

**FAST RECOVERY DIODE**

# ARF648

Repetitive voltage up to

**2500 V**

Mean forward current

**2508 A**

Surge current

**30 kA**
**FINAL SPECIFICATION**

June 17 - Issue: 3

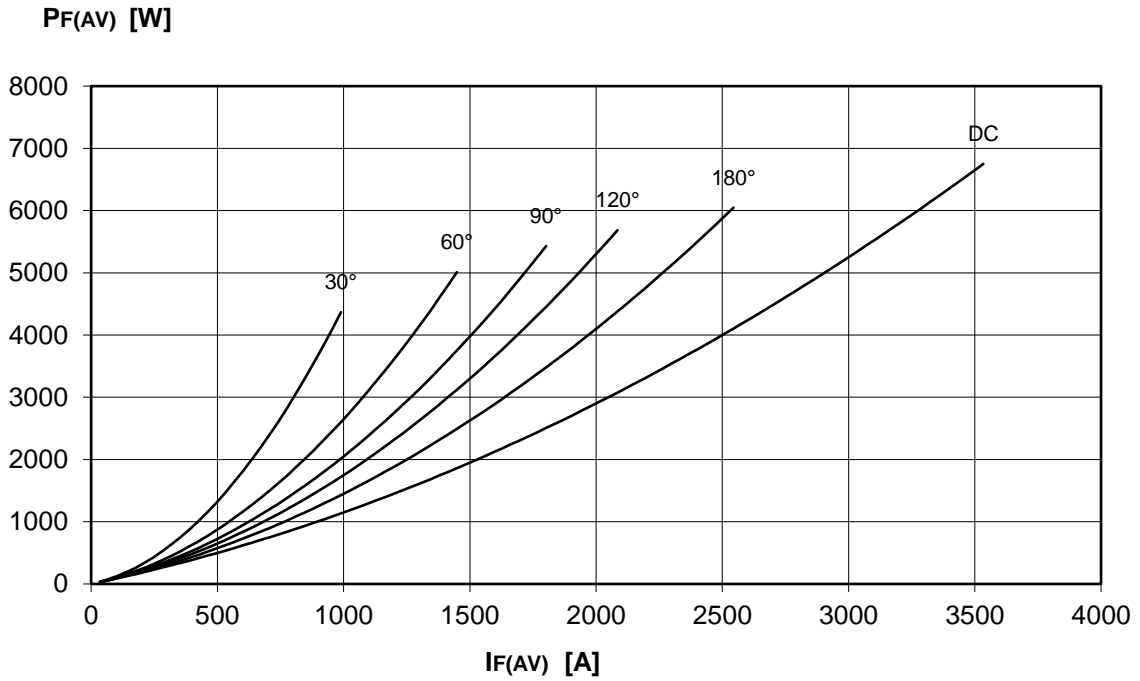
Symbol	Characteristic	Conditions	T <sub>j</sub> [°C]	Value	Unit
<b>BLOCKING</b>					
V <sub>RRM</sub>	Repetitive peak reverse voltage		150	2500	V
V <sub>RSM</sub>	Non-repetitive peak reverse voltage		150	2600	V
I <sub>RRM</sub>	Repetitive peak reverse current	V=VRRM	150	100	mA
<b>CONDUCTING</b>					
I <sub>F(AV)</sub>	Mean forward current	180° sin, 50 Hz, Th=55°C, double side cooled		2508	A
I <sub>F(AV)</sub>	Mean forward current	180°square, 50 Hz, Th=55°C, double side cooled		2566	A
I <sub>FSM</sub>	Surge forward current	Sine wave, 10 ms riapped reverse voltage up to 50% VRSM	150	30	kA
I <sup>2</sup> t	I <sup>2</sup> t			4500 x 10 <sup>3</sup>	A <sup>2</sup> s
V <sub>FM</sub>	Forward voltage	Forward current = 1500 A	25	1,40	V
V <sub>F(TO)</sub>	Threshold voltage		150	0,85	V
r <sub>F</sub>	Forward slope resistance		150	0,300	mohm
<b>SWITCHING</b>					
t <sub>rr</sub>	Reverse recovery time	IF= 1000A di/dt= 250 A/μs VR= 50V	150	5	μs
Q <sub>rr</sub>	Reverse recovery charge			1000	μC
I <sub>rr</sub>	Peak reverse recovery current			600	A
s	Softness (s-factor), min			0,5	
V <sub>FR</sub>	Peak forward recovery	di/dt = 100 A/μs	150	4	V
<b>MOUNTING</b>					
R <sub>th(j-h)</sub>	Thermal impedance, DC	Junction to heatsink, double side cooled		14,0	°C/kW
R <sub>th(c-h)</sub>	Thermal impedance	Case to heatsink, double side cooled		3,0	°C/kW
T <sub>j</sub>	Operating junction temperature			-30 / 150	°C
F	Mounting force			35.0 / 40.0	kN
	Mass			850	g

