

**FAST RECOVERY DIODE  
INSULATED MODULE**

**AFF450K**

Repetitive voltage up to **4500 V**  
Mean on-state current **448 A**  
Surge current **10 kA**

\*Full ermetic packaging  
\*Industrial compatible packaging  
\*Insulation using Aln substrate  
\*6kVrms insulation voltage available on request  
\*Contact screws available on request

**FINAL SPECIFICATION**

apr 17 - ISSUE : 2

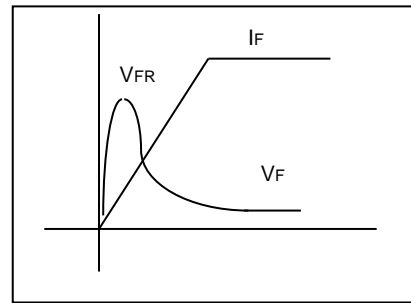
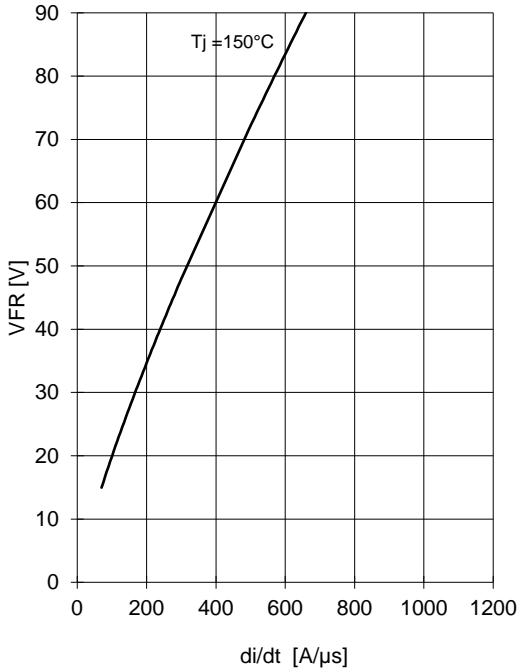
Symbol	Characteristic	Conditions	T <sub>j</sub> [°C]	Value	Unit
<b>BLOCKING</b>					
V <sub>RRM</sub>	Repetitive peak reverse voltage		150	4500	V
V <sub>RSM</sub>	Non-repetitive peak reverse voltage		150	4600	V
I <sub>RRM</sub>	Repetitive peak reverse current		150	50	mA
<b>CONDUCTING</b>					
I <sub>F(AV)</sub>	Mean on-state current	180° sin, 50Hz, T <sub>c</sub> =100°C		448,5	A
I <sub>F(AV)</sub>	Mean on-state current	180° sin. 50Hz, T <sub>c</sub> =55°C		703,3	A
I <sub>FSM</sub>	Surge on-state current	sine wave, 10 ms	150	10,0	kA
I <sup>2</sup> t	I <sup>2</sup> t	without reverse voltage		500 x1E3	A <sup>2</sup> s
V <sub>F</sub>	On-state voltage	On-state current = 1500 A	150	2,525	V
V <sub>F(TO)</sub>	Threshold voltage		150	1,40	V
r <sub>F</sub>	On-state slope resistance		150	0,750	mohm
Q <sub>rr</sub>	Reverse recovery charge	I <sub>F</sub> = 1000 A	150	1600	μC
I <sub>rr</sub>	Peak reverse recovery current	di/dt= 150 A/μs	150	500	A
t <sub>rr</sub>	Reverse recovery time	V <sub>R</sub> = 100 V	150	6,4	μs
V <sub>FR</sub>	Peak forward recovery	di/dt= 400 A/μs	150	60	μs
<b>MOUNTING</b>					
R <sub>th(j-c)</sub>	Thermal impedance	Junction to case, per element		50	°C/kW
R <sub>th(c-h)</sub>	Thermal impedance	Case to heatsink, per element		20	°C/kW
T <sub>j</sub>	Operating junction temperature			-30 / 150	°C
V <sub>ins</sub>	RMS insulation voltage	50Hz, circuit to base, all terminal shorted	25	4500	V
T	Mounting tourque	Case to heatsink		4 to 6	Nm
		Busbars to terminals		12 to 18	Nm
	Mass			1500	g

