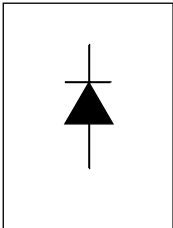




**QUIETIR** Series  
60EPF.. 60CPF..

**FAST SOFT RECOVERY  
RECTIFIER DIODE**



$V_F$	$< 1.1V @ 30A$
$t_{rr}$	$= 70ns$
$V_{RRM}$	200 to 600V

**Description/Features**

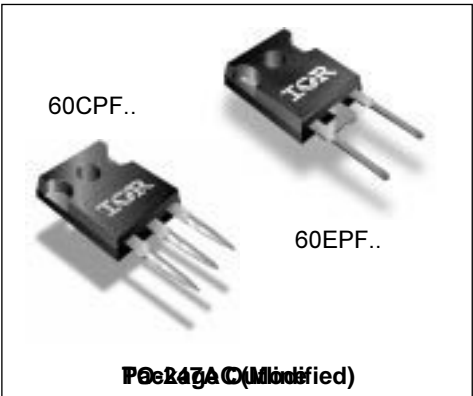
The 60EPF.. & 60CPF.. fast soft recovery **QUIETIR** rectifier series has been optimized for combined short reverse recovery time and low forward voltage drop. The glass passivation ensures stable reliable operation in the most severe temperature and power cycling conditions.

Typical applications are both:

- Output rectification and freewheeling in inverters, choppers and converters
- and input rectifications where severe restrictions on conducted EMI should be met.

**Major Ratings and Characteristics**

Characteristics	60EPF.. 60CPF..	Units
$I_{F(AV)}$ Sinusoidal waveform	60	A
$V_{RRM}$	200 to 600	V
$I_{FSM}$	830	A
$V_F @ 30A, T_J=25^{\circ}C$	1.1	V
$t_{rr} @ 1A, 100A/\mu s$	70	ns
$T_J$	-40 to 150	$^{\circ}C$



## Voltage Ratings

Part Number	$V_{RRM}$ , maximum peak reverse voltage V	$V_{RSM}$ , maximum non repetitive peak reverse voltage V	$I_{RRM}$ 150°C mA
60EPF02, 60CPF02	200	300	5
60EPF04, 60CPF04	400	500	
60EPF06, 60CPF06	600	700	

## Absolute Maximum Ratings

Parameters	60.PF..	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	60	A	@ $T_C = 106^\circ\text{C}$ , 180° conduction half sine wave
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current	700	A	10ms Sine pulse, rated $V_{RRM}$ applied
	830		10ms Sine pulse, no voltage reappplied
$I^2t$ Max. $I^2t$ for fusing	2450	$\text{A}^2\text{s}$	10ms Sine pulse, rated $V_{RRM}$ applied
	3460		10ms Sine pulse, no voltage reappplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	34600	$\text{A}^2\sqrt{\text{s}}$	$t = 0.1$ to 10ms, no voltage reappplied

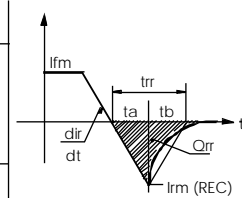
## Electrical Specifications

Parameters	60.PF..	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop	1.3	V	@ 60A, $T_J = 25^\circ\text{C}$
$r_t$ Forward slope resistance	5.0	$\text{m}\Omega$	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ Threshold voltage	0.88	V	
$I_{RM}$ Max. Reverse Leakage Current	0.1	mA	$T_J = 25^\circ\text{C}$
	5.0		$T_J = 150^\circ\text{C}$

$V_R = \text{rated } V_{RRM}$

## Typical Recovery Characteristics

Parameters	60.PF..	Units	Conditions
$t_{rr}$ Reverse Recovery Time	180	ns	$I_F @ 60\text{Apk}$ @ 25A/ $\mu\text{s}$ @ 25°C
$I_{rr}$ Reverse Recovery Current	3.4	A	
$Q_{rr}$ Reverse Recovery Charge	0.5	$\mu\text{C}$	
S Snap Factor $t_b/t_a$	0.5	typical	



