

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

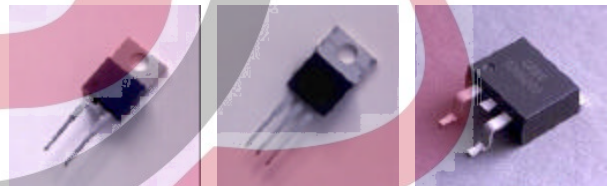
Benefits

- 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

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 $T_C=150^\circ\text{C}$	$I_{F(AV)}$	6	A
Repetitive Peak Forward Surge Current $T_C=25^\circ\text{C}$, $t_p=10\text{ms}$, Half Sine Wave	I_{FRM}	30	A
Non-Repetitive Peak Forward Surge Current $T_C=25^\circ\text{C}$, $t_p=10\mu\text{s}$, Half Sine Pulse	I_{FSM}	210	A
Power Dissipation $T_C = 25^\circ\text{C}$	P_{tot}	83.3	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 $I_F = 6A$ $T_J = 25^\circ C$ $I_F = 6A$ $T_J = 175^\circ C$	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	μA
Total Capacitive Charge $V_R = 600V, I_F = 6A, di/dt = 500 A/\mu s, T_J = 25^\circ C$	Q_C		17		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		340 40 30		pF

NOTE:

- 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	$R_{\theta JC}$		1.8		$^\circ C/W$

