

FAST RECOVERY DIODE

ARF221

Repetitive voltage up to	1400 V
Mean forward current	416 A
Surge current	4,5 kA

FINAL SPECIFICATION

June 17 - Issue: 4

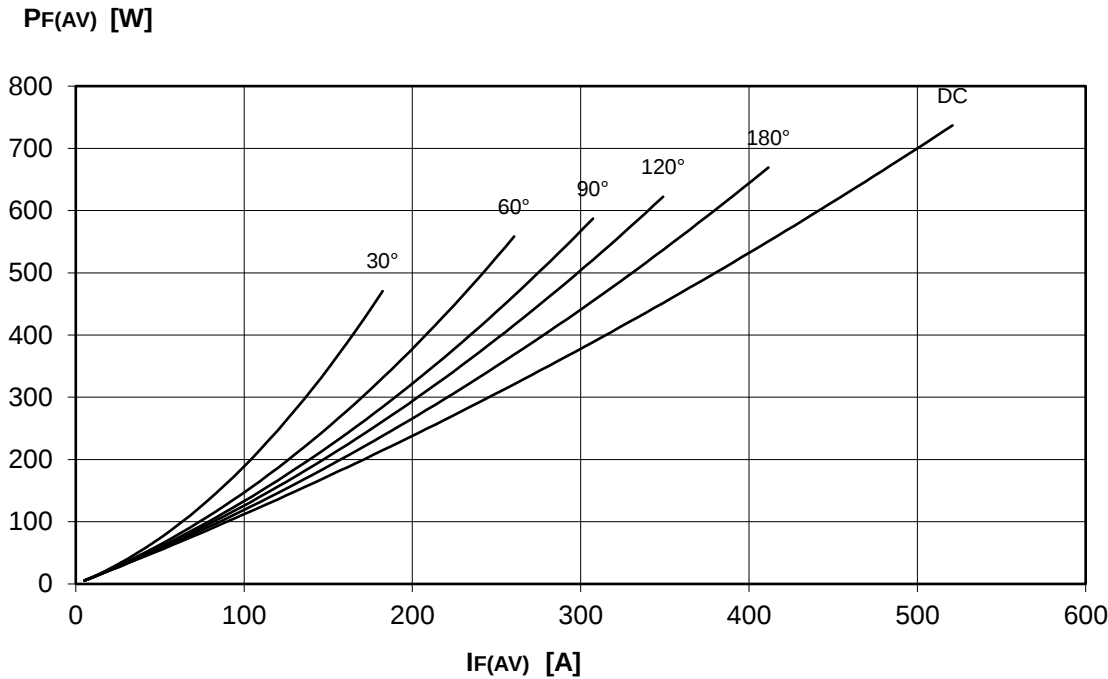
Symbol	Characteristic	Conditions	T _j [°C]	Value	Unit
BLOCKING					
V _{RRM}	Repetitive peak reverse voltage		125	1400	V
V _{RSM}	Non-repetitive peak reverse voltage		125	1500	V
I _{RRM}	Repetitive peak reverse current	V=VRRM	125	50	mA
CONDUCTING					
I _{F(AV)}	Mean forward current	180° sin, 50 Hz, Th=55°C, double side cooled		416	A
I _{F(AV)}	Mean forward current	180°square, 50 Hz, Th=55°C, double side cooled		412	A
I _{FSM}	Surge forward current	Sine wave, 10 ms without reverse voltage	125	4,5	kA
I ² t	I ² t			101 x 10 ³	A²s
V _{FM}	Forward voltage	Forward current = 600 A	25	1,47	V
V _{F(TO)}	Threshold voltage		125	1,05	V
r _F	Forward slope resistance		125	0,700	mohm
SWITCHING					
t _{rr}	Reverse recovery time	IF= 200A di/dt= 40 A/µs VR= 50V	125	2	µs
Q _{rr}	Reverse recovery charge			50	µC
I _{rr}	Peak reverse recovery current			50	A
s	Softness (s-factor), min				
V _{FR}	Peak forward recovery		125		V
MOUNTING					
R _{th(j-h)}	Thermal impedance, DC	Junction to heatsink, double side cooled		95,0	°C/kW
R _{th(c-h)}	Thermal impedance	Case to heatsink, double side cooled		20,0	°C/kW
T _j	Operating junction temperature			-30 / 125	°C
F	Mounting force			4.5 / 5.0	kN
	Mass			55	g

