

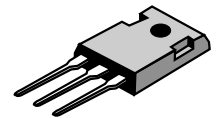
Switchmode Dual Ultrafast Power Rectifiers

... 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°C Operating Junction Temperature
- * Low Stored Charge Majority Carrier Conduction
- * Low Forward Voltage, High Current Capability
- * High-Switching Speed 50 Nanosecond Recovery Time
- * Plastic Material used Carries Underwriters Laboratory

**ULTRA FAST
RECTIFIERS**

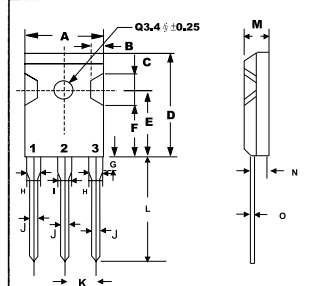
**20 AMPERES
300 -- 600 VOLTS**



TO-247 (3P)

MAXIMUM RATINGS

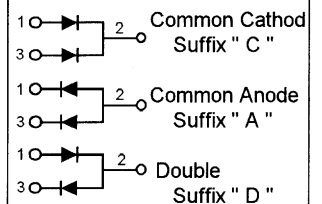
| Characteristic | Symbol | U20D | | | | Unit |
|--|---------------------------------|---------------|-----|-----|-----|------|
| | | 30 | 40 | 50 | 60 | |
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | 300 | 400 | 500 | 600 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 210 | 280 | 350 | 420 | V |
| Average Rectifier Forward Current Per Leg Per Total Device $T_c=125^\circ\text{C}$ | $I_{F(AV)}$ | 10 20 | | | | A |
| Peak Repetitive Forward Current (Rate V_R , Square Wave, 20kHz, $T_c=125^\circ\text{C}$) | I_{FM} | 20 | | | | A |
| Non-Repetitive Peak Surge Current (Surge applied at rate load conditions halfwave, single phase, 60Hz) | I_{FSM} | 200 | | | | A |
| Operating and Storage Junction Temperature Range | T_J, T_{stg} | - 65 to + 150 | | | | °C |



| DIM | MILLIMETERS | |
|-----|-------------|------|
| | MIN | MAX |
| A | -- | 16.2 |
| B | 1.7 | 2.7 |
| C | 5.0 | 6.0 |
| D | -- | 23.0 |
| E | 14.8 | 15.2 |
| F | 11.7 | 12.7 |
| G | -- | 4.5 |
| H | -- | 2.5 |
| I | -- | 3.5 |
| J | 1.1 | 1.4 |
| K | 5.25 | 5.65 |
| L | 19 | -- |
| M | 4.7 | 5.3 |
| N | 2.8 | 3.2 |
| O | 0.45 | 0.85 |

ELECTRICAL CHARACTERISTICS

| Characteristic | Symbol | U20D | | | | Unit |
|--|----------|--------------|----|--------------|----|------|
| | | 30 | 40 | 50 | 60 | |
| Maximum Instantaneous Forward Voltage ($I_F=10$ Amp, $T_c = 25^\circ\text{C}$) ($I_F=10$ Amp, $T_c = 100^\circ\text{C}$) | V_F | 1.30 1.15 | | 1.50 1.36 | | V |
| Maximum Instantaneous Reverse Current (Rated DC Voltage, $T_c = 25^\circ\text{C}$) (Rated DC Voltage, $T_c = 125^\circ\text{C}$) | I_R | 10 500 | | | | uA |
| Reverse Recovery Time ($I_F = 0.5$ A, $I_R = 1.0$, $I_{rr} = 0.25$ A) | T_{rr} | 50 | | | | ns |
| Typical Junction Capacitance (Reverse Voltage of 4 volts & f=1 MHz) | C_P | 70 | | | | pF |



