



2002-02-20

## PRODUKTINFORMATION

Vi reserverar oss mot fel samt förbehåller oss rätten till ändringar utan föregående meddelande

### ELFA artikelnr

**70-238-56 60CPF04 diodT0-247**

**70-238-64 60CPF06 diodT0-247**

**70-238-98 60EPF02 diodT0-247**

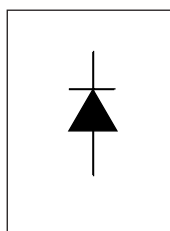
**70-239-06 60EPF04 diodT0-247**

**70-239-14 60EPF06 diodT0-247**

International  
**IOR** Rectifier

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

### FAST SOFT RECOVERY RECTIFIER DIODE



$$V_F < 1.1V @ 30A$$

$$t_{rr} = 70ns$$

$$V_{RRM} 200 \text{ to } 600V$$

#### 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.

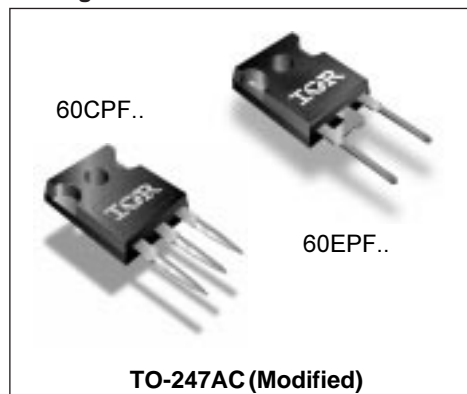
Typical applications are both:

- 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	$^\circ C$

#### Package Outline



## 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 reapplied
$I^2t$ Max. $I^2t$ for fusing	2450	$A^2s$	10ms Sine pulse, rated $V_{RRM}$ applied
	3460		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	34600	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reapplied

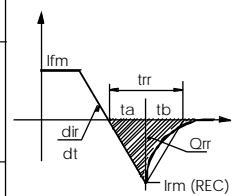
## Electrical Specifications

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	$m\Omega$	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ 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	-40 to 150	°C	
$T_{stg}$	Max. Storage Temperature Range	-40 to 150	°C	
$R_{thJC}$	Max. Thermal Resistance Junction to Case	0.4	°C/W	DC operation
$R_{thJA}$	Max. Thermal Resistance Junction to Ambient	40	°C/W	
$R_{thCS}$	Typical Thermal Resistance, Case to Heatsink	0.2	°C/W	Mounting surface, 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)	

