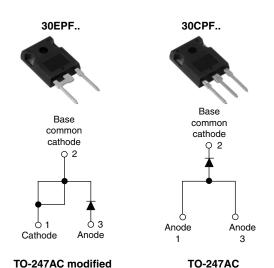


Vishay High Power Products

Fast Soft Recovery Rectifier Diode, 30 A



PRODUCT SUMMARY				
V _F at 10 A	< 1.2 V			
t _{rr}	60 ns			
V_{RRM}	200 V to 600 V			

FEATURES/DESCRIPTION

The 30EPF..PbF and 30CPF..PbF soft recovery rectifier series has been optimized for combined short reverse recovery time and low forward voltage drop.



RoHS*

The glass passivation ensures stable reliable operation in the most severe temperature and power cycling conditions.

30CPF series is a drop in replacement for 25CPF series (parallel connection only).

This product series has been designed and qualified for industrial level.

Compliant to RoHS directive 2002/95/EC.

APPLICATIONS

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

MAJOR RATINGS AND CHARACTERISTICS					
SYMBOL	CHARACTERISTICS	VALUES	UNITS		
I _{F(AV)}	Sinusoidal waveform	30	Α		
V _{RRM}		200 to 600	V		
I _{FSM}		350	Α		
V _F	10 A, T _J = 25 °C	1.2	V		
t _{rr}	1 A, 100 A/µs	60	ns		
T _J		- 40 to 150	°C		

VOLTAGE RATINGS					
PART NUMBER	V _{RRM} , MAXIMUM PEAK REVERSE VOLTAGE V	V _{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I _{RRM} AT 150 °C mA		
30EPF02PbF, 30CPF02PbF	200	300			
30EPF04PbF, 30CPF04PbF	400	500	2		
30EPF06PbF, 30CPF06PbF	600	700			

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current	I _{F(AV)}	T _C = 98 °C, 180° conduction half sine wave	30		
Maximum peak one cycle	ı	10 ms sine pulse, rated V _{RRM} applied	300	Α	
non-repetitive surge current	I _{FSM}	10 ms sine pulse, no voltage reapplied	350		
Maximum I ² t for fusing	I ² t	10 ms sine pulse, rated V _{RRM} applied	450	A ² s	
Maximum i-t for fusing		10 ms sine pulse, no voltage reapplied	636	A-5	
Maximum l ² √t for fusing	I²√t	t = 0.1 ms to 10 ms, no voltage reapplied	6360	A²√s	

^{*} Pb containing terminations are not RoHS compliant, exemptions may apply

Document Number: 94100 Revision: 09-Dec-09 For technical questions, contact: diodestech@vishay.com

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ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum forward voltage drop	V_{FM}	30 A, T _J = 25 °C		1.41	V	
Forward slope resistance	r _t	T _J = 150 °C		12.5	mΩ	
Threshold voltage	V _{F(TO)}			0.9	V	
Maximum vayaya ladkaga ayyyart		T _J = 25 °C	V Dated V	0.1	mA	
Maximum reverse leakage current	I _{RM}	T _J = 150 °C	V _R = Rated V _{RRM}	2.0	ША	

RECOVERY CHARACTERISTICS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	. 🛉
Reverse recovery time	t _{rr}	I _F at 20 Apk	160	ns	I _{FM} +
Reverse recovery current	I _{rr}	100 A/μs	10	Α	$t_a \mid t_b$
Reverse recovery charge	Q _{rr}	25 °C	1.25	μC	dir/ dt Q
Snap factor	S	Typical	0.6		I _{RM(REC)}

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and sto temperature range	orage	T _J , T _{Stg}		- 40 to 150	°C
Maximum thermal resistar junction to case	nce,	R _{thJC}	DC operation	0.8	
Maximum thermal resistar junction to ambient	nce,	R _{thJA}		40	°C/W
Maximum thermal resistar case to heatsink	nce,	R _{thCS}	Mounting surface, smooth and greased	0.2	
A nove vimente vyeight				6	g
Approximate weight				0.21	OZ.
Mounting torque minimum maximum				6 (5)	kgf · cm
				12 (10)	(lbf · in)
				30EPS02, 30CPF02	
Marking device			Case style TO-247AC modified (JEDEC)	30EPS04, 30CPF04	
				30EPS06,	30CPF06



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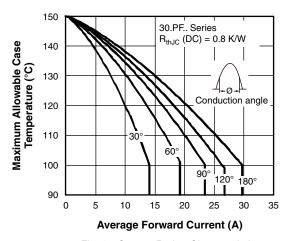


