

FAST RECOVERY DIODE

ARF678

Repetitive voltage up to	4500 V
Mean forward current	1691 A
Surge current	27 kA

FINAL SPECIFICATION

June 17 - Issue: 3

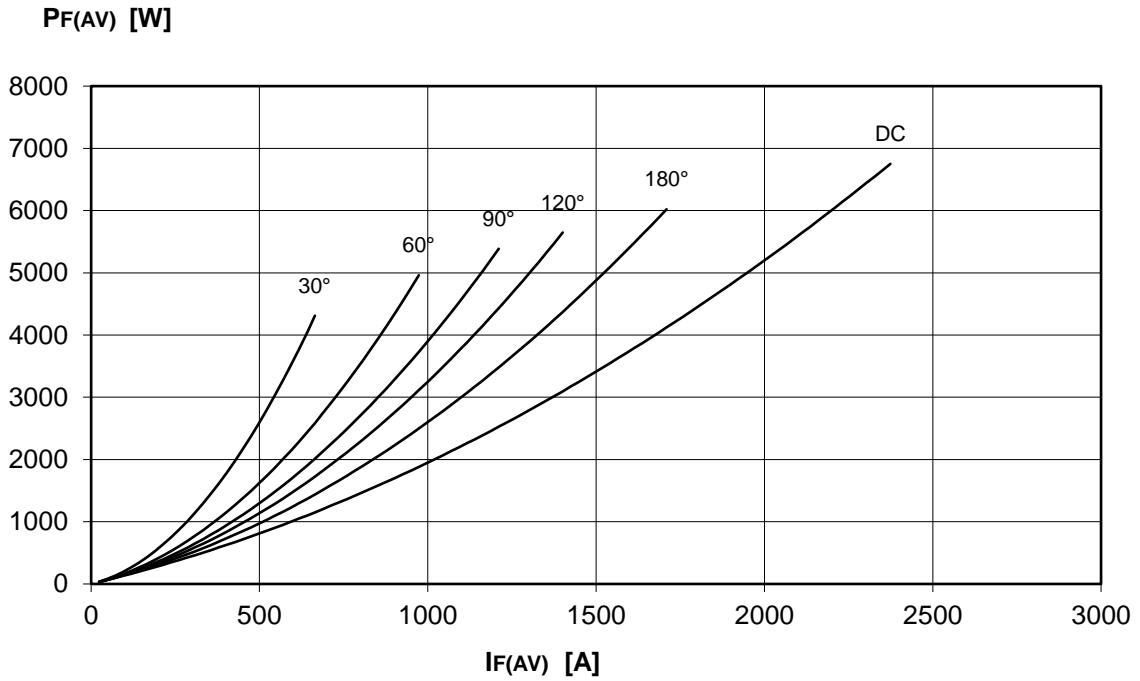
Symbol	Characteristic	Conditions	T _j [°C]	Value	Unit
BLOCKING					
V _{RRM}	Repetitive peak reverse voltage		150	4500	V
V _{RSM}	Non-repetitive peak reverse voltage		150	4600	V
I _{RRM}	Repetitive peak reverse current	V=VRRM	150	150	mA
CONDUCTING					
I _{F(AV)}	Mean forward current	180° sin, 50 Hz, Th=55°C, double side cooled		1691	A
I _{F(AV)}	Mean forward current	180°square, 50 Hz, Th=55°C, double side cooled		1729	A
I _{FSM}	Surge forward current	Sine wave, 10 ms riapped reverse voltage up to 50% VRSM	150	27	kA
I ² t	I ² t			3645 x 10 ³	A ² s
V _{FM}	Forward voltage	Forward current = 2000 A	25	2,40	V
V _{F(TO)}	Threshold voltage		150	1,30	V
r _F	Forward slope resistance		150	0,650	mohm
SWITCHING					
t _{rr}	Reverse recovery time	IF= 1000A di/dt= 250 A/μs VR= 50V	150	4,2	μs
Q _{rr}	Reverse recovery charge			1350	μC
I _{rr}	Peak reverse recovery current			650	A
s	Softness (s-factor), min			0,5	
V _{FR}	Peak forward recovery	di/dt = 400 A/μs	150	40	V
MOUNTING					
R _{th(j-h)}	Thermal impedance, DC	Junction to heatsink, double side cooled		14,0	°C/kW
R _{th(c-h)}	Thermal impedance	Case to heatsink, double side cooled		3,0	°C/kW
T _j	Operating junction temperature			-30 / 150	°C
F	Mounting force			35.0 / 40.0	kN
	Mass			850	g

