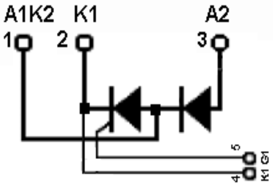
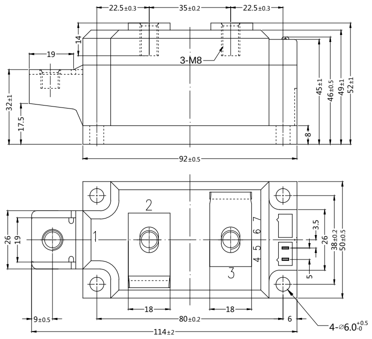
STD320GK26BT

Thyristor-Diode Modules



Type	V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V
STD320GK08BT	900	800
STD320GK12BT	1300	1200
STD320GK14BT	1500	1400
STD320GK16BT	1700	1600
STD320GK18BT	1900	1800
STD320GK20BT	2100	2000
STD320GK22BT	2300	2200
STD320GK24BT	2500	2400
STD320GK26BT	2700	2600

Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions		Maximum Ratings	Unit
I_{TRMS}, I_{FRMS} I_{TAVM}, I_{FAVM}	$T_{VJ}=T_{VJM}$; 50Hz T_C=85°C; 180°sine		502 320	A
I_{TSM}, I_{FSM}	T_{VJ}=45°C V_R=0	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	9100 10900	A
	$T_{VJ}=T_{VJM}$ V_R=0	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	8000 9600	
$\int i^2dt$	T_{VJ}=45°C V_R=0	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	414000 496000	A^2s
	$T_{VJ}=T_{VJM}$ V_R=0	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	320000 384000	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ f=50Hz, t_p=200us V_D=2/3V_{DRM} I_G=0.5A di_G/dt=0.5A/us	repetitive non repetitive	150 500	A/us
$(dv/dt)_{cr}$	$T_{VJ}=T_{VJM}$; $R_{GK}=\infty$; method 1 (linear voltage rise)	V_{DR}=2/3V_{DRM}	1000	V/us
P_{GM}	$T_{VJ}=T_{VJM}$ $I_T=I_{TAVM}$	t_p=30us t_p=500us	120 60	W
P_{GAV}			8	W
V_{RGM}			10	V
T_{VJ} T_{VJM} T_{stg}			-40...+125 125 -40...+125	°C
V_{ISOL}	50/60Hz, RMS $I_{ISOL}\leq$1mA	t=1min t=1s	3000 3600	V~
M_d	Mounting torque (M6) Terminal connection torque (M8)		5 12	Nm
Weight	Typical		783	g

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Symbol	Test Conditions	Characteristic Values	Unit
I_{RRM}, I_{DRM}	$T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$; $V_D=V_{DRM}$	60	mA
V_{TM}	I_{TM}=960A; T_{VJ}=25°C	≤1800V: 1.85 2000-2600V: 2.20	V
V_{TO}	For power-loss calculations only ($T_{VJ}=T_{VJM}$)	0.8	V
r_T		0.6	mΩ
V_{GT}	V_D=6V; T_{VJ}=25°C T_{VJ}=-40°C	2 2.6	V
I_{GT}	V_D=6V; T_{VJ}=25°C T_{VJ}=-40°C	200 250	mA
V_{GD}	$T_{VJ}=T_{VJM}$; $V_D=2/3V_{DRM}$	0.25	V
I_{GD}	$T_{VJ}=T_{VJM}$; $V_D=2/3V_{DRM}$	10	mA
I_L	T_{VJ}=25°C; t_p=30us; V_D=6V I_G=0.45A; di_G/dt=0.45A/us	1200	mA
I_H	T_{VJ}=25°C; V_D=6V; $R_{GK}=\infty$	300	mA
t_{gd}	T_{VJ}=25°C; $V_D=1/2V_{DRM}$ I_G=0.5A; di_G/dt=0.5A/us	3	us
t_q	$T_{VJ}=T_{VJM}$; I_T=250A; t_p=200us; -di/dt=10A/us V_R=100V; dv/dt=20V/us; $V_D=2/3V_{DRM}$ typ.	250	us
Q_S	$T_{VJ}=T_{VJM}$; I_T, I_F=250A; -di/dt=50A/us	650	uC
I_{RM}		235	A
R_{thJC}	per thyristor/diode; DC current per module	0.111 0.056	K/W
R_{thCH}	per thyristor/diode; DC current per module	0.04 0.02	K/W
d_S	Creeping distance on surface	12.7	mm
d_A	Creepage distance in air	9.6	mm
a	Maximum allowable acceleration	50	m/s^2

FEATURES

* International standard package
* Isolation voltage 3600 V~
* Pressure Contacts Technology
* UL File NO.E310749
* RoHS Compliant

APPLICATIONS

* Motor control
* Power converter
* Heat and temperature control for industrial furnaces and chemical processes
* Lighting control
* Contactless switches

ADVANTAGES

* Space and weight savings
* Simple mounting
* Improved temperature and power cycling
* Reduced protection circuits

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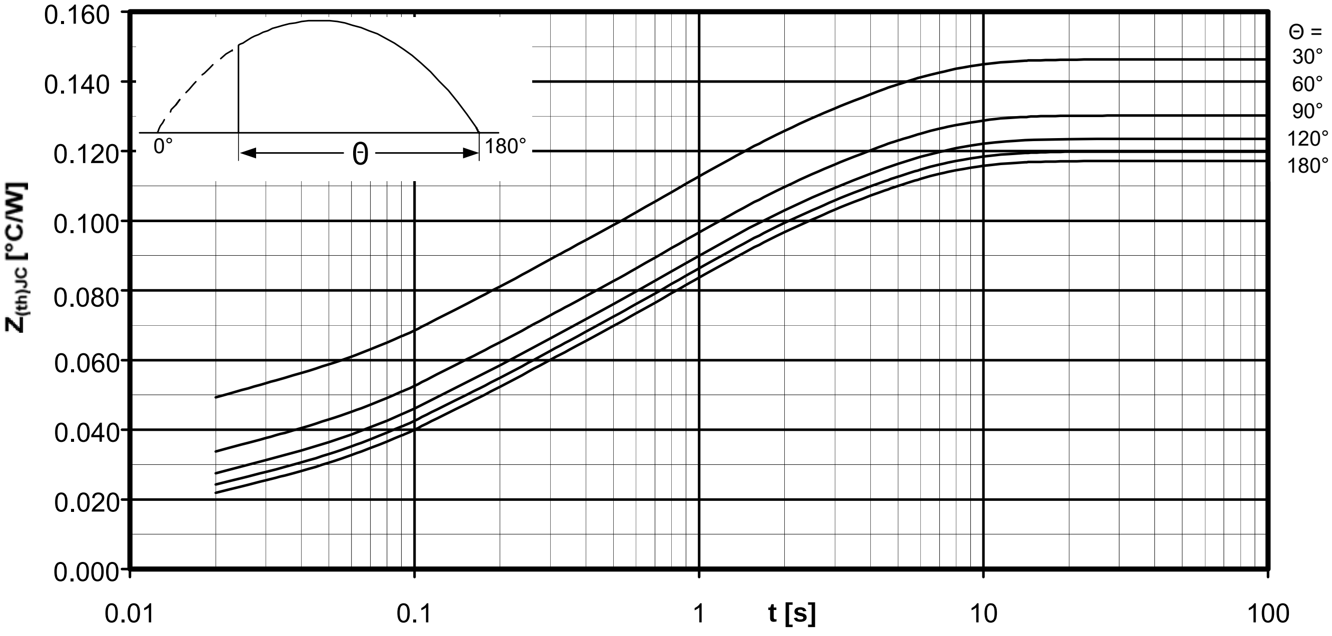

