

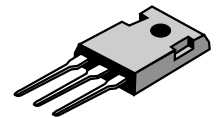
## Switchmode Dual Ultrafast Power Rectifiers

... 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**

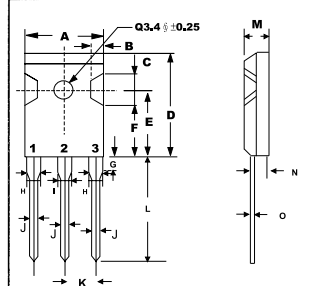
**20 AMPERES  
300 -- 600 VOLTS**



**TO-247 (3P)**

### MAXIMUM RATINGS

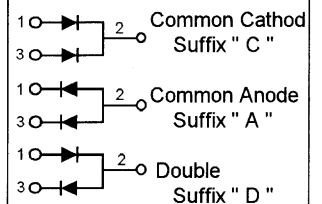
Characteristic	Symbol	U20D				Unit
		30	40	50	60	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	300	400	500	600	V
RMS Reverse Voltage	$V_{R(RMS)}$	210	280	350	420	V
Average Rectifier Forward Current Per Leg Per Total Device $T_c=125^\circ\text{C}$	$I_{F(AV)}$	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

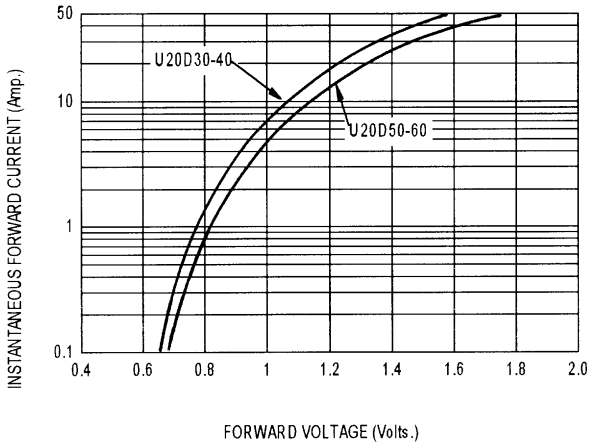


FIG-3 FORWARD CURRENT DERATING CURVE

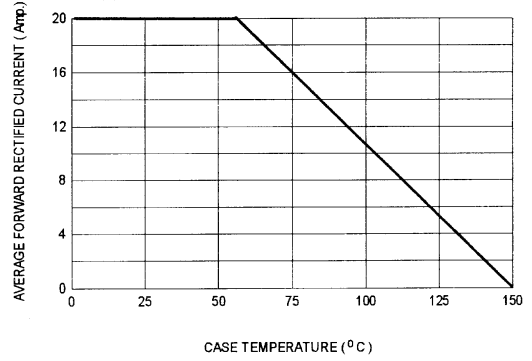


FIG-2 TYPICAL REVERSE CHARACTERISTICS

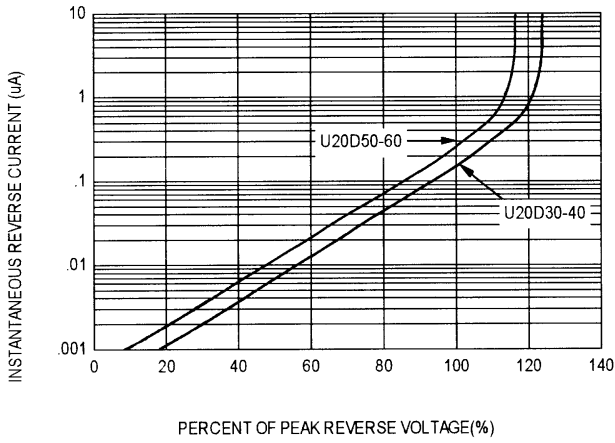


FIG-4 TYPICAL JUNCTION CAPACITANCE

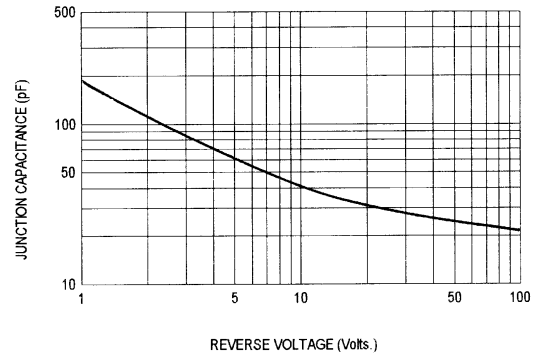
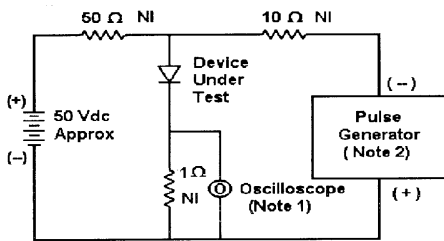
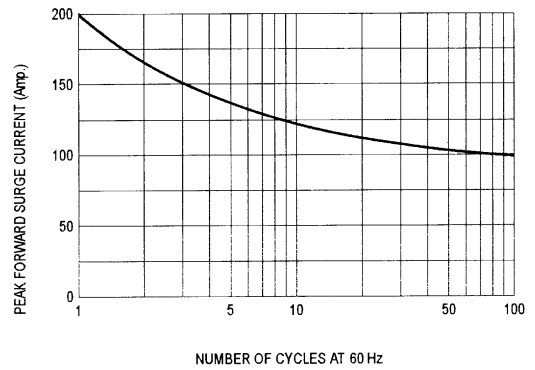
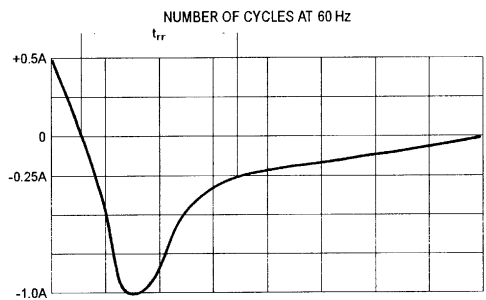


FIG-5 PEAK FORWARD SURGE CURRENT



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