ORDERING INFORMATION : ARF678 S 45

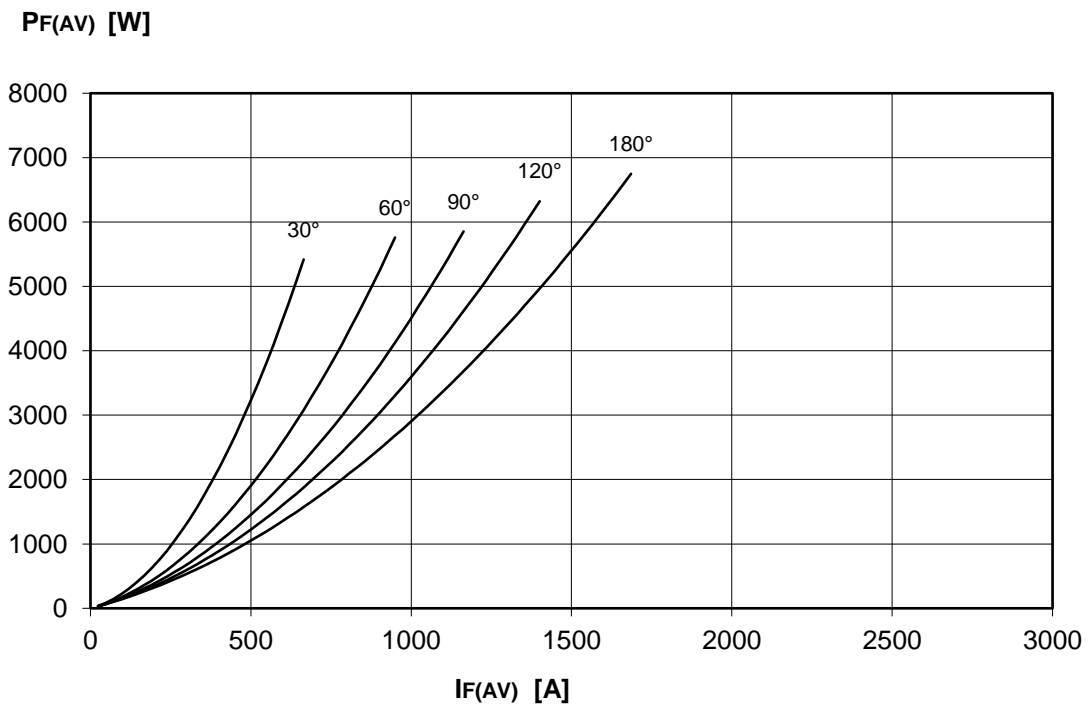
 standard specification VRRM/100

DISSIPATION CHARACTERISTICS

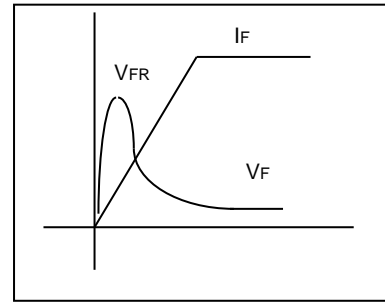
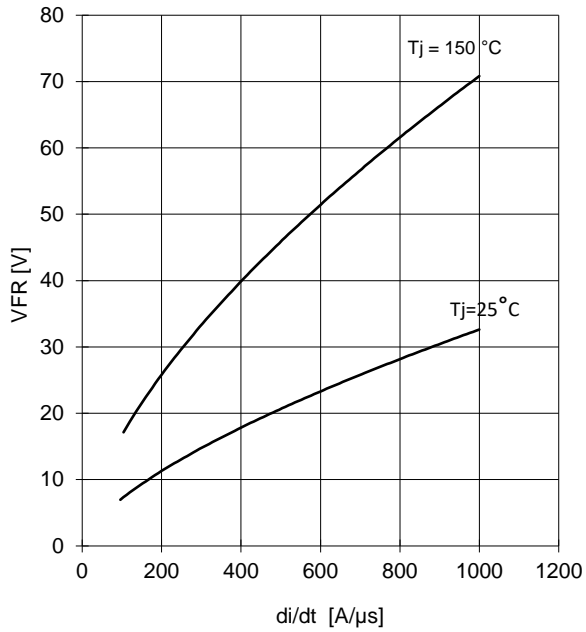
SQUARE WAVE (50Hz)