Fig.1 Transient thermal impedance per arm Z_{thJC} = f(t) Sinusoidal current Parameter:
Current conduction angle Θ

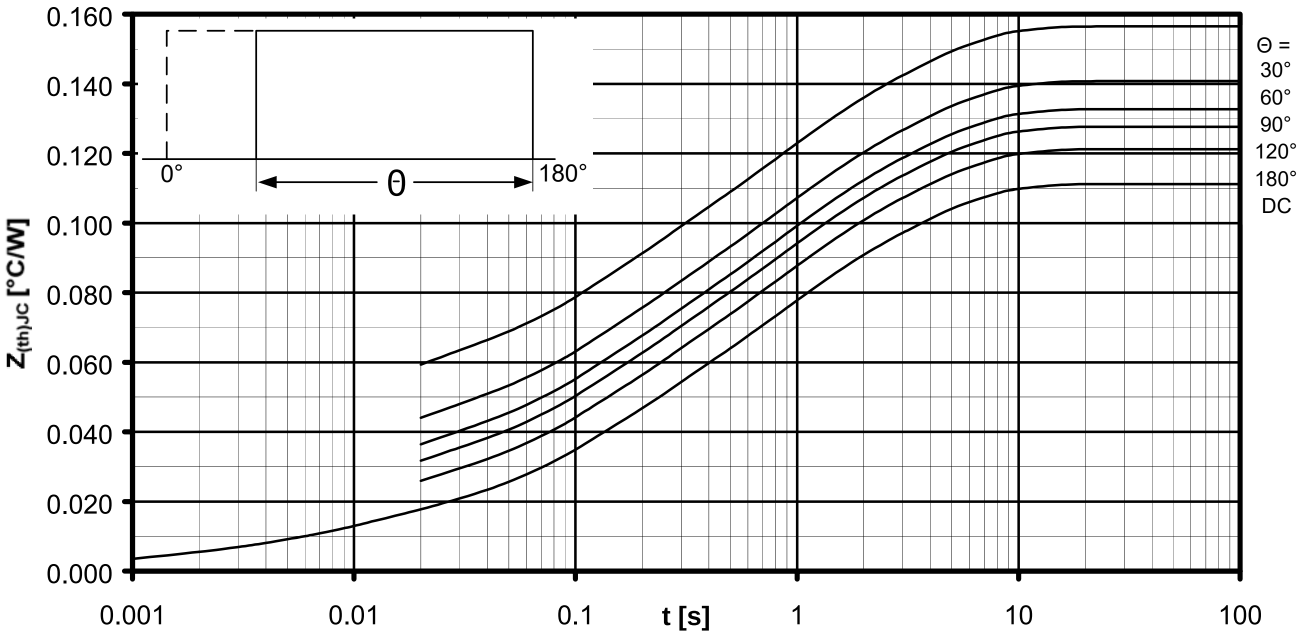

Fig.2 Transient thermal impedance per arm Z_{thJC} = f(t) Rectangular current Parameter:
Current conduction angle Θ

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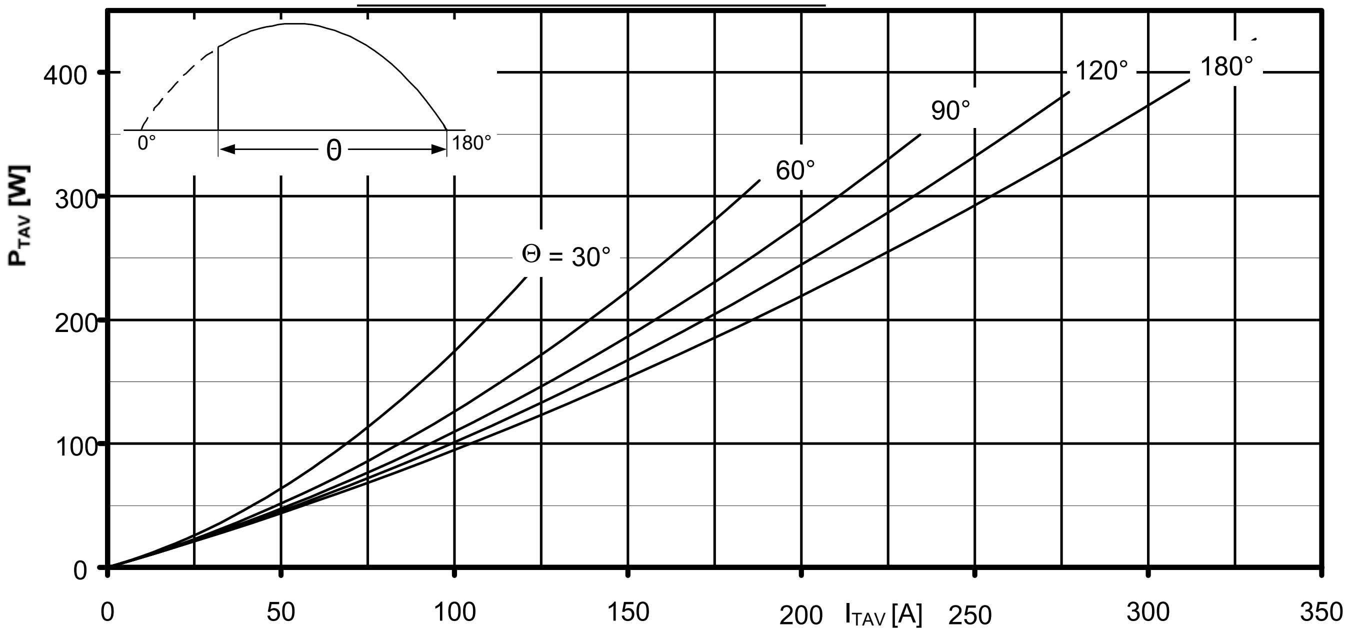

