FAST SWITCHING THYRISTOR

ATF414

Repetitive voltage up to	**1200** v
Mean on-state current	**805** A
Surge current	**10** kA
Turn-off time	**15** µs

**PRELIMINARY SPECIFICATION**

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Symbol	Characteristic	Conditions	Tj [°C]	Value	Unit
BLOCKING					
V RRM	Repetitive peak reverse voltage		125	1200	V
V RSM	Non-repetitive peak reverse voltage		125	1300	V
V DRM	Repetitive peak off-state voltage		125	1200	V
I RRM	Repetitive peak reverse current	V=VRRM	125	75	mA
I DRM	Repetitive peak off-state current	V=VDRM	125	75	mA
CONDUCTING					
I T(AV)	Mean on-state current	180° sin, 50 Hz,Th=55°C, double side cooled		805	A
I T(AV)	Mean on-state current	180° sin, 1 kHz,Th=55°C, double side cooled		675	A
I TSM	Surge on-state current, non repetitive	sine wave, 10 ms	125	10	kA
I²t	I²t	without reverse voltage		500 x1E3	A²s
V T	On-state voltage	On-state current = 1400 A	25	2.4	V
V T(TO)	Threshold voltage		125	1.50	V
r T	On-state slope resistance		125	0.430	mohm
SWITCHING					
di/dt	Critical rate of rise of on-state current, min	From 75% VDRM up to 1200 A, gate 10V 5 ohm	125	500	A/µs
dv/dt	Critical rate of rise of off-state voltage, min	Linear ramp up to 75% of VDRM	125	600	V/µs
td	Gate controlled delay time, typical	VD=200V, gate source 20V, 10 ohm , tr=.5 µs	25	0.85	µs
tq	Circuit commutated turn-off time	di/dt = 60 A/µs, I = 1000 A dV/dt = 200 V/µs , up to 80% VDRM	125	15	µs
Q rr	Reverse recovery charge	di/dt = 60 A/µs, I = 1000 A	125	120	µC
I rr	Peak reverse recovery current	VR = 50 V		100	A
I H	Holding current, typical	VD=5V, gate open circuit	25		mA
I L	Latching current, typical	VD=12V, tp=30µs	25		mA
GATE					
V GT	Gate trigger voltage	VD=5V	25	3.5	V
I GT	Gate trigger current	VD=5V	25	350	mA
V GD	Non-trigger gate voltage, min.	VD=VDRM	125	0.25	V
V FGM	Peak gate voltage (forward)		25	30	V
I FGM	Peak gate current		25	10	A
V RGM	Peak gate voltage (reverse)		25	5	V
P GM	Peak gate power dissipation	Pulse width 100 µs	25	150	W
P G(AV)	Average gate power dissipation		25	3	W
MOUNTING					
R th(j-h)	Thermal impedance, DC	Junction to heatsink, double side cooled		37	°C/kW
T j	Operating junction temperature			-30 / 125	°C
F	Mounting force			11.0 / 13.0	kN
	Mass			320	g

ORDERING INFORMATION   : ATF414 S 12 B ——— tq code

standard specification ———

VDRM&VRRM/100

tq code	D 10 µs	C 12 µs	B 15 µs	A 20 µs	L 25 µs
	M 30 µs	N 35 µs	P 40 µs	R 45 µs	S 50 µs
	T 60 µs	U 70 µs	W 80 µs	X 100µs	Y 150µs

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## SWITCHING CHARACTERISTICS

