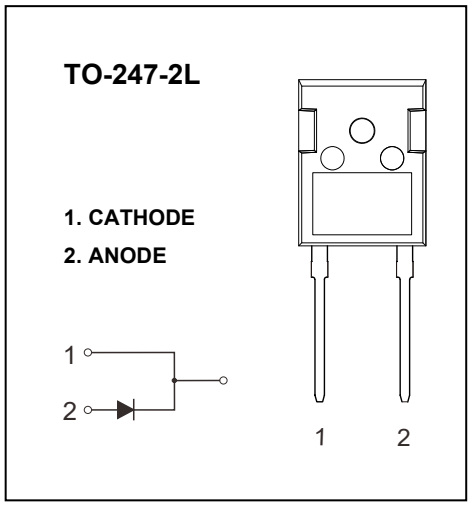
# TO-247-2L Plastic-Encapsulate Diode

## MURW75H65 HYPERFAST RECTIFIER,FRED




### MAIN CHARACTERISTICS

| | |
|---|---|
| $I_O$ | 75A |
| $V_{RRM}$ | 650V |
| $T_{rr}$ | 29ns |
| $T_j$ | 175℃ |
| $V_{F(typ)}$ | 1.4V(@$T_j$=150℃) |

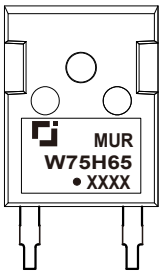
### FEATURES

- Ultrafast Recovery Times and Low Recovery Loss
- Low Forward Voltage
- Low Reverse Leakage Current

### APPLICATIONS

Specifically designed to improve efficiency of PFC and output rectification stages of EV / HEV battery charging stations, booster stage of solar inverters and UPS applications, these devices are perfectly matched to operate with MOSFETs or high speed IGBTs.

### MARKING




MURW75H65 = Device code
Solid dot = Green molding compound device
if none, the normal device
XXXX = Code

## MAXIMUM RATINGS ( $T_C$=25℃ unless otherwise noted )

| Symbol | Parameter | MURW75H65 | Unit |
|---|---|---|---|
| $V_{RRM}$ | Peak Repetitive Reverse Voltage | 650 | V |
| $V_R$ | DC Blocking Voltage | | |
| $I_{F(AV)}$ | Average Forward Current($T_C$=72℃) | 75 | A |
| $I_{F(RMS)}$ | RMS Forward Current($T_C$=72℃) | 106 | A |
| $I_{FSM}$ | Non-Repetitive Surge Forward Current (8.3ms) | 520 | A |
| $P_D$ | Power dissipation | 300 | W |
| $R_{\Theta JC}$ | Thermal Resistance From Junction to Case | 0.5 | ℃/W |
| $T_j$ | Operating Junction Temperature Range | -55 ~ +175 | ℃ |
| $T_{stg}$ | Storage Temperature Range | -55 ~ +175 | ℃ |

# Typical Characteristics

## ELECTRICAL CHARACTERISTICS ($T_C$=25℃ unless otherwise specified)

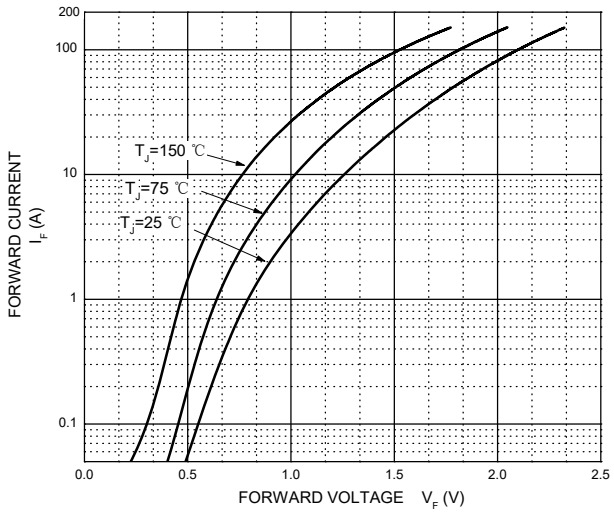
| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_{(BR)}$ | Reverse Voltage | IR=100μA | | 650 | | | V |
| $I_R$ | Reverse Current | VR=650V | $T_j$=25℃ | | | 10 | μA |
| | | | $T_j$=150℃ | | | 1 | mA |
| $V_F$ | Forward Voltage | IF=75A | $T_j$=25℃ | | 2.1 | 2.75 | V |
| | | | $T_j$=150℃ | | 1.4 | | V |
| $C_{tot}$ | Total Capacitance | VR=200V, f=1MHz | | | 66 | | pF |
| trr | Reverse Recovery time | IF=0.5A, IR=1A,Irr=0.25A | | | 40 | | ns |
| | | IF=1A,VR=30V, $di_F/dt$ =200A/us | | | 29 | | ns |