## Thermal-Mechanical Specifications

Parameters	60.PF..	Units	Conditions
$T_J$ Max. Junction Temperature Range	-40to150	°C	
$T_{stg}$ Max. Storage Temperature Range	-40to150	°C	
$R_{thJC}$ Max. Thermal Resistance Junction to Case	0.4	°C/W	DCoperation
$R_{thJA}$ Max. Thermal Resistance Junction to Ambient	40	°C/W	
$R_{thCS}$ Typical Thermal Resistance, Case to Heatsink	0.2	°C/W	Mountingsurface, smooth and greased
wt Approximate Weight	6(0.21)	g(oz.)	
T Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)
	Max.	12(10)	
Case Style	TO-247AC		JEDEC(Modified)

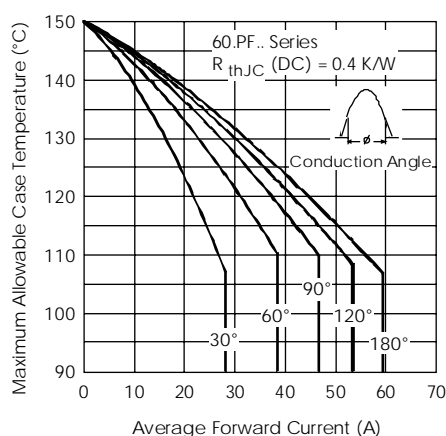


Fig. 1 - Current Rating Characteristics

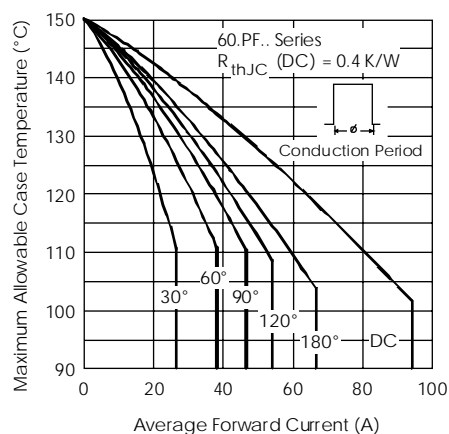


Fig. 2 - Current Rating Characteristics

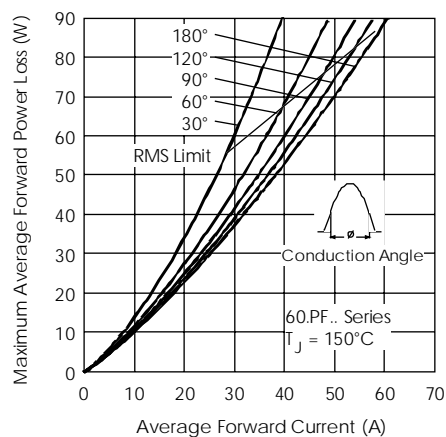


Fig. 3 - Forward Power Loss Characteristics

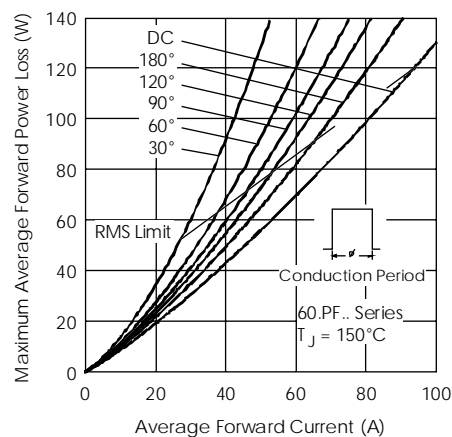


Fig. 4 - Forward Power Loss Characteristics

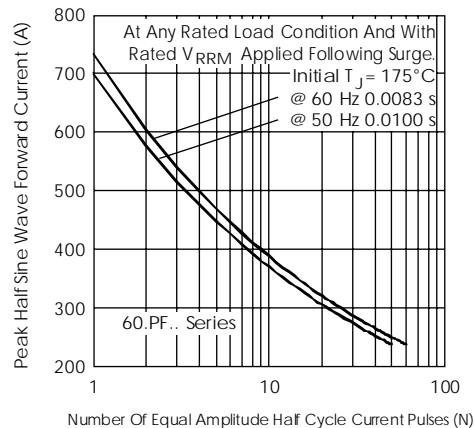


Fig. 5 - Maximum Non-Repetitive Surge Current