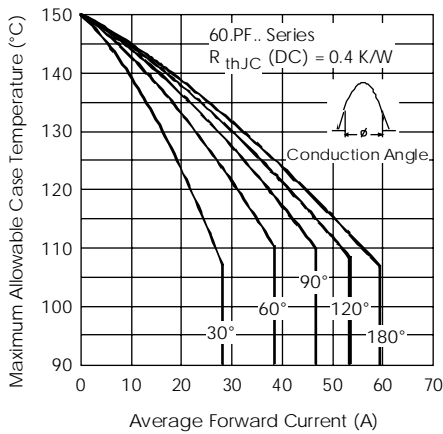


Fig. 1 - Current Rating Characteristics

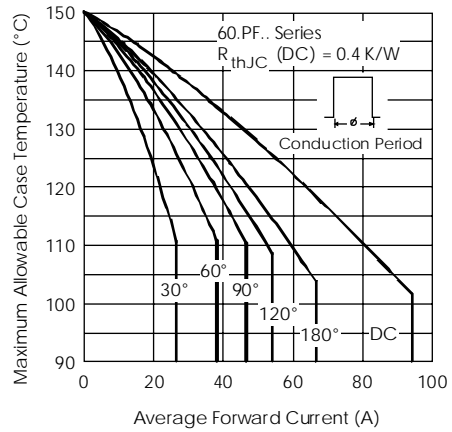


Fig. 2 - Current Rating Characteristics

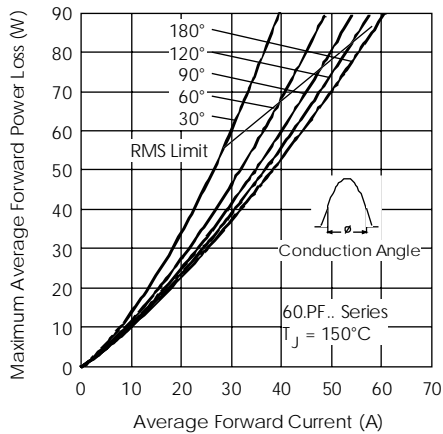


Fig. 3 - Forward Power Loss Characteristics

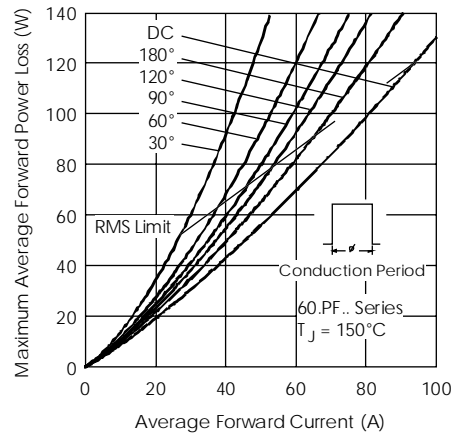


Fig. 4 - Forward Power Loss Characteristics

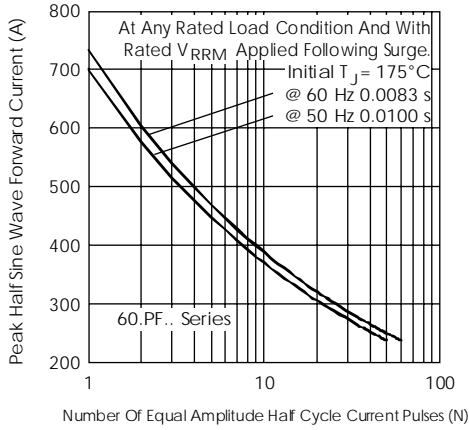


Fig. 5 - Maximum Non-Repetitive Surge Current

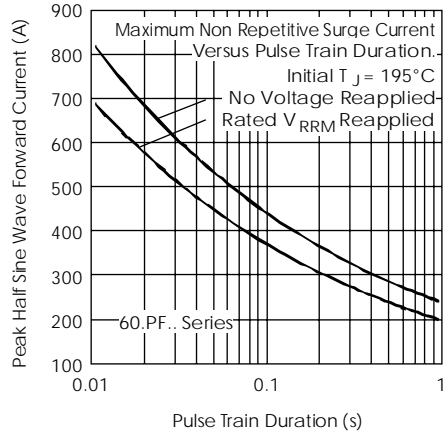


Fig. 6 - Maximum Non-Repetitive Surge Current

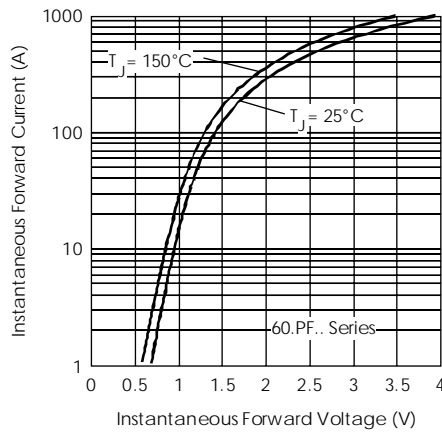