REVERSE RECOVERY CHARGE
Tj = 125 °C
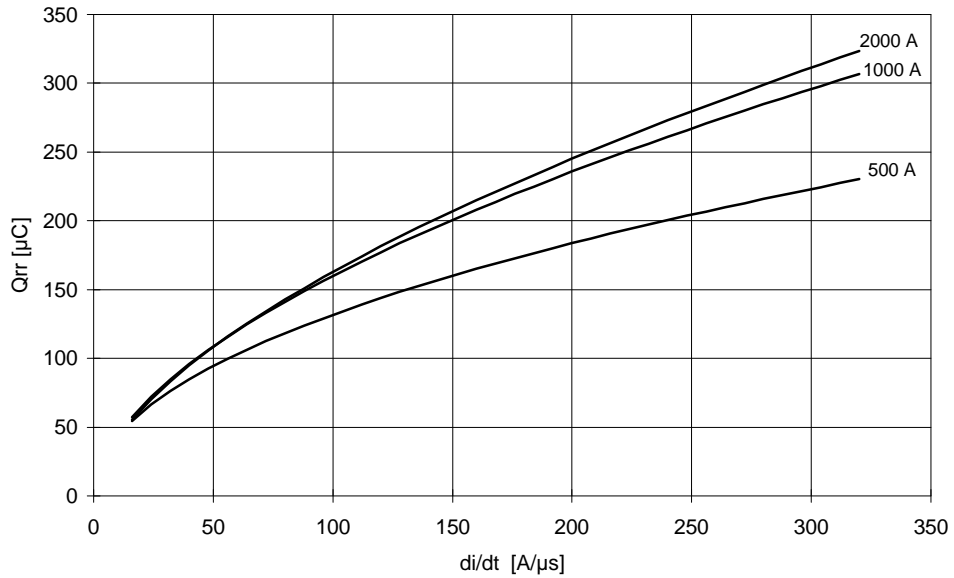
REVERSE RECOVERY CURRENT
Tj = 125 °C
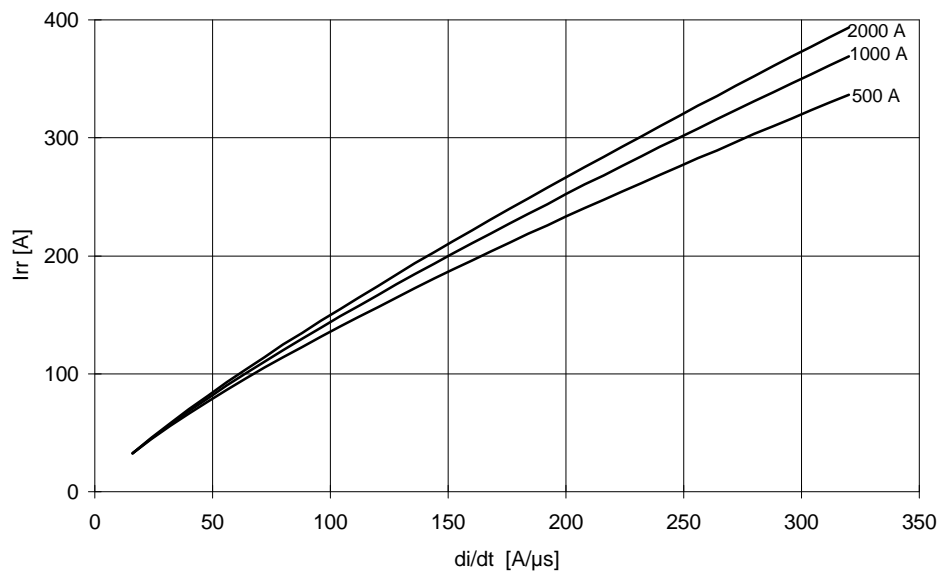
ta = Irr / (di/dt)   tb = trr - ta

Softness (s factor) s = tb / ta

Energy dissipation during recovery Er = Vr · (Qrr - Irr ·ta / 2)