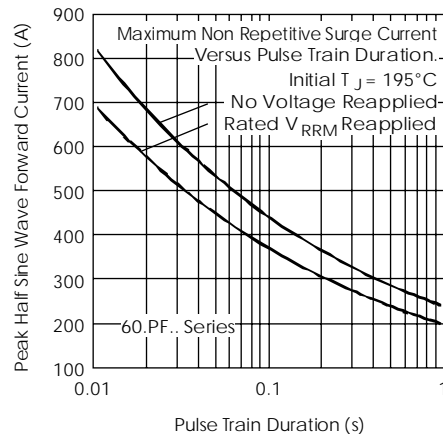


Fig. 6 - Maximum Non-Repetitive Surge Current

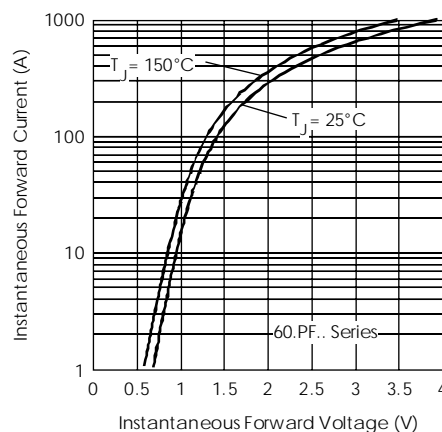


Fig. 7 - Forward Voltage Drop Characteristics

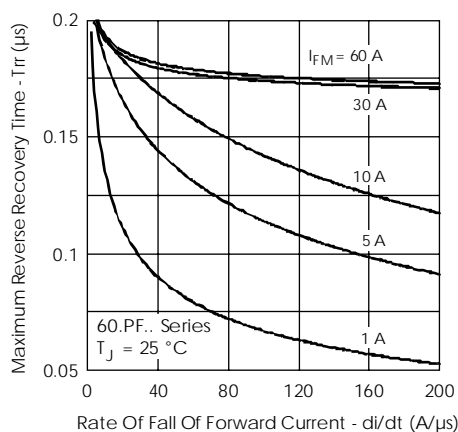


Fig. 8 - Recovery Time Characteristics,  $T_J = 25^\circ\text{C}$

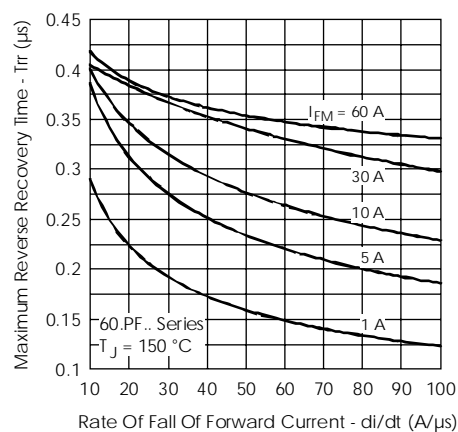


Fig. 9 - Recovery Time Characteristics,  $T_J = 150^\circ\text{C}$

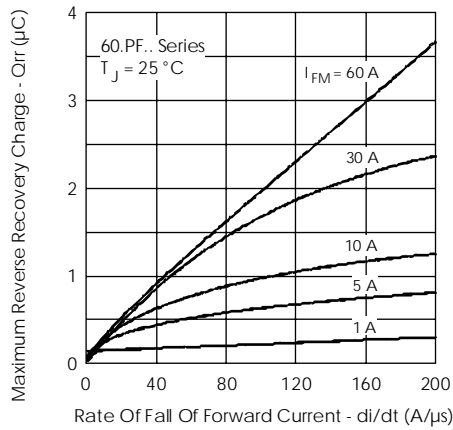


Fig. 10 - Recovery Charge Characteristics,  $T_J = 25^\circ\text{C}$

