

### 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:

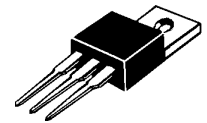
- \* High Surge Capacity
- \* Low Power Loss, High efficiency
- \* Glass Passivated chip junctions
- \* 150 °C Operating Junction Temperature
- \* Low Stored Charge Majority Carrier Conduction
- \* Low Forward Voltage, High Current Capability
- \* High-Switching Speed 35 Nanosecong Recovery Time
- \*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

Plating pb free is indicated by box



**ULTRA FAST  
RECTIFIERS**

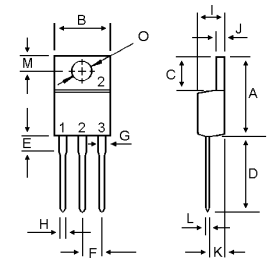
**12 AMPERES  
50-200 VOLTS**



**TO-220AB**

### MAXIMUM RATINGS

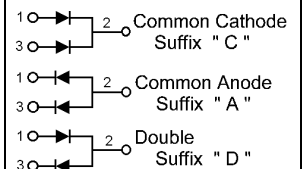
Characteristic	Symbol	U12C05	U12C10	U12C15	U12C20	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	50	100	150	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	105	140	V
Average Rectifier Forward Current Total Device (Rated $V_R$ ), $T_C=100$	$I_{F(AV)}$	6.0 12				A
Peak Repetitive Forward Current (Rate $V_R$ , Square Wave, 20kHz)	$I_{FM}$	12				A
Non-Repetitive Peak Surge Current (Surge applied at rate load conditions halfwave, single phase, 60Hz)	$I_{FSM}$	100				A
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +150				



DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.32
B	9.78	10.42
C	6.02	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	2.66
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
O	3.70	3.90

### ELECTRIAL CHARACTERISTICS

Characteristic	Symbol	U10C05	U10C10	U10C15	U10C20	Unit
Maximum Instantaneous Forward Voltage ( $I_F=6.0$ Amp $T_C=25$ ) ( $I_F=6.0$ Amp $T_C=125$ )	$V_F$	0.975 0.880				V
Maximum Instantaneous Reverse Current ( Rated DC Voltage, $T_C=25$ ) ( Rated DC Voltage, $T_C=125$ )	$I_R$	5.0 200				$\mu$ A
Reverse Recovery Time ( $I_F=0.5$ A, $I_R=1.0$ , $I_{rr}=0.25$ A )	$T_{rr}$	35				ns
Typical Junction Capacitance (Reverse Voltage of 4 volts & $f=1$ MHz)	$C_P$	55				pF