ORDERING INFORMATION : AFF450K S 45  
standard specification ———┐└ VRRM/100

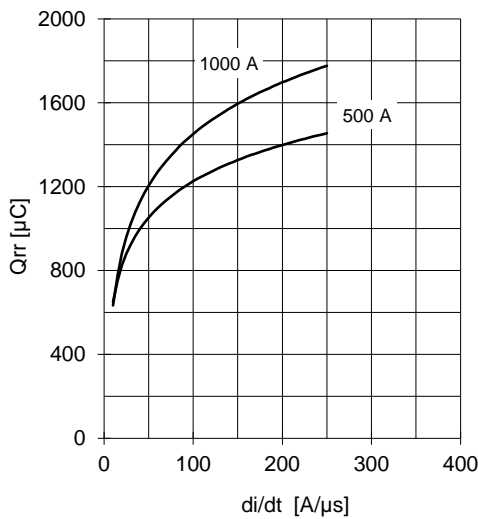
(\* ) 6000V available on request.  
Add HVI to the desired code in  
phase of order, i.e. AFF230HVIS26

**SWITCHING CHARACTERISTICS**

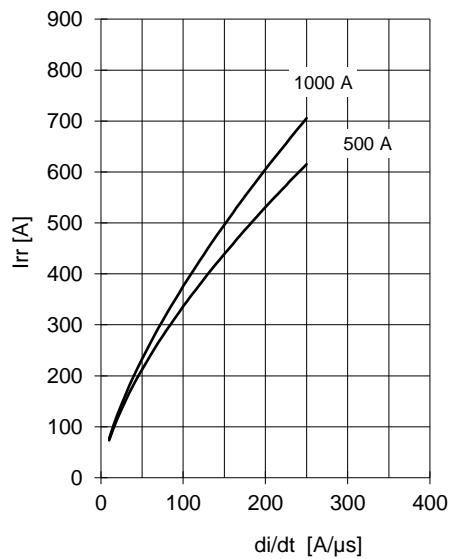
FORWARD RECOVERY VOLTAGE



REVERSE RECOVERY CHARGE  
Tj = 150 °C



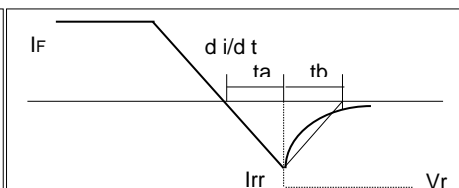
REVERSE RECOVERY CURRENT  
Tj = 150 °C



$$t_a = I_{rr} / (di/dt) \quad t_b = t_{rr} - t_a$$

$$\text{Softness (s factor)} \quad s = t_b / t_a$$

$$\text{Energy dissipation during recovery } E_r = V_r \cdot (Q_{rr} - I_{rr} \cdot t_a / 2)$$