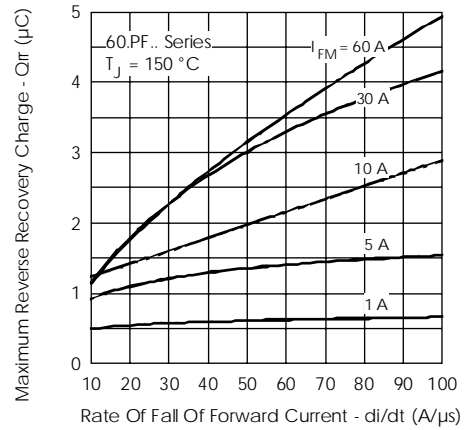


Fig. 11 - Recovery Charge Characteristics,  $T_J = 150^\circ\text{C}$

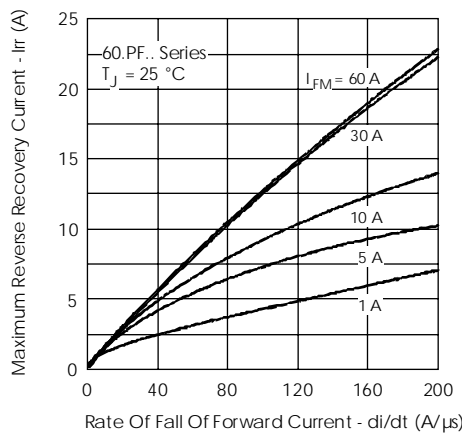


Fig. 12 - Recovery Current Characteristics,  $T_J = 25^\circ\text{C}$

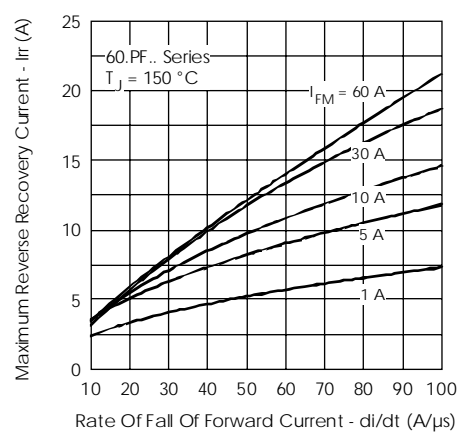


Fig. 13 - Recovery Current Characteristics,  $T_J = 150^\circ\text{C}$

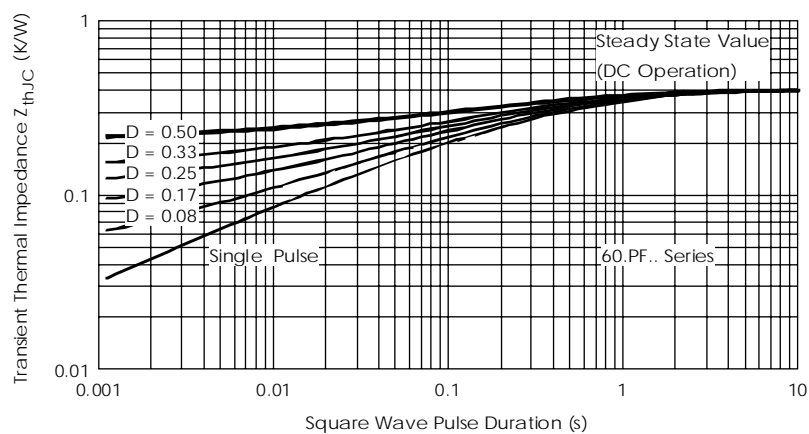
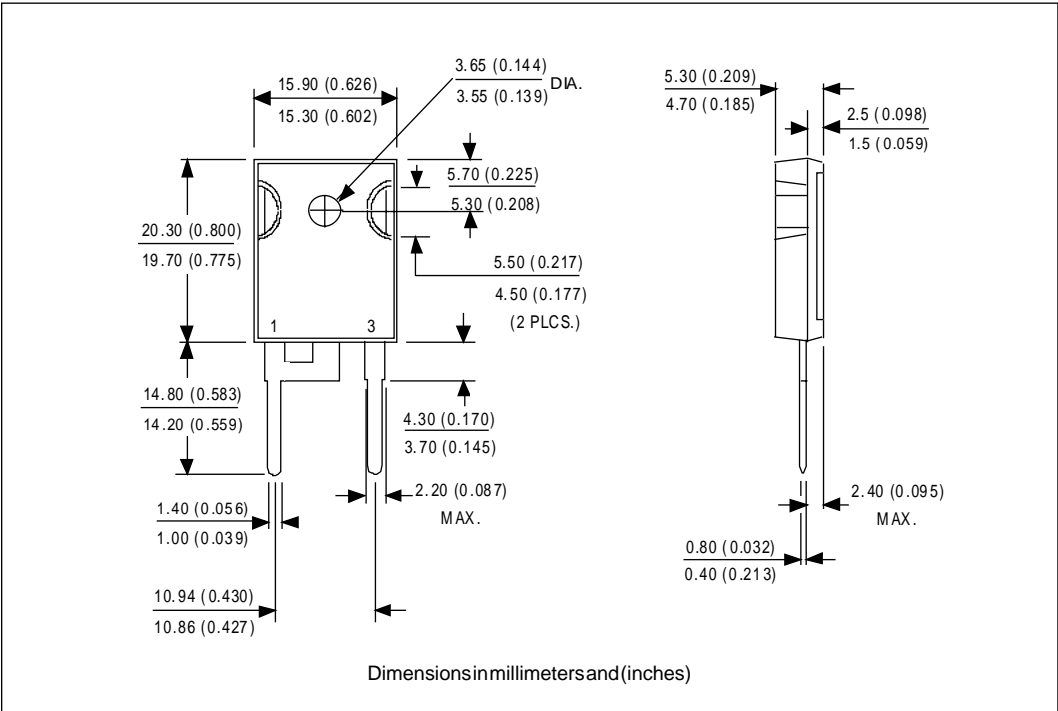
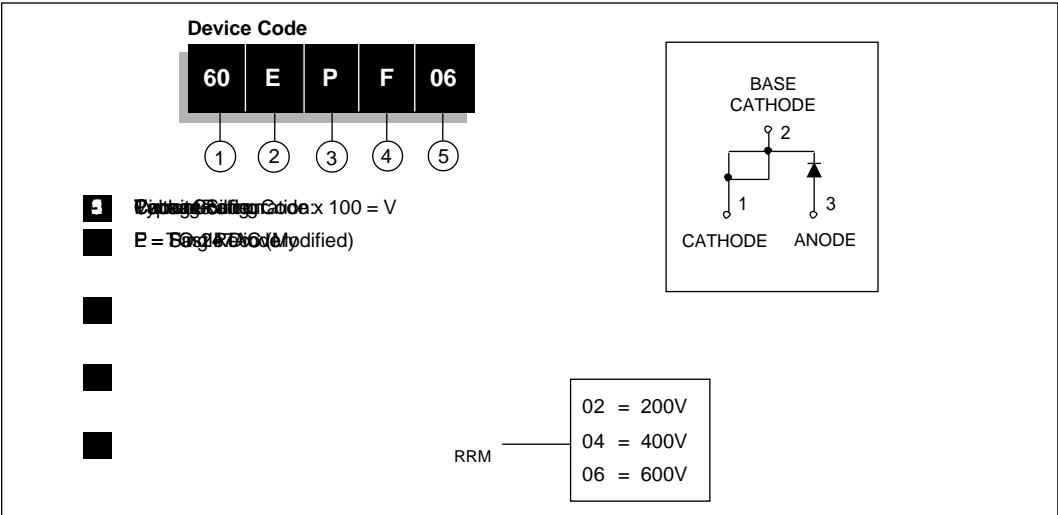