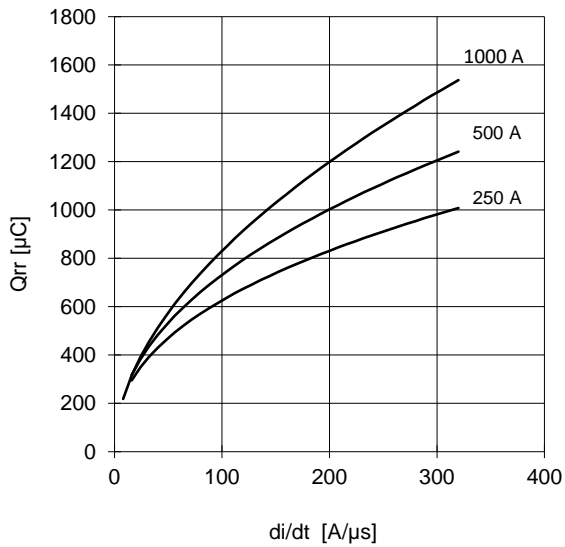
SINE WAVE (50Hz)



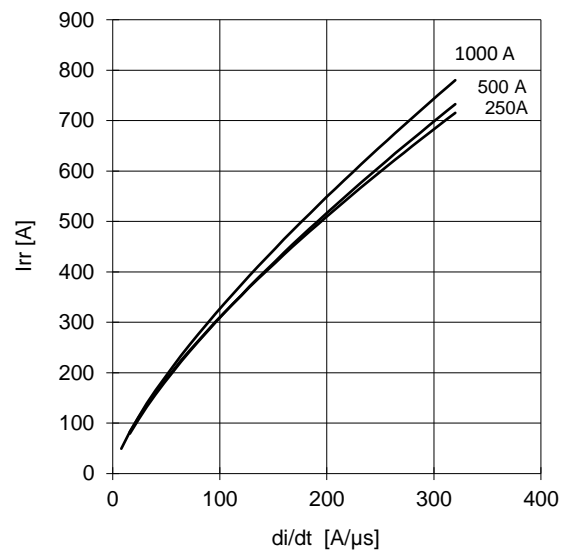
FORWARD RECOVERY VOLTAGE



REVERSE RECOVERY CHARGE T_j = 150 °C



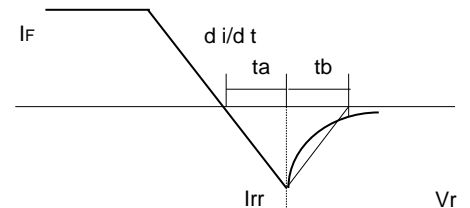
REVERSE RECOVERY CURRENT T_j = 150 °C



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

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

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

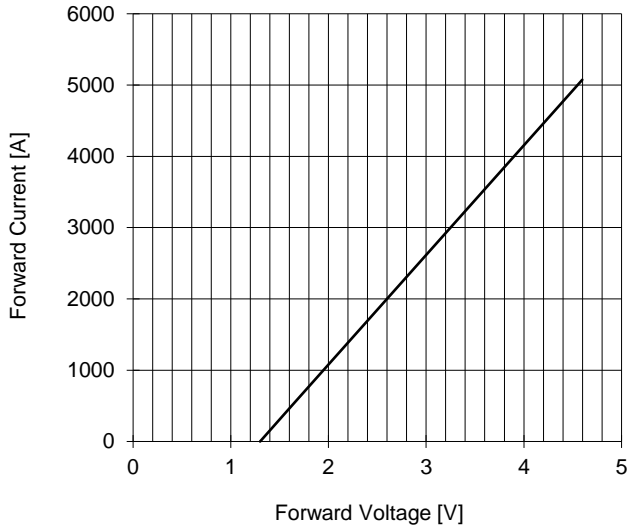


