

ANSALDO**Ansaldo Trasporti s.p.a.**
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Tx 270318 ANSUSE I -**FAST RECOVERY DIODE****ARF678**Repetitive voltage up to **4500 V**Mean forward current **1690 A**Surge current **27 kA****FINAL SPECIFICATION**

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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		1690	A
I _{F(AV)}	Mean forward current	180° square,50 Hz,Th=55°C,double side cooled		1735	A
I _{FSM}	Surge forward current	Sine wave, 10 ms	150	27	kA
I ² t	I ² t	reapplied reverse voltage up to 50% VRSM		2880 x1E3	A²s
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	I _F = 1000 A di/dt= 250 A/μs VR = 50 V	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	Junction to heatsink, double side cooled		14.0	°C/kW
T _j	Operating junction temperature			-30 / 150	°C
F	Mounting force			35.0 / 40.0	kN
	Mass			850	g

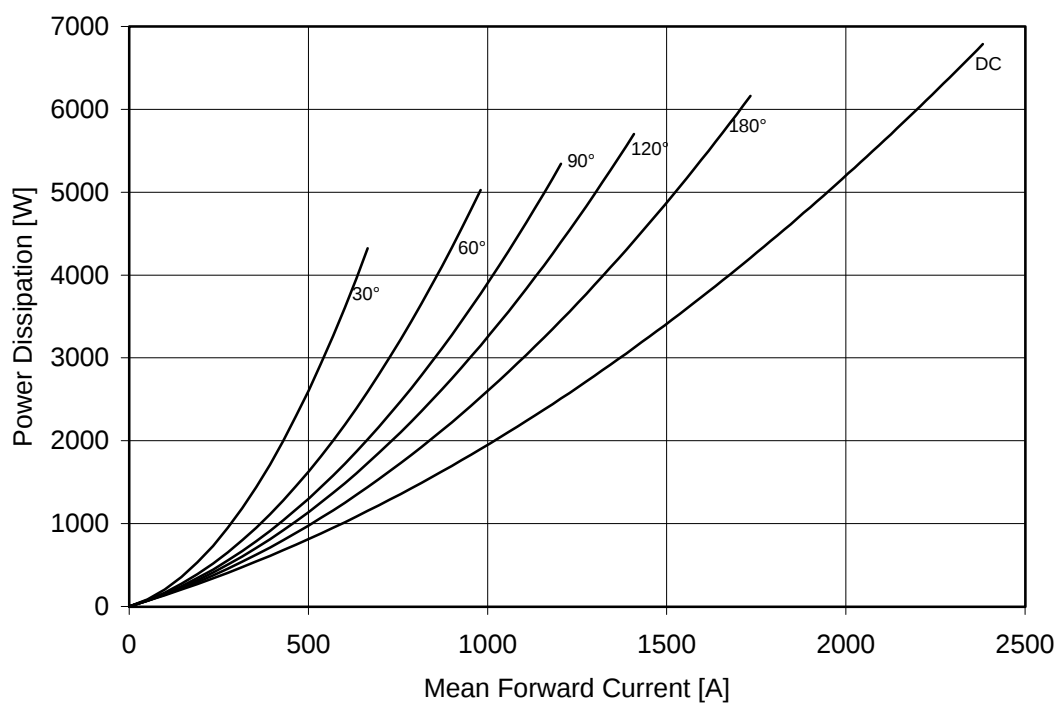
ORDERING INFORMATION : ARF678 S 45

standard specification _____ VRRM/100

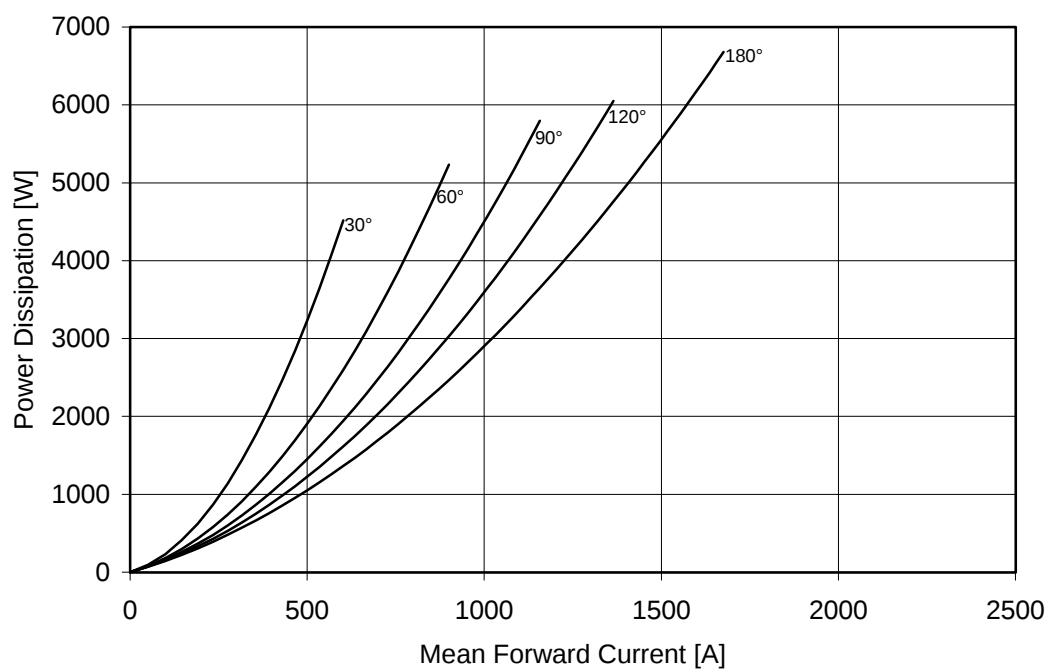


DISSIPATION CHARACTERISTICS

SQUARE WAVE

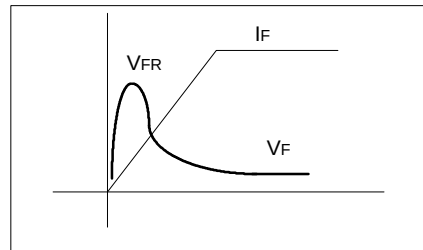
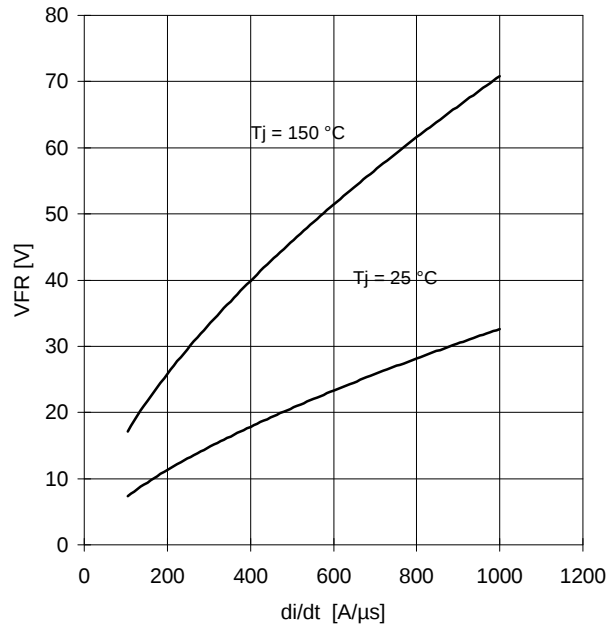