Fig. 14 - Thermal Impedance  $Z_{thJC}$  Characteristics

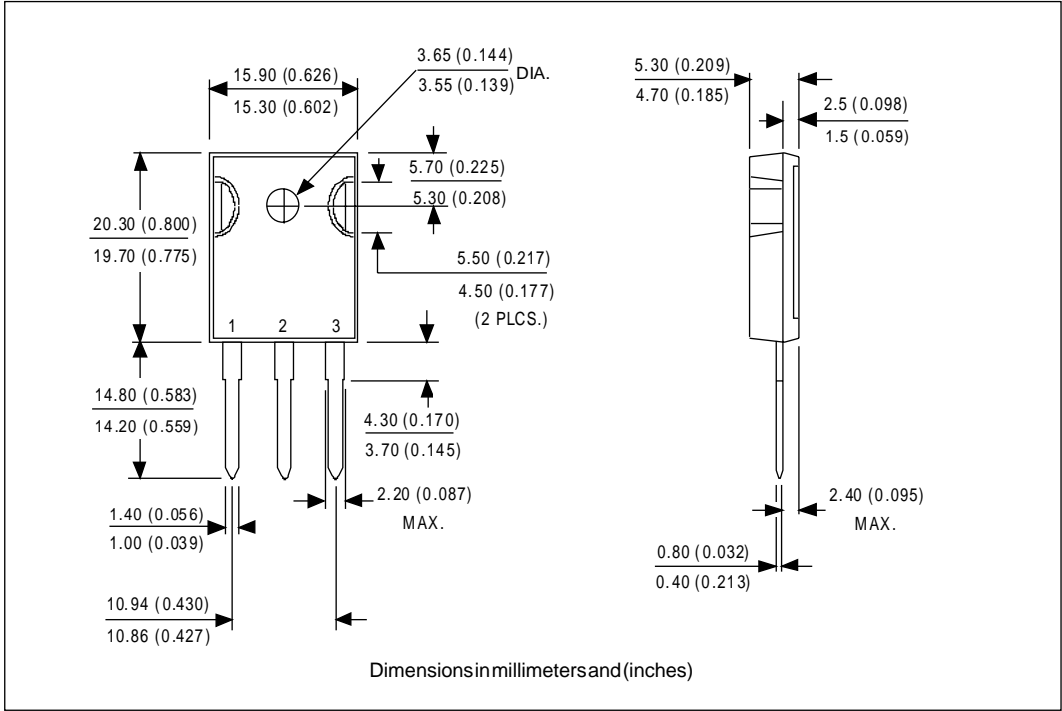
Outline Table



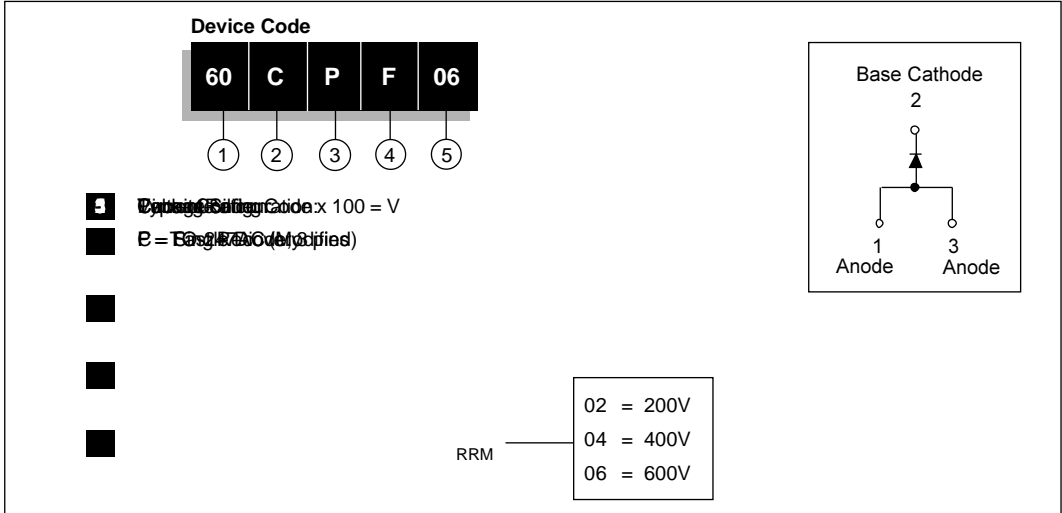
Ordering Information Table



Outline Table



Ordering Information Table



International  
**IOR** Rectifier

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**IR SOUTHEAST ASIA:** 1 Kim Seng Promenade, Great World City West Tower, 13-11, Singapore 237994. Tel: ++ 65 838 4630.  
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*Data and specifications subject to change without notice.*





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