## FAST RECOVERY EPITAXIAL DIODE

**600V / 30A**

**$V_F$=1.8V@$I_F$=15A, $t_{rr}$=28ns**

### FEATURES

- UltraFast Recovery Time
- Soft Recovery Characteristic
- Low Forward Voltage
- Low Recovery Loss
- High Surge Current Capability
- RoHS Compliant

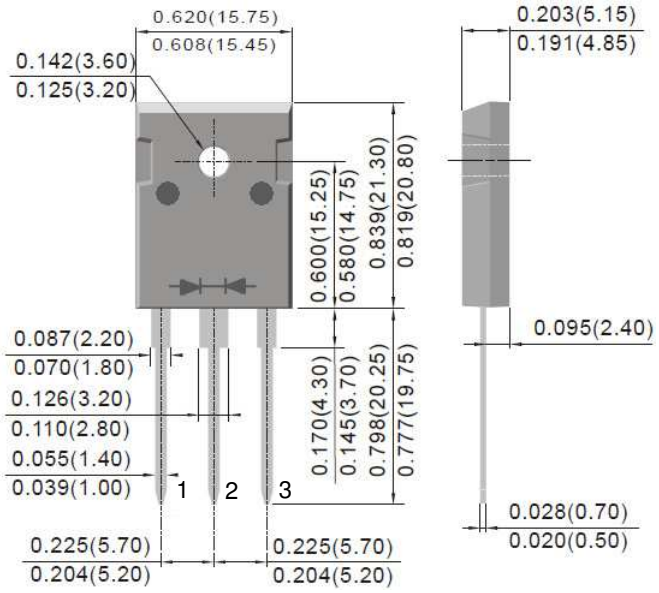
### APPLICATION

- Converter, PFC
- Freewheeling, Snubber
- UPS, Plating Power Supply
- Inversion Welder

### MECHANICAL DATA

- Case : TO - 247AB Molded plastic
- Epoxy : UL94-0 rate flame retadant
- Polarity : As marked

### TO - 247AB




Dimensions in millimeters (inches)

## Absolute Maximum Ratings ($T_J$=25°C unless otherwise noted )

| PARAMETER | | SYMBOL<br>MARKING | HY30FR060P<br>30FR060P | UNITS |
|---|---|---|---|---|
| Repetitive Peak Reverse Voltage | | $V_{RRM}$ | 600 | V |
| Average Rectified Forward Current | $T_J$=110°C, Per leg | $I_{F(AV)}$ | 15 | A |
| | $T_J$=110°C, Per device | | 30 | |
| Non-Repetitive Surge Forward Current<br>$T_P$=10ms(50HZ) Sine Wave | $T_J$=25°C | $I_{FSM}$ | 180 | A |
| Avalanche Energy with Single Pulse ( L=40mH ) | | $E_{AS}$ | 120 | mJ |
| Maximum Power Dissipation | | $P_D$ | 110 | W |
| Operating Junction and Storage Temperatures | | $T_J$,$T_{Stg}$ | -55 to 150 | °C |

## Thermal & Mechanical Specifications

| PARAMETER | SYMBOL | HY30FR060P | UNITS |
|---|---|---|---|
| Junction-to-Case Thermal Resistance, Per leg | $R_{\theta JC}$ | 1.1 | °C/W |
| Junction-to Ambient Thermal Resistance, Per leg | $R_{\theta JA}$ | 40 | °C/W |
| Weight | | 5.2 | g |
| Mounting Torque | | 1.1 | Nt.m |

