

# ZERO RECOVERY™ RECTIFIER

## Features

- 1200 Volt Schottky Rectifier
- Zero Reverse Recovery
- Zero Forward Recovery
- High Frequency Operation
- Temperature Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on  $V_f$

## Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Control
- High Voltage Multipliers

## Benefits

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

## Package



## Maximum Ratings

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	1200	V
Surge Peak Reverse Voltage	$V_{RSM}$	1200	V
DC Blocking Voltage	$V_{DC}$	1200	V
Average Forward Current $T_C=160^\circ\text{C}$	$I_{F(AV)}$	5	A
Repetitive Peak Forward Surge Current $T_C=25^\circ\text{C}$ , $t_P=8.3\text{ms}$ , Half Sine Wave	$I_{FRM}$	30	A
Non-Repetitive Peak Forward Surge Current $T_C=25^\circ\text{C}$ , $t_P=10\mu\text{s}$ , Pulse	$I_{FSM}$	100	A
Power Dissipation $T_C = 25^\circ\text{C}$	$P_{tot}$	136	W
Operating Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +175	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS**

Parameter	Symbol	Min	Typ	Max	Units
Forward Voltage $I_F = 5A$ $T_J = 25^\circ C$ $I_F = 5A$ $T_J = 175^\circ C$	$V_F$		1.6 2.6	1.8 3.0	V
Reverse Current $V_R = 1200V$ $T_J = 25^\circ C$ $V_R = 1200V$ $T_J = 150^\circ C$	$I_R$		50 100	200 1000	$\mu A$
Total Capacitive Charge $V_R = 1200V, I_F = 5A, di/dt = 500 A/\mu s, T_J = 25^\circ C$	$Q_C$		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		455 45 33		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	$R_{\theta JC}$		1.1		$^\circ C/W$