Fig. 1 - Current Rating Characteristics

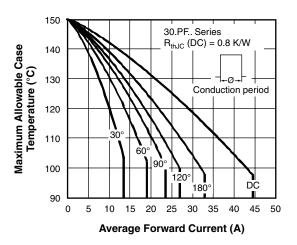


Fig. 2 - Current Rating Characteristics

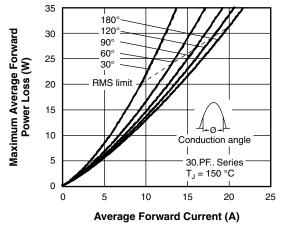


Fig. 3 - Forward Power Loss Characteristics

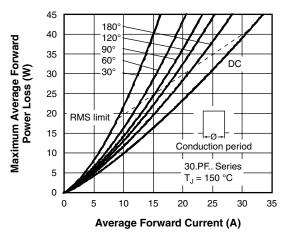
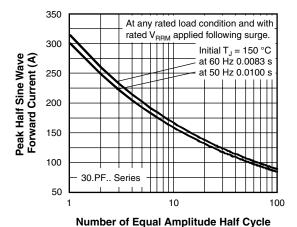


Fig. 4 - Forward Power Loss Characteristics



Current Pulses (N)
Fig. 5 - Maximum Non-Repetitive Surge Current

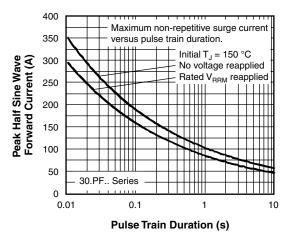


Fig. 6 - Maximum Non-Repetitive Surge Current

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Fast Soft Recovery Rectifier Diode, 30 A



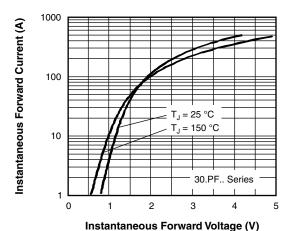


Fig. 7 - Forward Voltage Drop Characteristics

4.0

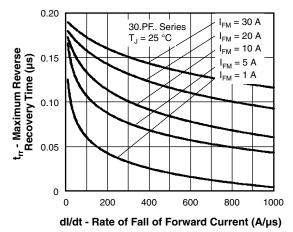


Fig. 8 - Recovery Time Characteristics, T_J = 25 °C

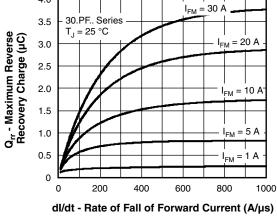


Fig. 10 - Recovery Charge Characteristics, T_J = 25 °C

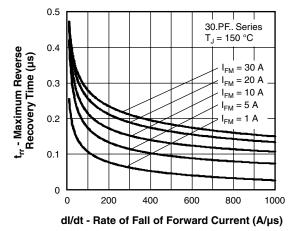
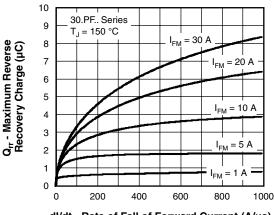


Fig. 9 - Recovery Time Characteristics, T_J = 150 °C



dl/dt - Rate of Fall of Forward Current (A/µs)

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



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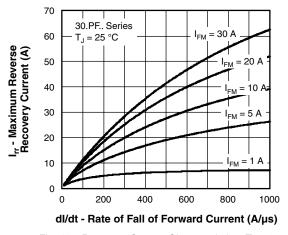


Fig. 12 - Recovery Current Characteristics, $T_J = 25~^{\circ}C$

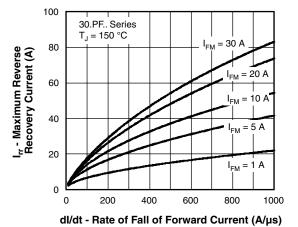


Fig. 13 - Recovery Current Characteristics, T_J = 150 °C

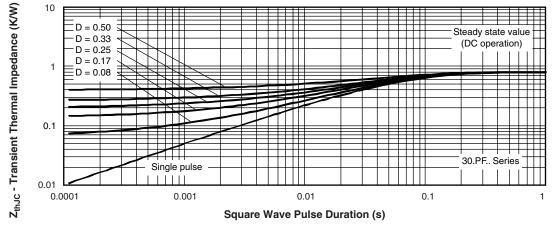


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics

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Fast Soft Recovery Rectifier Diode, 30 A



ORDERING INFORMATION TABLE

Ρ F PbF **Device code** 30 Ε 06 (2) (4) (5) (3) (6) Current rating (30 = 30 A) Circuit configuration: E = Single diode C = Single diode, 3 pins 3 Package: P = TO-247AC (modified) 4 Type of silicon:

		F = Fast recovery	02 = 200 V
5	-	Voltage code x 100 = V _{RRM} ———	04 = 400 V
6	_	None = Standard production	06 = 600 V

• PbF = Lead (Pb)-free

LINKS TO RELATED DOCUMENTS				
Dimensions	TO-247AC modified	www.vishay.com/doc?95253		
Dimensions	TO-247AC	www.vishay.com/doc?95223		
Deut annulin a information	TO-247AC modified	www.vishay.com/doc?95255		
Part marking information	TO-247AC	www.vishay.com/doc?95226		

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