Fig. 7 - Forward Voltage Drop Characteristics

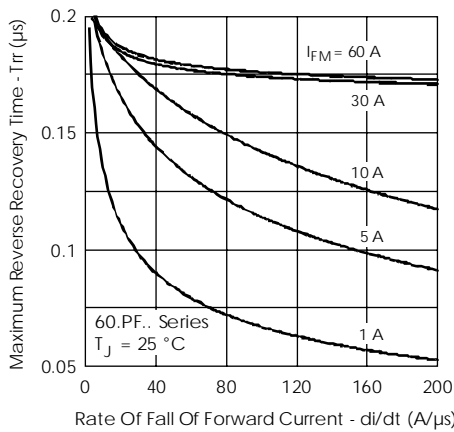


Fig. 8 - Recovery Time Characteristics,  $T_J = 25^\circ\text{C}$

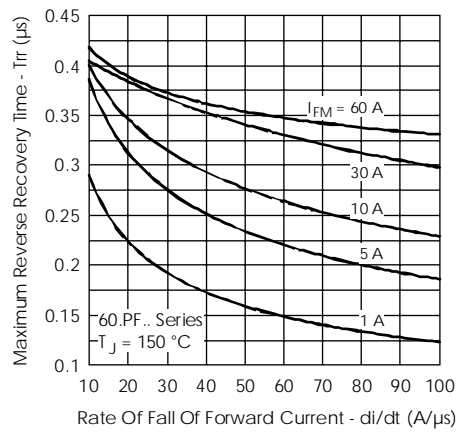


Fig. 9 - Recovery Time Characteristics,  $T_J = 150^\circ\text{C}$

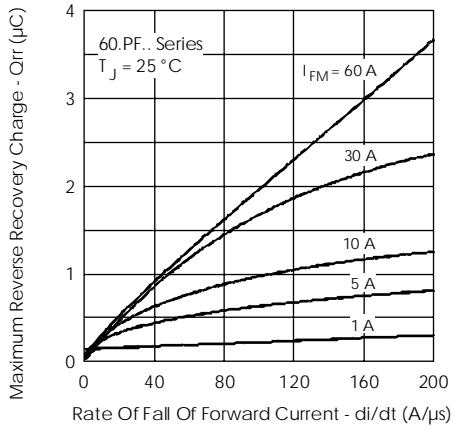


Fig. 10 - Recovery Charge Characteristics,  $T_J = 25^\circ\text{C}$

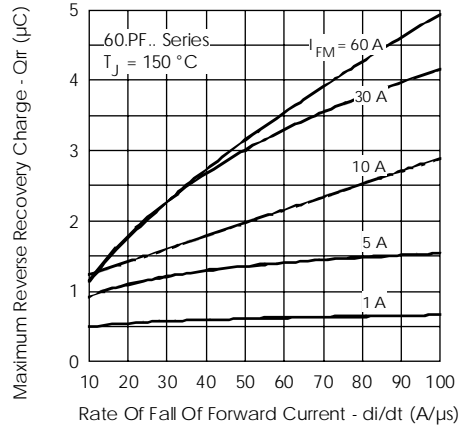


Fig. 11 - Recovery Charge Characteristics,  $T_J = 150^\circ\text{C}$

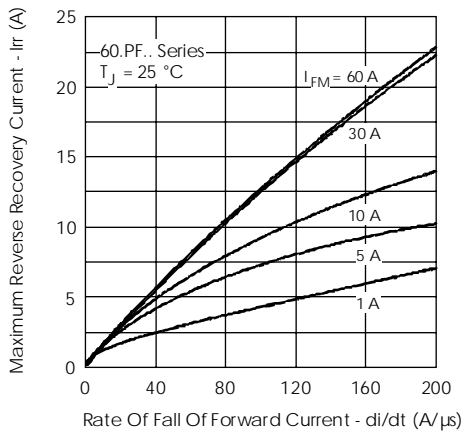


Fig. 12 - Recovery Current Characteristics,  $T_J = 25^\circ\text{C}$