## ELECTRICAL CHARACTERISTICS ($T_C$=25℃ unless otherwise specified)

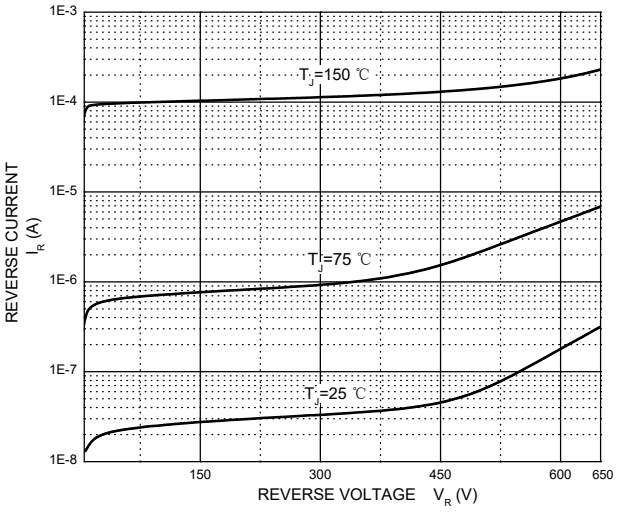
| Symbol | Parameter | Test Comditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| trr | Reverse Recovery Time | IF=75A, VR=400V, $di_F/dt$=200A/μs | | 76 | | ns |
| $I_{RRM}$ | Max. Reverse Recovery Current | | | 4 | | A |
| Qrr | Reverse Recovery Charge | | | 200 | | nC |
| trr | Reverse Recovery Time | IF=75A, VR=400V, $di_F/dt$=200A/μs, $T_j$=125℃ | | 105 | | ns |
| $I_{RRM}$ | Max. Reverse Recovery Current | | | 13 | | A |
| Qrr | Reverse Recovery Charge | | | 745 | | nC |
| trr | Reverse Recovery Time | IF=75A, VR=400V, $di_F/dt$=600A/μs, $T_j$=125℃ | | 82 | | ns |
| $I_{RRM}$ | Max. Reverse Recovery Current | | | 26 | | A |
| Qrr | Reverse Recovery Charge | | | 1163 | | nC |