U20D30 Thru U20D60

FIG-1 TYPICAL FORWARD CHARACTERISTICS

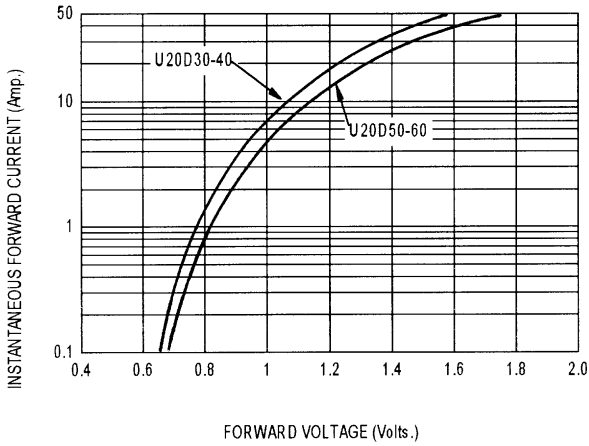


FIG-2 TYPICAL REVERSE CHARACTERISTICS

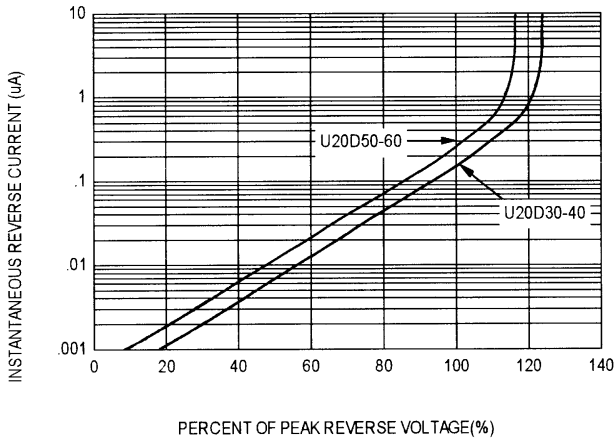


FIG-3 FORWARD CURRENT DERATING CURVE

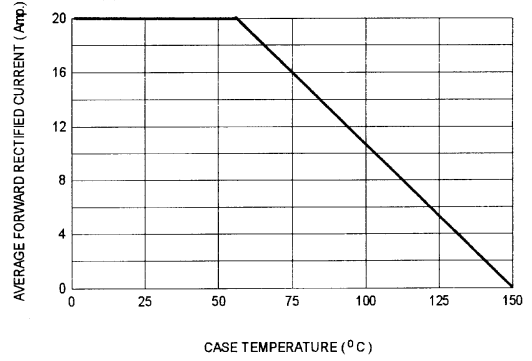


FIG-4 TYPICAL JUNCTION CAPACITANCE

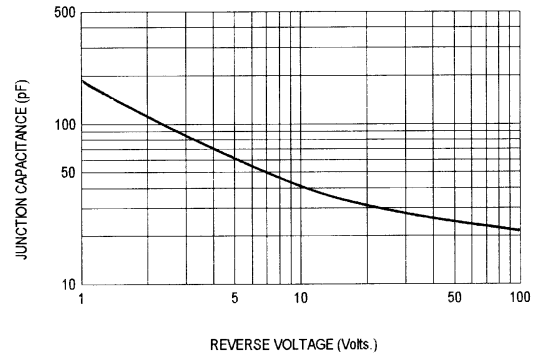
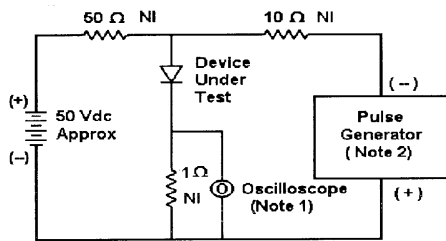
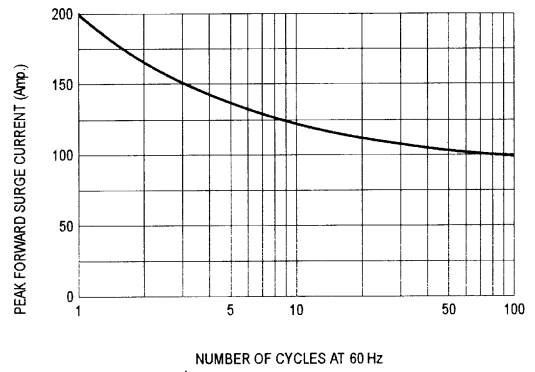
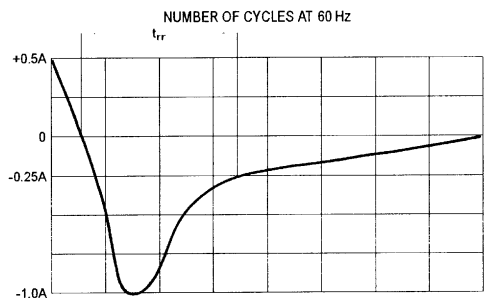


FIG-5 PEAK FORWARD SURGE CURRENT



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/div

Fig-6 Reverse Recovery Time Characteristic and Test Circuit Diagram