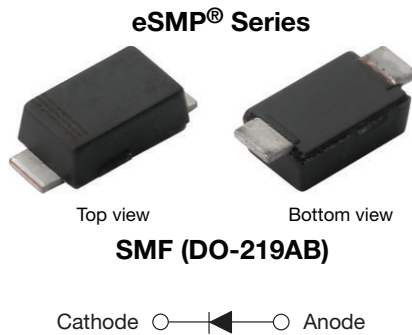


## Hyperfast Rectifier, 2 A FRED Pt<sup>®</sup>



### LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 A
$V_R$	200 V
$V_F$ at $I_F$ (typ. 125 °C)	0.75 V
$t_{rr}$	25 ns
$T_J$ max.	175 °C
Package	SMF (DO-219AB)
Circuit configuration	Single

### FEATURES

- Hyperfast recovery time, reduced  $Q_{rr}$ , and soft recovery
- 175 °C maximum operating junction temperature
- Specified for output and snubber operation
- Low forward voltage drop
- Low leakage current
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Meets JESD 201 class 2 whisker test
- Wave and reflow solderable
- Compatible to SOD-123W package case outline
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### DESCRIPTION / APPLICATIONS

State of the art hyperfast recovery rectifiers designed with optimized performance of forward voltage drop and hyperfast recovery.

The planar structure and the platinum doped life time control guarantee the best overall performance, ruggedness, and reliability characteristics.

These devices are intended for use in snubber boost, lighting, as high frequency rectifiers, and freewheeling diodes.

Their extremely optimized stored charge and low recovery current minimize the switching losses and reduce power dissipation in the switching element.

### MECHANICAL DATA

**Case:** SMF (DO-219AB)

Molding compound meets UL 94 V-0 flammability rating  
Halogen-free, RoHS-compliant

**Terminals:** matte tin plated leads, solderable per J-STD-002

**Polarity:** color band denotes cathode end

ABSOLUTE MAXIMUM RATINGS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Peak repetitive reverse voltage	$V_{RRM}$		200	V
Average rectified forward current	$I_{F(AV)}$	$T_C = 150$ °C <sup>(1)</sup>	2	A
Non-repetitive peak surge current	$I_{FSM}$	$T_J = 25$ °C	50	
Operating junction and storage temperature range	$T_J, T_{Stg}$		-65 to +175	°C

#### Note

<sup>(1)</sup> Device on PCB with 8 mm x 16 mm soldering lands



ELECTRICAL SPECIFICATIONS (T <sub>J</sub> = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Breakdown voltage, blocking voltage	V <sub>BR</sub> , V <sub>R</sub>	I <sub>R</sub> = 100 μA	200	-	-	V
Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 2 A I <sub>F</sub> = 2 A, T <sub>J</sub> = 125 °C	-	0.88 0.75	0.95 0.82	
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> = V <sub>R</sub> rated T <sub>J</sub> = 125 °C, V <sub>R</sub> = V <sub>R</sub> rated	-	- 1	2 8	μA
Junction capacitance	C <sub>T</sub>	V <sub>R</sub> = 200 V	-	8	-	pF

DYNAMIC RECOVERY CHARACTERISTICS (T <sub>J</sub> = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Reverse recovery time	t <sub>rr</sub>	I <sub>F</sub> = 1 A, di <sub>F</sub> /dt = 50 A/μs, V <sub>R</sub> = 30 V	-	24	-	ns
		I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1 A, I <sub>rr</sub> = 0.25 A	-	-	25	
		T <sub>J</sub> = 25 °C	-	16	-	
		T <sub>J</sub> = 125 °C	-	22	-	
Peak recovery current	I <sub>RRM</sub>	T <sub>J</sub> = 25 °C	-	2	-	A
		T <sub>J</sub> = 125 °C	-	3	-	
Reverse recovery charge	Q <sub>rr</sub>	T <sub>J</sub> = 25 °C	-	16	-	nC
		T <sub>J</sub> = 125 °C	-	30	-	

THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Maximum junction and storage temperature range	T <sub>J</sub> , T <sub>Stg</sub>		-65	-	175	°C
Thermal resistance, junction to mount	R <sub>thJM</sub>	Device mounted on PCB with 8 mm x 16 mm soldering lands	-	-	15	°C/W
Thermal resistance, junction to ambient	R <sub>thJA</sub>	Device mounted on PCB with 2 mm x 3.5 mm soldering lands	-	-	130	°C/W
Approximate weight				0.015		g
				0.0005		oz.
Marking device		Case style SMF (DO-219AB)		MEH		

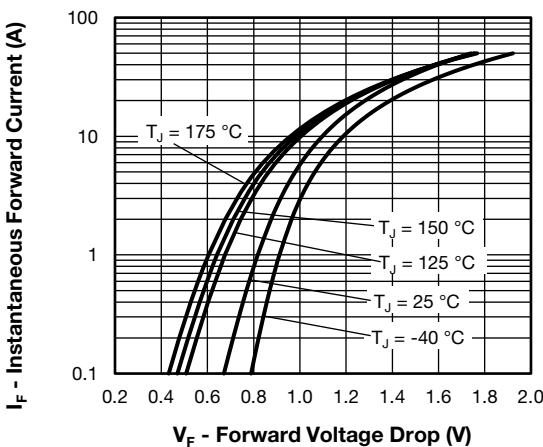


Fig. 1 - Typical Forward Voltage Drop Characteristics

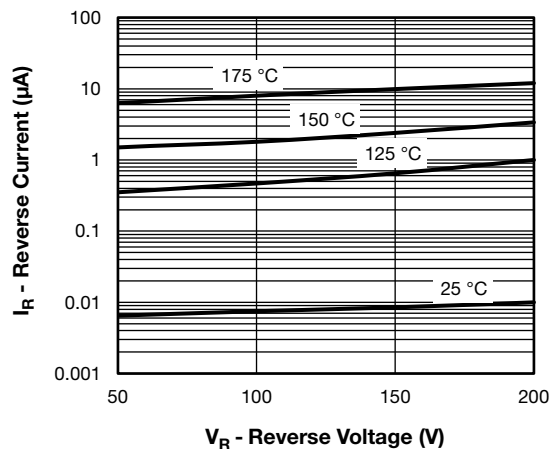


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

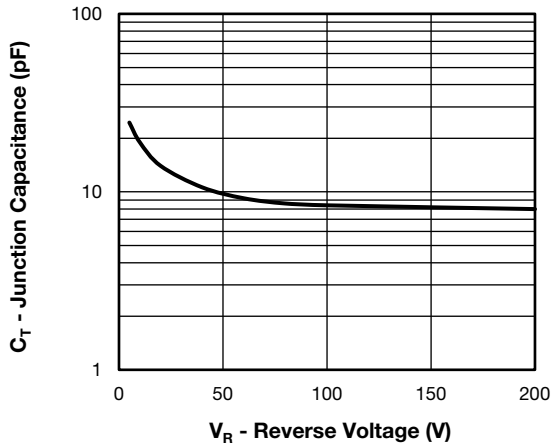


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

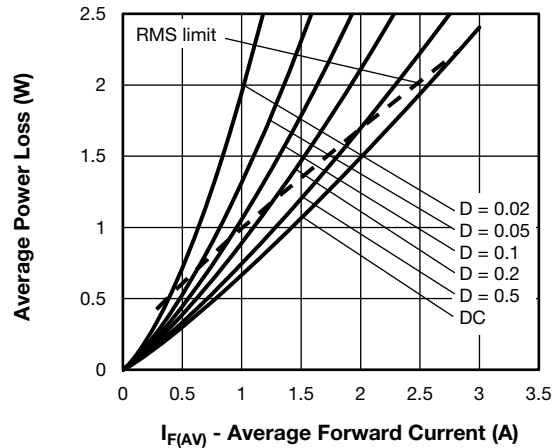


Fig. 5 - Forward Power Loss Characteristics