**ORDERING INFORMATION : ARF648 S 25**

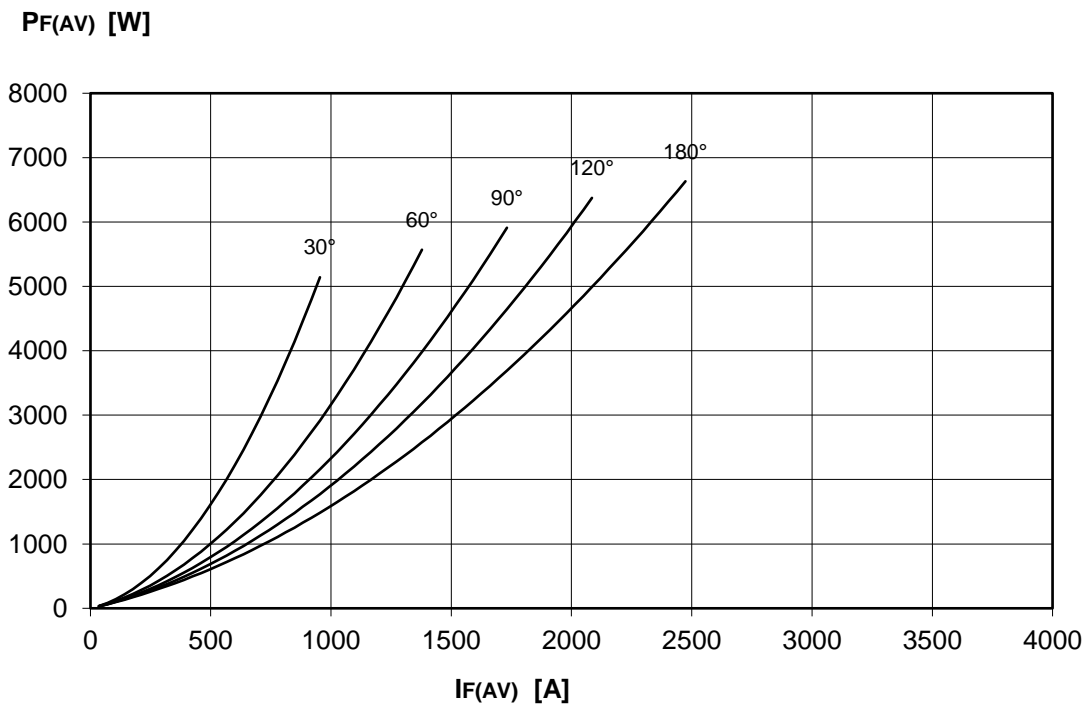
 standard specification   VRRM/100

DISSIPATION CHARACTERISTICS

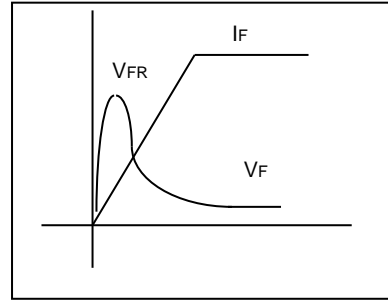
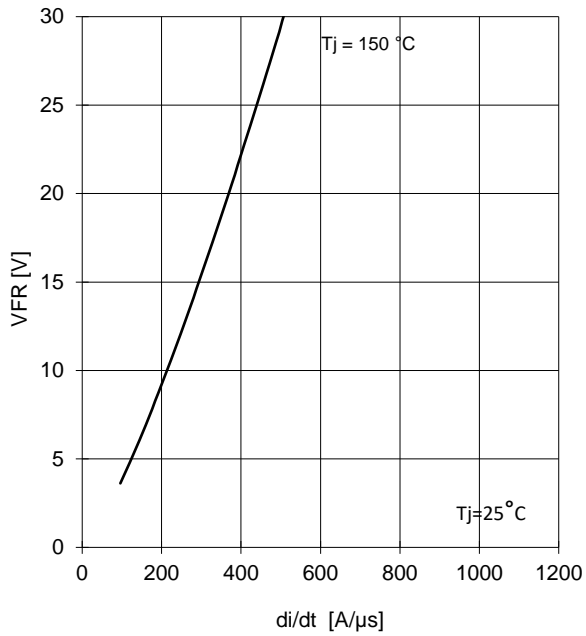
SQUARE WAVE (50Hz)



