# MOSPEC

# U08A30 thru U08A60

**Utra Fast Recovery Rectifier Diodes**

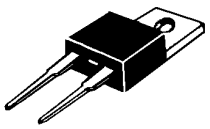
-- Designed for use in switching power supplies inverters and as free wheeling diodes. These state-of-the-art devices have the following features:

- ∗High Surge Capacity
- ∗Low Power Loss, High efficiency
- ∗Glass Passivated chip junctions
- ∗150 $^{O}$C Operating Junction Temperature
- ∗Low Stored Charge Majority Carrier Conduction
- ∗Low Forward Voltage, High Current Capability
- ∗High-Switching Speed 35 Nanosecong Recovery Time
- ∗Plastic Material used Carries Underwriters Laboratory Flammability Classification 94V-O

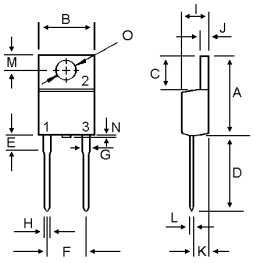
∗ *In compliance with EU RoHs 2002/95/EC directives*

**ULTRA FAST RECTIFIERS**

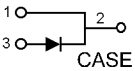
**8 AMPERES 300-600 VOLTS**



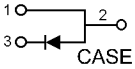
**TO-220A**




| DIM | MILLIMETERS | |
|---|---|---|
| | MIN | MAX |
| A | 14.68 | 15.32 |
| B | 9.78 | 10.42 |
| C | 5.02 | 6.52 |
| D | 13.06 | 14.62 |
| E | 3.57 | 4.07 |
| F | 4.84 | 5.32 |
| G | 1.12 | 1.36 |
| H | 0.72 | 0.96 |
| I | 4.22 | 4.98 |
| J | 1.14 | 1.38 |
| K | 2.20 | 2.98 |
| L | 0.33 | 0.55 |
| M | 2.48 | 2.98 |
| N | --- | 1.00 |
| O | 3.70 | 3.90 |




Case Positive
Suffix "P"




Case Negative
Suffix "R"

## MAXIMUM RATINGS

| Characteristic | Symbol | U08A30 | U08A40 | U08A50 | U08A60 | Unit |
|---|---|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 300 | 400 | 500 | 600 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 210 | 280 | 350 | 420 | V |
| Average Rectifier Forward Current<br>Total Device (Rated $V_R$), | $I_{F(AV)}$ | 8.0 | | | | A |
| Non-Repetitive Peak Surge Current<br>(Surge applied at rate load conditions halfware, single phase, 60Hz) | $I_{FSM}$ | 125 | | | | A |
| Operating and Storage Junction Temperature Range | $T_J$ , $T_{stg}$ | -65 to +150 | | | | ℃ |

## ELECTRICAL CHARACTERISTICS

| Characteristic | Symbol | U08A30 | U08A40 | U08A50 | U08A60 | Unit |
|---|---|---|---|---|---|---|
| Maximum Instantaneous Forward Voltage<br>( $I_F$ =8.0 Amp $T_C$ = 25℃)<br>( $I_F$ =8.0 Amp $T_C$ = 125℃) | $V_F$ | 1.30<br>1.12 | | 1.50<br>1.34 | | V |
| Maximum Instantaneous Reverse Current<br>( Rated DC Voltage, $T_C$ = 25℃)<br>( Rated DC Voltage, $T_C$ = 125℃) | $I_R$ | 10<br>500 | | | | uA |
| Reverse Recovery Time<br>( $I_F$ = 0.5 A, $I_R$ =1.0 , $I_{rr}$ =0.25 A ) | $T_{rr}$ | 50 | | | | ns |
| Typical Junction Capacitance<br>(Reverse Voltage of 4 volts & f=1 MHz) | $C_P$ | 85 | | 75 | | pF |