**COMPANY RESERVES THE RIGHT TO IMPROVE PRODUCT DESIGN,FUNCTIONS AND RELIABILITY WITHOUT NOTICE**

## Electrical Characteristics & Curves ( $T_J$=25°C unless otherwise noted )

| PARAMETER | SYMBOL | TEST CONDITION | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Breakdown Voltage | $V_{BR}$ | $I_R$=100uA | 600 | - | - | V |
| Forward Voltage | $V_F$ | $I_F$=15A | - | 1.3 | 1.8 | V |
| | | $I_F$=15A, $T_J$=125°C | - | 1.1 | 1.5 | V |
| Reverse Leakage Current | $I_R$ | $V_R$=600V | - | - | 10 | uA |
| | | $V_R$=600V, $T_J$=125°C | - | - | 250 | uA |
| DYNAMIC RECOVERY CHARACTERISTICS | | | | | | |
| Reverse Recovery Time | $t_{rr}$ | $I_F$=1A, $V_R$=30V, $dI_F/dt$=-200A/us | - | 20 | 28 | ns |
| Reverse Recovery Time | $t_{rr}$ | $I_F$=15A, $V_R$=300V $dI_F/dt$=-200A/us | - | 28 | - | ns |
| Peak Recovery Current | $I_{RRM}$ | | - | 3.6 | - | A |
| Reverse Recovery Charge | $Q_{rr}$ | | - | 50 | - | nC |
| Reverse Recovery Time | $t_{rr}$ | $I_F$=15A, $V_R$=300V $dI_F/dt$=-200A/us, $T_J$=125°C | - | 72 | - | ns |
| Peak Recovery Current | $I_{RRM}$ | | - | 8.2 | - | A |
| Reverse Recovery Charge | $Q_{rr}$ | | - | 295 | - | nC |

FIG. 1 - Typical Forward Voltage Drop Characteristics

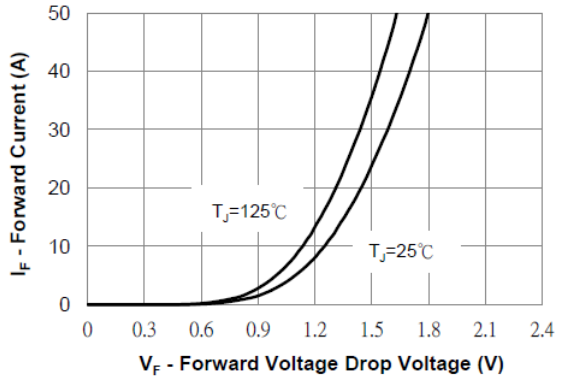



FIG. 2 - Typical Value of Reverse Current vs. Reverse Voltage

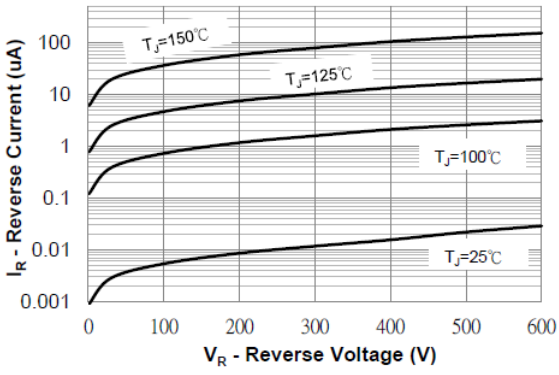



FIG. 3 - Typical Junction Capacitance vs. Reverse Voltage

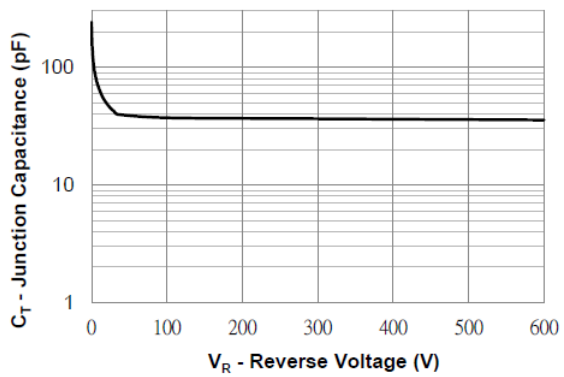



FIG. 4 - Average Forward Current vs. Maximum Allowable Case Temperature