Fig.3 On-state power loss per arm $P_{TAV} = f(I_{TAV})$ Sinusoidal current
Current load per arm
Calculation base PTAV (switching losses should be considered separately)Parameter:
Current conduction angle Θ

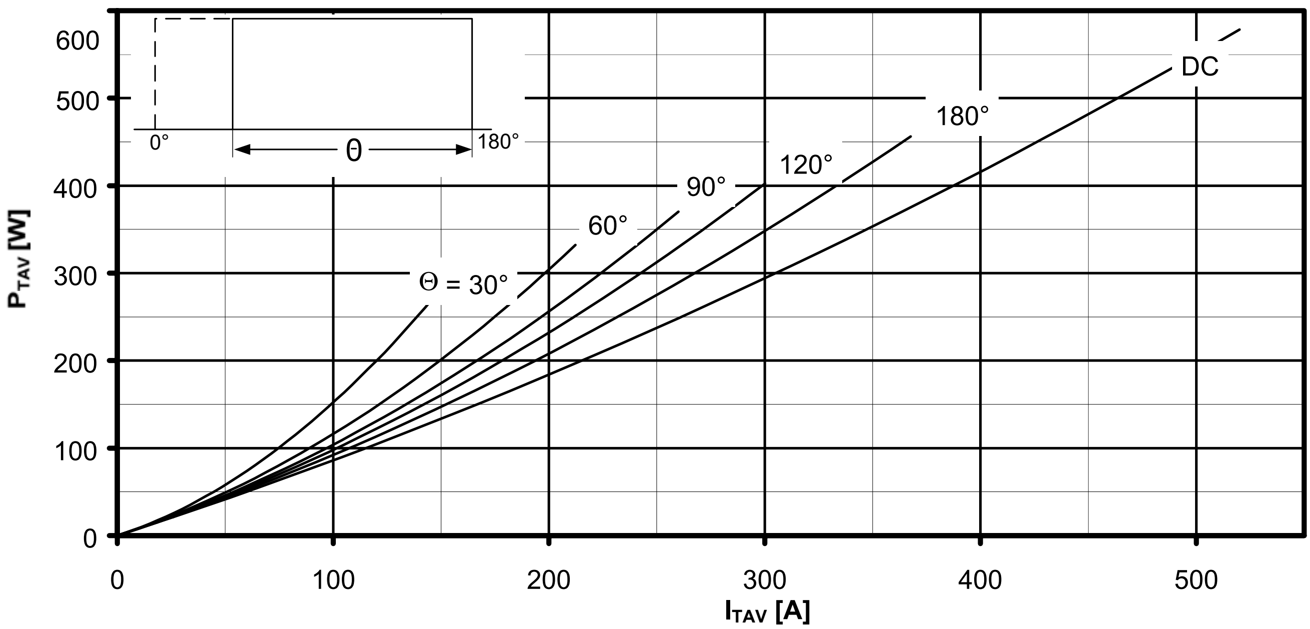

Fig.4 On-state power loss per arm $P_{TAV} = f(I_{TAV})$
Rectangular current Current load per arm
Calculation base PTAV (switching losses should be considered separately)Parameter:
Current conduction angle Θ

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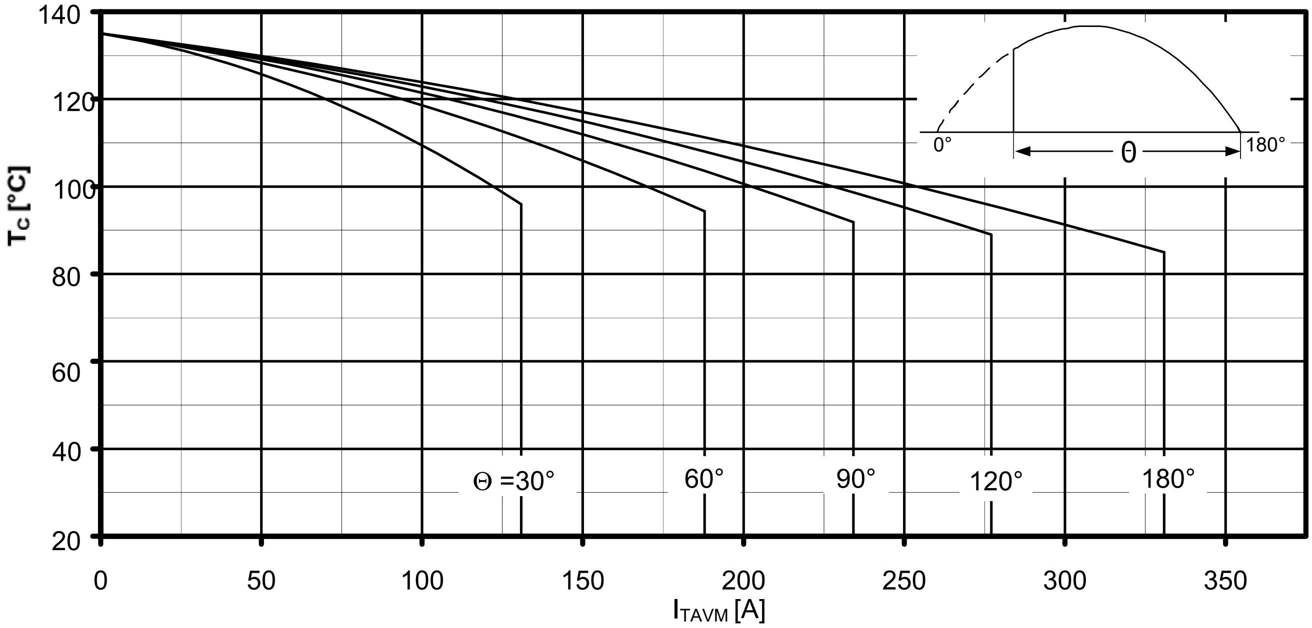

