

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

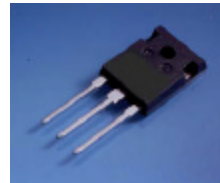
Benefits

- 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) $T_C=150^{\circ}C$ (Per Leg) | $I_{F(AV)}$ | 20 10 | A |
| Repetitive Peak Forward Surge Current (Per Leg) $T_C=25^{\circ}C$, $t_p=8.3ms$, Half Sine Wave | I_{FRM} | 50 | A |
| Non-Repetitive Peak Forward Surge Current (Per Leg) $T_C=25^{\circ}C$, $t_p=10\mu s$, Pulse | I_{FSM} | 250 | A |
| Power Dissipation (Per Leg) $T_C = 25^{\circ}C$ | P_{tot} | 138 | W |
| Operating Junction and Storage Temperature | T_J, T_{stg} | -55 to +175 | $^{\circ}C$ |

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 | μA |
| 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

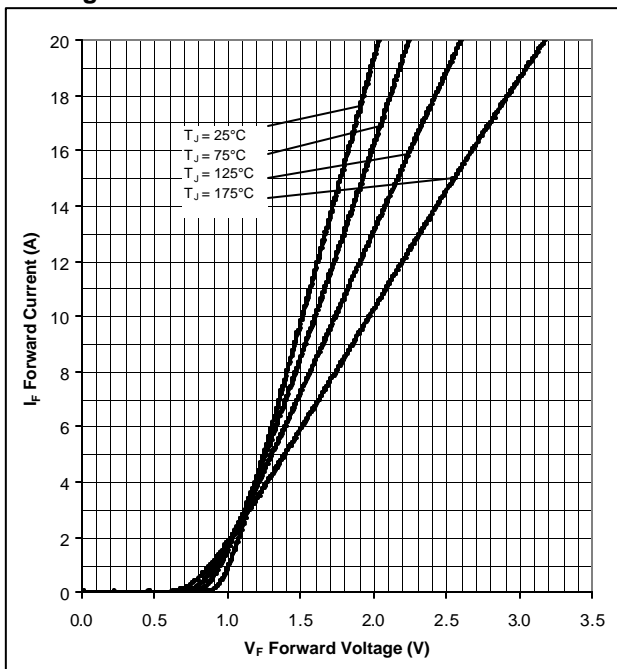


Figure 2. Reverse Characteristics

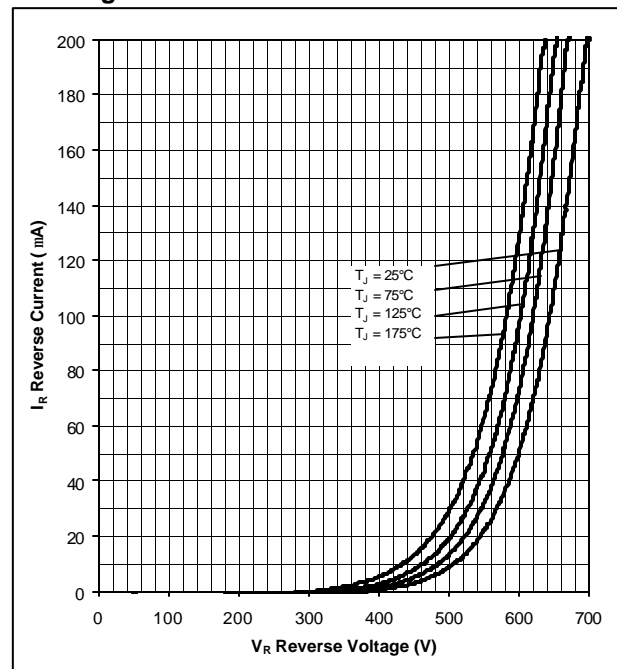


Figure 3. Current Derating

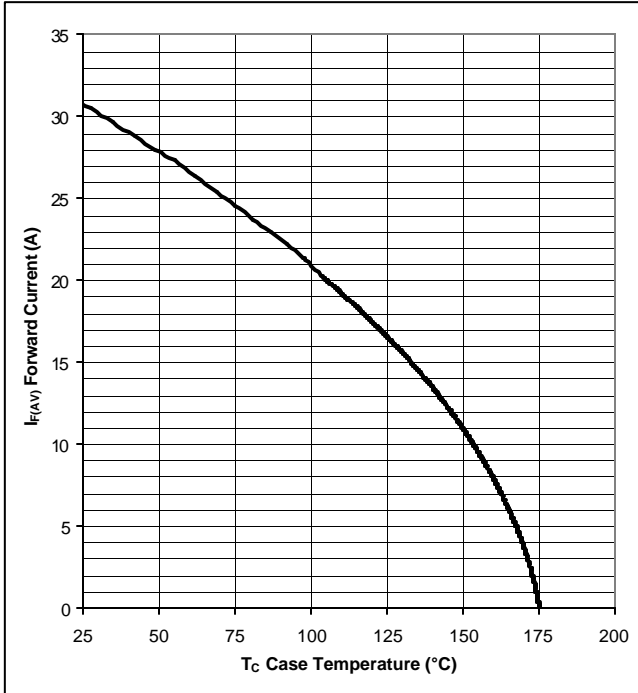


Figure 4. Capacitance vs. Reverse Voltage

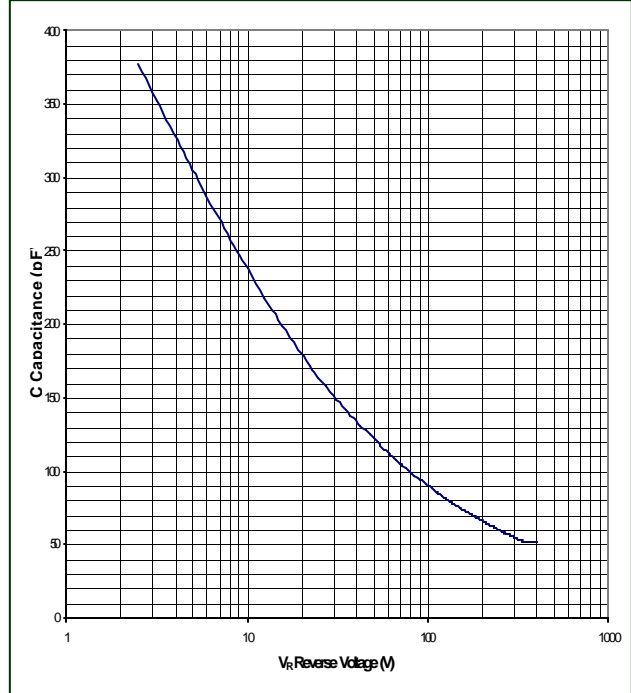
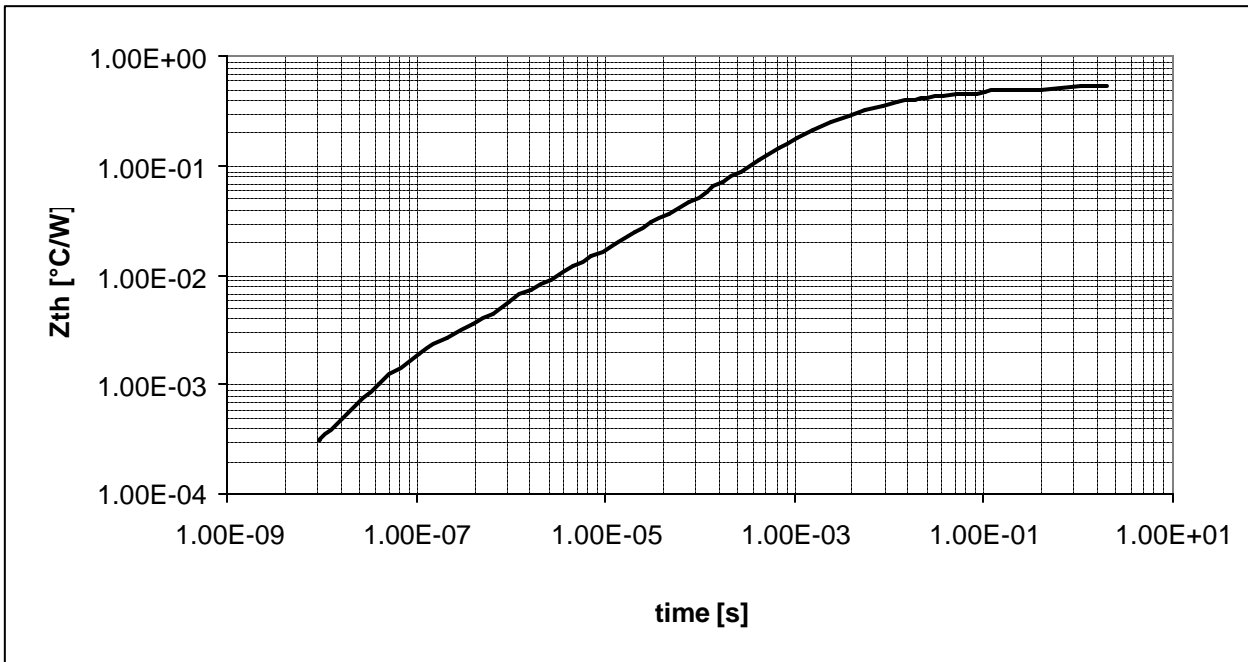
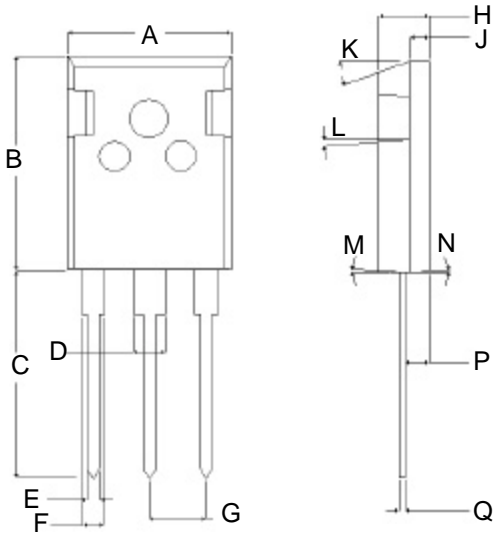


Figure 5. Transient Thermal Impedance (Per Device)

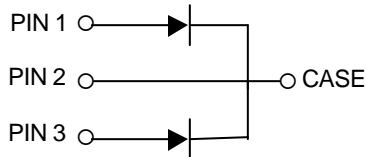


Package Dimensions

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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