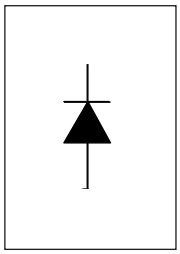
Bulletin I2154 rev. B 06/00

International
IOR Rectifier

QUIETIR Series
70EPF..

FAST SOFT RECOVERY RECTIFIER DIODE



V_F< 1.33V @ 70A
t_{rr} = 70ns
V_{RRM}200/600V

Major Ratings and Characteristics

Characteristics	70EPF..	Units
$I_{F(AV)}$ 180° Sin. Conduction @ T_C = 97° C	70	A
V_{RRM} range	200/600	V
$I_{F(RMS)}$	135	A
V_F @ 70A, T_J=25°C	1.33	V
t_{rr} @ 1A, -100A/µs	70	ns
T_J range	-40 to 150	°C

Description/Features

The 70EPF.. 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.

Available in the new PowIRtab™ package, this new series is suitable for a large range of applications combining excellent die to footprint ratio and sturdeness connectivity for use in high current environments.

Typical applications are both:

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

Case Styles

70EPF..

70EPF..J

(*) for higher voltage up to 1600V contact factory

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
70EPF02	200	300	13
70EPF04	400	500	
70EPF06	600	700	

Absolute Maximum Ratings

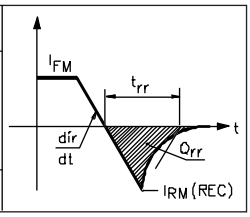
	Parameters	70EPF..	Units	Conditions
$I_{F(AV)}$	Max. Average Forward Current	70	A	@ T_C=97°C, 180° conduction half sine wave
I_{FSM}	Max. Peak One Cycle Non-Repetitive	850	A	10ms Sine pulse, rated V_{RRM} applied
	Surge Current	1000		10ms Sine pulse, no voltage reapplied
I^2t	Max. I^2t for fusing	3600	A^2s	10ms Sine pulse, rated V_{RRM} applied
		5100		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for fusing	51000	$A^2\sqrt{s}$	10ms, no voltage reapplied

Electrical Specifications

	Parameters	70EPF..	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop	1.33	V	@ 70A, T_J = 25°C	
r_t	Forward slope resistance	3.65	mΩ	T_J = 150°C	
$V_{F(TO)}$	Threshold voltage	0.918	V		
I_{RM}	Max. Reverse Leakage Current	0.1	mA	T_J = 25 °C	V_R = rated V_{RRM}
		13		T_J = 150 °C	

Recovery Characteristics

	Parameters	70EPF..	Units	Conditions
t_{rr}	Reverse Recovery Time	200	ns	I_F @ 70Apk
I_{rr}	Reverse Recovery Current	4	A	@ 25A/ µs
Q_{rr}	Reverse Recovery Charge	0.67	µC	@ 25°C
S	Snap Factor	0.5		



Thermal-Mechanical Specifications

	Parameters		70EPF..	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		0.35	°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