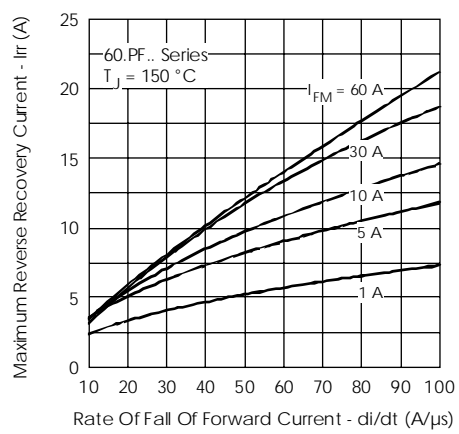


Fig. 13 - Recovery Current Characteristics,  $T_J = 150^\circ\text{C}$

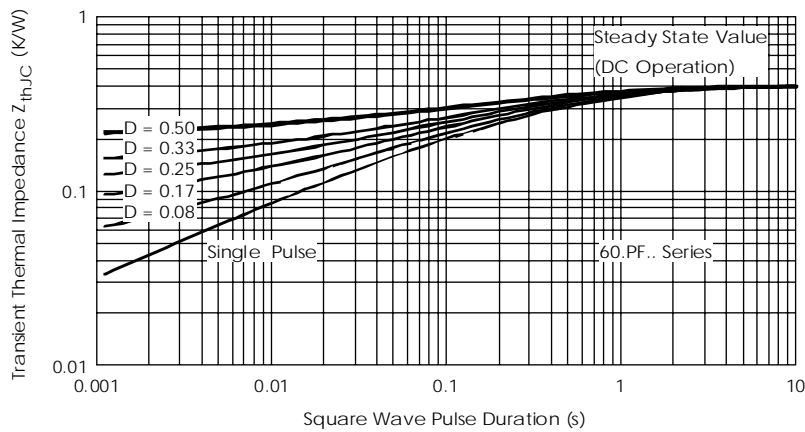
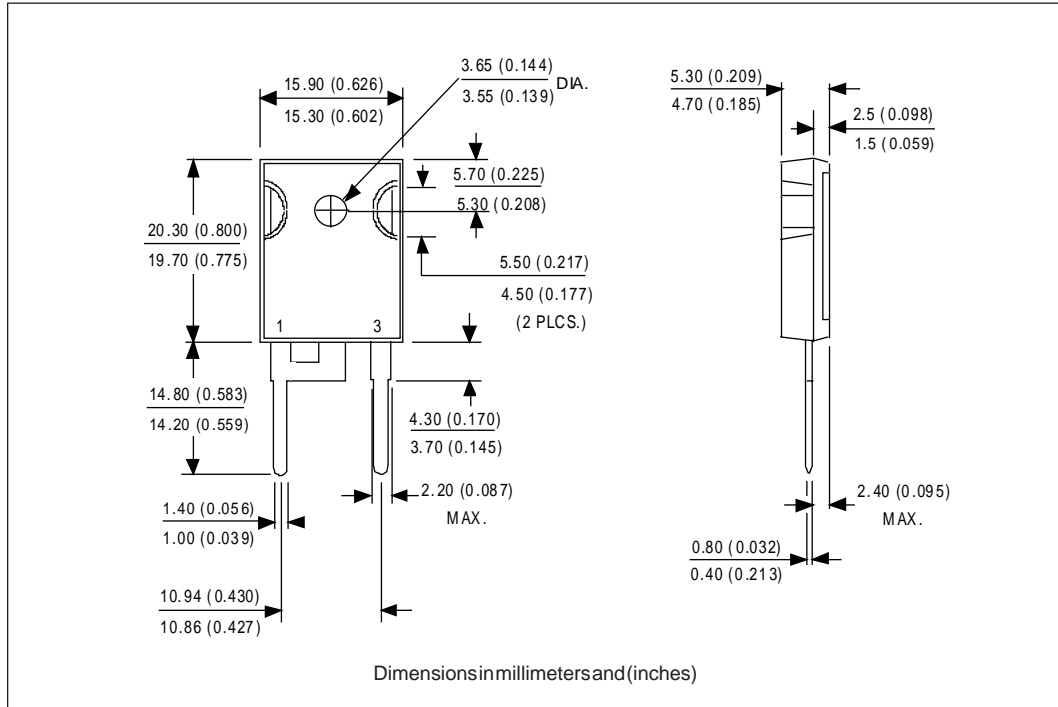


Fig. 14 - Thermal Impedance  $Z_{thJC}$  Characteristics

Outline Table



Ordering Information Table

Device Code				
60	E	P	F	06
①	②	③	④	⑤

- 1** - Current Rating
- 2** - Circuit Configuration:  
E = Single Diode
- 3** - Package:  
P = TO-247AC (Modified)
- 4** - Type of Silicon:  
F = Fast Recovery
- 5** - Voltage code: Code x 100 =  $V_{RRM}$