# Typical Characteristics

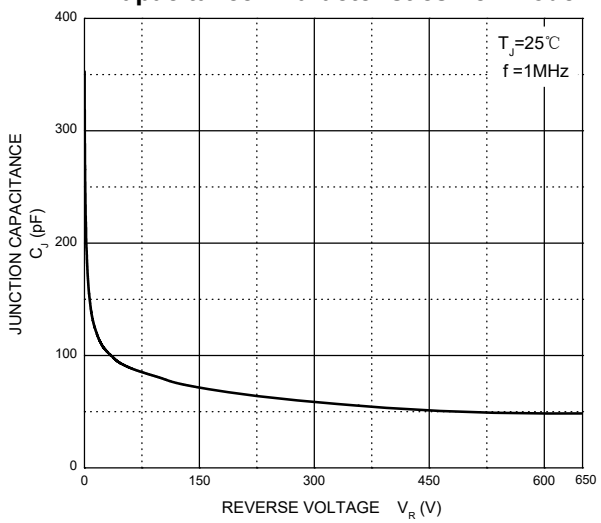
**Forward Characteristics**



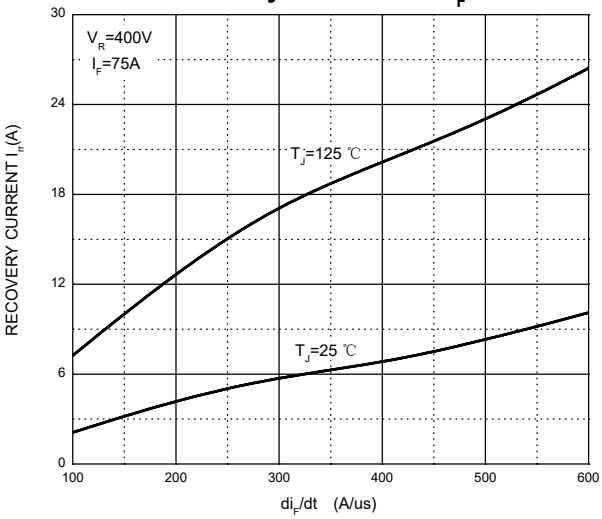

**Reverse Characteristics**



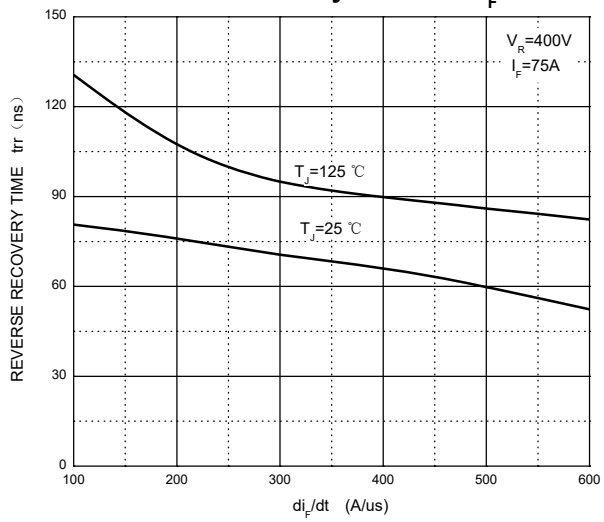

**Capacitance Characteristics Per Diode**



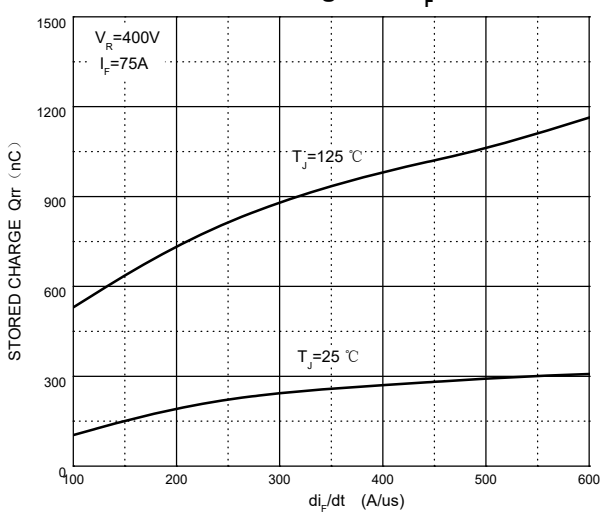

**Recovery Current vs. $di_F/dt$**



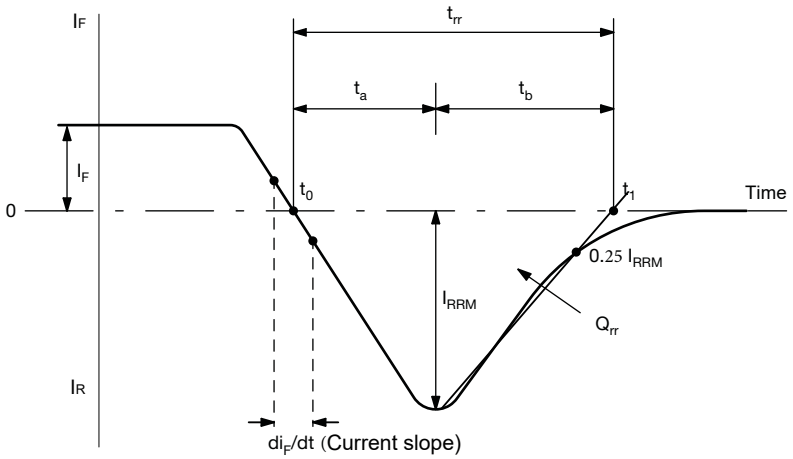

**Reverse Recovery Time vs. $di_F/dt$**



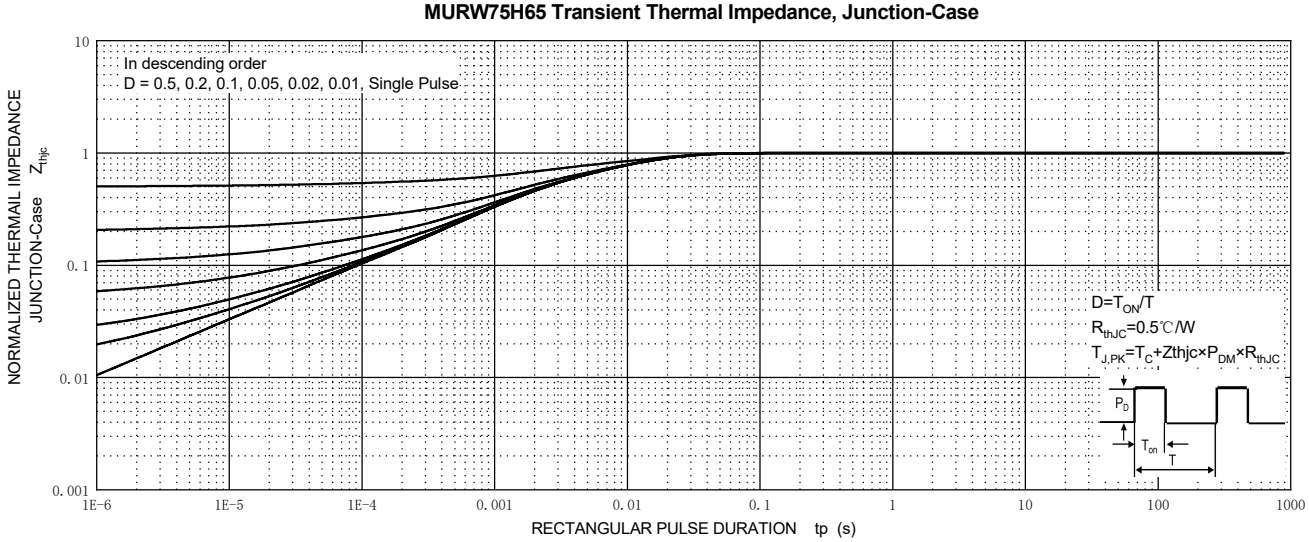

**Stored Charge vs. $di_F/dt$**



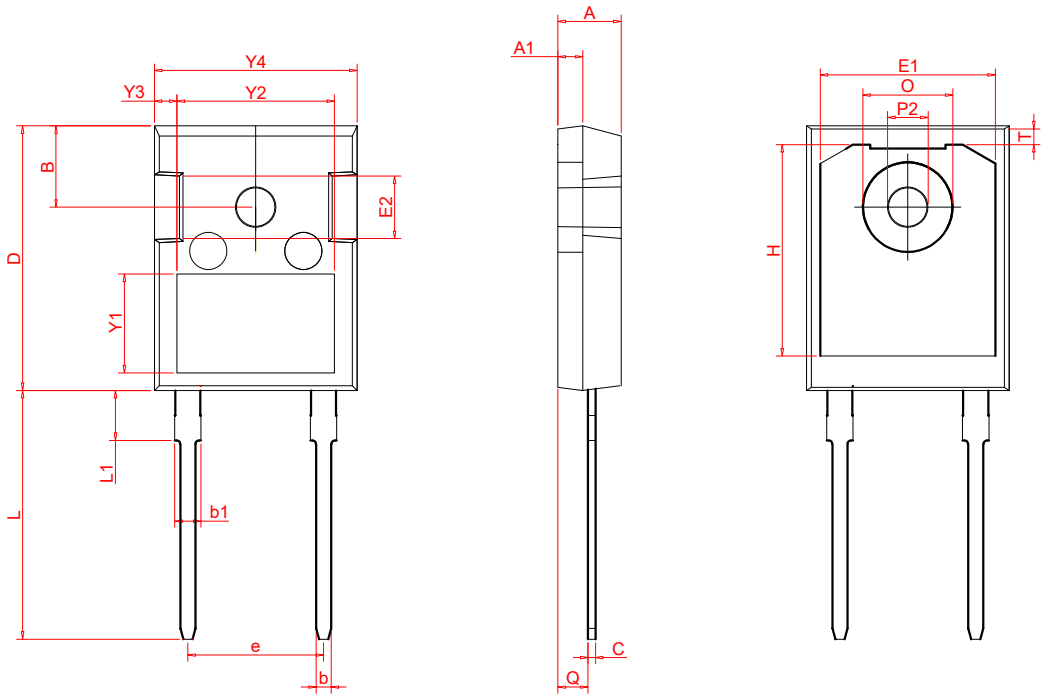
# Typical Characteristics




Reverse Recovery Waveform and Definitions



# TO-247-2L Package Outline Dimensions




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 4.70 | 5.30 | 0.185 | 0.209 |