# U12C05 Thru U12C20

FIG-1 TYPICAL FORWARD CHARACTERISTICS

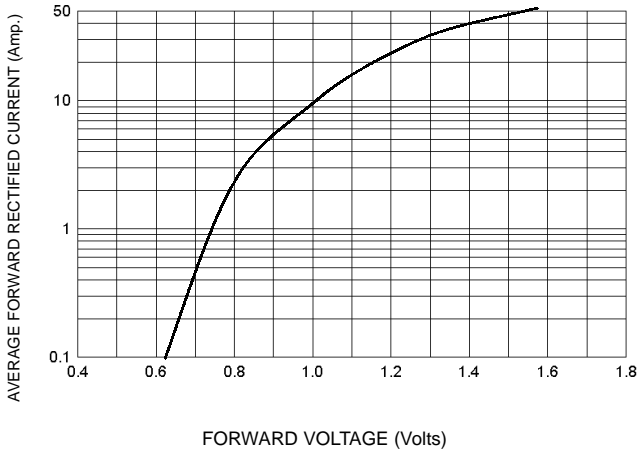


FIG-3 FORWARD CURRENT DERATING CURVE

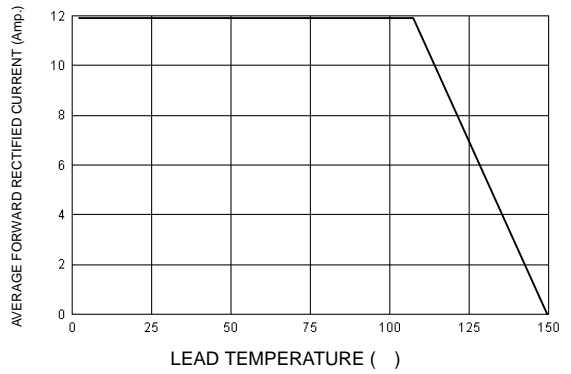


FIG-2 TYPICAL REVERSE CHARACTERISTICS

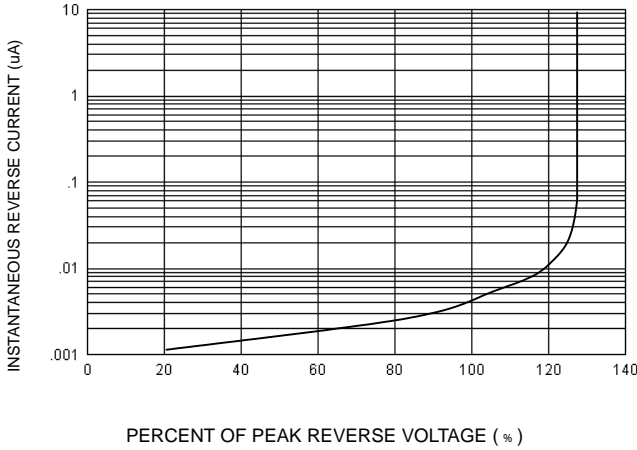


FIG-4 TYPICAL JUNCTION CAPACITANCE

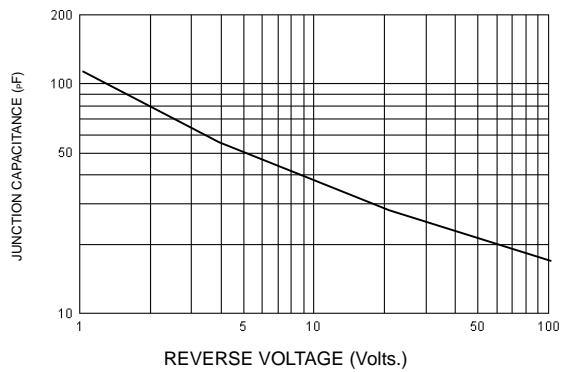
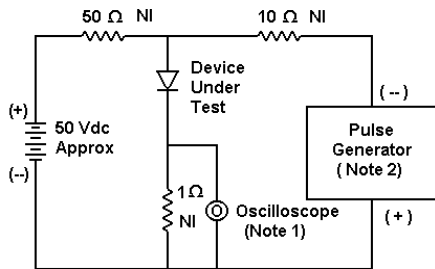
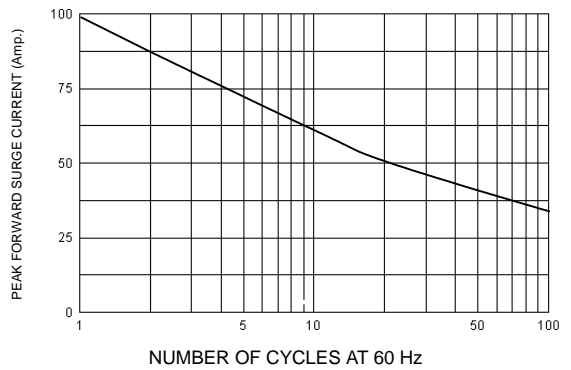
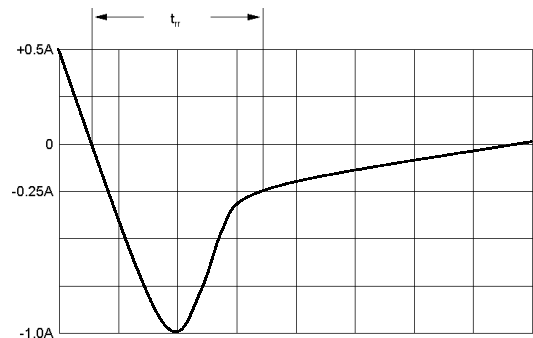


FIG-5 PEAK FORWARD SURGE CURRENT



- Notes:  
 1. Rise Time = 7 ns max. Input Impedance = 1 MΩ, 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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