

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

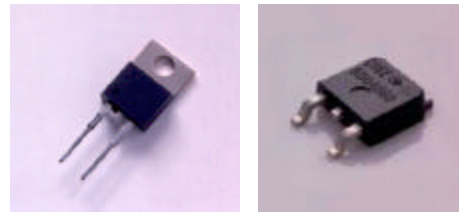
Benefits

- 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 $T_C=150^{\circ}C$ | $I_{F(AV)}$ | 1 | A |
| Repetitive Peak Forward Surge Current $T_C=25^{\circ}C$, $t_p=8.3ms$, Half Sine Wave | I_{FRM} | 5 | A |
| Non-Repetitive Peak Forward Surge Current $T_C=25^{\circ}C$, $t_p=10\mu s$, Pulse | I_{FSM} | 20 | A |
| Power Dissipation $T_C = 25^{\circ}C$ | P_{tot} | 21.4 | W |
| Operating Junction and Storage Temperature | T_J, T_{stg} | -55 to +175 | $^{\circ}C$ |

ELECTRICAL CHARACTERISTICS

| Parameter | Symbol | Min | Typ | Max | Units |
|---|--------|-----|-----------------|------------|---------|
| Forward Voltage $I_F = 1A$ $T_J = 25^\circ C$ $I_F = 1A$ $T_J = 150^\circ C$ | V_F | | 1.6 2.0 | 1.8 2.4 | V |
| Reverse Current $V_R = 600V$ $T_J = 25^\circ C$ $V_R = 600V$ $T_J = 150^\circ C$ | I_R | | 20 40 | 100 500 | μA |
| Total Capacitive Charge $V_R = 600V, I_F = 1A, di/dt = 500 A/\mu s, T_J = 25^\circ C$ | Q_C | | 3.3 | | 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 | | 80 11 8.5 | | 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 | $R_{\theta JC}$ | | 7 | | $^\circ C/W$ |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | | 60 | | $^\circ C/W$ |

