



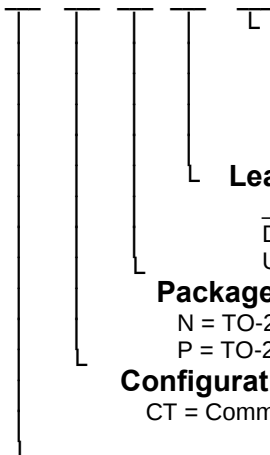
## Solid State Devices, Inc.

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

### DESIGNER'S DATA SHEET

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

SDR91



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

— = Not Screened  
 TX = TX Level  
 TXV = TXV Level  
 S = S Level

#### Lead Bend Options

— = Straight Leads  
 DB = Down Bend  
 UB = Up Bend

#### Package Type

N = TO-258  
 P = TO-259

#### Configuration

CT = Common Cathode

#### Voltage/Family

03 = 300V  
 04 = 400V  
 05 = 500V

## SDR9103CTNA & PA thru SDR9105CTNA & PA Series

**100 AMP  
HYPERFAST CENTERTAP  
RECTIFIER**  
**300 - 500 Volts, 35 nsec  
40 MIL PINS**

#### Features:

- Hyperfast recovery: 35 nsec maximum
- High surge rating
- Low reverse leakage current
- Low junction capacitance
- Gold eutectic die attach available
- Ultrasonic aluminum wire bonds
- Ceramic seals for improved hermeticity
- Common anode and doubler versions available
- TX, TXV, S level screening available - consult factory

| Maximum Ratings                                                                                                 |                                                          | Symbol                          | Value             | Units              |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------|-------------------|--------------------|
| Peak Repetitive Reverse and DC Blocking Voltage                                                                 | SDR9103CTNA & PA<br>SDR9104CTNA & PA<br>SDR9105CTNA & PA | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 300<br>400<br>500 | V                  |
| Average Rectified Forward Current <sup>3/</sup><br>(Resistive load, 60 Hz sine wave, $T_A = 25^\circ\text{C}$ ) |                                                          | $I_o$                           | 100               | A                  |
| Peak Surge Current <sup>4/</sup><br>(8.3 ms pulse, half sine wave per leg, $T_A = 25^\circ\text{C}$ )           |                                                          | $I_{FSM}$                       | 500               | A                  |
| Operating & Storage Temperature                                                                                 |                                                          | $T_{OP}$ & $T_{STG}$            | -65 to +200       | $^\circ\text{C}$   |
| Maximum Thermal Resistance<br>Junction to Case, each individual diode<br>Junction to Case <sup>3/</sup>         |                                                          | $R_{\theta JC}$                 | 0.73<br>0.40      | $^\circ\text{C/W}$ |

#### NOTES:

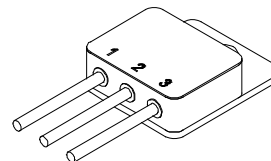
<sup>1/</sup> For ordering information, price, operating curves, and availability - Contact factory.

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

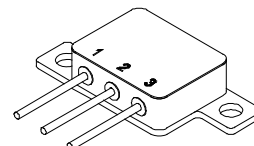
<sup>3/</sup> Both legs tied together.

<sup>4/</sup> Available with higher surge ratings.

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 #: RH0243B**

**DOC**



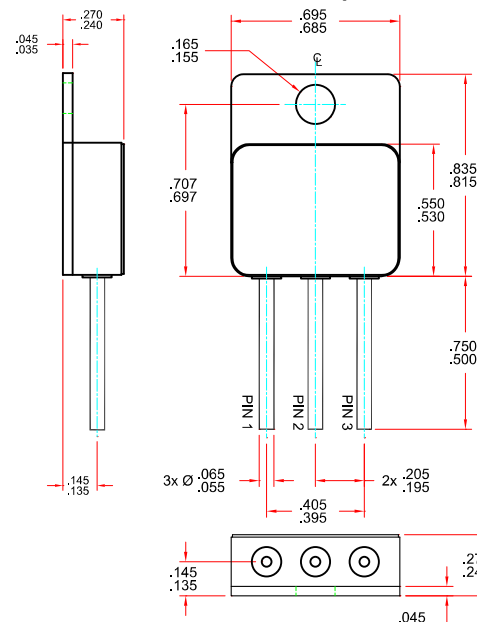
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## SDR9103CTNA & PA thru SDR9105CTNA & PA Series