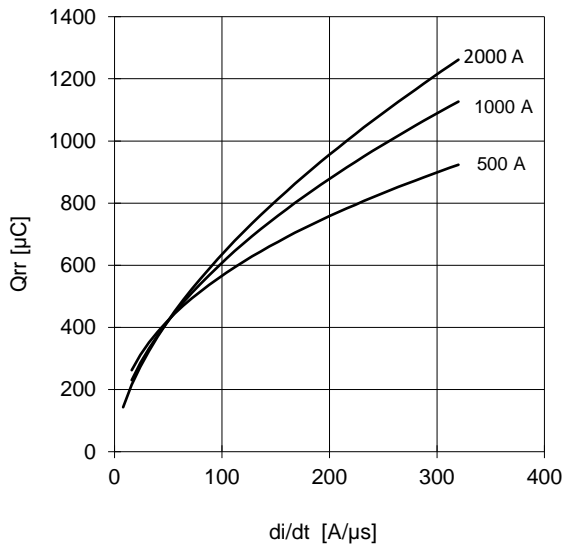
SINE WAVE (50Hz)



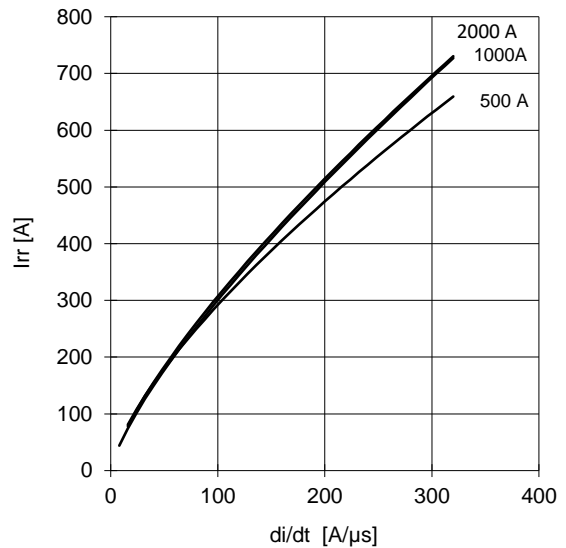
### FORWARD RECOVERY VOLTAGE



### REVERSE RECOVERY CHARGE Tj = 150 °C



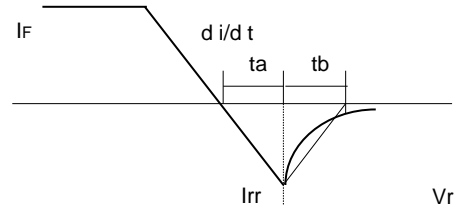
### REVERSE RECOVERY CURRENT Tj = 150 °C



