

## 75A, 700V - 1000V Hyperfast Diodes

RHRU7570, RHRU7580, RHRU7590 and RHRU75100 (TA49068) are hyperfast diodes with soft recovery characteristics ( $t_{RR} < 85\text{ns}$ ). They have half the recovery time of ultrafast diodes and are silicon nitride passivated ion-implanted epitaxial planar construction.

These devices are intended for use as freewheeling/clamping diodes and rectifiers in a variety of switching power supplies and other power switching applications. Their low stored charge and hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits reducing power loss in the switching transistors.

## Ordering Information

### PACKAGING AVAILABILITY

PART NUMBER	PACKAGE	BRAND
RHRU7570	TO-218	RHRU7570
RHRU7580	TO-218	RHRU7580
RHRU7590	TO-218	RHRU7590
RHRU75100	TO-218	RHRU75100

NOTE: When ordering, use the entire part number.

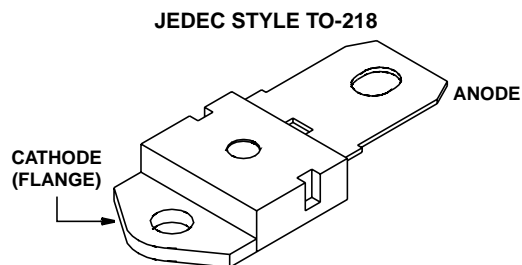
## Features

- Hyperfast with Soft Recovery .....<85ns
- Operating Temperature ..... +175°C
- Reverse Voltage Up To .....1000V
- Avalanche Energy Rated
- Planar Construction

## Applications

- Switching Power Supplies
- Power Switching Circuits
- General Purpose

## Package



## Symbol



## Absolute Maximum Ratings $T_C = +25^\circ\text{C}$ , Unless Otherwise Specified

	RHRU7570	RHRU7580	RHRU7590	RHRU75100	UNITS
Peak Repetitive Reverse Voltage ..... $V_{RRM}$	700	800	900	1000	V
Working Peak Reverse Voltage ..... $V_{RWM}$	700	800	900	1000	V
DC Blocking Voltage ..... $V_R$	700	800	900	1000	V
Average Rectified Forward Current ..... $I_{F(AV)}$ ( $T_C = +52^\circ\text{C}$ )	75	75	75	75	A
Repetitive Peak Surge Current ..... $I_{FSM}$ (Square Wave, 20kHz)	150	150	150	150	A
Nonrepetitive Peak Surge Current ..... $I_{FSM}$ (Halfwave, 1 Phase, 60Hz)	750	750	750	750	A
Maximum Power Dissipation ..... $P_D$	190	190	190	190	W
Avalanche Energy ( $L = 40\text{mH}$ ) (See Figures 10 and 11) ..... $E_{AVL}$	50	50	50	50	mJ
Operating and Storage Temperature ..... $T_{STG}, T_J$	-65 to +175	-65 to +175	-65 to +175	-65 to +175	°C



