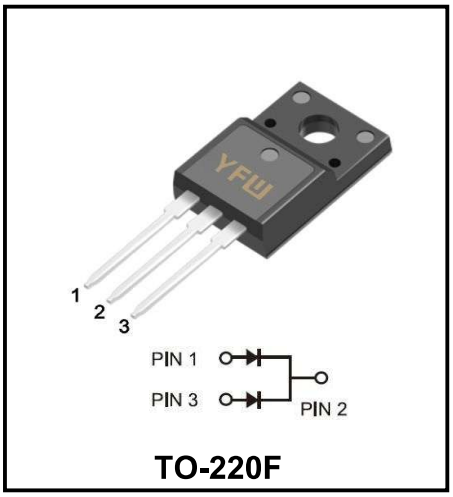
**SiC Schottky Barrier Rectifier**

**Reverse Voltage - 650V**

**Forward Current - 10A**




**TO-220F**

## Features

- Reverse withstand voltage 650V
- Zero reverse recovery current
- High working frequency
- Switch characteristics are not affected by temperature
- Fast switching speed
- Positive temperature coefficient of positive pressure drop

## Advantages

- Very low switching loss
- Higher efficiency
- Low dependence of the system on the heat sink
- No thermal collapse in parallel devices

## Application

- Switching mode power supply, AC/DC converter
- Power factor correction
- Motor drive
- PV inverter and wind turbine

## Absolute Maximum Ratings (Ta=25℃)

| Parameter | Symbol | Test conditions | Value | Unit |
|---|---|---|---|---|
| Peak repetitive reverse voltage | $V_{RRM}$ | | 650 | V |
| Working Peak Reverse voltage | $V_{RWM}$ | | 650 | V |
| DC Blocking Voltage | $V_{DC}$ | | 650 | V |
| Average rectified output current | $I_{F(AV)}$ | Ta=25℃<br>Ta=125℃<br>Ta=150℃ | 33<br>15<br>10 | A |
| Forward repetitive peak current | $I_{FRM}$ | $T_C$=25℃, tp=10ms,Half Sine Wave<br>$T_C$=110℃,tp=10ms,Half Sine Wave | 50<br>28 | A |
| Forward surge current | $I_{FSM}$ | $T_C$=25℃, tp=10ms,Half Sine Wave<br>$T_C$=110℃,tp=10ms,Half Sine Wave | 90<br>65 | A |
| Power dissipation | $P_{tot}$ | Ta=25℃<br>Ta=110℃ | 98<br>45 | W |
| Junction temperature | $T_j$ | | -55 ~ +175 | ℃ |
| Storage temperature | $T_{stg}$ | | -55 ~ +175 | ℃ |

## Thermal characteristics

| Parameter | Symbol | Vaule | Unit |
|---|---|---|---|
| Thermal Resistance - Junction to Case | $R_{\theta JC}$ | 2.03 | °C/ W |

## Electrical Characteristics (Ta=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Forward voltage | $V_F$ | $I_F$ = 10 A, $T_j$=25℃<br>$I_F$ = 10 A, $T_j$=175℃ | | 1.45<br>1.61 | 1.6<br>1.8 | V |
| Reverse current | $I_R$ | $V_R$ = 650V, $T_j$=25℃<br>$V_R$ = 650V, $T_j$=175℃ | | 1<br>12 | 60<br>220 | μA |
| Total capacitive charge | $Q_C$ | $V_R$ = 400V, $I_F$ = 10A<br>di/dt=500A/μs, ,$T_j$=25℃ | | 39 | | nC |
| Total capacitance | C | $V_R$ = 0V, $T_j$=25℃, f=1MHz<br>$V_R$ = 200V, $T_j$=25℃, f=1MHz<br>$V_R$ = 400V, $T_j$=25℃, f=1MHz | | 762<br>75<br>54 | | pF |