Fig.6 Maximum allowable case temperature TC = f(ITAVM)
Sinusoidal current Current load per arm
Calculation base P_{TAV} (switching losses should be considered separately)Parameter:
Current conduction angle Θ

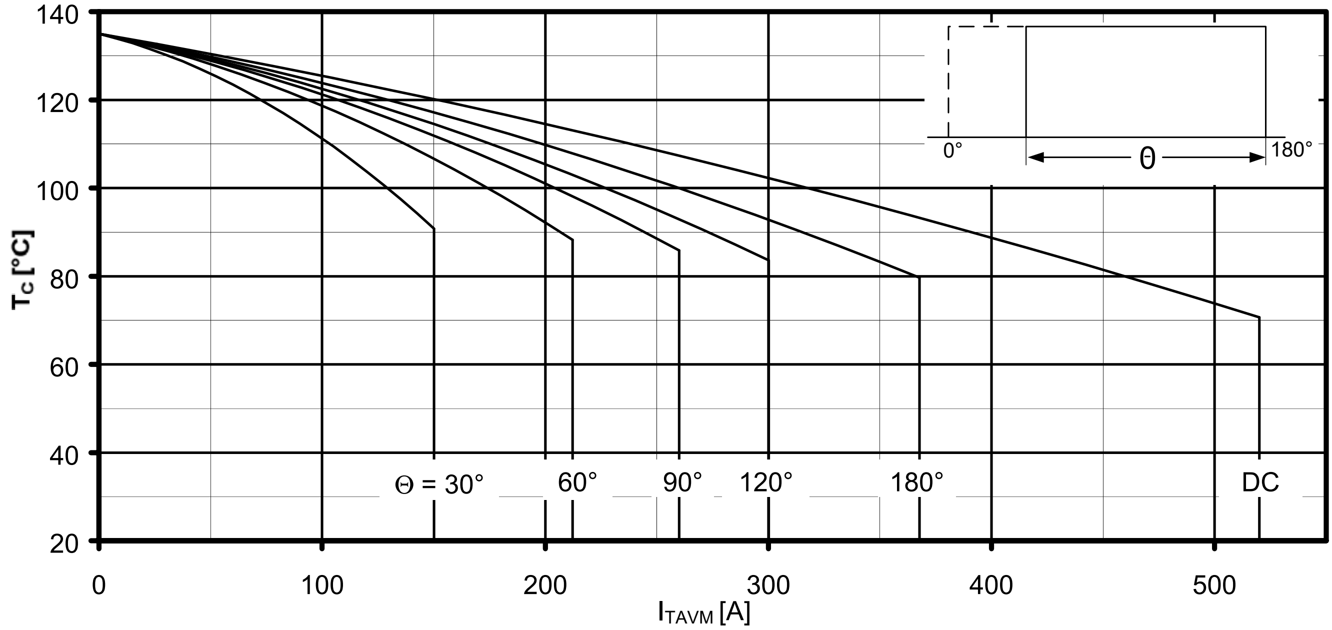

Fig.7 Maximum allowable case temperature TC = f(ITAVM)
Rectangular current Current load per arm
Calculation base P_{TAV} (switching losses should be considered separately) Parameter:
Current conduction angle Θ

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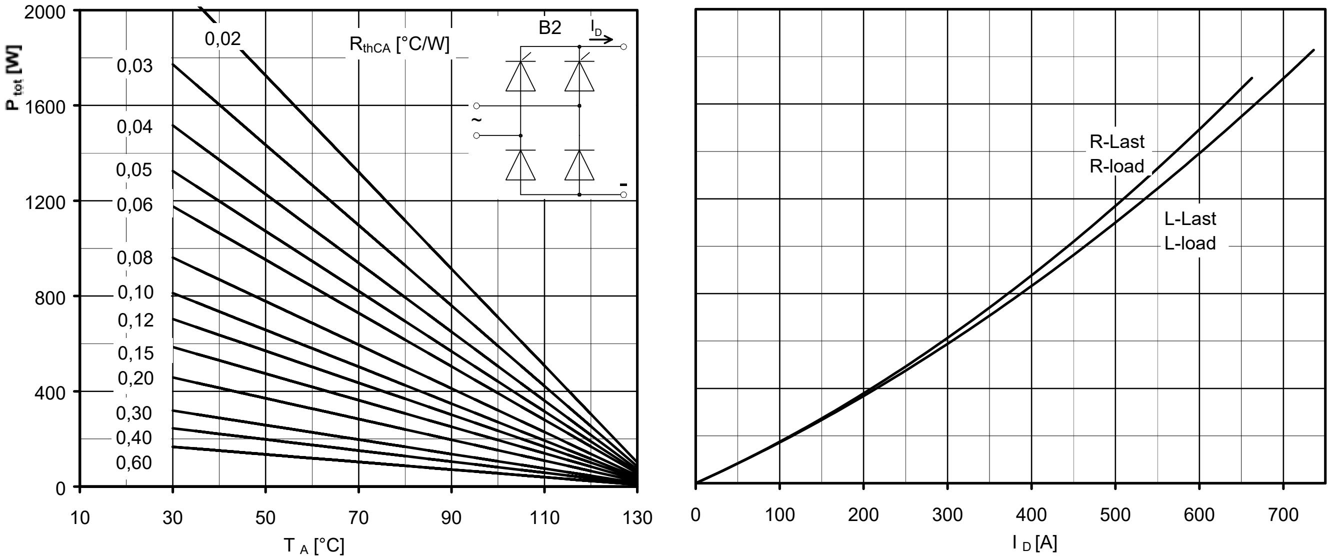

Fig.8 Maximum rated output current I_D Two-pulse bridge circuit
Total power dissipation at circuit P_{tot} Parameter:
Thermal resistance cases to ambient R_{thCA}