Typical Performance

Figure 1. Forward Characteristics

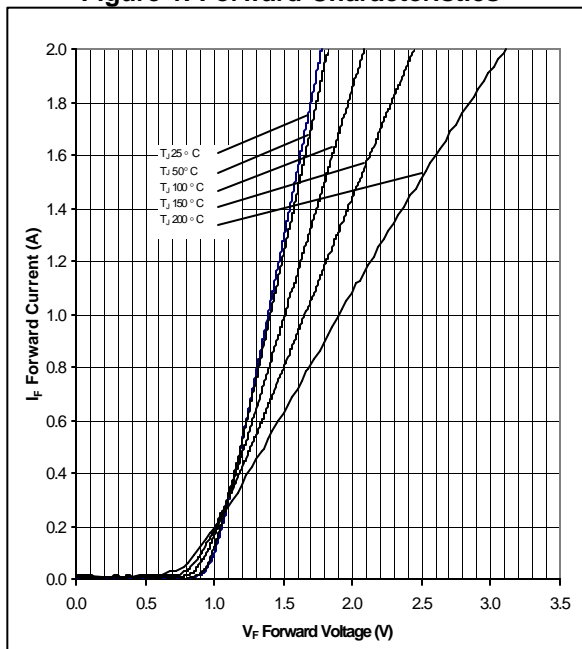


Figure 2. Reverse Characteristics

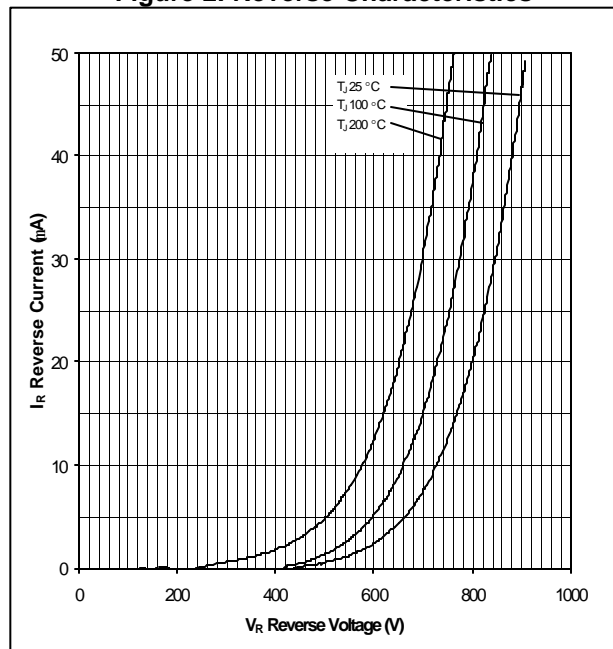


Figure 3. Current Derating

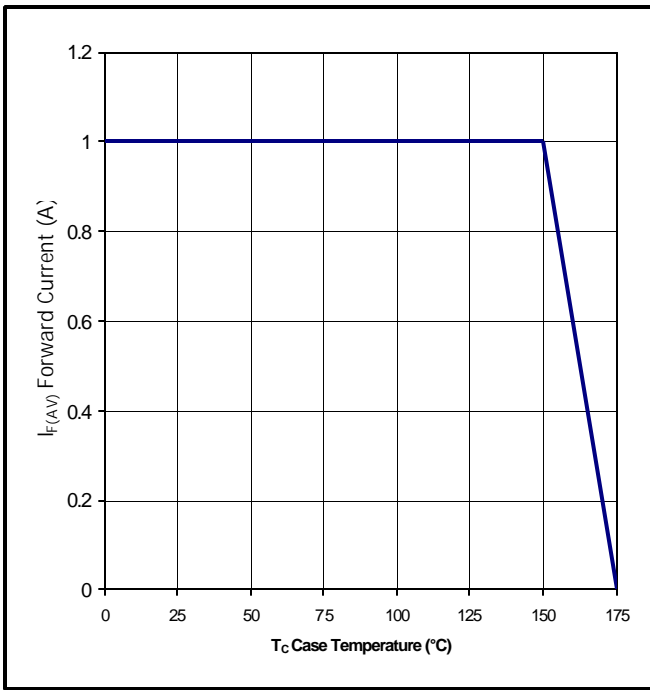
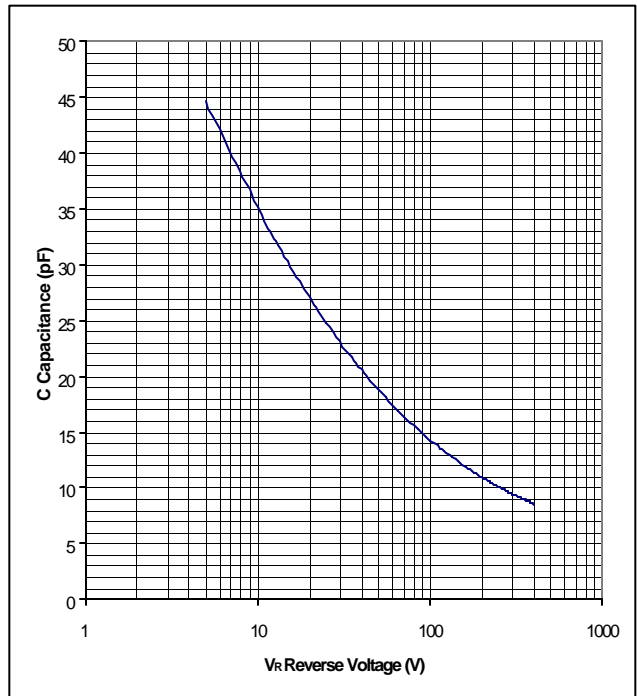
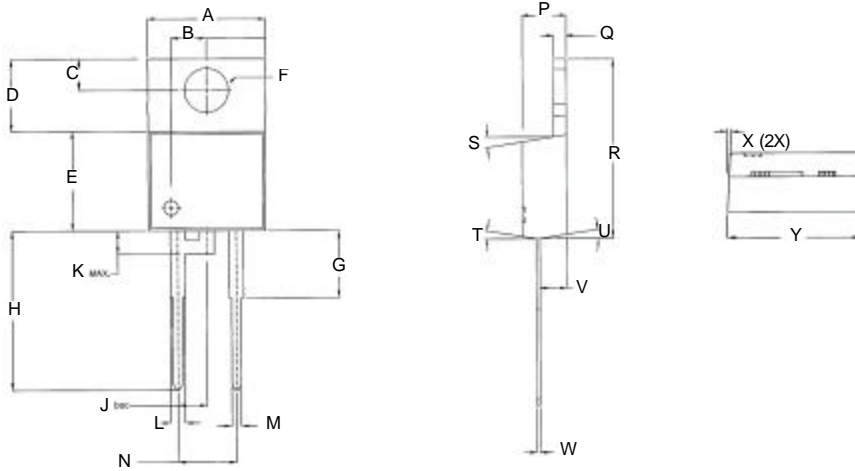