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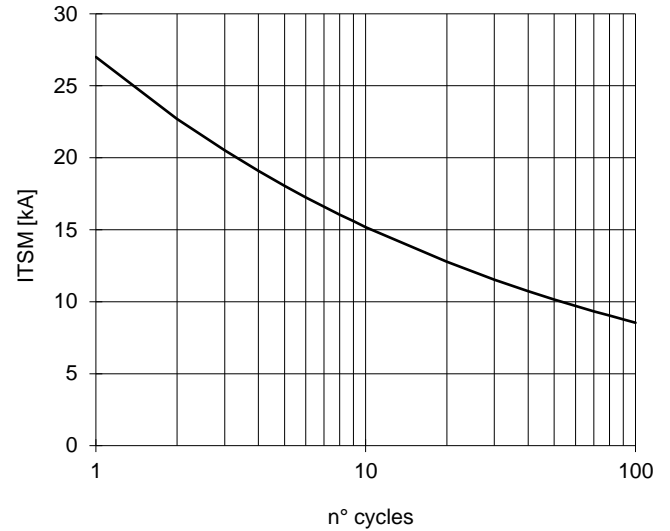


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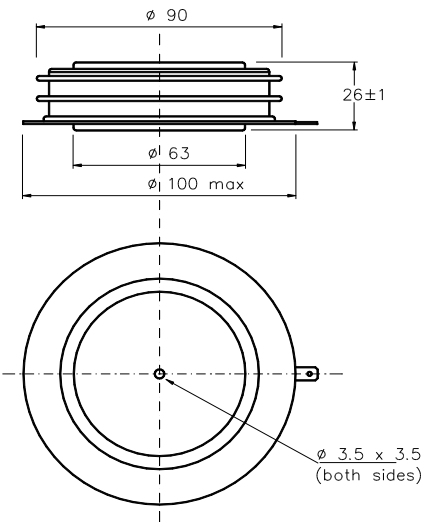
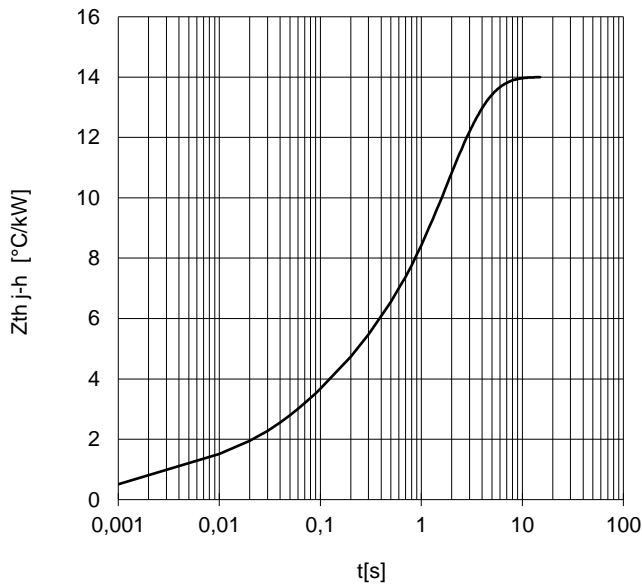
FORWARD CHARACTERISTIC
T_j = 150 °C



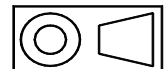
SURGE CHARACTERISTIC
T_j = 150 °C



TRANSIENT THERMAL IMPEDANCE
DOUBLE SIDE COOLED



Dimensions
in mm



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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