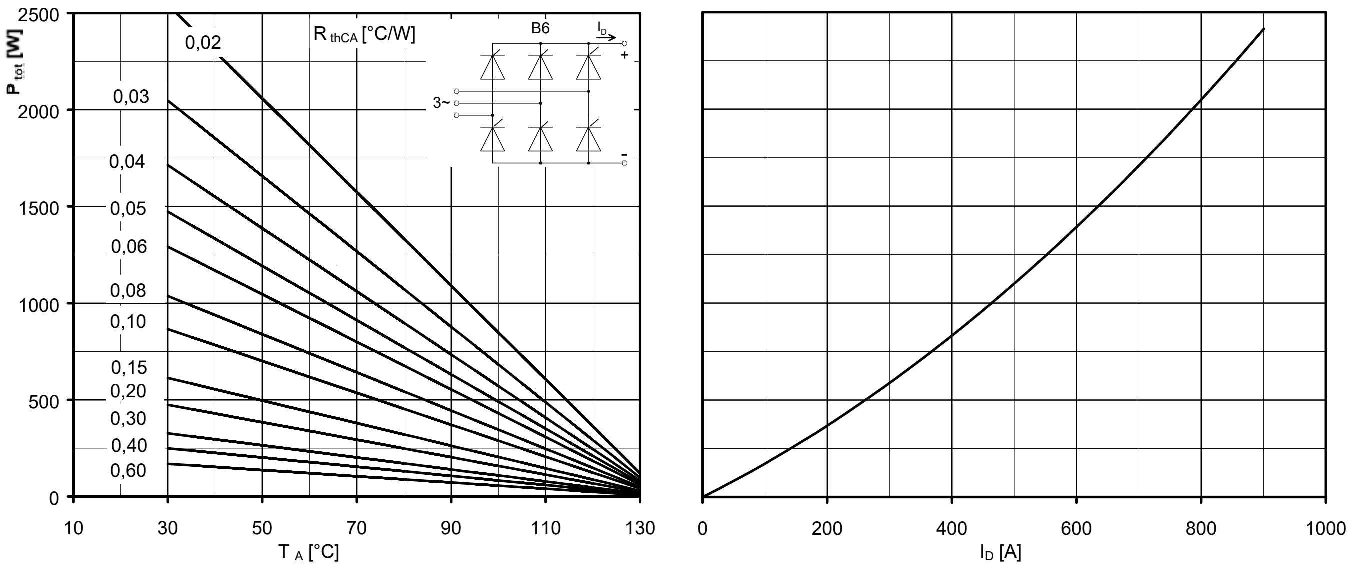

Fig.9 Maximum rated output current I_D Six-pulse bridge circuit
Total power dissipation at circuit Ptot Parameter:
Thermal resistance cases to ambient R_{thCA}

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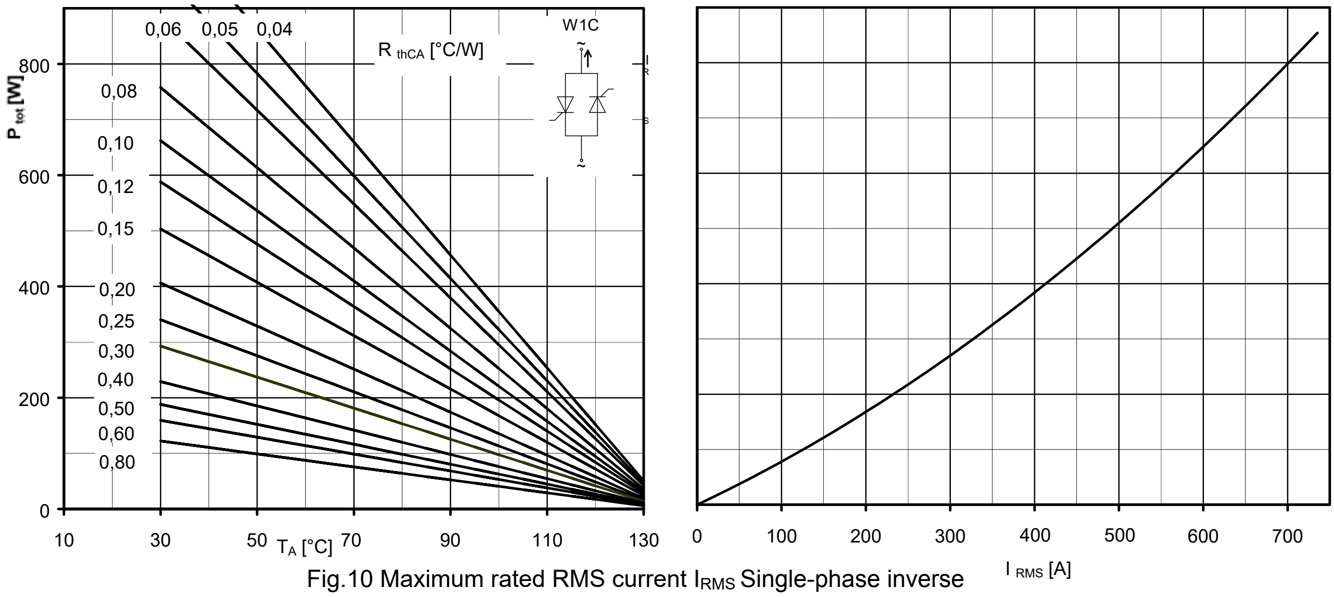

Fig.10 Maximum rated RMS current I_{RMS} Single-phase inverse parallel circuit

Total power dissipation at circuit Ptot Parameter:

Thermal resistance case to ambient RthCA

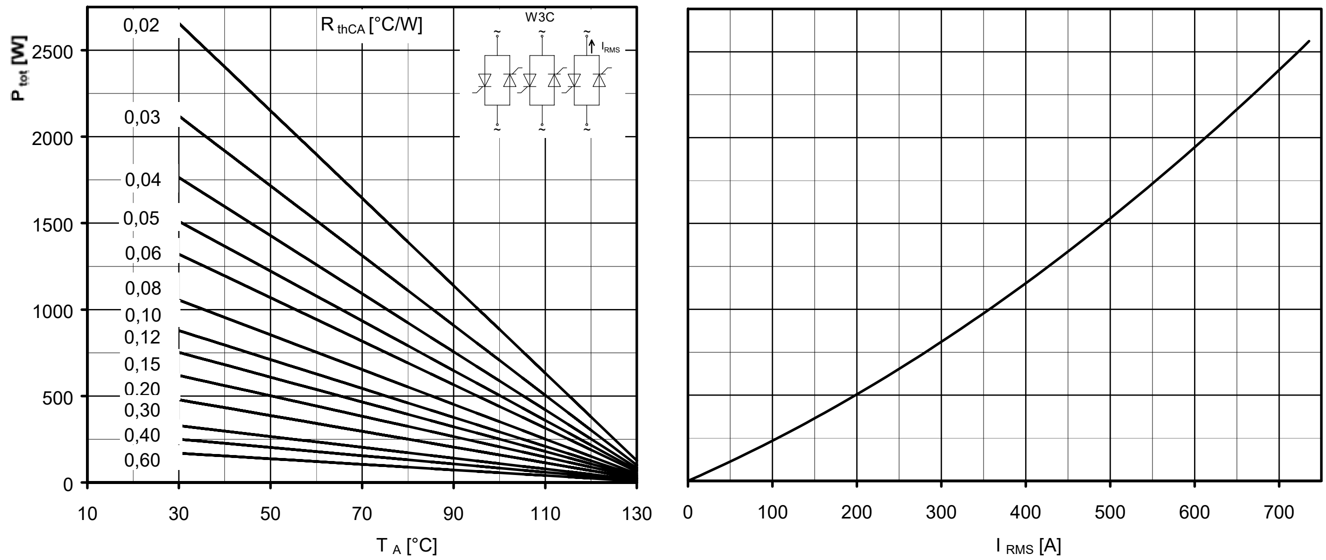

Fig.11 Maximum rated RMS current I_{RMS}

Three-phase inverse parallel circuit

Total power dissipation at circuit P_{tot} Parameter: Thermal resistance cases to ambient R_{thCA}

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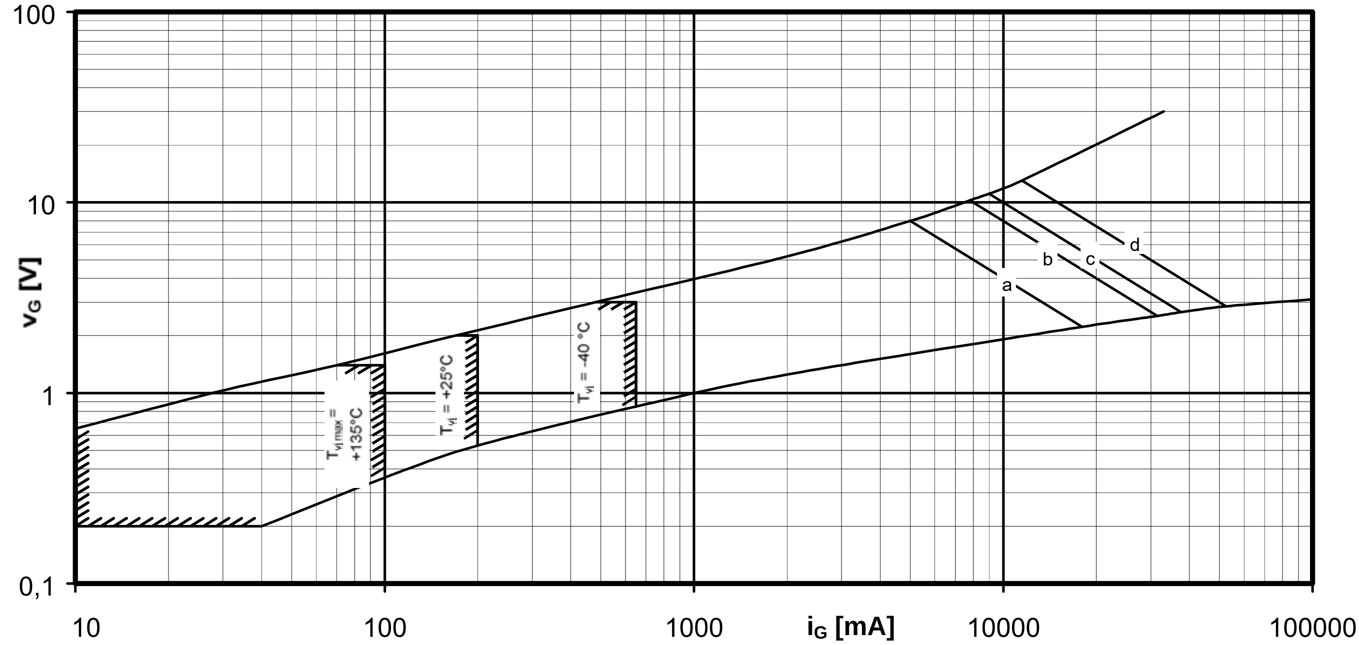

Fig.12 Gate characteristic v_G = f (i_G) with triggering area for V_D = 6 V
Maximum rated peak gate power dissipation
PGM= f (tg) :a - 40 W/10ms b - 80 W/1ms c - 100 W/0,5ms d – 150W/0,1ms

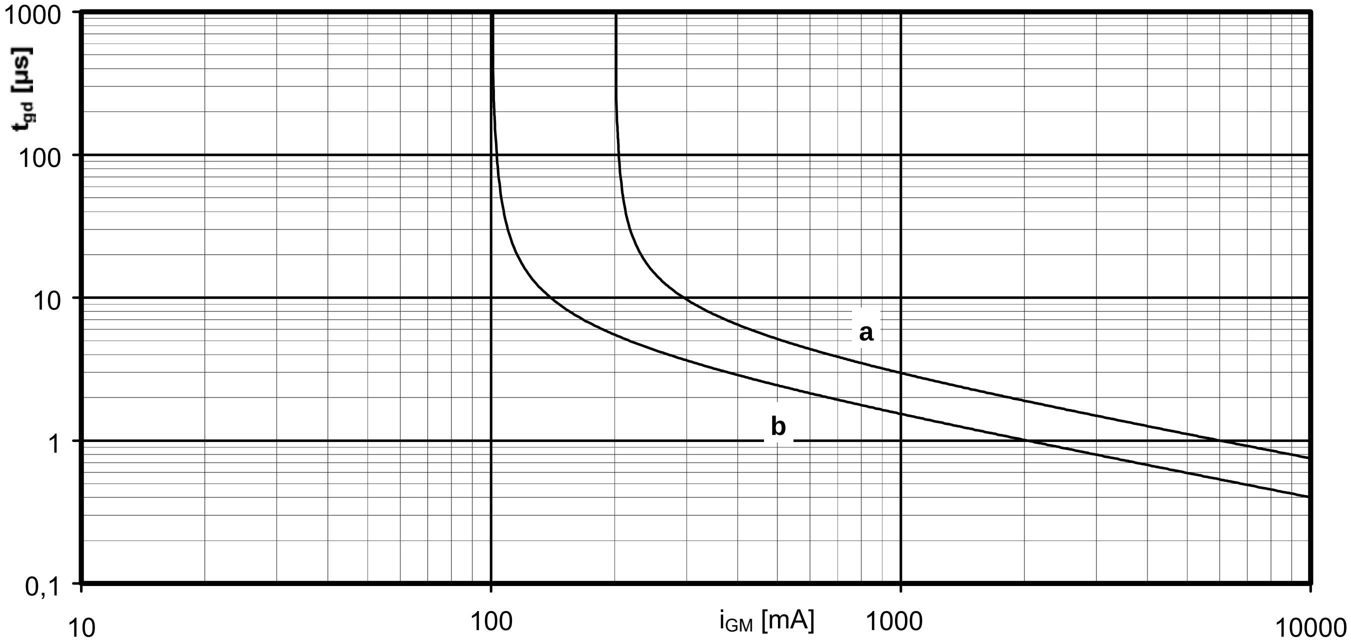

Fig.13 Gate controlled delay time t_{gd} = f(i_G) T_{vj} = 25°C,
di_G/dt = i_{GM}/1µs
a - Limiting characteristic
b - Typical characteristic