## Typical Characteristics

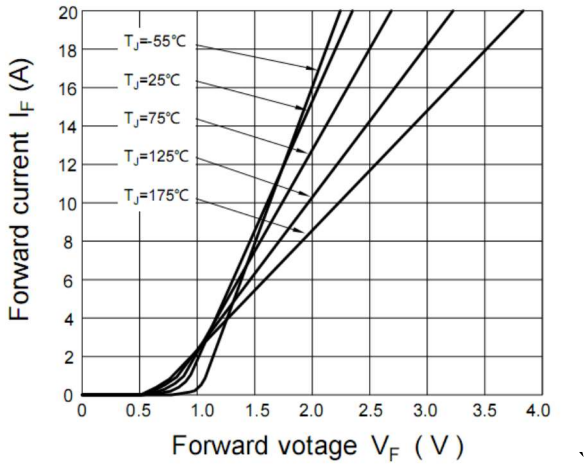



Figure 1. Forward Characteristics

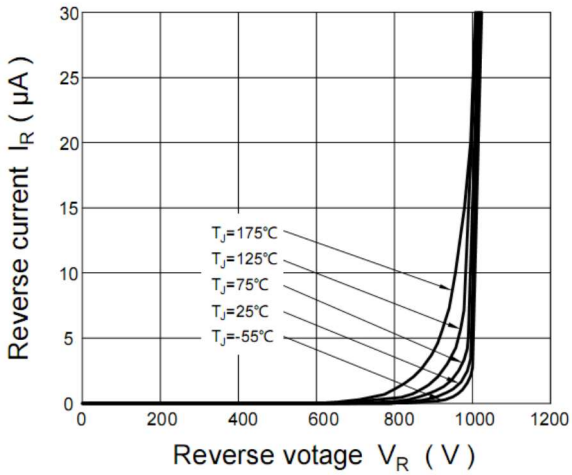



Figure 2. Reverse Characteristics

## Typical Characteristics

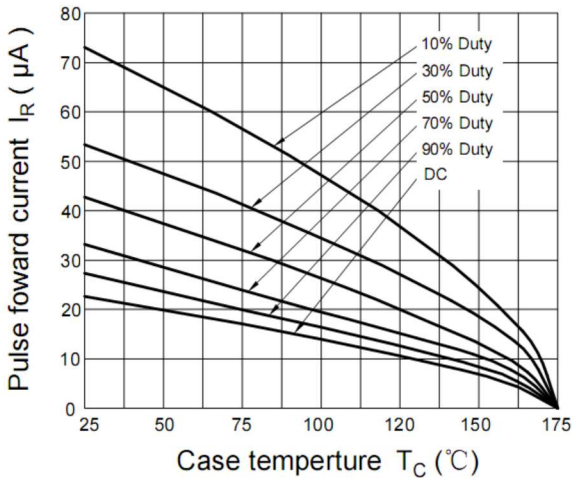



**Figure 3. Current Derating**

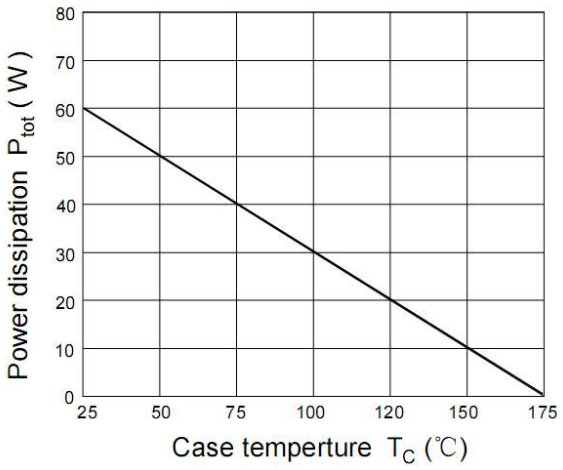



