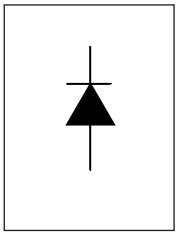
International
IOR Rectifier

*QUIET**IR*** Series
80EPF.. HV

FAST SOFT RECOVERY RECTIFIER DIODE



V_F < 1.2 V @ 40A
t_{rr} = 90 ns
V_{RRM} 1000 to 1200V

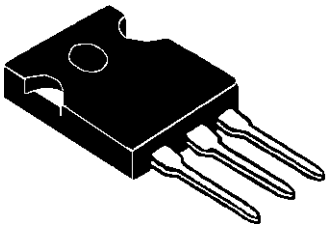
Description/Features

The 80EPF.. fast soft recovery *QUIET**IR*** 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	80EPF..	Units
$I_{F(AV)}$ Sinusoidal waveform	80	A
V_{RRM}	1000 to 1200	V
I_{FSM}	1100	A
V_F @40A, T_J = 25°C	1.2	V
trr @1A, -100A/µs	90	ns
T_J	-40 to 150	°C



TO-247AC

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
80EPF10	1000	1100	12
80EPF12	1200	1300	

Absolute Maximum Ratings

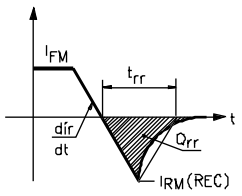
	Parameters	80EPF..	Units	Conditions
$I_{F(AV)}$	Max. Average Forward Current	80	A	@ T_C = 92°C, 180° conduction half sine wave
I_{FSM}	Max. Peak One Cycle Non-Repetitive	1100	A	10ms Sine pulse, rated V_{RRM} applied
	Surge Current	1250		10ms Sine pulse, no voltage reapplied
I^2t	Max. I^2t for fusing	5000	A^2s	10ms Sine pulse, rated V_{RRM} applied
		7000		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for fusing	70000	$A^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied

Electrical Specifications

	Parameters	80EPF..	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop	1.35	V	@ 80A, T_J = 25°C	
r_t	Forward slope resistance	4.03	mΩ	T_J = 150°C	
$V_{F(TO)}$	Threshold voltage	0.87	V		
I_{RM}	Max. Reverse Leakage Current	0.1	mA	T_J = 25 °C	V_R = rated V_{RRM}
		12		T_J = 150 °C	

Recovery Characteristics

	Parameters	80EPF..	Units	Conditions
t_{rr}	Reverse Recovery Time	480	ns	I_F @ 80Apk
I_{rr}	Reverse Recovery Current	7.1	A	@ 25A/ µs
Q_{rr}	Reverse Recovery Charge	2.1	µC	@ 25°C
S	Snap Factor	0.5		



