

### Switchmode Dual Fast Recovery 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:

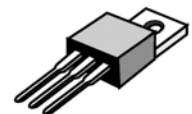
- \* Glass Passivated chip junctions
- \* Low Reverse Leakage Current
- \* Fast Switching for High Efficiency
- \* 150 °C Operating Junction Temperature
- \* Low Forward Voltage , High Current Capability
- \* Plastic Material used Carries Underwriters Laboratory Flammability Classification 94V-O

- \* **Pb Free**
- \* **In compliance with EU RoHs directives**



**FAST RECOVERY  
RECTIFIERS**

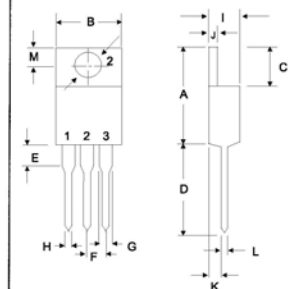
**12 AMPERES  
300 – 600 VOLTS**



**TO-220AB**

#### MAXIMUM RATINGS

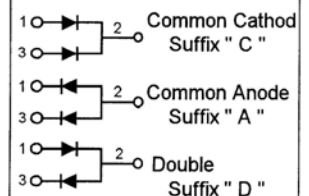
Characteristic	Symbol	F12C				Unit
		30	40	50	60	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	300	400	500	600	V
RMS Reverse Voltage	$V_{R(RMS)}$	210	280	350	420	V
Average Rectifier Forward Current Per Leg $T_c=125^\circ\text{C}$ Per Total Device	$I_{F(AV)}$	6.0 12				A
Peak Repetitive Forward Current ( Rate $V_R$ , Square Wave, 20kHz, $T_c=125^\circ\text{C}$ )	$I_{FM}$	12				A
Non-Repetitive Peak Surge Current ( Surge applied at rate load conditions halfwave, single phase, 60Hz )	$I_{FSM}$	80				A
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	- 65 to + 150				°C



DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.00
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	2.41	2.67
G	1.10	1.67
H	0.69	1.01
I	3.21	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
O	3.50	4.00

#### ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	F12C				Unit
		30	40	50	60	
Maximum Instantaneous Forward Voltage ( $I_F=6.0$ Amp, $T_c=25^\circ\text{C}$ )	$V_F$	1.30				V
Maximum Instantaneous Reverse Current ( Rated DC Voltage, $T_c=25^\circ\text{C}$ ) ( Rated DC Voltage, $T_c=125^\circ\text{C}$ )	$I_R$	5.0 100				uA
Reverse Recovery Time ( $I_F=0.5$ A, $I_R=1.0$ , $I_{rr}=0.25$ A )	$T_{rr}$	250				ns
Typical Junction Capacitance ( Reverse Voltage of 4 volts & f=1 MHz )	$C_p$	45		30		pF