**Figure 4. Power Derating**

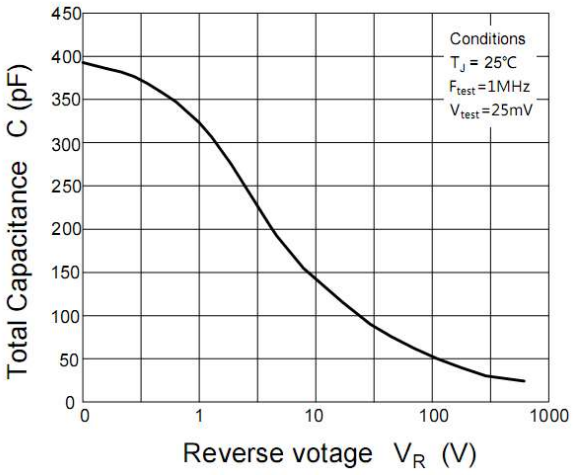



**Figure 5. Capacitance vs reverse voltage**

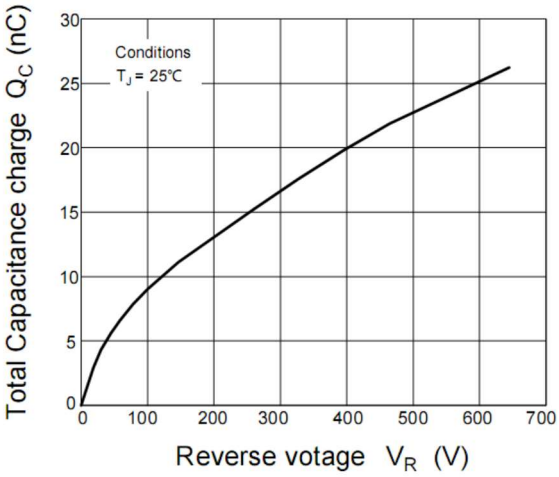



**Figure 6. Recovery Charge vs Reverse Voltage**

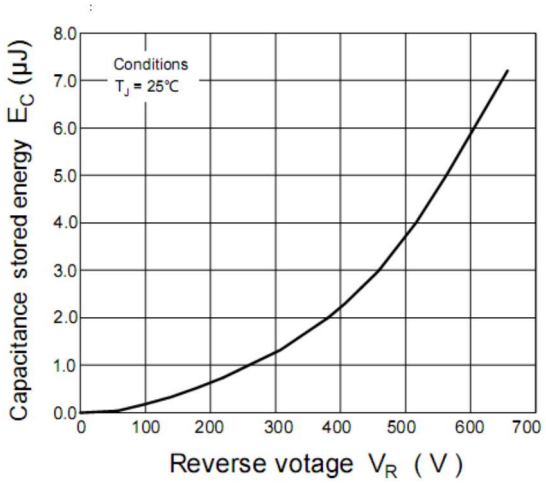



**Figure 7. Capacitance stored Energy**

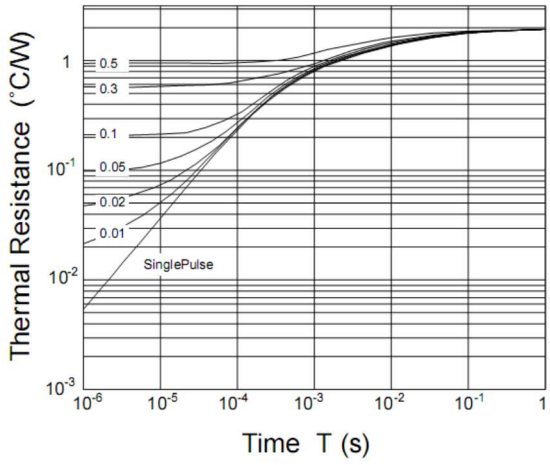
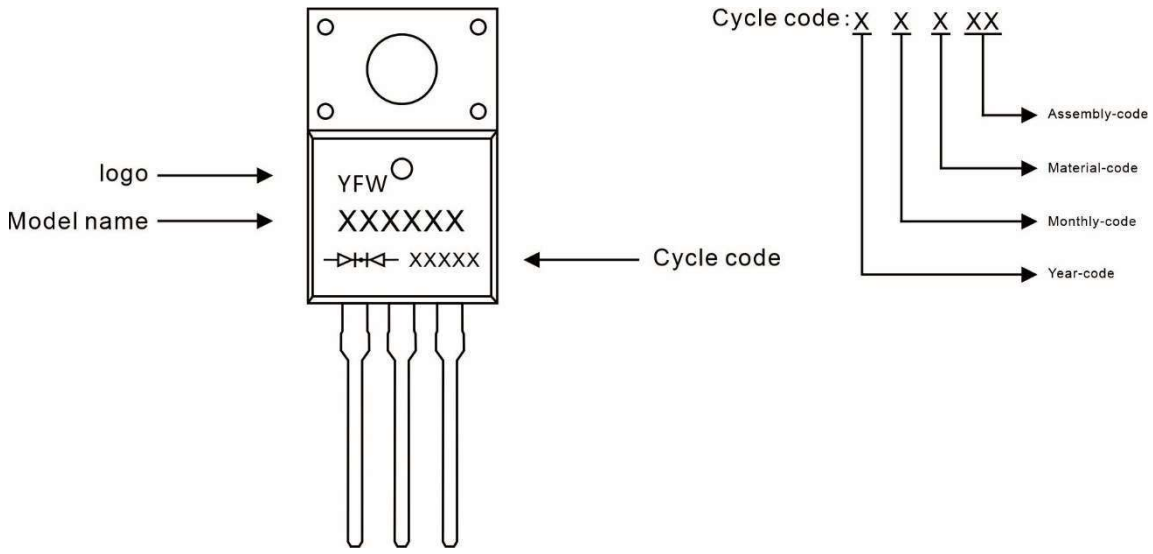



