

# ZERO RECOVERY™ RECTIFIER

## Features

- 600 Volt Schottky Rectifier
- Zero Reverse Recovery
- Zero Forward Recovery
- High Frequency Operation
- Temperature Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on  $V_f$

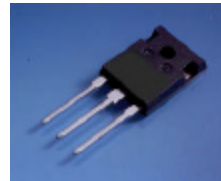
## Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction Of Rectifier Heat Sink
- Parallel Devices without Thermal Runaway

## Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Control
- Snubber

## Package



## Maximum Ratings

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	600	V
Surge Peak Reverse Voltage	$V_{RSM}$	600	V
DC Blocking Voltage	$V_{DC}$	600	V
Average Forward Current (Per Device) $T_C=150^\circ\text{C}$ (Per Leg)	$I_{F(AV)}$	20 10	A
Repetitive Peak Forward Surge Current (Per Leg) $T_C=25^\circ\text{C}$ , $t_p=8.3\text{ms}$ , Half Sine Wave	$I_{FRM}$	50	A
Non-Repetitive Peak Forward Surge Current (Per Leg) $T_C=25^\circ\text{C}$ , $t_p=10\mu\text{s}$ , Pulse	$I_{FSM}$	250	A
Power Dissipation (Per Leg) $T_C = 25^\circ\text{C}$	$P_{tot}$	138	W
Operating Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +175	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS (PER LEG)**

Parameter	Symbol	Min	Typ	Max	Units
Forward Voltage $I_F = 10A$ $T_J = 25^\circ C$ $I_F = 10A$ $T_J = 175^\circ C$	$V_F$		1.6 2.0	1.8 2.4	V
Reverse Current $V_R = 600V$ $T_J = 25^\circ C$ $V_R = 600V$ $T_J = 175^\circ C$	$I_R$		50 100	200 1000	$\mu A$
Total Capacitive Charge $V_R = 600V, I_F = 10A, di/dt = 500 A/\mu s, T_J = 25^\circ C$	$Q_C$		28		nC
Total Capacitance $V_R = 0V, T_J = 25^\circ C, f = 1MHz$ $V_R = 200V, T_J = 25^\circ C, f = 1MHz$ $V_R = 400V, T_J = 25^\circ C, f = 1MHz$	C		550 65 50		pF

**NOTE:**

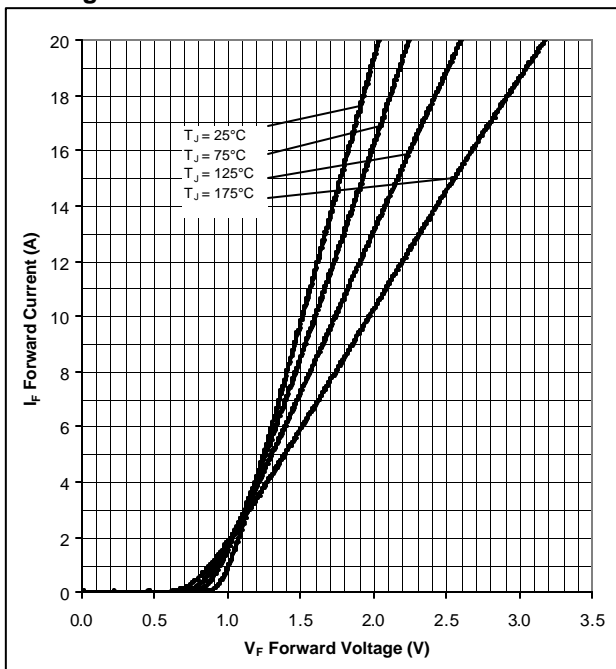
1. This is a majority carrier diode, so there is no reverse recovery charge.

**THERMAL CHARACTERISTICS**

Characteristic		Symbol	Min	Typ	Max	Units
Thermal Resistance from Junction to Case	Per Leg	$R_{\theta JC}$		1.08		$^\circ C/W$
	Per Device	$R_{\theta JC}$		0.54		$^\circ C/W$