ORDERING INFORMATION : ARF221 S 14

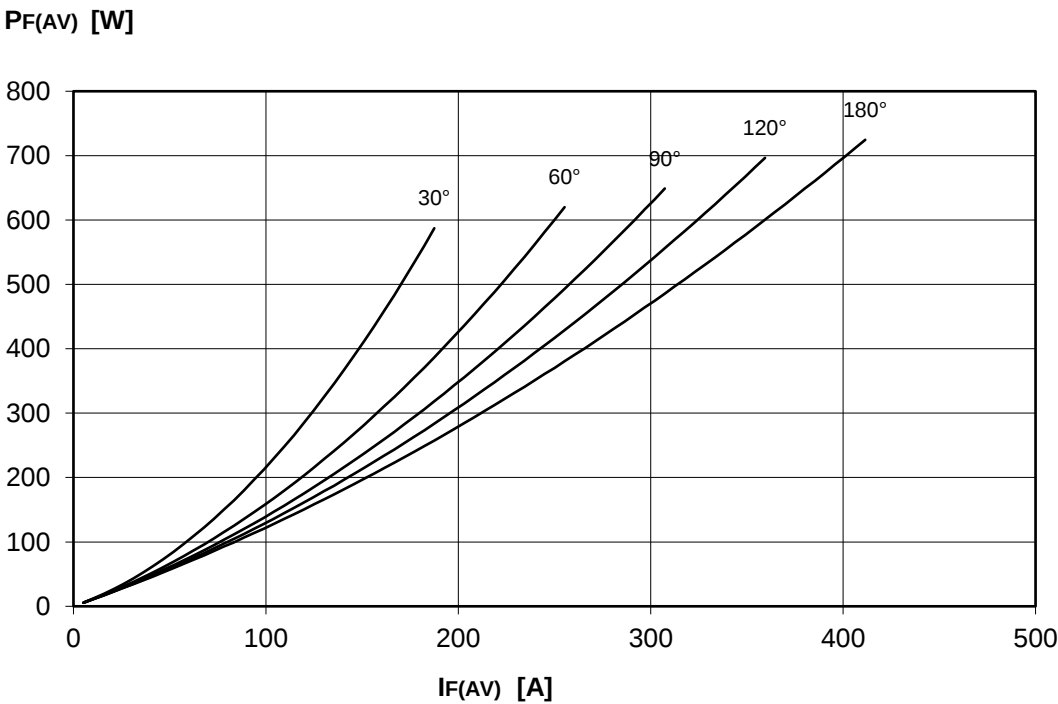
 standard specification ☐ ☐ VRRM/100

DISSIPATION CHARACTERISTICS

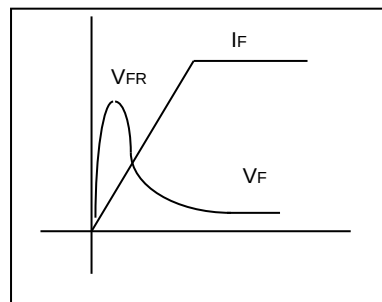
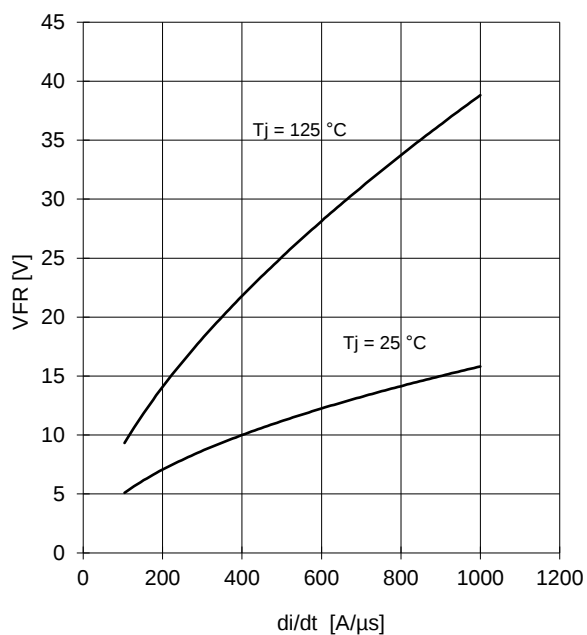
SQUARE WAVE (50Hz)