SINE WAVE

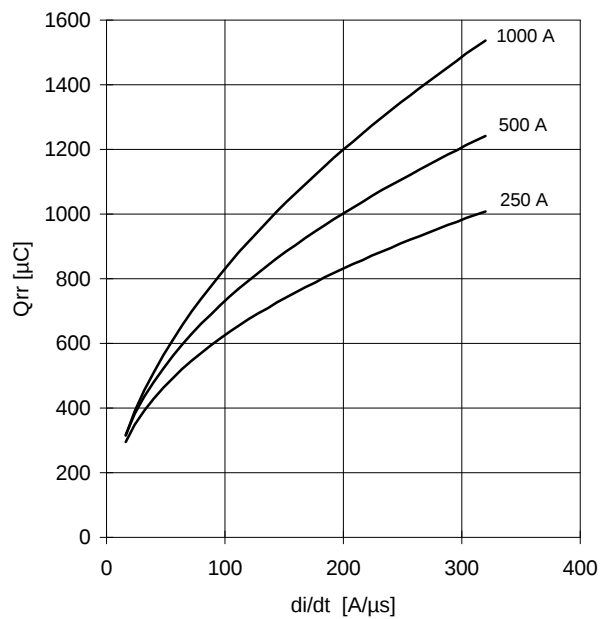


SWITCHING CHARACTERISTICS

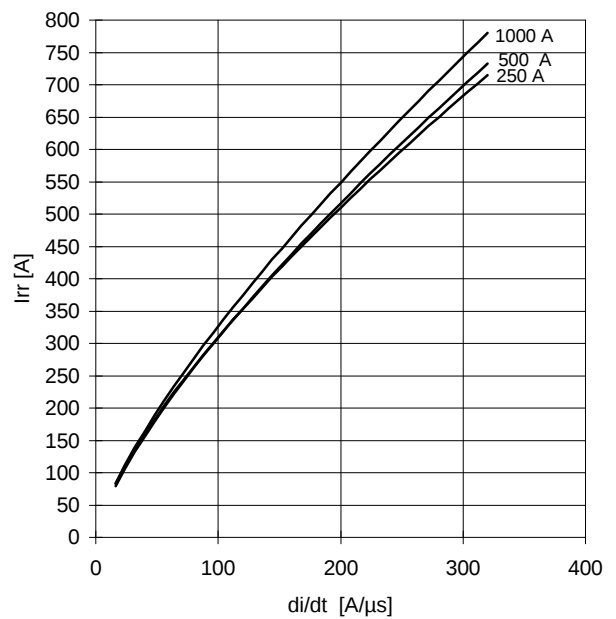
FORWARD RECOVERY VOLTAGE



REVERSE RECOVERY CHARGE $T_j = 150^\circ\text{C}$



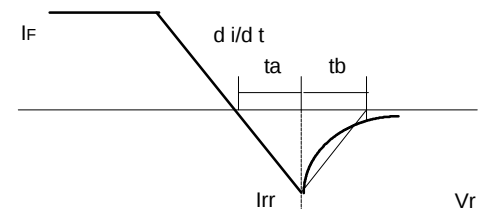
REVERSE RECOVERY CURRENT $T_j = 150^\circ\text{C}$



