned}$ | $\begin{gathered} 100 \\ 10 \end{gathered}$ | $\begin{gathered} \mu \mathbf{A} \\ \mathbf{m A} \end{gathered}$ |
| Reverse Recovery Time $\left(\mathrm{I}_{\mathrm{F}}=.5 \mathrm{Amp}, \mathrm{I}_{\mathrm{R}}=1 \mathrm{~A}, \mathrm{I}_{\mathrm{RR}}=.25 \mathrm{~A}\right)$ | $\mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ | $\mathrm{t}_{\mathrm{RR}}$ | 35 | nsec |
| $\begin{aligned} & \text { Junction Capacitance } \\ & \left(\mathrm{V}_{\mathrm{R}}=10 \mathrm{~V}_{\mathrm{DC}}, \mathrm{~T}_{\mathrm{A}}=25^{\circ} \mathrm{C}, \mathrm{f}=1 \mathrm{MHz}\right) \end{aligned}$ |  | $\mathrm{C}_{\text {J }}$ | 250 | pF |

Figure 1- Optional Lead Bends


Suffix MD \& ZD


Suffix MU \& ZU

| PIN ASSIGNMENT (TO-254 and TO-254Z Packages) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Code | FUNCTION | Pin 1 | Pin 2 | Pin 3 |
|  |  | Cathode | Anode | Anode |

## Notes:

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