Thermal-Mechanical Specifications

	Parameters		80EPF..	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

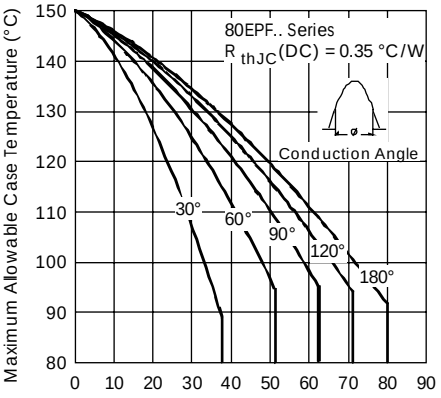


Fig.1-Current Rating Characteristics

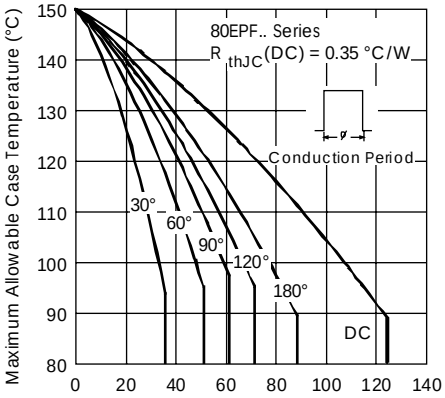


Fig.2-Current Rating Characteristics

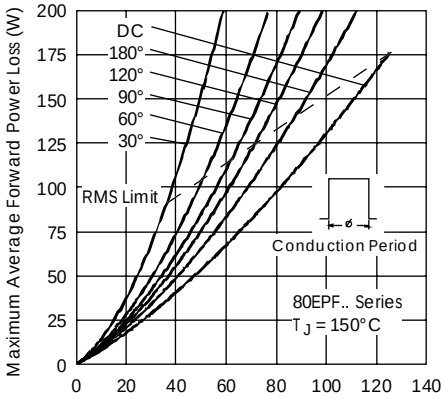


Fig.3-Forward Power Loss Characteristics

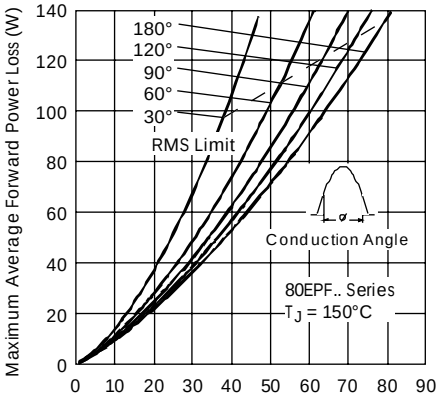


Fig.4-Forward Power Loss Characteristics

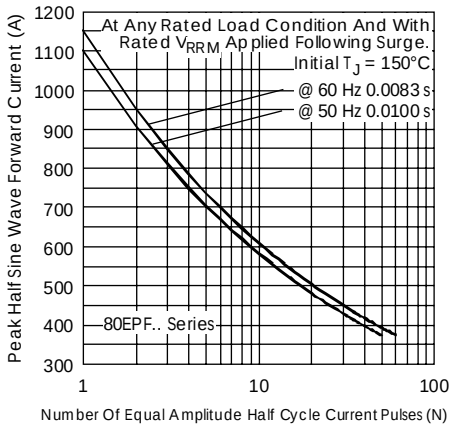


Fig. 5 - Maximum Non-Repetitive Surge Current

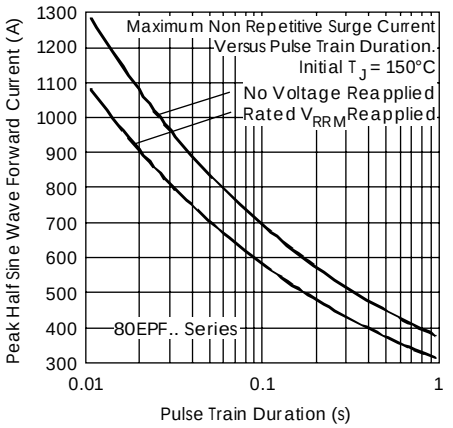


Fig. 6 - Maximum Non-Repetitive Surge Current