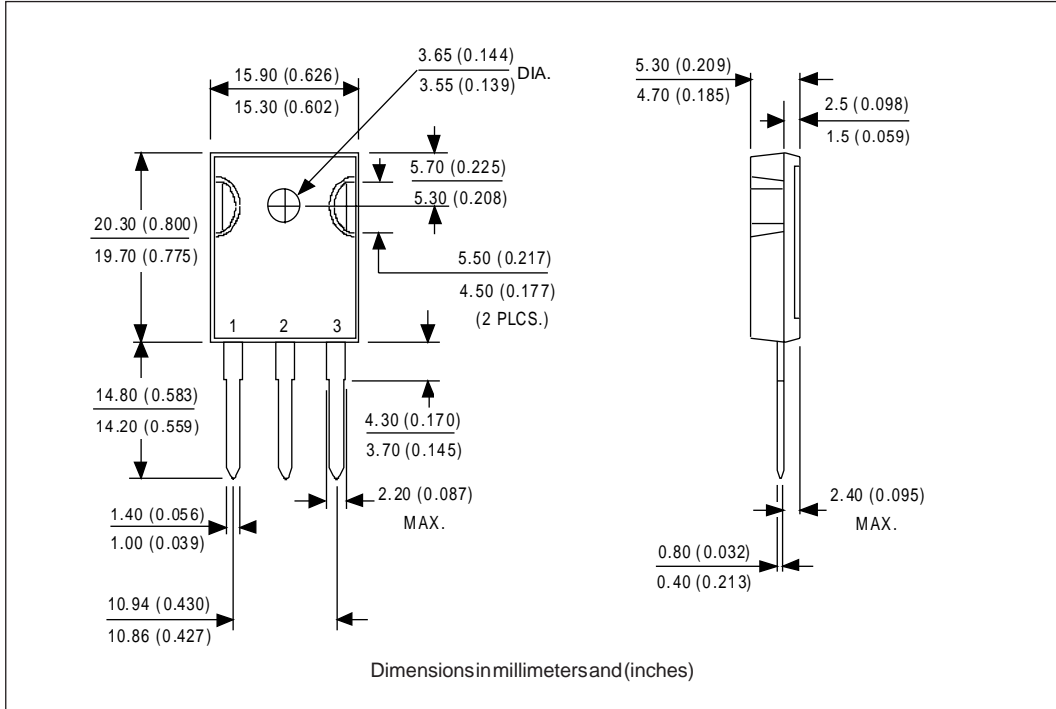
02 = 200V  
04 = 400V  
06 = 600V

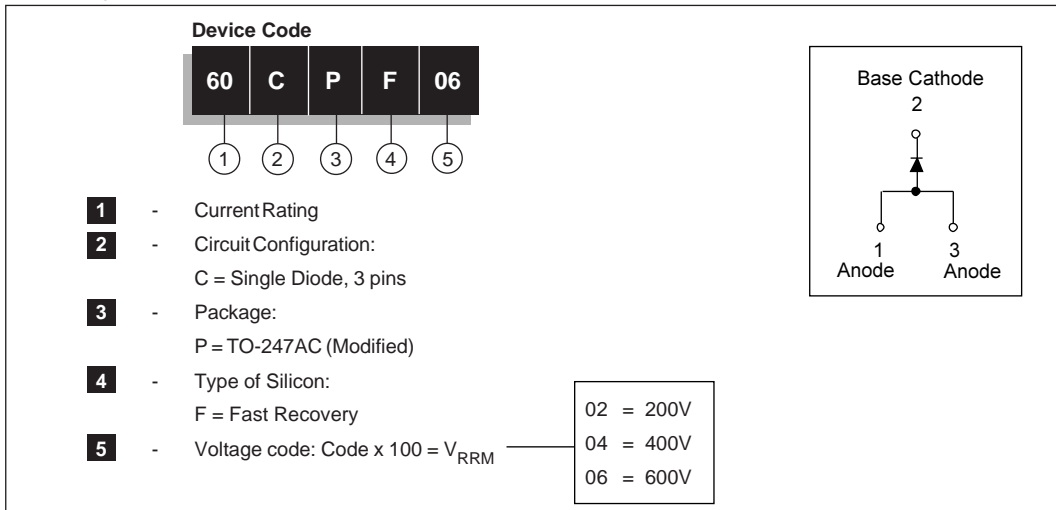
BASE  
CATHODE

CATHODE    ANODE

Outline Table



Ordering Information Table





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**IR CANADA:** 15 Lincoln Court, Brampton, Markham, Ontario L6T3Z2. Tel: (905) 453 2200. Fax: (905) 475 8801.  
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