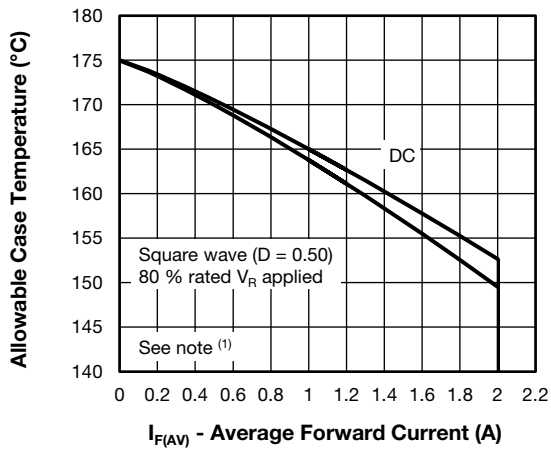


Fig. 4 - Maximum Allowable Case Temperature vs. Average Forward Current

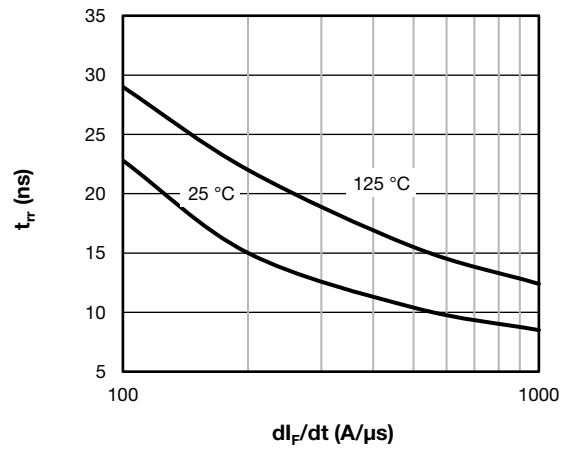


Fig. 6 - Typical Reverse Recovery Time vs.  $di_F/dt$

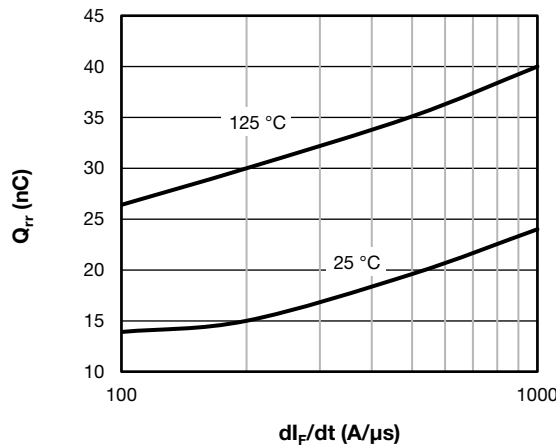


Fig. 7 - Typical Stored Charge vs.  $di_F/dt$

**Note**

(1) Formula used:  $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$ ;  
 $Pd$  = forward power loss =  $I_{F(AV)} \times V_{FM}$  at  $(I_{F(AV)}/D)$  (see fig. 5);  
 $Pd_{REV}$  = inverse power loss =  $V_{R1} \times I_R (1 - D)$ ;  $I_R$  at  $V_{R1}$  = rated  $V_R$



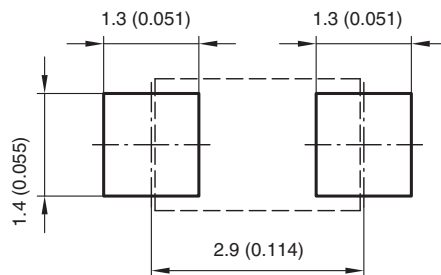


## SMF (DO-219AB)

**DIMENSIONS** in millimeters (inches)



Foot print recommendation:



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17247



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