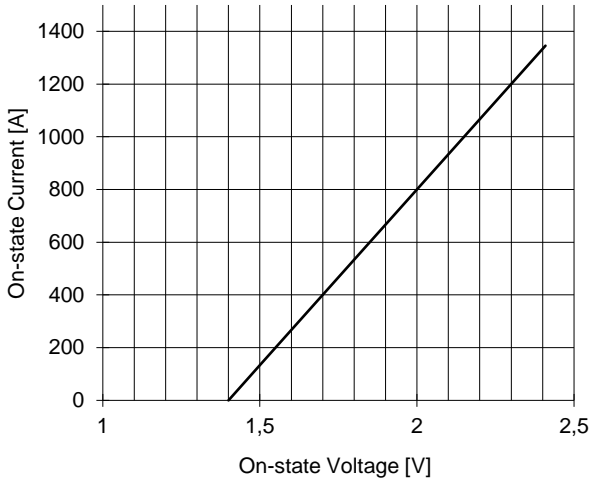


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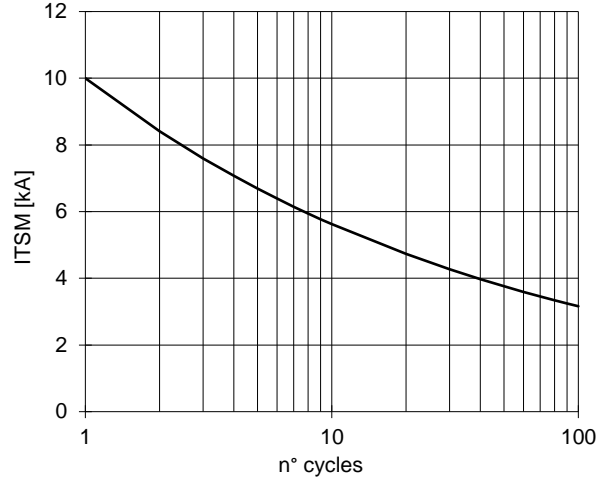


FINAL SPECIFICATION apr 17 - ISSUE : 2

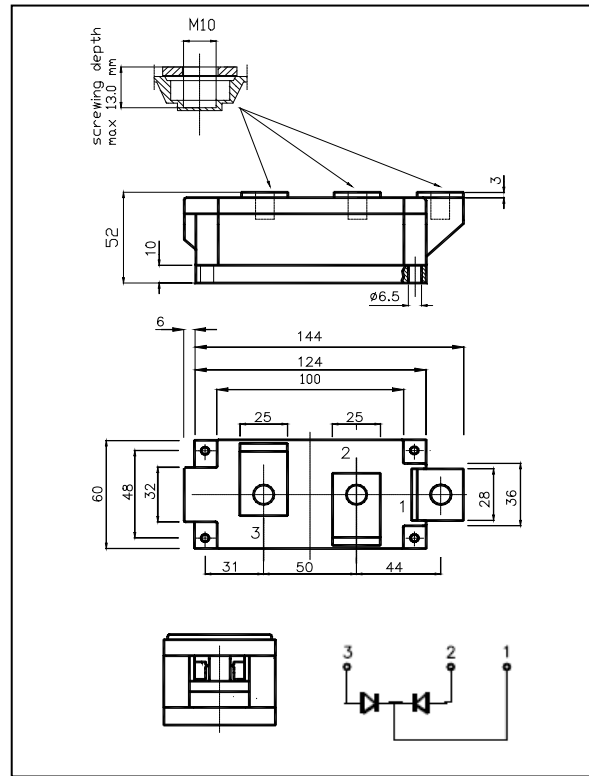
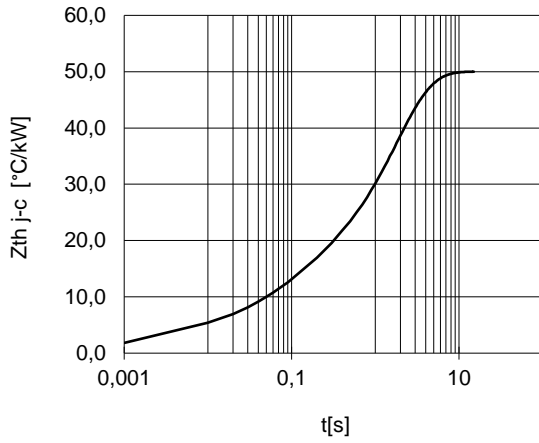
ON-STATE CHARACTERISTIC  
T<sub>j</sub> = 150 °C



SURGE CHARACTERISTIC  
T<sub>j</sub> = 150 °C



TRANSIENT THERMAL IMPEDANCE



All the characteristics given in this data sheet are guaranteed only with uniform clamping force, cleaned and lubricated heatsink, surfaces with flatness < .03 mm and roughness < 2 μm. In the interest of product improvement POSEICO SPA reserves the right to change any data given in this data sheet at any time without previous notice. If not stated otherwise the maximum value of ratings (symbols over shaded background) and characteristics is reported.

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