Figure 4. Capacitance vs. Reverse Voltage



Package Dimensions

Package TO-220-2



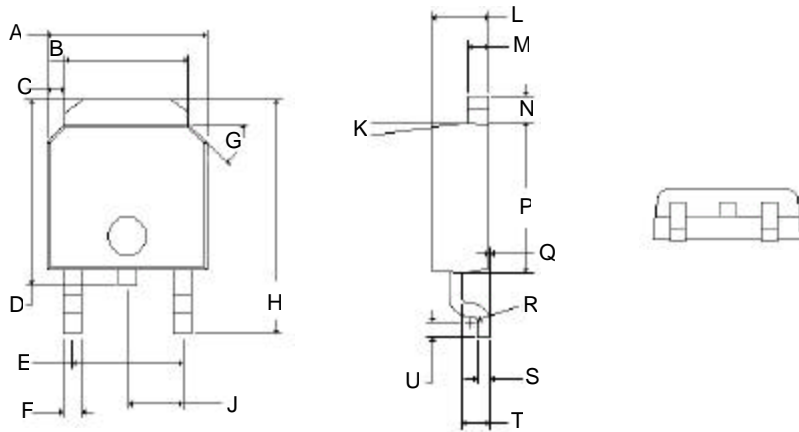
| POS | Inches | | Millimeters | |
|-----|----------|------|-------------|--------|
| | Min | Max | Min | Max |
| A | .402 | .408 | 10.211 | 10.364 |
| B | .120 | .124 | 3.048 | 3.150 |
| C | .106 | .110 | 2.692 | 2.794 |
| D | .245 | .251 | 6.223 | 6.375 |
| E | .335 | .345 | 8.509 | 8.763 |
| F | .149 | .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-252-2



| POS | Inches | | Millimeters | |
|-----|----------|------|-------------|--------|
| | Min | Max | Min | Max |
| A | .255 | .265 | 6.477 | 6.731 |
| B | .197 | .205 | 5.004 | 5.207 |
| C | .027 | .033 | .686 | .838 |
| D | .292 | .322 | 7.417 | 8.179 |
| E | .178 | .182 | 4.521 | 4.623 |
| F | .025 | .035 | .635 | .889 |
| G | 44° | 46° | 44° | 46° |
| H | .382 | .397 | 9.703 | 10.084 |
| J | .090TYP | | 2.286TYP | |
| K | 6° | 8° | 6° | 8° |
| L | .086 | .094 | 2.184 | 2.388 |
| M | .030 | .034 | .762 | .864 |
| N | .040 | .044 | 1.016 | 1.118 |
| P | .235 | .245 | 5.969 | 6.223 |
| Q | 0.00 | .004 | 0.00 | .102 |
| R | R0.01TYP | | R0.31TYP | |
| S | .017 | .023 | .428 | .588 |
| T | .040 | .044 | 1.016 | 1.118 |
| U | .021 | .027 | .534 | .686 |





PRELIMINARY

CSD01060

| Part Number | Package | Marking |
|-------------|----------|---------|
| CSD01060A | TO-220-2 | SD01060 |
| CSD01060E | TO-252-2 | SD01060 |

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