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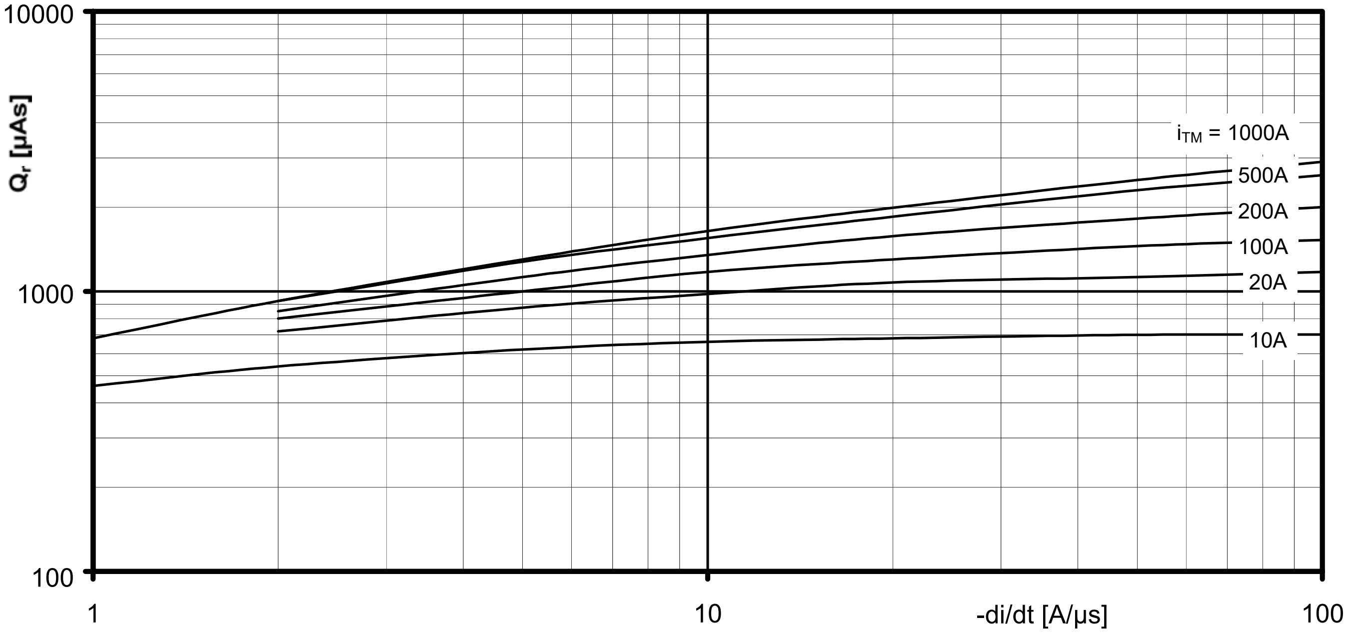

Fig.14 Recovered charge $Q_r = f(\text{-di/dt})$
$T_{vj} = T_{vjmax}$, $v_R \le 0{,}5\ V_{RRM}$, $v_{RM} = 0{,}8$
V_{RRM} Parameter: On-state current i_{TM}

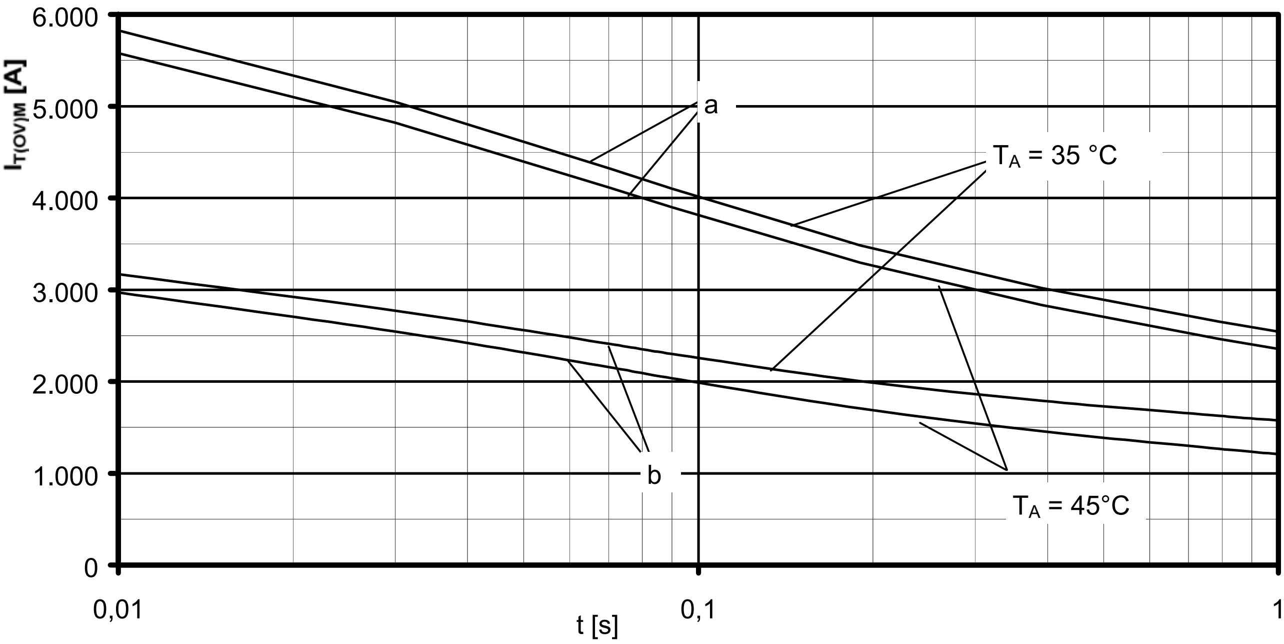

Fig.15 Maximum overload on-state current $I_{T(OV)M} = f(t)$, $v_{RM} = 0{,}8\ V_{RRM}$
a: No-load conditions
b: after load with ITAVM
TA = 35°C, Forced air cooling TA = 45°C, Natural air cooling