# U08A30 Thru UF08A60

FIG-1 TYPICAL FORWARD CHARACTERISITICS

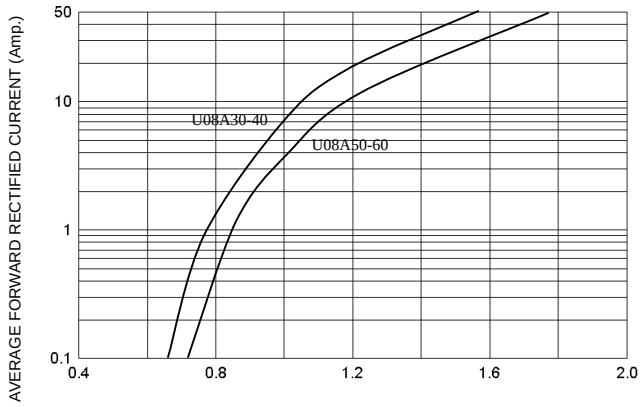



FIG-2 TYPICAL REVERSE CHARACTERISTICS

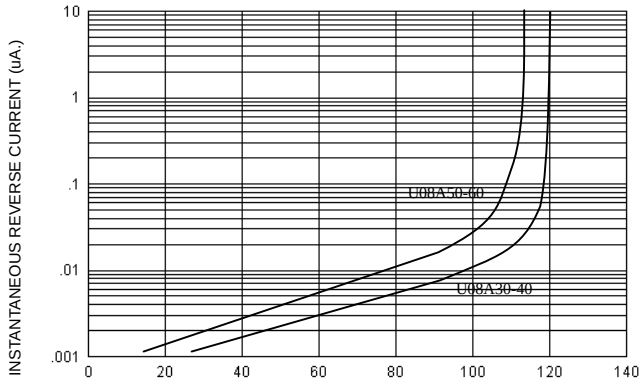



FIG-3 FORWARD CURRENT DERATING CURVE

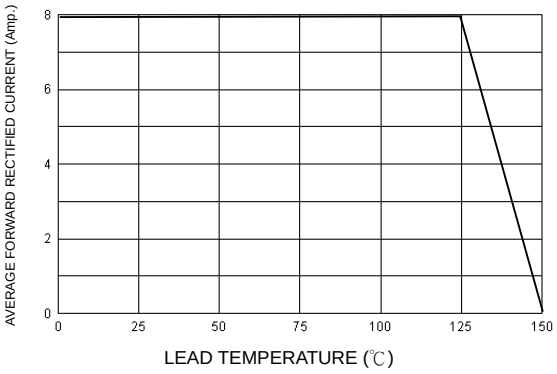



FIG-4TYPICAL JUNCTION CAPACITANCE

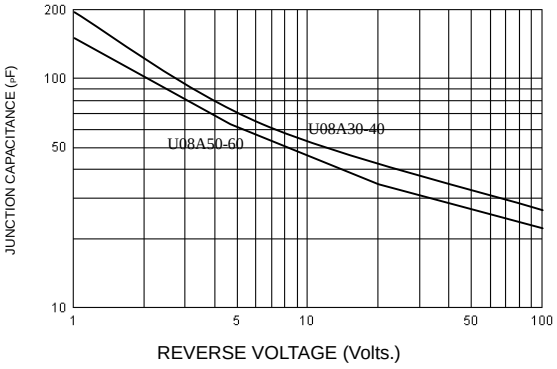
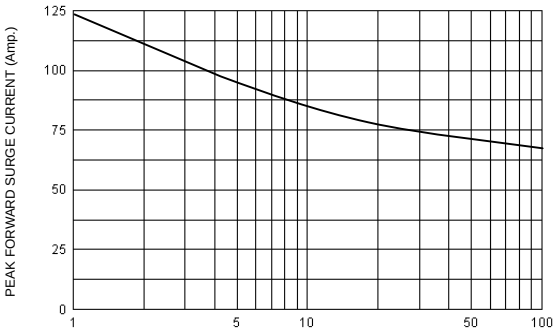
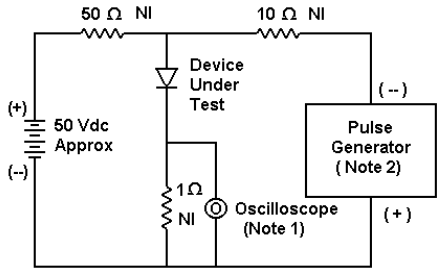
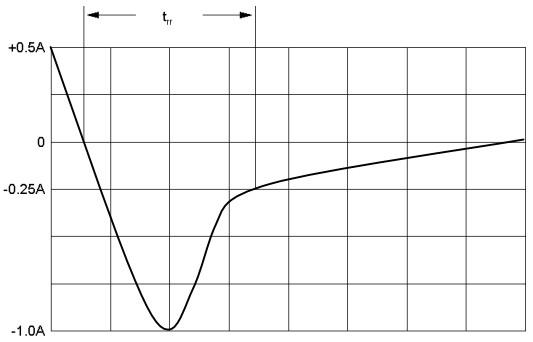



FIG-5 PEAK FORWARD SURGE CURRENT




Notes:
1. Rise Time = 7 ns max. Input Impedance =1 M Ω , 22 pF
2. Rise Time = 10 ns max. Input Impedance = 50 Ω




Set time base for 10/20 ns/cm

FIG-6 Reverse Recovery Time Characteristic and Test Circuit Diagram

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