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ANSALDO

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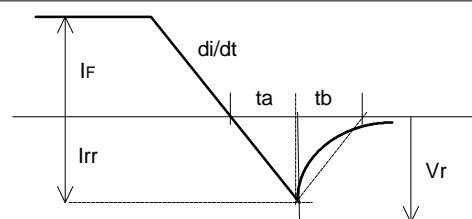
ON-STATE CHARACTERISTIC
Tj = 125 °C
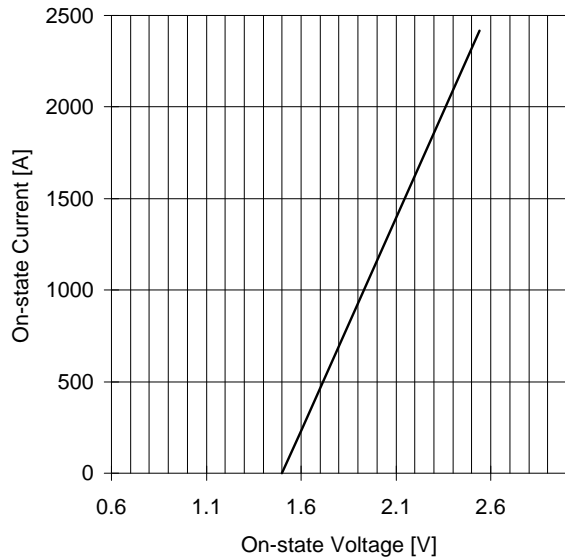
SURGE CHARACTERISTIC
Tj = 125 °C
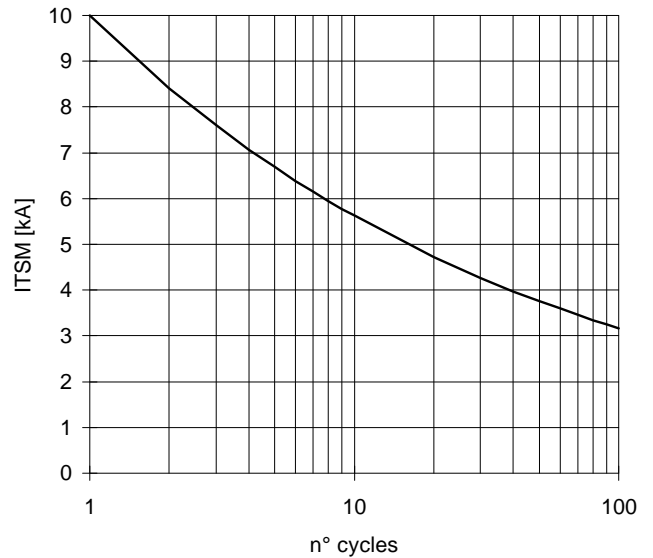
TRANSIENT THERMAL IMPEDANCE
DOUBLE SIDE COOLED

ø 52
26±1
ø 38.5
ø 59 max
ø 3.5 x 3.5
(both sides)
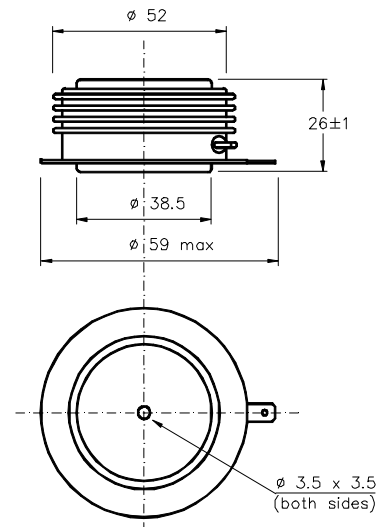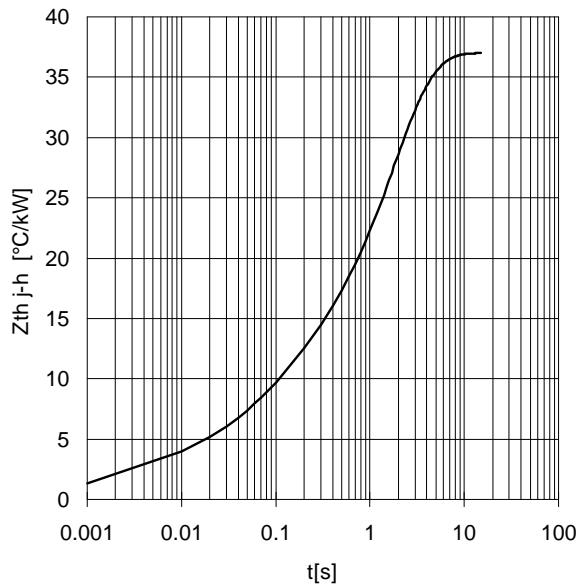
Dimensions in mm
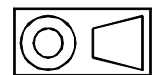
Cathode terminal type DIN 46244 - A 4.8 - 0.8

Gate terminal type AMP 60598 - 1

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 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 (simbols over shaded background) and characteristics is reported.

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