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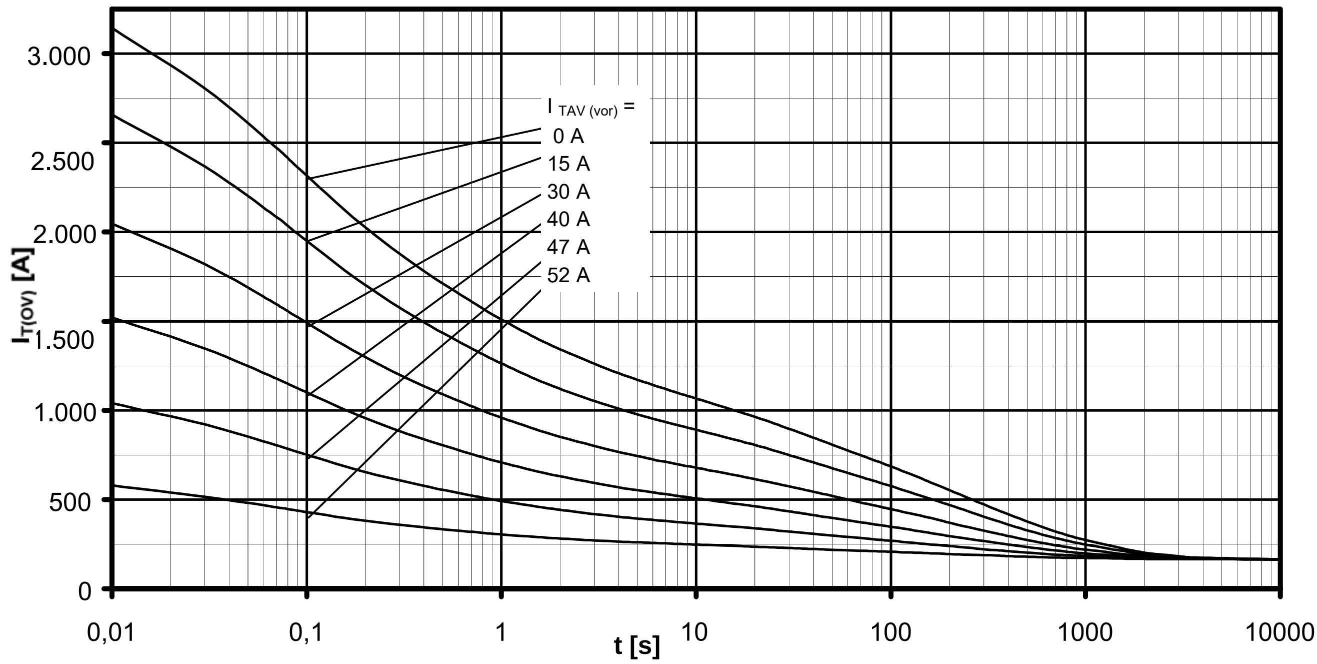

Fig.16 Overload on-state current $I_{T(OV)}$
Six-pulse bridge circuit, 120° rectangular
Heatsink type KM17 (45W) Natural cooling at T_A = 45°
C Parameter: Pre-load current per arm $I_{TAV(vor)}$

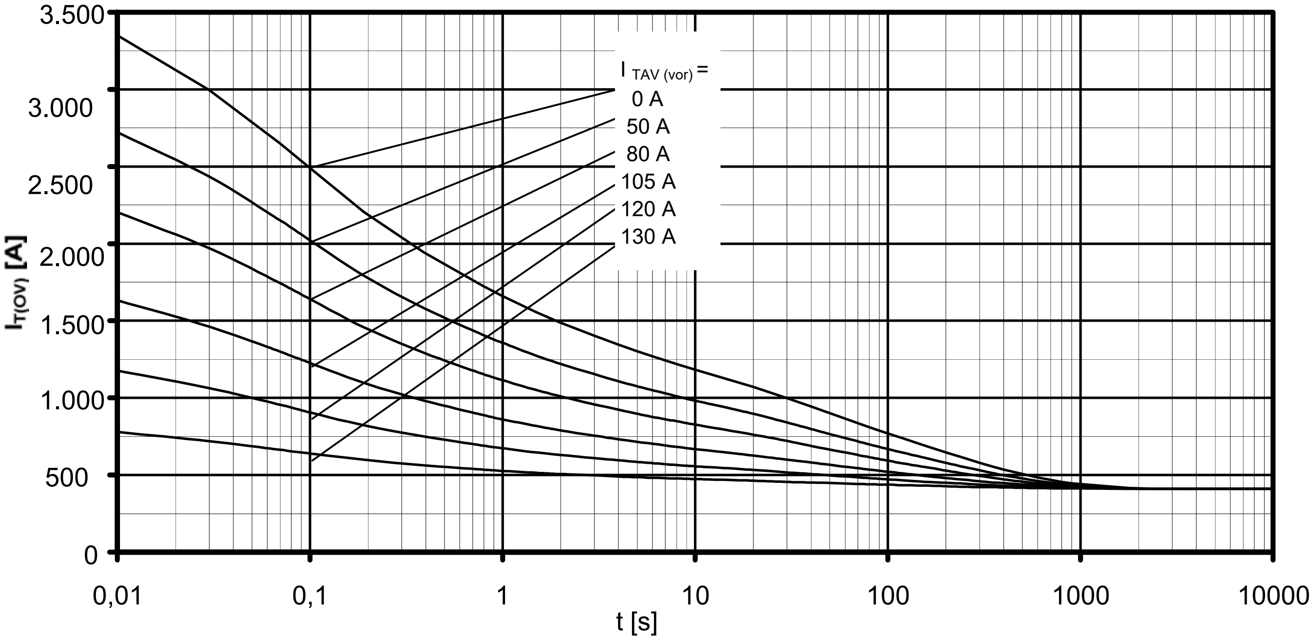

Fig.17 Overload on-state current $I_{T(OV)}$ Six-pulse bridge circuit, 120° rectangular
Heatsink type KM17(45W)
Forced cooling at T_A = 35°C Parameter:
Pre-load current per arm $I_{TAV(vor)}$

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