| A1 | 1.70 | 2.30 | 0.067 | 0.091 |
| C | 0.45 | 0.75 | 0.018 | 0.030 |
| Q | 2.20 | 2.60 | 0.087 | 0.102 |
| O | 7.10 | 7.40 | 0.280 | 0.291 |
| P2 | 3.45 | 3.75 | 0.136 | 0.148 |
| L | 19.00 | 21.00 | 0.748 | 0.827 |
| L1 | 4.20 | 4.50 | 0.165 | 0.177 |
| b | 1.00 | 1.40 | 0.039 | 0.055 |
| b1 | 1.80 | 2.25 | 0.071 | 0.089 |
| e | 10.65 | 10.95 | 0.419 | 0.431 |
| D | 20.95 | 21.35 | 0.825 | 0.841 |
| Y1 | 7.60 | 8.10 | 0.299 | 0.319 |
| Y2 | 11.00 | 13.00 | 0.433 | 0.512 |
| Y3 | 1.75 | 2.25 | 0.069 | 0.089 |
| Y4 | 16.00 | 16.40 | 0.630 | 0.646 |
| E2 | 4.60 | 4.90 | 0.181 | 0.193 |
| T | 1.35REF | | 0.053REF | |
| H | 16.25REF | | 0.640REF | |
| E1 | 14.00REF | | 0.551REF | |
| B | 6.55REF | | 0.258REF | |