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

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

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

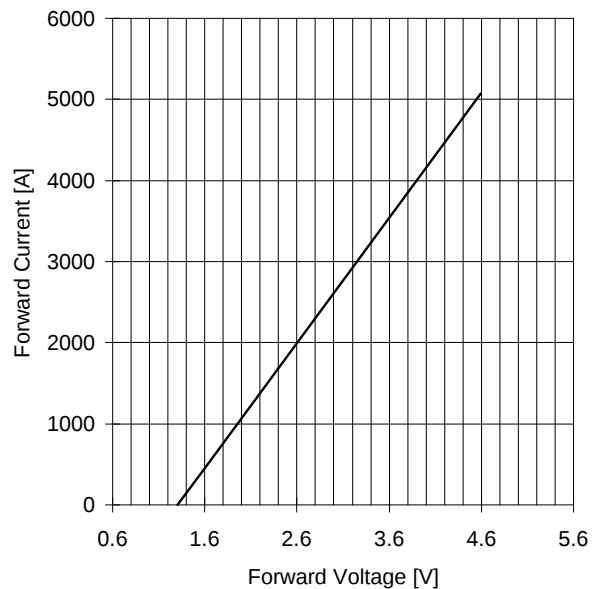


ARF678 FAST RECOVERY DIODE

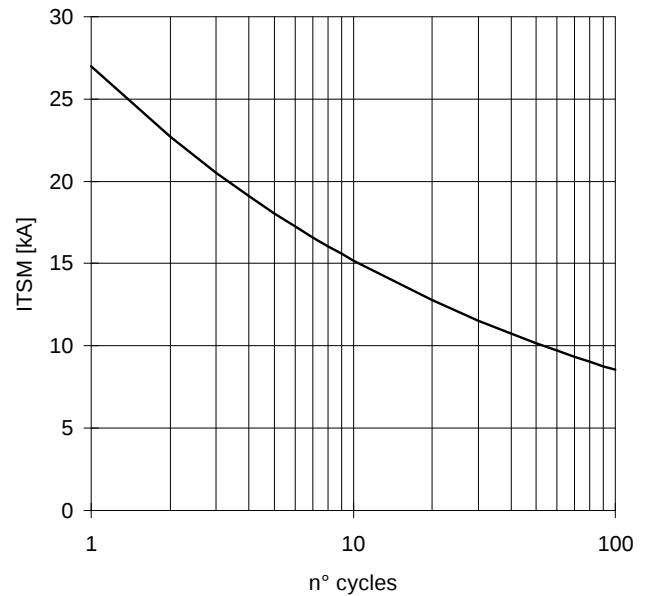
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FINAL SPECIFICATION apr 97 - ISSUE : 01

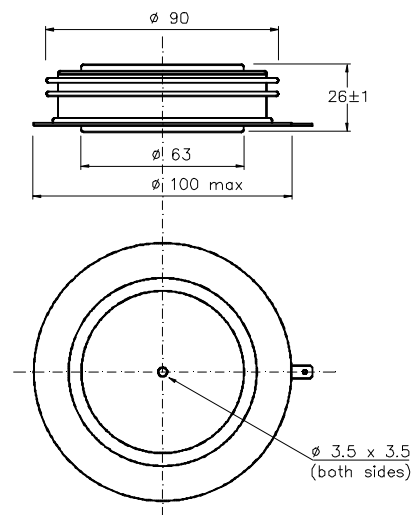
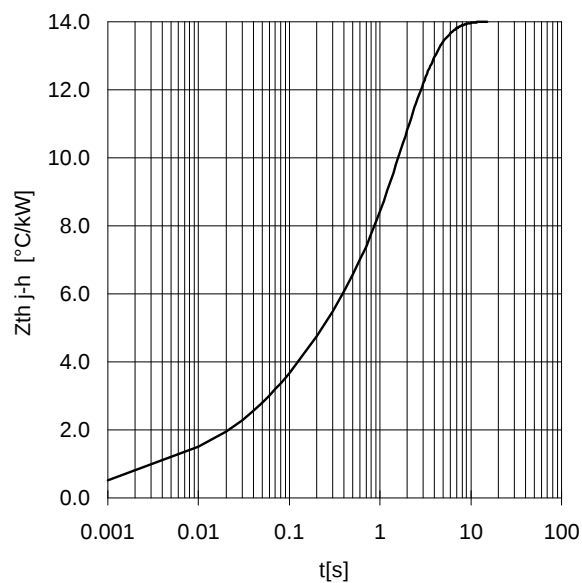
FORWARD CHARACTERISTIC
 $T_j = 150^\circ\text{C}$



SURGE CHARACTERISTIC
 $T_j = 150^\circ\text{C}$



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 $< .03 \text{ mm}$ and roughness $< 2 \mu\text{m}$.

In the interest of product improvement ANSALDO 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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