**Typical Performance (Per Leg)**

**Figure 1. Forward Characteristics**



**Figure 2. Reverse Characteristics**

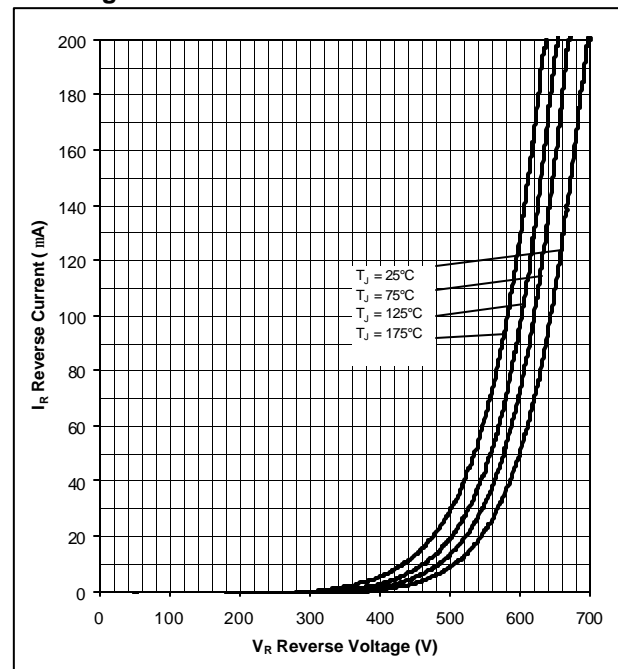


Figure 3. Current Derating

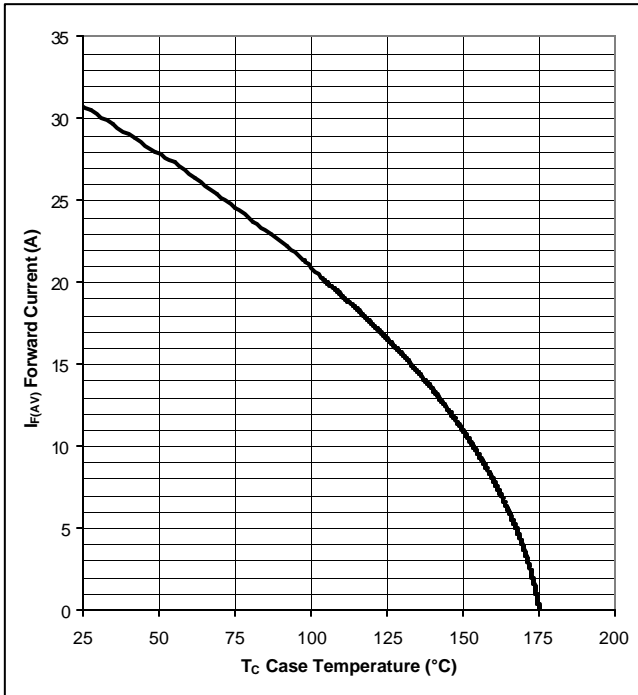


Figure 4. Capacitance vs. Reverse Voltage

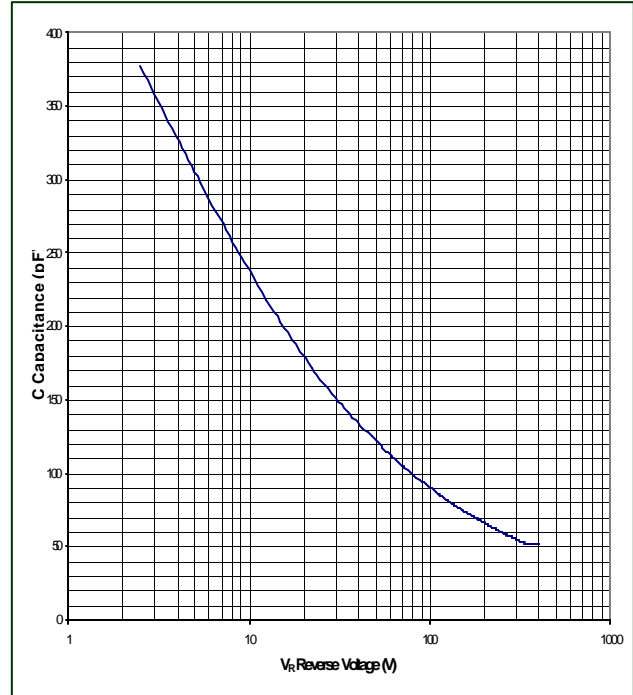
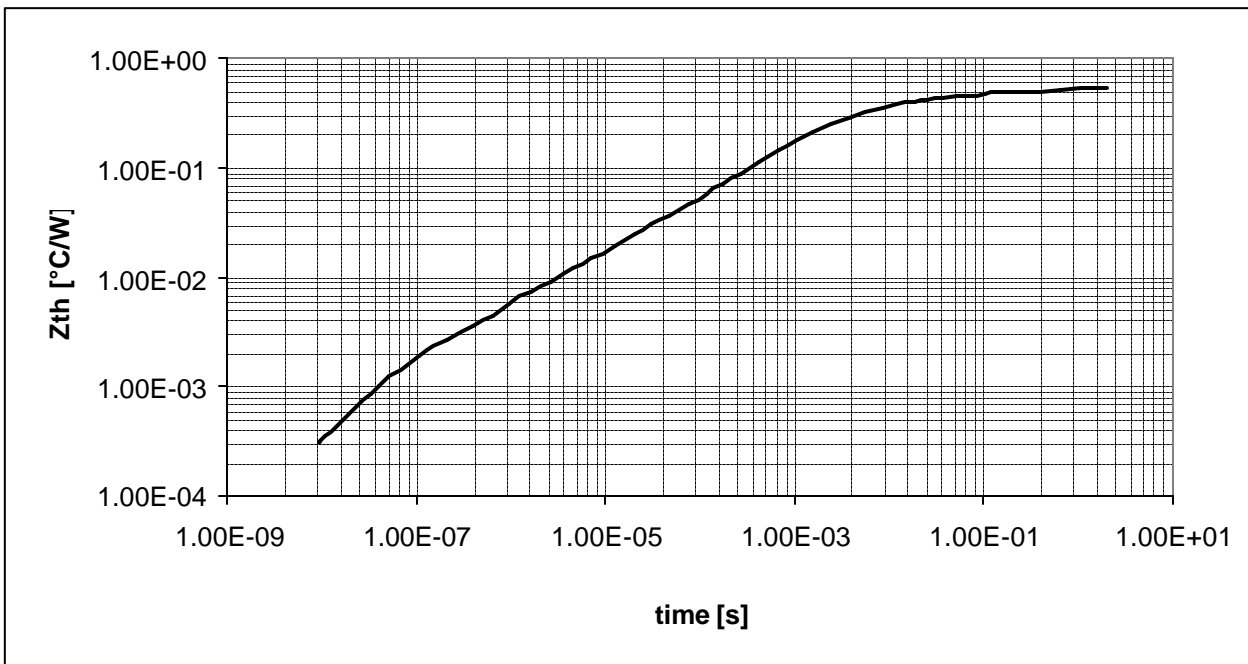
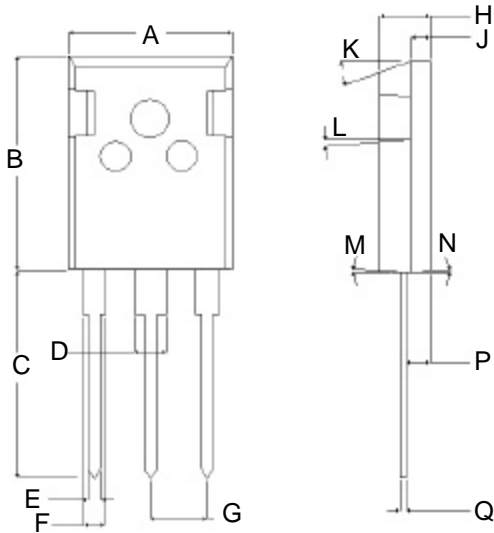


Figure 5. Transient Thermal Impedance (Per Device)

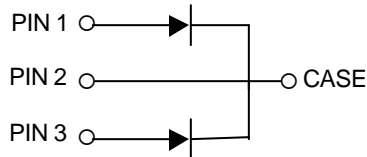


**Package Dimensions**

**Package TO-247-3**



POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.621	.631	15.773	16.027
B	.820	.830	20.823	21.077
C	.789	.799	20.053	20.307
D	.120	.126	3.044	3.196
E	.047	.052	1.200	1.327
F	.075	.084	1.903	2.132
G	.215 TYP		5.450 TYP	
H	.193	.203	4.903	5.157
J	.075	.081	1.904	2.056
K	19°	21°	19°	21°
L	4°	6°	4°	6°
M	2°	4°	2°	4°
N	2°	4°	2°	4°
P	.093	.097	2.349	2.451
Q	.024	.030	.600	.752
R	9°	11°	9°	11°
S	9°	11°	9°	11°
T	2°	4°	2°	4°
U	2°	4°	2°	4°



Part Number	Package	Marking
CSD20060D	TO-247-3	CSD20060

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