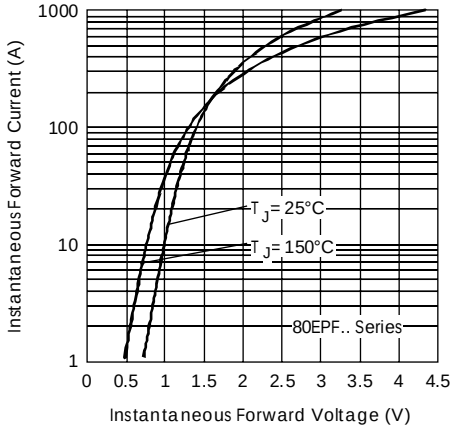


Fig. 7 - Forward Voltage Drop Characteristics

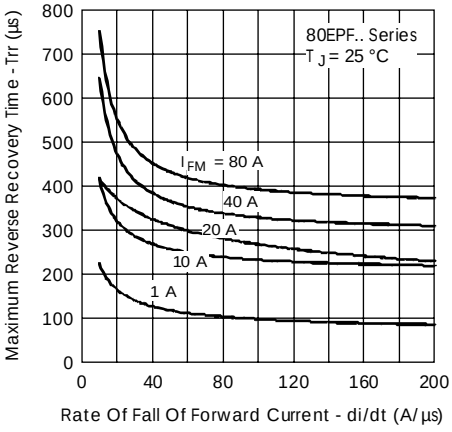


Fig. 8 - Recovery Time Characteristics, T_J = 25°C

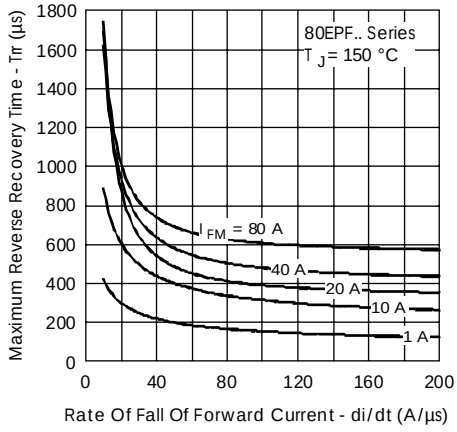


Fig. 9 - Recovery Time Characteristics, T_J = 150°C

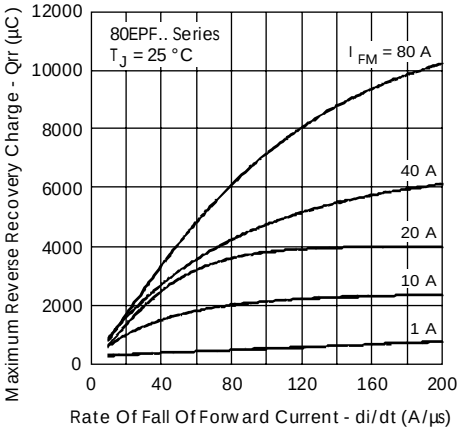


Fig. 10 - Recovery Charge Characteristics, T_J=25°C

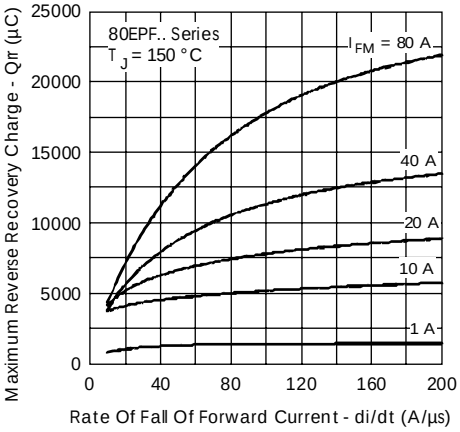


Fig. 11 - Recovery Charge Characteristics, T_J=150°C

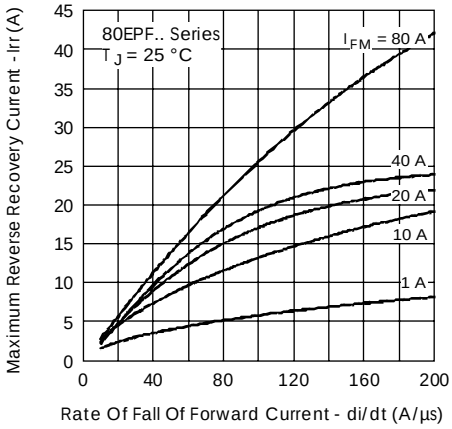


Fig. 12 - Recovery Current Characteristics, T_J=25°C

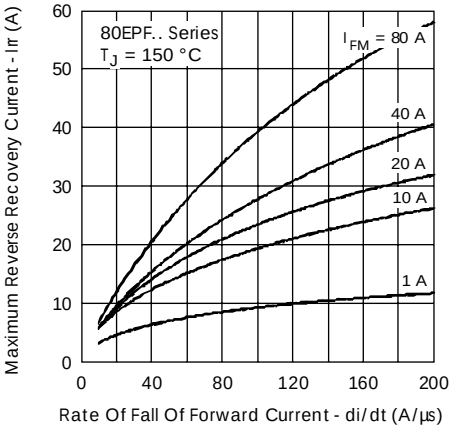


Fig. 13 - Recovery Current Characteristics, T_J=150°C