Typical Performance

Figure 1. Forward Characteristics

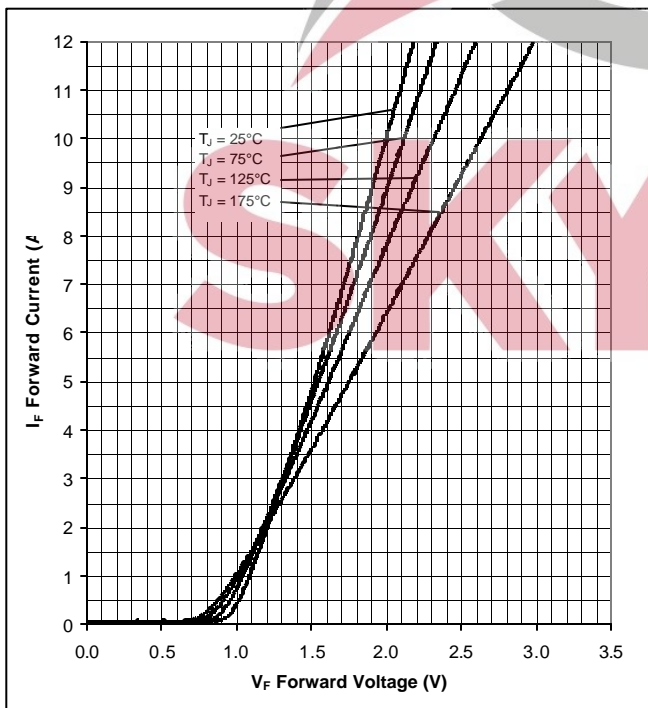


Figure 2. Reverse Characteristics

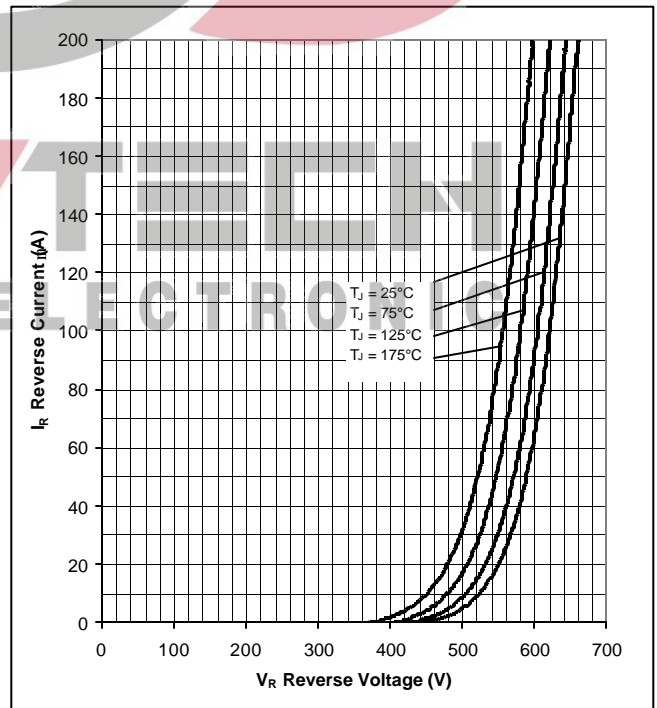


Figure 3. Current Derating

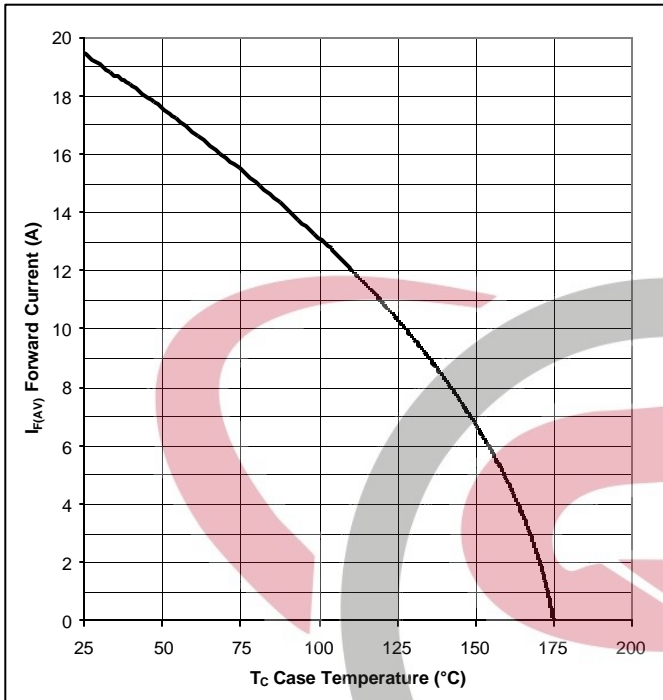


Figure 4. Capacitance vs. Reverse Voltage

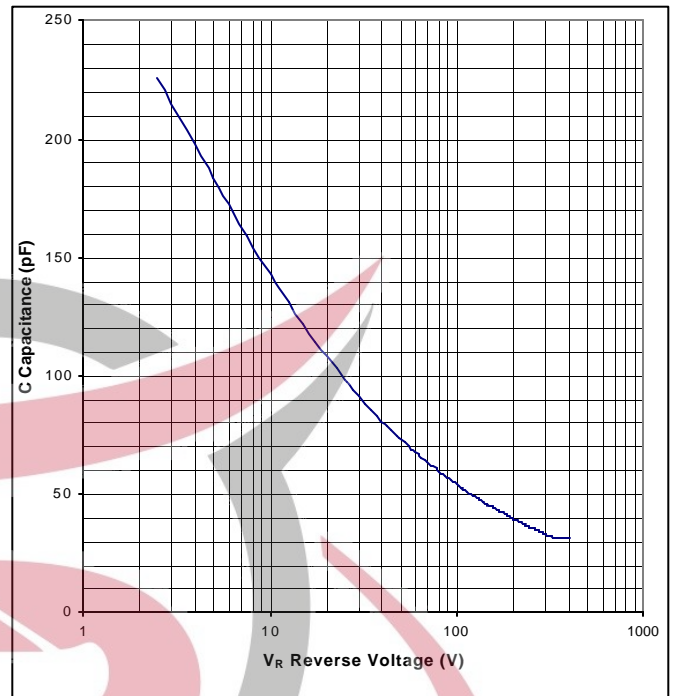
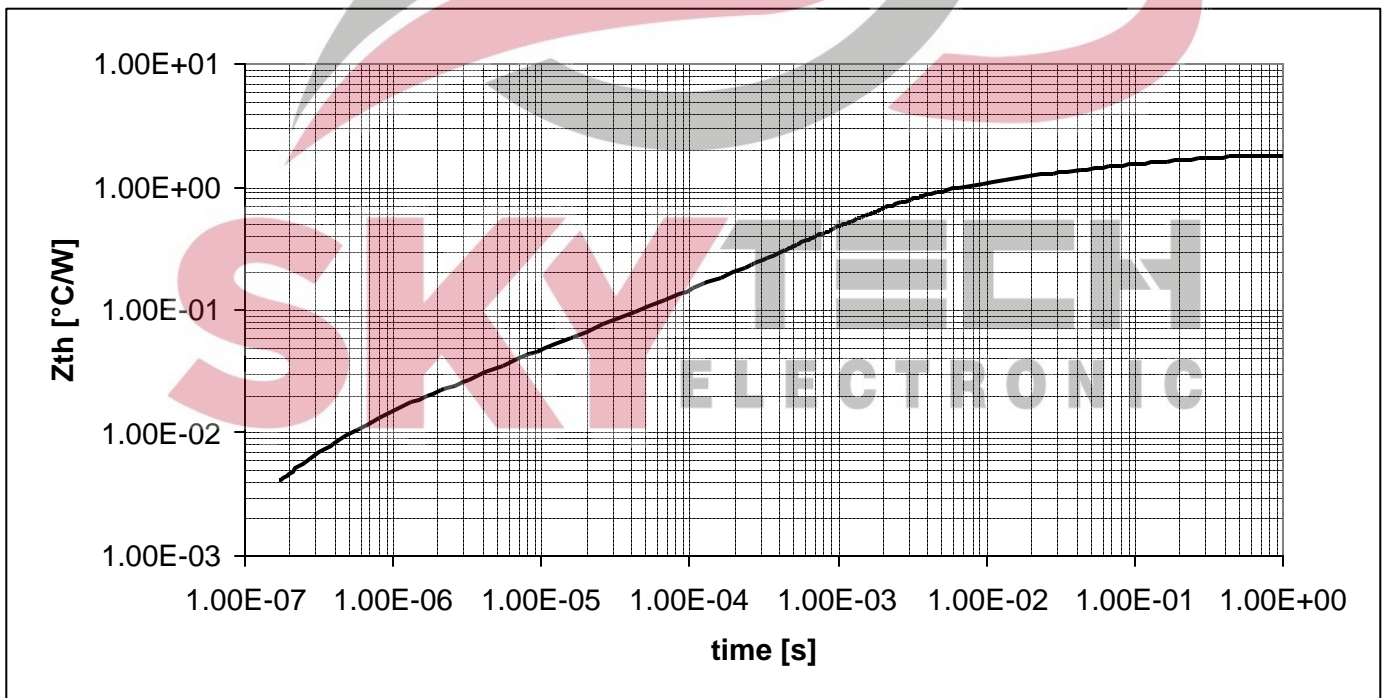
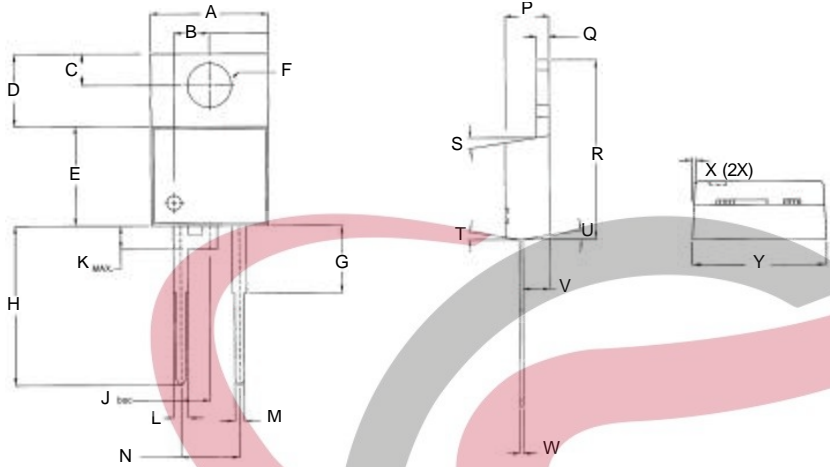


Figure 5. Transient Thermal Impedance



Package Dimensions

Package TO-220-2



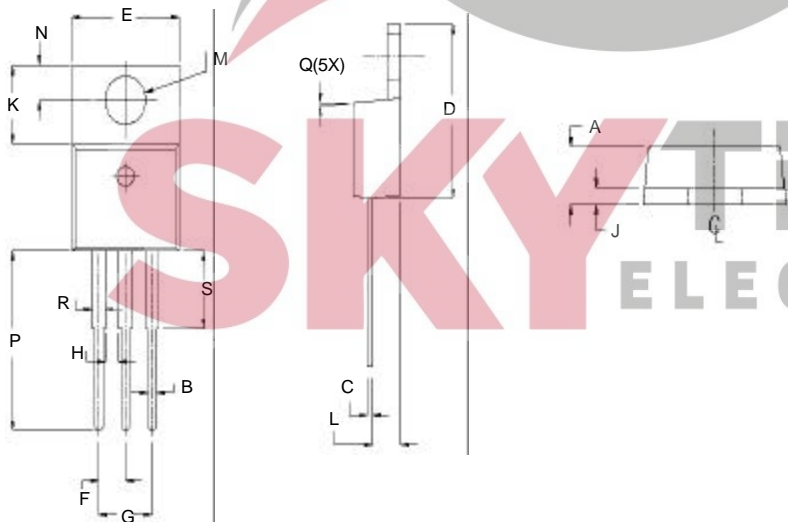
POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.402	.408	10.211	10.364
B	.120	.124	3.048	3.150
C	.106	.110	2.692	2.794
D	.245	.251	6.223	6.375
E	.335	.345	8.509	8.763
F	.149	.153	3.784	3.886
G	.220	.240	5.588	6.096
H	.540	.550	13.716	13.970
J	.100 REF		2.540 REF	
K		.080		2.032
L	.050	.056	1.270	1.422
M	.032	.038	.813	.956
N	.197	.203	5.004	5.156
P	.170	.180	4.318	4.572
Q	.048	.052	1.219	1.321
R	.583	.593	14.808	15.062
S	6.5°	8.5°	6.5°	8.5°
T	6.5°	8.5°	6.5°	8.5°
U	6.5°	8.5°	6.5°	8.5°
V	.103	.107	2.616	2.718
W	.015	.021	.381	.533
X	2.0°	4.0°	2.0°	4.0°
Y	.396	.406	10.058	10.312