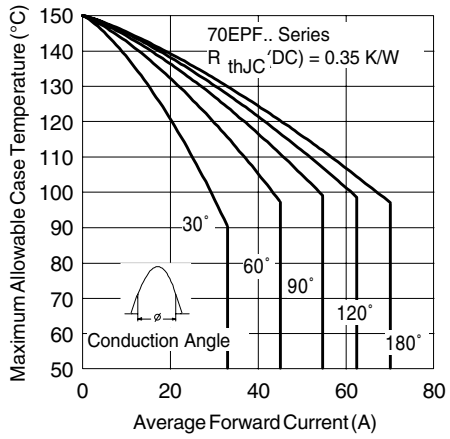


Fig. 1 - Current Rating Characteristics

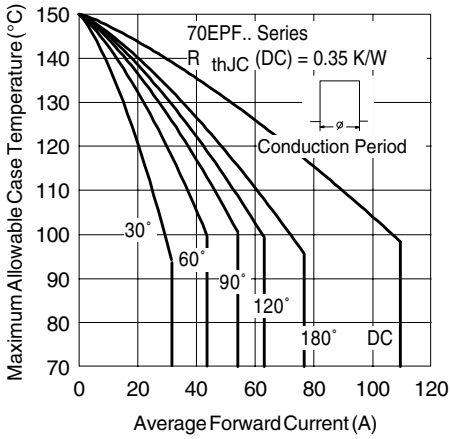


Fig. 2 - Current Rating Characteristics

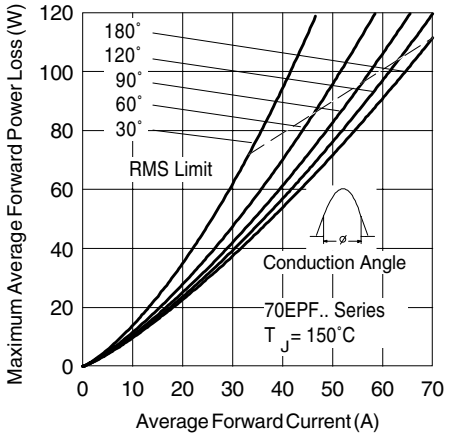


Fig. 3 - Forward Power Loss Characteristics

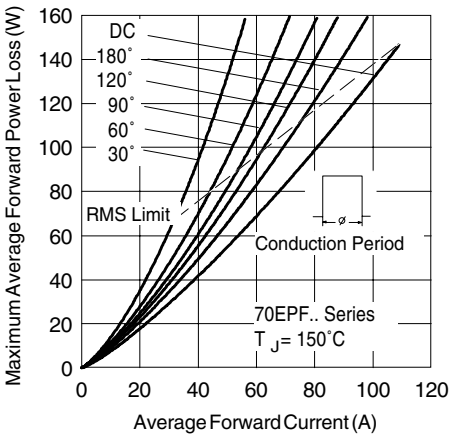


Fig. 4 - Forward Power Loss Characteristics

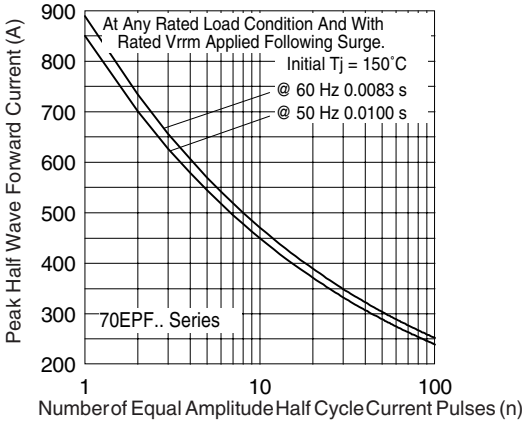


Fig.5-Maximum Non-Repetitive Surge Current

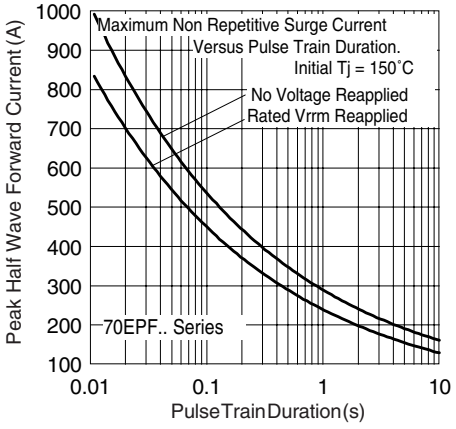


Fig.6-Maximum Non-Repetitive Surge Current

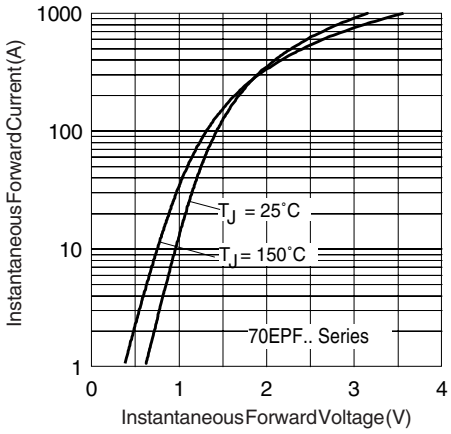


Fig.7-Forward Voltage Drop Characteristics

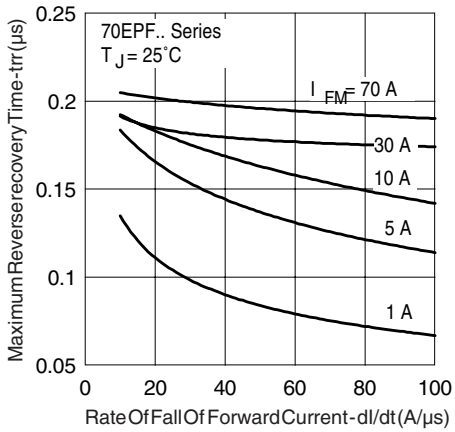


Fig.8-Recovery Time Characteristics, T_J=25°C