**Figure 8. Thermal Impedance**

## Marking Diagram

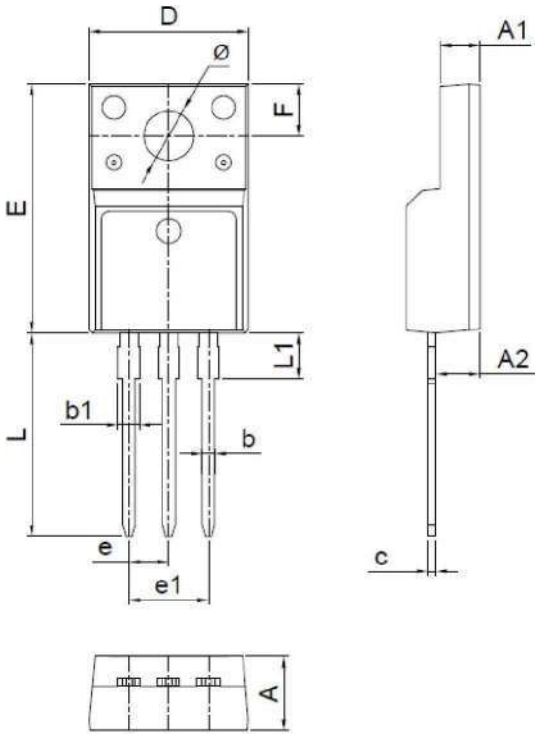



## Ordering information

| Model name | Package | Unit Weight | Base Quantity | Packing Quantity |
|---|---|---|---|---|
| YFWD310065FCT | TO-220F | 0.06oz(1.74g) | 50pcs/tube | 1000PCS/Box 5000PCS/Carton |

## Package Dimensions

**TO-220F**




| Symbol | Millimeter | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 4.50 | 4.90 | 0.177 | 0.193 |
| A1 | 2.34 | 2.74 | 0.092 | 0.108 |
| A2 | 2.66 | 2.86 | 0.105 | 0.113 |
| b | 0.75 | 0.85 | 0.030 | 0.033 |
| b1 | 1.24 | 1.44 | 0.049 | 0.057 |
| c | 0.40 | 0.60 | 0.016 | 0.024 |
| D | 10.00 | 10.32 | 0.394 | 0.406 |
| E | 15.75 | 16.05 | 0.620 | 0.632 |
| e | 2.44 | 2.64 | 0.096 | 0.104 |
| e1 | 4.88 | 5.28 | 0.192 | 0.208 |
| F | 3.10 | 3.5 | 0.122 | 0.138 |
| L | 13.50 | 13.90 | 0.531 | 0.547 |
| L1 | 2.90 | 3.30 | 0.114 | 0.130 |
| Φ | 3.10 | 3.30 | 0.122 | 0.130 |

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