## Typical Performance Curves

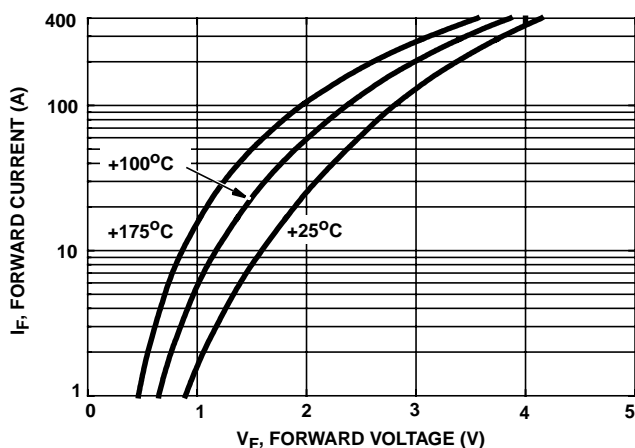


FIGURE 3. TYPICAL FORWARD CURRENT vs FORWARD VOLTAGE DROP

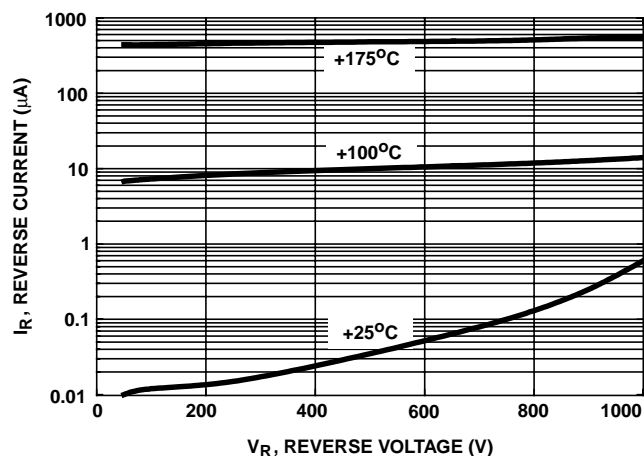


FIGURE 4. TYPICAL REVERSE CURRENT vs REVERSE VOLTAGE

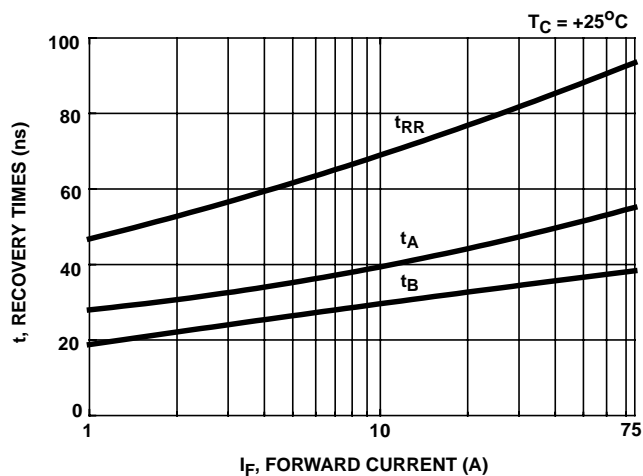


FIGURE 5. TYPICAL  $t_{RR}$ ,  $t_A$  AND  $t_B$  CURVES vs FORWARD CURRENT AT +25°C

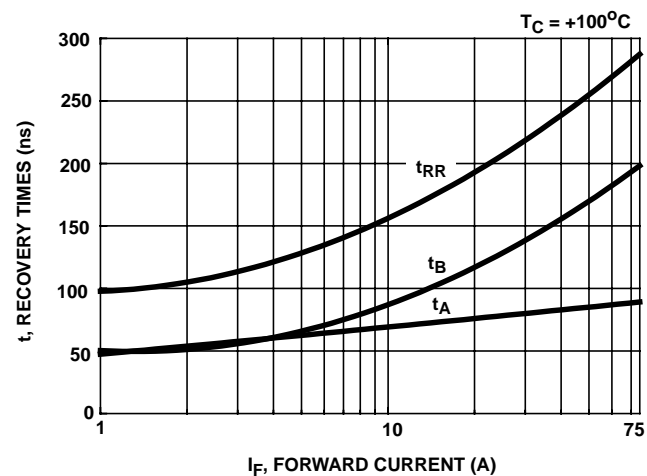


FIGURE 6. TYPICAL  $t_{RR}$ ,  $t_A$  AND  $t_B$  CURVES vs FORWARD CURRENT AT +100°C

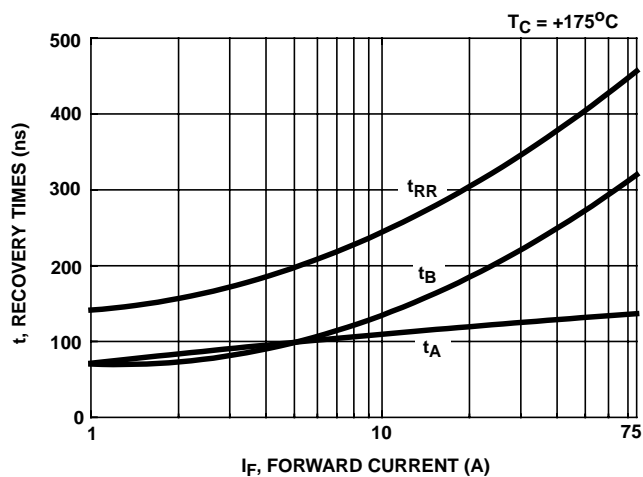


FIGURE 7. TYPICAL  $t_{RR}$ ,  $t_A$  AND  $t_B$  CURVES vs FORWARD CURRENT AT +175°C

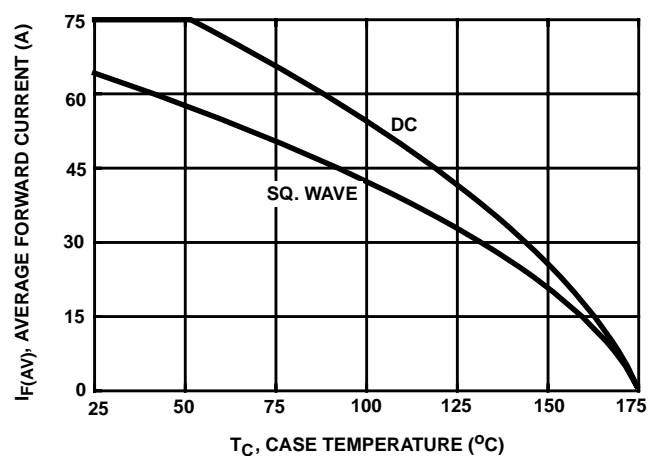


FIGURE 8. CURRENT DERATING CURVE FOR ALL TYPES

## Typical Performance Curves (Continued)

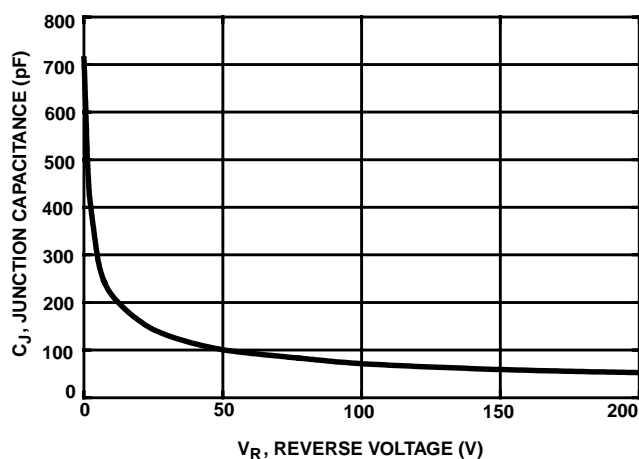


FIGURE 9. TYPICAL JUNCTION CAPACITANCE vs REVERSE VOLTAGE

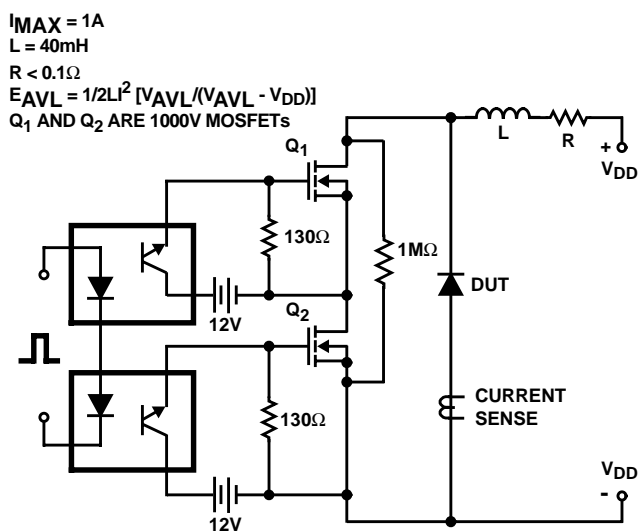


FIGURE 10. AVALANCHE ENERGY TEST CIRCUIT

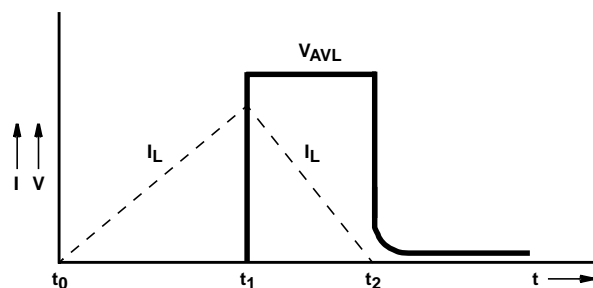


FIGURE 11. AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

All Intersil semiconductor products are manufactured, assembled and tested under **ISO9000** quality systems certification.

*Intersil semiconductor products are sold by description only. Intersil Corporation reserves the right to make changes in circuit design and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.*

For information regarding Intersil Corporation and its products, see web site [www.intersil.com](http://www.intersil.com)

## Sales Office Headquarters

### NORTH AMERICA

Intersil Corporation  
 P. O. Box 883, Mail Stop 53-204  
 Melbourne, FL 32902  
 TEL: (321) 724-7000  
 FAX: (321) 724-7240

### EUROPE

Intersil SA  
 Mercure Center  
 100, Rue de la Fusee  
 1130 Brussels, Belgium  
 TEL: (32) 2.724.2111  
 FAX: (32) 2.724.22.05

### ASIA

Intersil (Taiwan) Ltd.  
 7F-6, No. 101 Fu Hsing North Road  
 Taipei, Taiwan  
 Republic of China  
 TEL: (886) 2 2716 9310  
 FAX: (886) 2 2715 3029