NOTE:

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



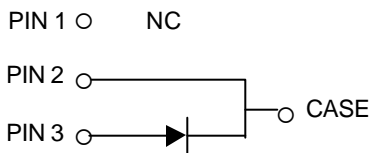
Package TO-220-3



POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.160	.190	4.06	4.83
B	.025	.040	0.63	1.02
C	.015	.022	0.38	0.56
D	.560	.590	14.22	14.99
E	.385	.415	9.78	10.54
F	.090	.110	2.29	2.79
G	.190	.210	4.83	5.33
H	.045	.055	1.14	1.40
J	.045	.055	1.14	1.40
K	.234	.258	5.94	6.55
L	.090	.115	2.29	2.92
M	.146	.156	3.71	3.96
N	.103	.113	2.62	2.87
P	.540	.560	13.72	14.22
Q	3°	7°	3°	7°
R	.045	.060	1.14	1.52
S	.243 REF		6.17 REF	

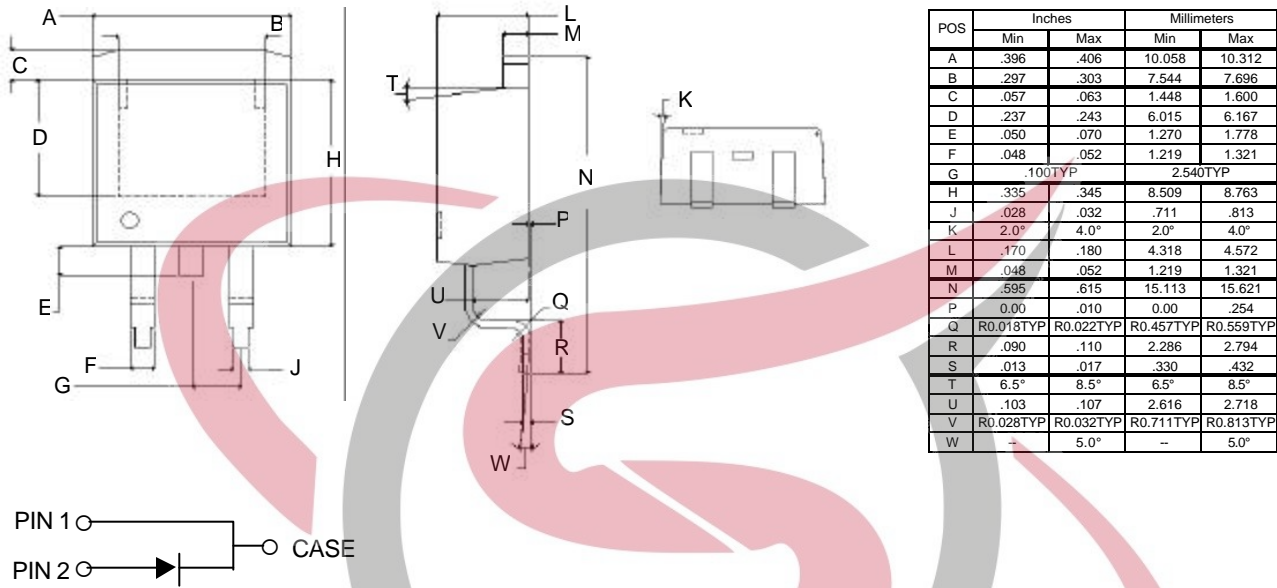
NOTE:

1. Dimension C apply for Solder Plate Finish.



Package Dimensions (Cont.)

Package TO-263-2



Part Number	Package	Marking
CSD06060A	TO-220-2	CSD06060
CSD06060B	TO-220-3	CSD06060
CSD06060G	TO-263-2	CSD06060

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