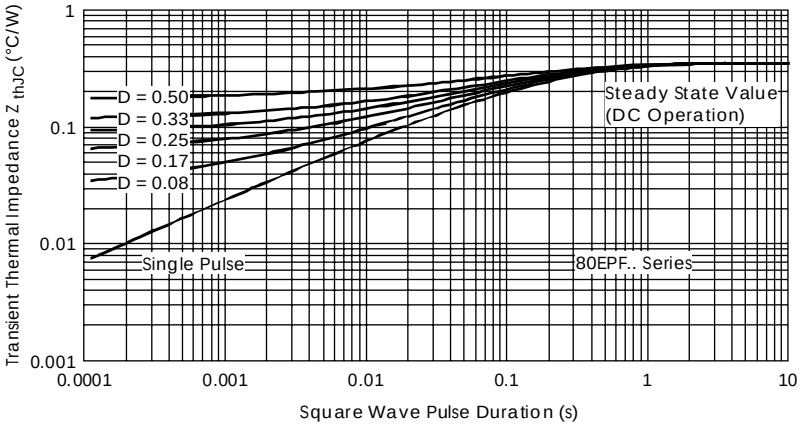
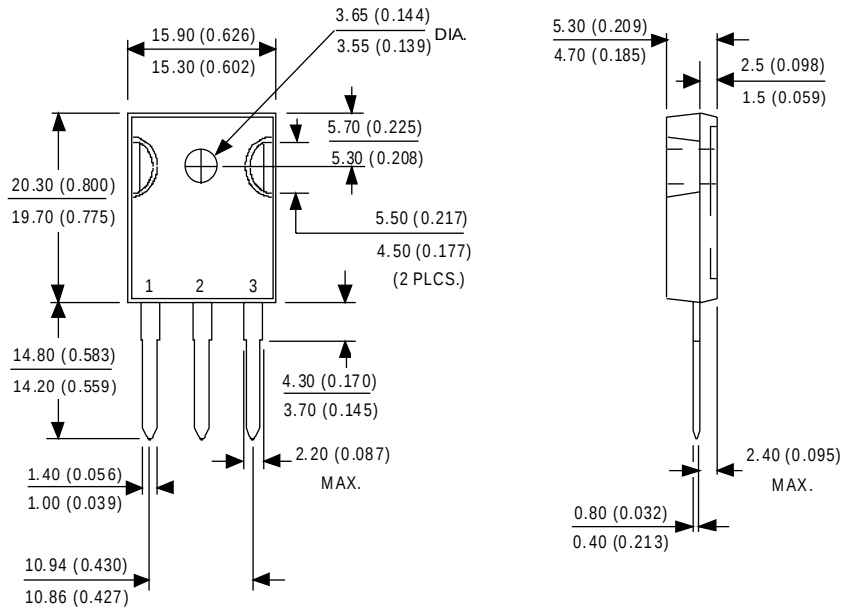


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics

Outline Table

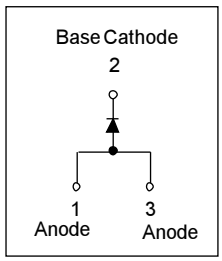


Dimensions in millimeters and inches

Ordering Information Table

Device Code

80	E	P	F	12
1	2	3	4	5



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}

10	=	1000V
12	=	1200V

International
IOR Rectifier

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IR FAR EAST: K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo, Japan 171 Tel: 81 3 3983 0086 Fax: 81 3 3983 0642
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