# F12C30 Thru F12C60

FIG-1 TYPICAL FORWARD CHARACTERISTICS

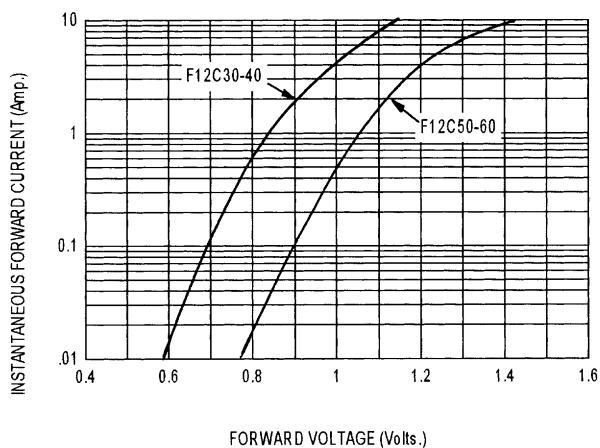


FIG-2 TYPICAL REVERSE CHARACTERISTICS

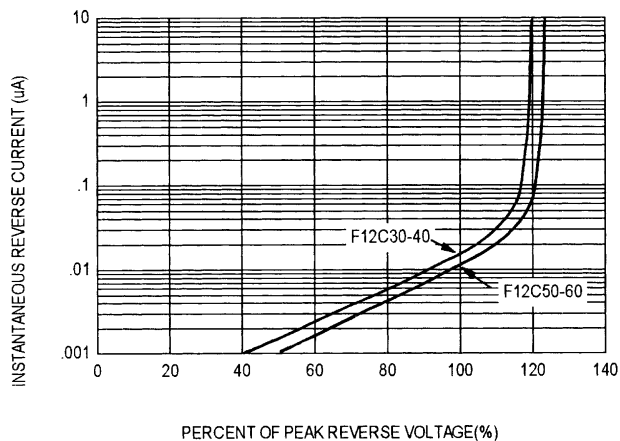


FIG-3 FORWARD CURRENT DERATING CURVE

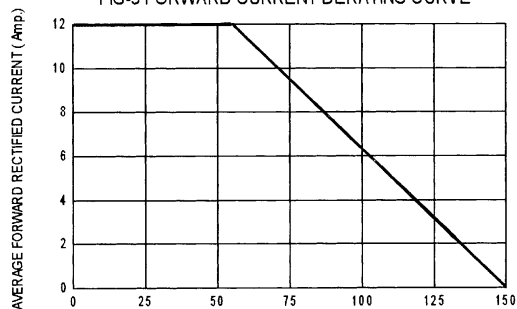


FIG-4 TYPICAL JUNCTION CAPACITANCE

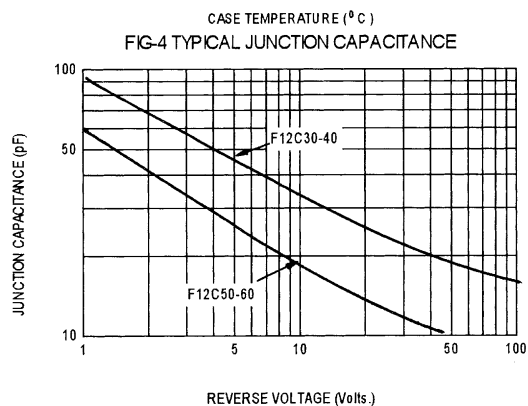
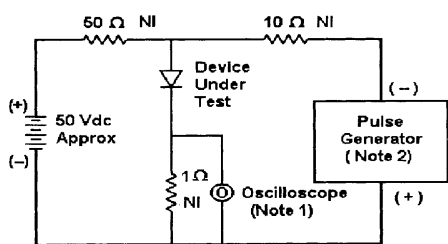
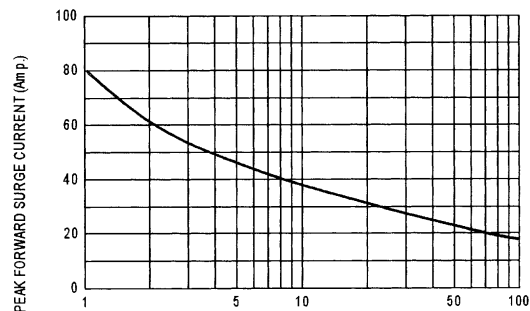
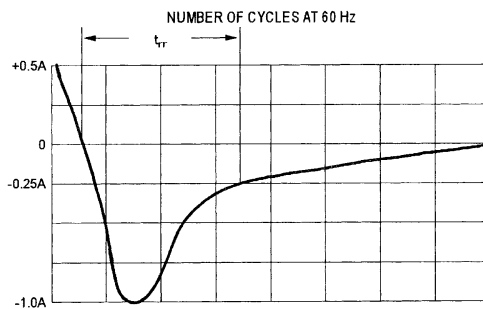


FIG-5 PEAK FORWARD SURGE CURRENT



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



Set time base for 50/100 ns/div

Fig-6 Reverse Recovery Time Characteristic and Test Circuit Diagram

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