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

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

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

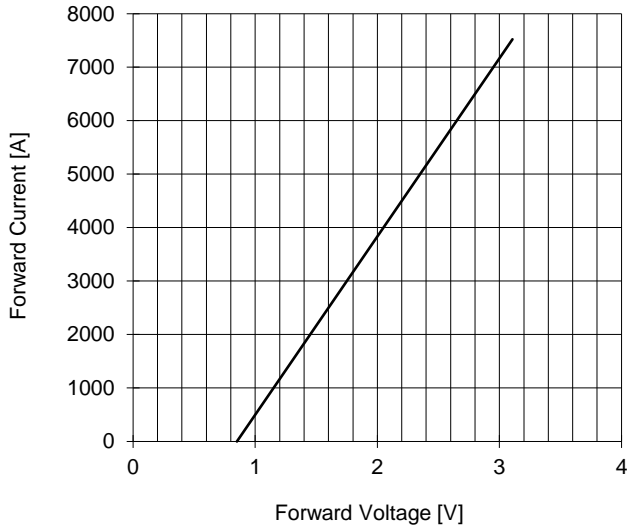


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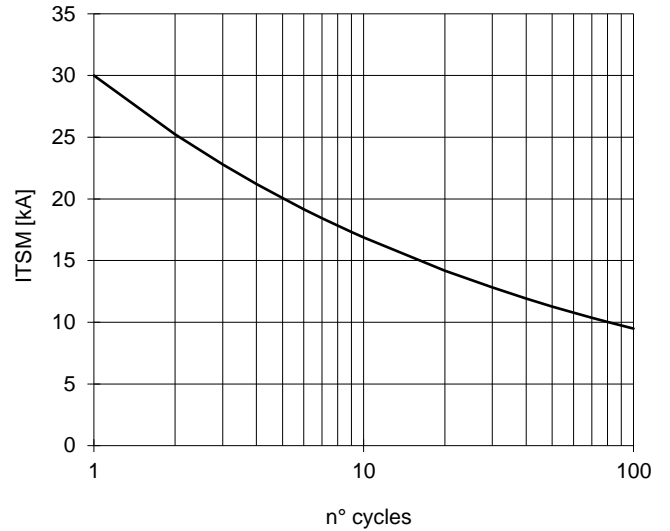


FINAL SPECIFICATION June 17 - Issue: 3

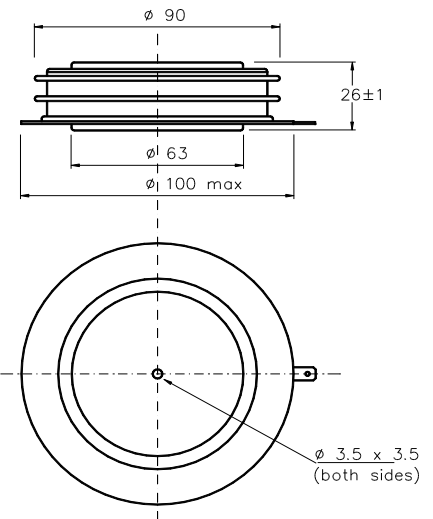
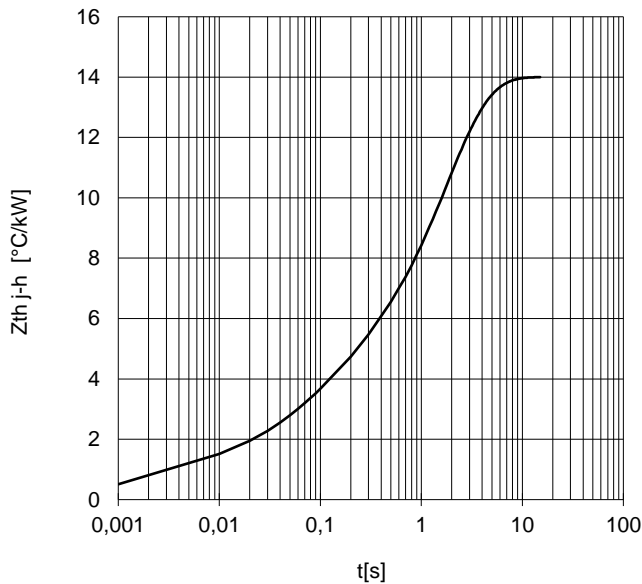
FORWARD CHARACTERISTIC  
T<sub>j</sub> = 150 °C



SURGE CHARACTERISTIC  
T<sub>j</sub> = 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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