| Electrical Characteristics (per leg)                                                                                          |                           | Symbol   | Max  | Units         |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|------|---------------|
| Instantaneous Forward Voltage Drop<br>( $T_A = 25^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse)                                 | $I_F = 25\text{ A}$       | $V_{F1}$ | 1.35 | V             |
|                                                                                                                               | $I_F = 50\text{ A}$       |          | 1.65 |               |
| Instantaneous Forward Voltage Drop<br>( $I_F = 25\text{ A}$ , 300 $\mu\text{sec}$ pulse)                                      | $T_A = 100^\circ\text{C}$ | $V_{F2}$ | 1.25 | V             |
|                                                                                                                               | $T_A = -55^\circ\text{C}$ |          | 1.55 |               |
| Reverse Leakage Current<br>(Rated $V_R$ , $T_A = 25^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse minimum)                       |                           | $I_{R1}$ | 100  | $\mu\text{A}$ |
| Reverse Leakage Current<br>(Rated $V_R$ , $T_A = 100^\circ\text{C}$ , 300 $\mu\text{sec}$ pulse minimum)                      |                           | $I_{R2}$ | 10   | mA            |
| Junction Capacitance<br>( $V_R = 10\text{ V}$ , $T_A = 25^\circ\text{C}$ , $f = 1\text{ MHz}$ )                               |                           | $C_J$    | 250  | pF            |
| Reverse Recovery Time<br>( $I_F = 500\text{ mA}$ , $I_R = 1\text{ A}$ , $I_{RR} = 0.25\text{ A}$ , $T_A = 25^\circ\text{C}$ ) |                           | $t_{rr}$ | 35   | nsec          |

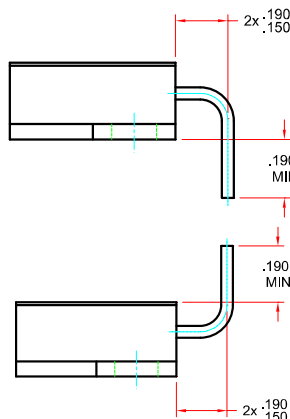
Case Outline: TO-258 (Suffix NA)



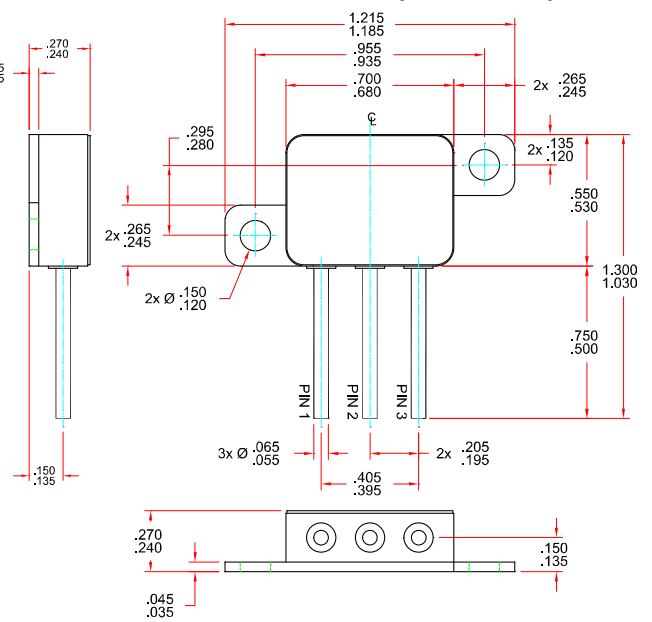
PIN 1: ANODE 1

PIN 2: CATHODE

PIN 3: ANODE 2



Case Outline: TO-259 (Suffix PA)



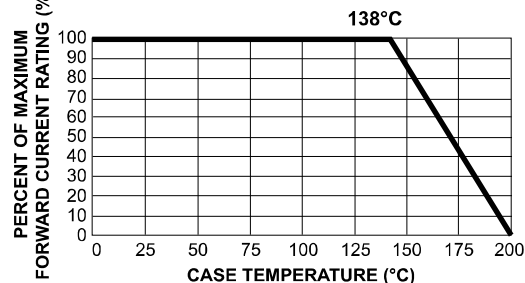
PIN 1: ANODE 1

PIN 2: CATHODE

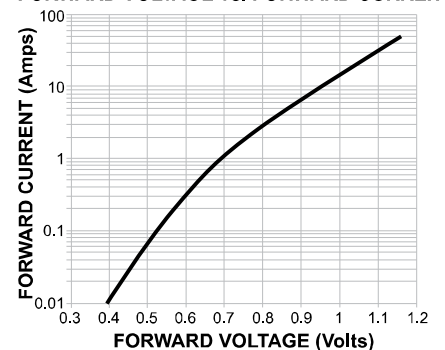
PIN 3: ANODE 2

### TYPICAL OPERATING CURVES

$T_A = 25^\circ\text{C}$  unless otherwise specified



### FORWARD VOLTAGE vs. FORWARD CURRENT



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