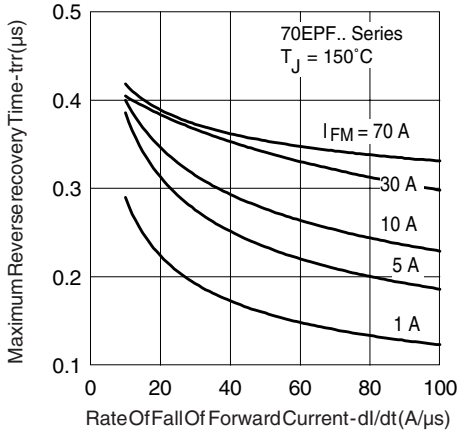


Fig.9-Recovery Time Characteristics, T_J=150°C

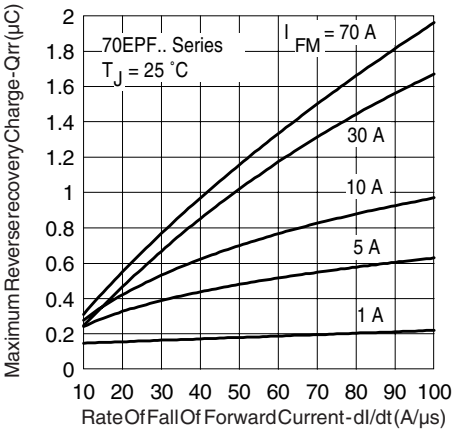


Fig. 10 - Recovery Charge Characteristics, T_J=25°C

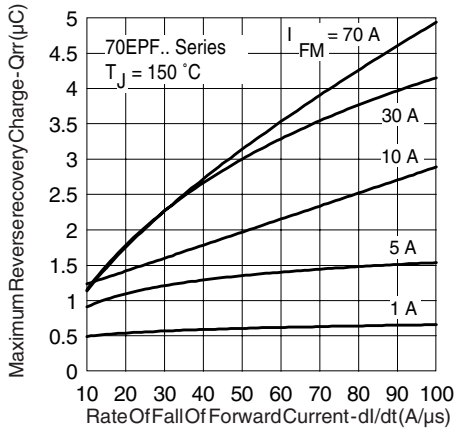


Fig. 11 - Recovery Charge Characteristics, T_J=150°C

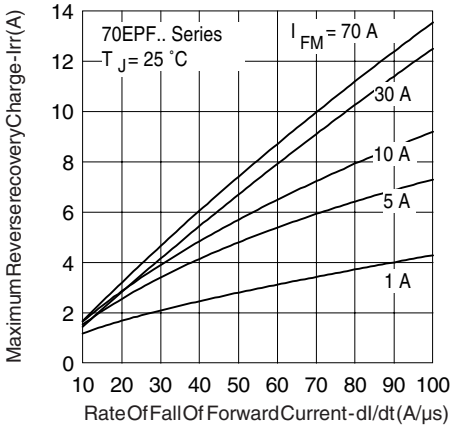


Fig. 12 - Recovery Current Characteristics, T_J=25°C

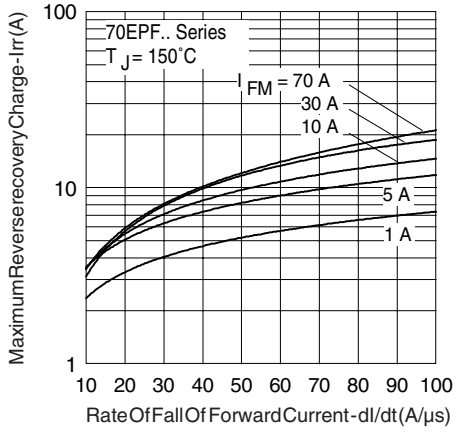


Fig. 13 - Recovery Current Characteristics, T_J=150°C

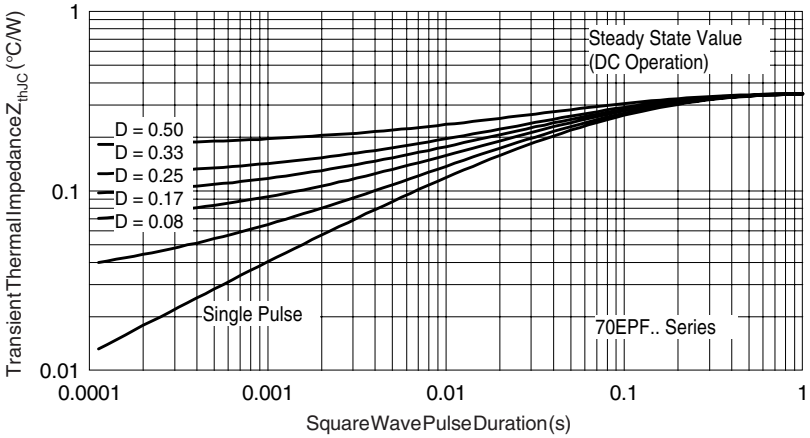
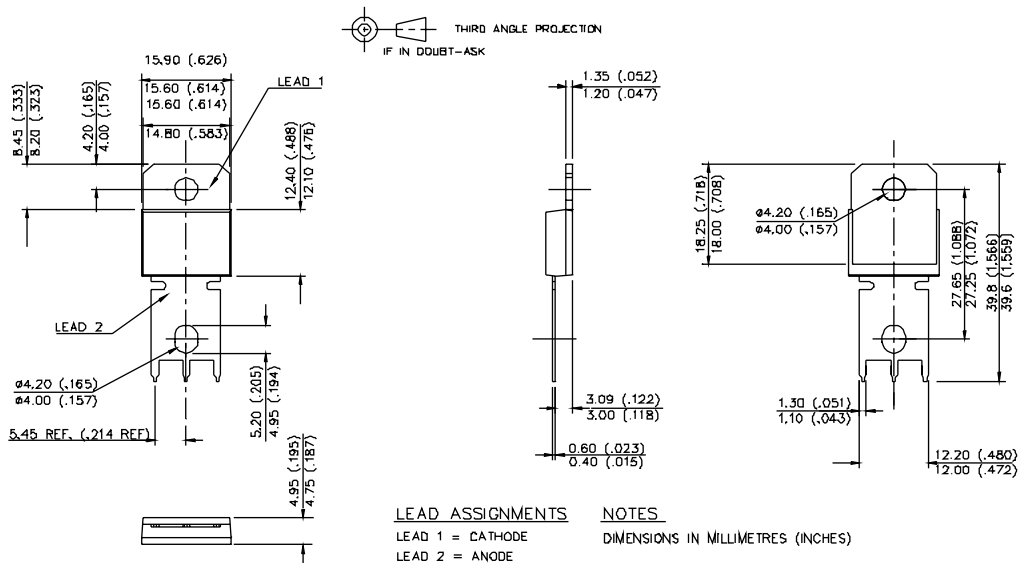
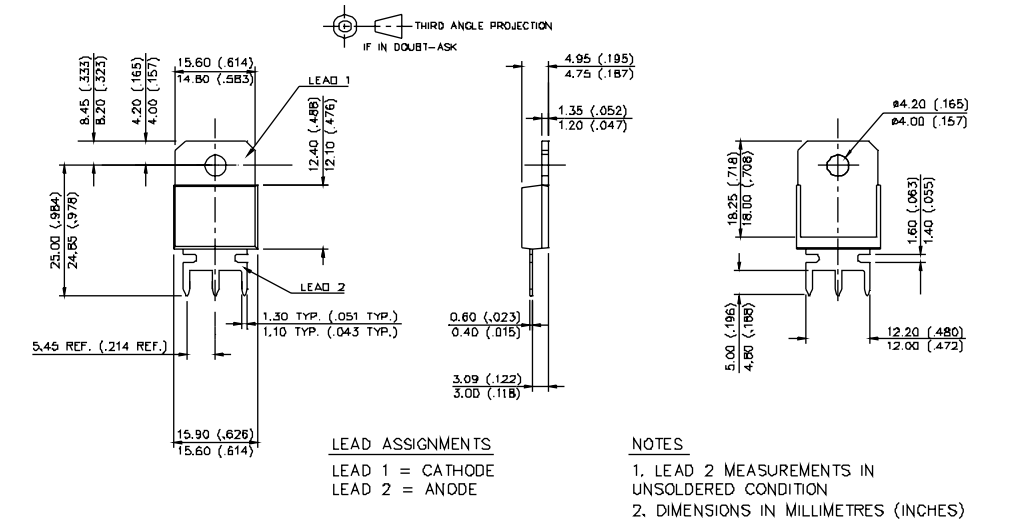


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



Case Style PowIRtab™
Dimensions in millimeters and (inches)

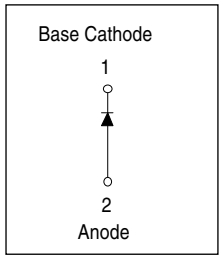


Case Style PowIRtab™ "J" version
Dimensions in millimeters and (inches)

Ordering Information Table

Device Code

70	E	P	F	06	J
1	2	3	4	5	6



1 - Current Rating

2 - Circuit Configuration:
E = Single Diode

3 - Package:
P = TO-247AC

4 - Type of Silicon:
F = Fast Recovery

5 - Voltage code: Code x 100 = V_{RRM} (*)

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

6 - none = PowIRtab™ standard
J = Short Lead Version

(*) for higher voltage up to 1600V contact factory

International
IOR Rectifier

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