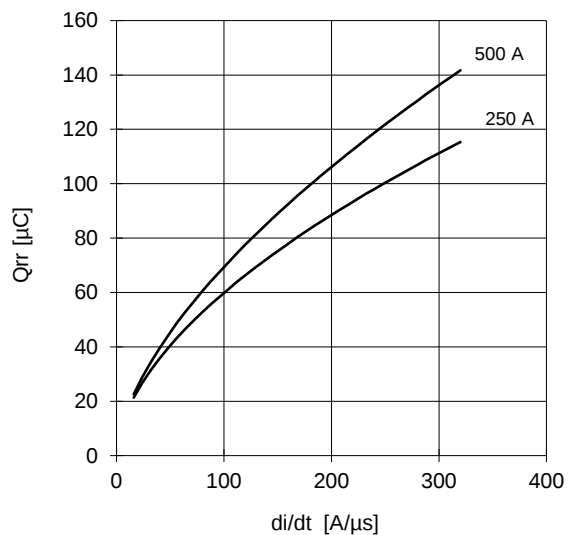
SINE WAVE (50Hz)



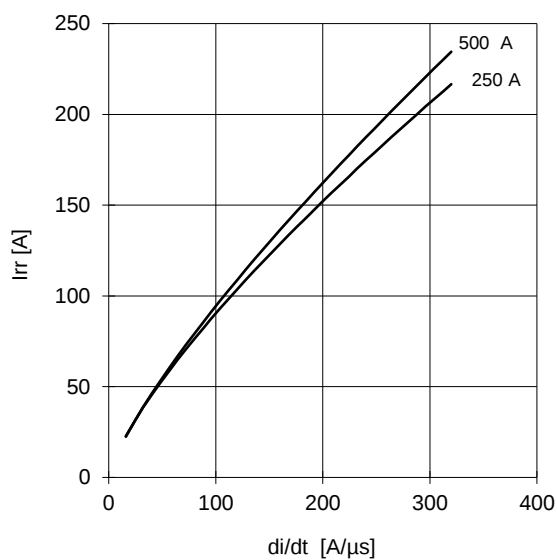
FORWARD RECOVERY VOLTAGE



REVERSE RECOVERY CHARGE $T_j = 125\text{ }^{\circ}\text{C}$



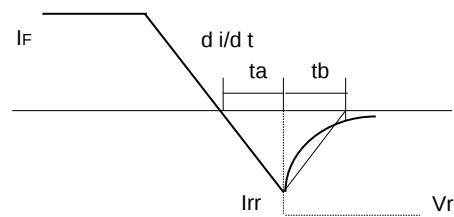
REVERSE RECOVERY CURRENT $T_j = 125\text{ }^{\circ}\text{C}$