Typical Performance

Figure 1. Forward Characteristics

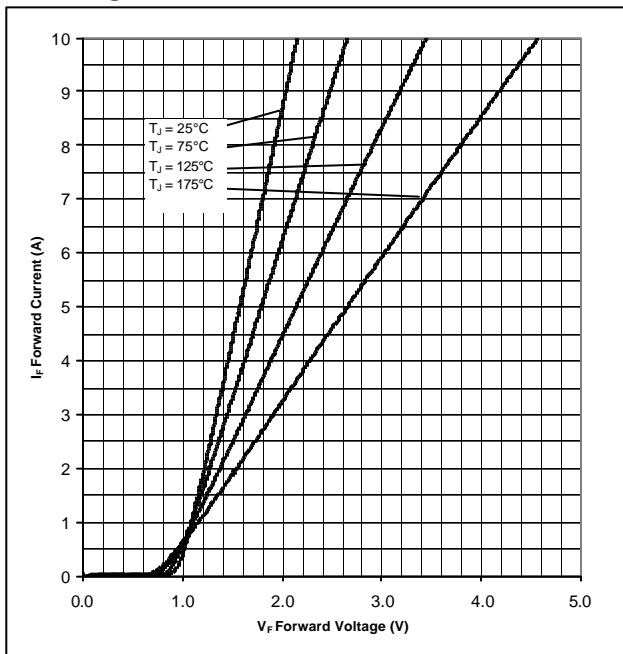


Figure 2. Reverse Characteristics

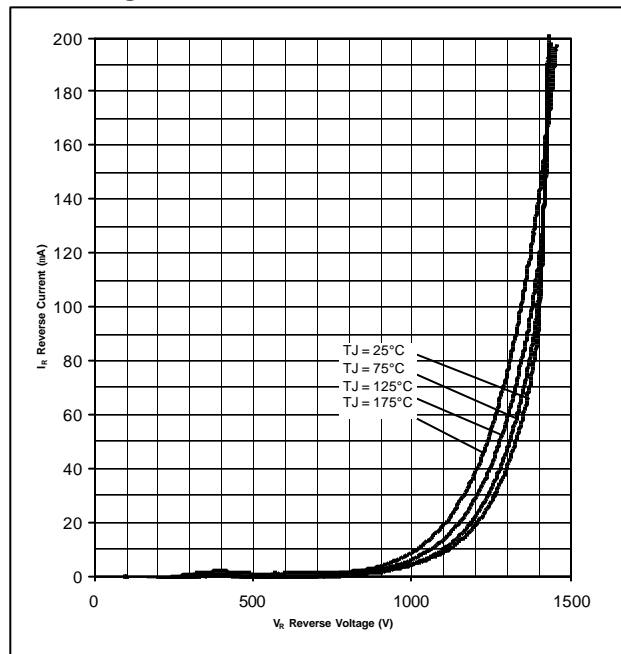


Figure 3. Current Derating

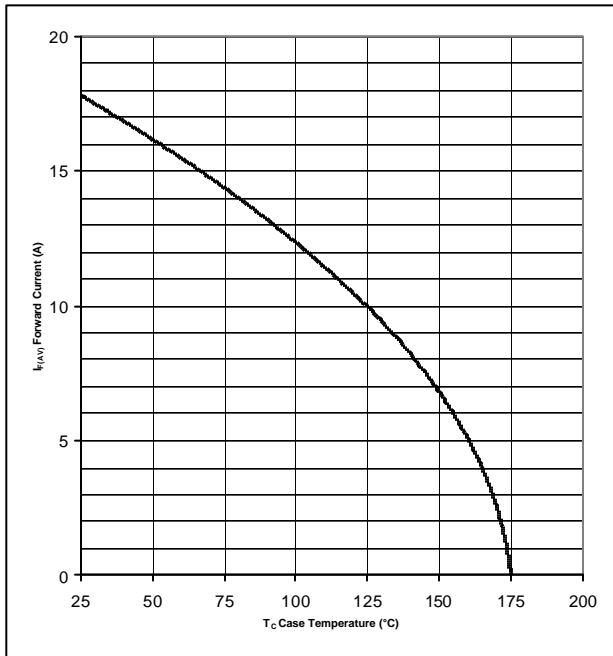


Figure 4. Capacitance vs. Reverse Voltage

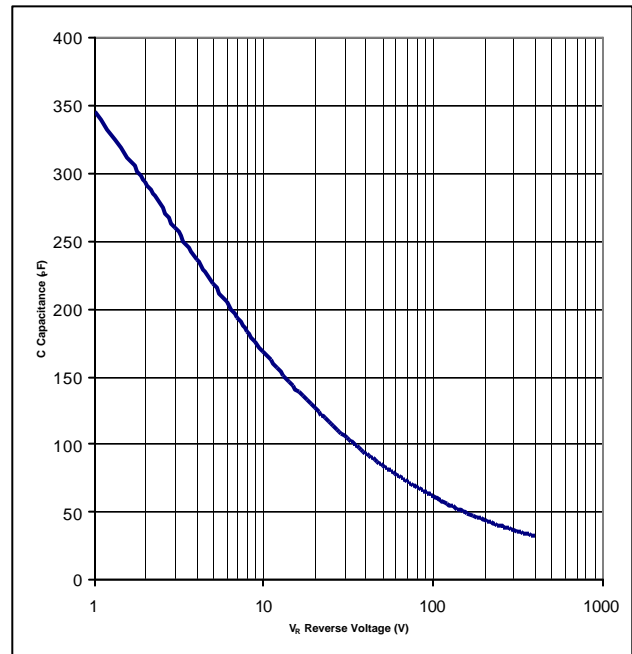
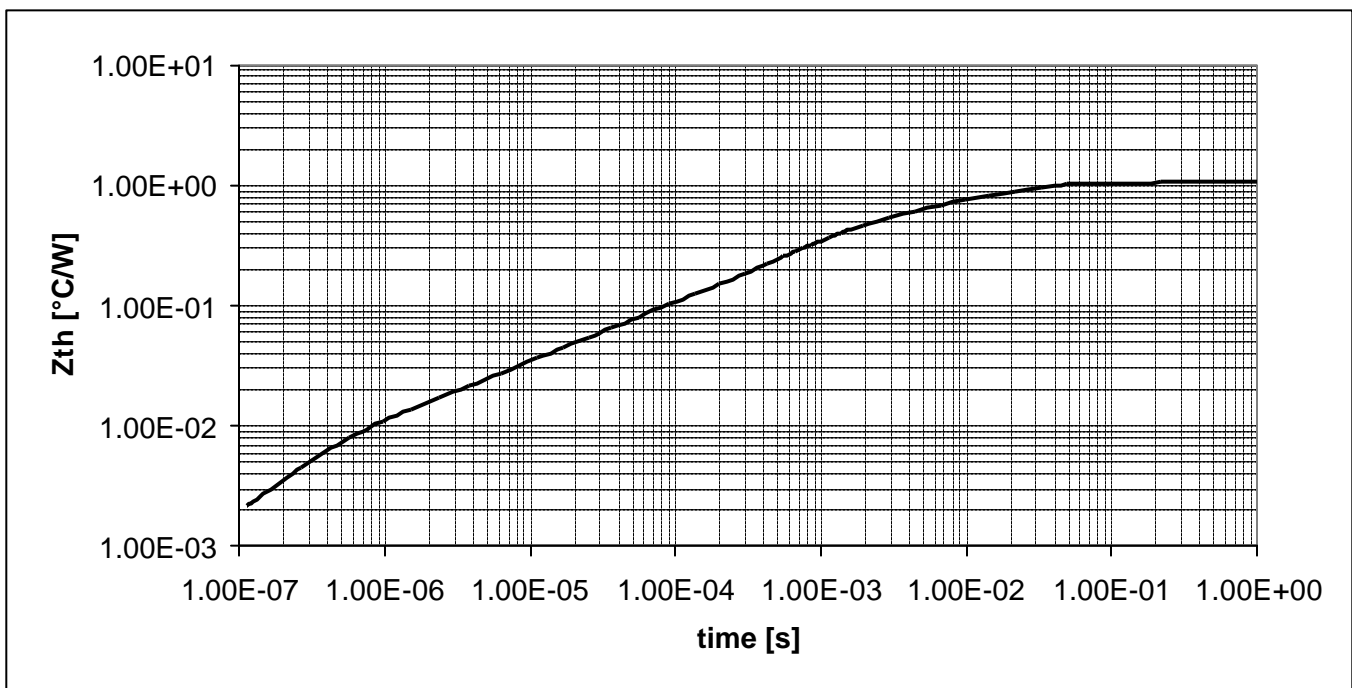
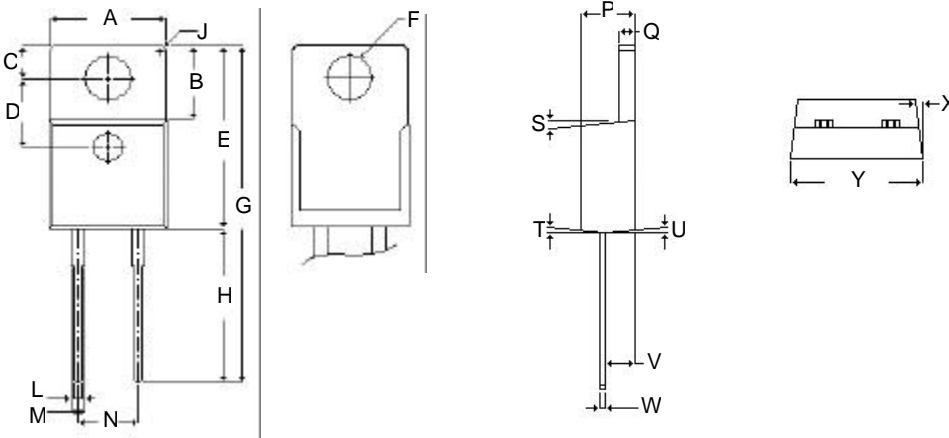


Figure 5. Transient Thermal Impedance



**Package Dimensions**

**Package TO-220-2**



POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.381	.391	9.677	9.931
B	.240	.250	6.096	6.350
C	.100	.120	2.540	3.048
D	.223	.227	5.664	5.766
E	.595	.615	15.113	15.621
F	.143	.147	3.632	3.734
G	1.105	1.115	28.067	28.321
H	.500	.510	12.700	12.954
J	R 0.197		R 5.004	
L	.025	.035	.635	.889
M	.045	.055	1.143	1.397
N	.198	.202	5.029	5.131
P	.165	.185	4.191	4.699
Q	.048	.052	1.219	1.321
S	4°	6°	4°	6°
T	4°	6°	4°	6°
U	4°	6°	4°	6°
V	.094	.098	2.387	2.489
W	.018	.025	.458	.635
X	4.5°	5.5°	4.5°	5.5°
Y	.385	.405	9.779	10.287

NOTE:

1. Dimension L, M, W apply for Solder Dip Finish.



Part Number	Package	Marking
CSD05120A	TO-220-2	CSD05120

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