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

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

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

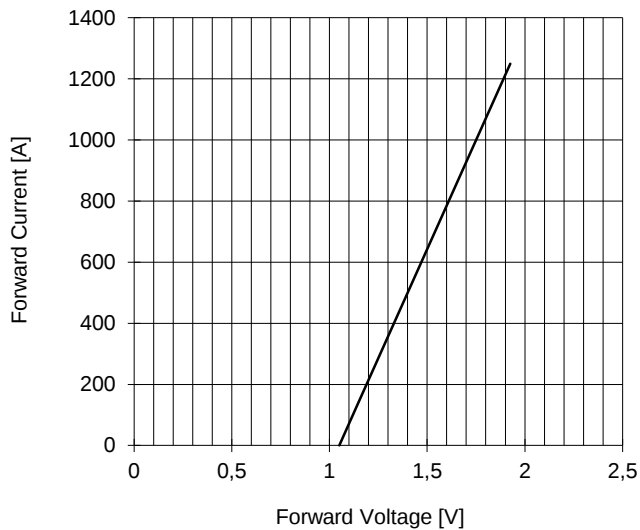


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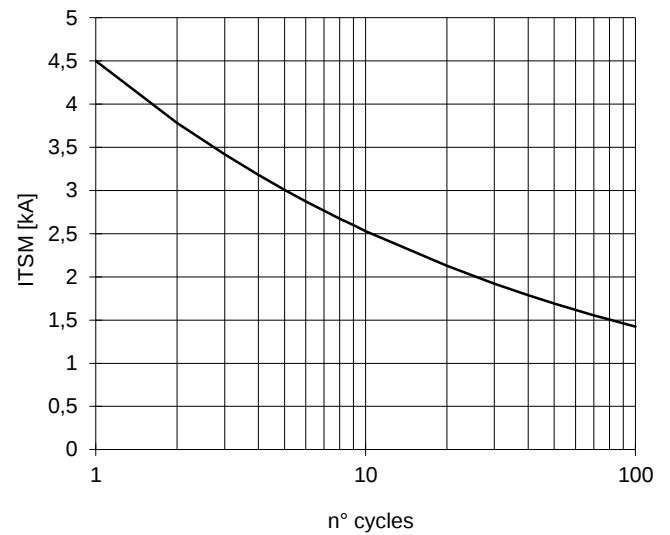


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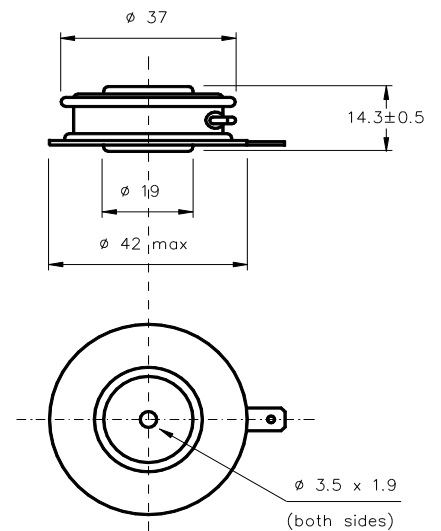
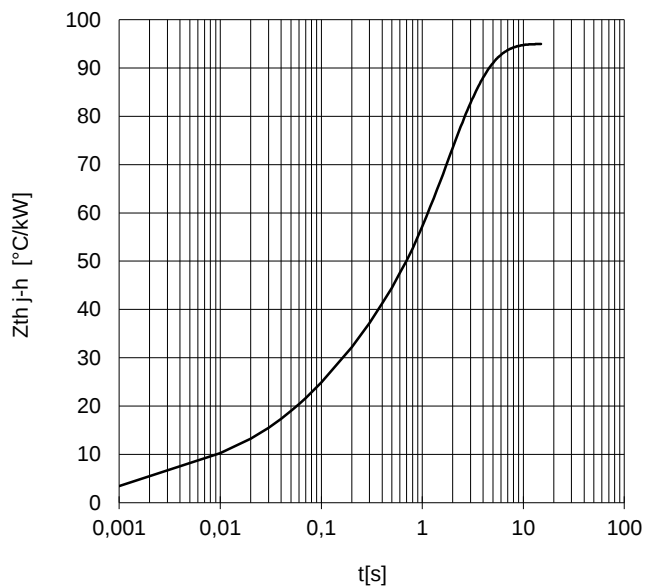
FORWARD CHARACTERISTIC
 $T_J = 125^\circ\text{C}$



SURGE CHARACTERISTIC
 $T_J = 125^\circ\text{C}$



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 $< 2 \mu\text{m}$. 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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