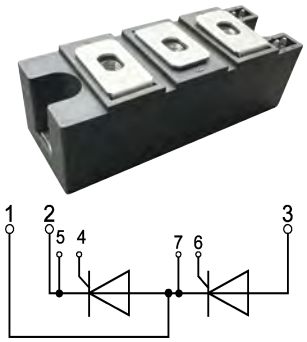
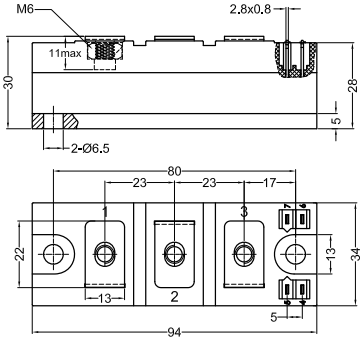
STT115GK36BT

Thyristor-Thyristor Modules



Type	V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V
STT115GK24BT	2500	2400
STT115GK26BT	2700	2600
STT115GK28BT	2900	2800
STT115GK30BT	3100	3000
STT115GK34BT	3500	3400
STT115GK36BT	3700	3600
STT115GK38BT	3900	3800

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/60Hz $T_C=85^oC$; 180° sine		180/190 115	A
I_{TSM}, I_{FSM}	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	2500 2800	A
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	2000 2200	
$\int i^2dt$	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	82500 88700	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	60000 64000	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ f=50Hz, t_p=200us $V_D=2/3V_{DRM}$ I_G=0.5A di_G/dt=0.5A/us	repetitive, $I_T=500A$ non repetitive, $I_T=I_{TAVM}$	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 (M6)		2.25-2.75/20-25 4.5-5.5/40-48	Nm/lb.in.
Weight	Typical including screws		380	g

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Symbol	Test Conditions	Characteristic Values	Unit
I_{RRM}, I_{DRM}	$T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$; $V_D=V_{DRM}$	40	mA
V_{TM}	I_{TM}=300A; $T_{VJ}=25^oC$	2.60	V
V_{TO}	For power-loss calculations only ($T_{VJ}=T_{VJM}$)	1.20	V
r_T		2.3	mΩ
V_{GT}	V_D=6V; $T_{VJ}=25^oC$ $T_{VJ}=-40^oC$	2 2.6	V
I_{GT}	V_D=6V; $T_{VJ}=25^oC$ $T_{VJ}=-40^oC$	150 200	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	$T_{VJ}=25^oC$; t_p=30us; V_D=6V I_G=0.45A; di_G/dt=0.45A/us	800	mA
I_H	$T_{VJ}=25^oC$; V_D=6V; $R_{GK}=\infty$	250	mA
t_{gd}	$T_{VJ}=25^oC$; $V_D=1/2V_{DRM}$ I_G=0.5A; di_G/dt=0.5A/us	2	us
t_q	$T_{VJ}=T_{VJM}$; I_T=115A; t_p=200us; -di/dt=10A/us V_R=100V; dv/dt=20V/us; $V_D=2/3V_{DRM}$ typ.	300	us
Q_S	$T_{VJ}=T_{VJM}$; I_T=115A; -di/dt=50A/us	650	uC
I_{RM}		135	A
R_{thJC}	per thyristor/diode; DC current per module	0.199 0.099	K/W
R_{thJK}	per thyristor/diode; DC current per module	0.270 0.135	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
* RoHS Compliance

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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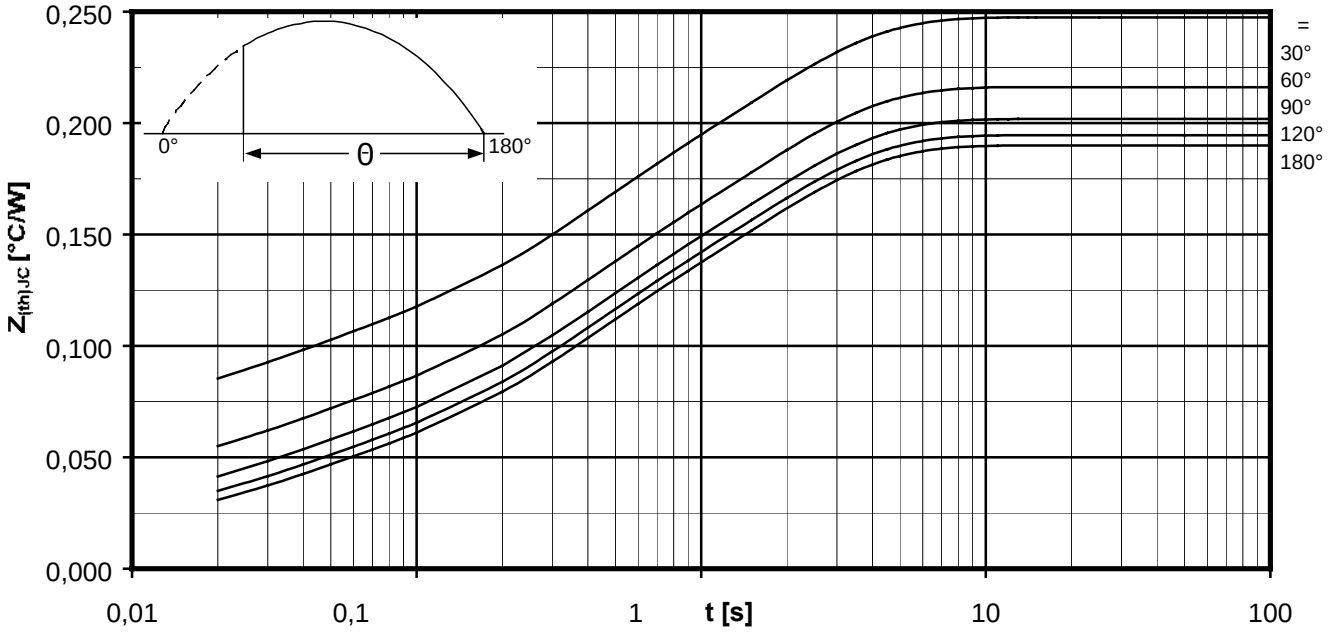
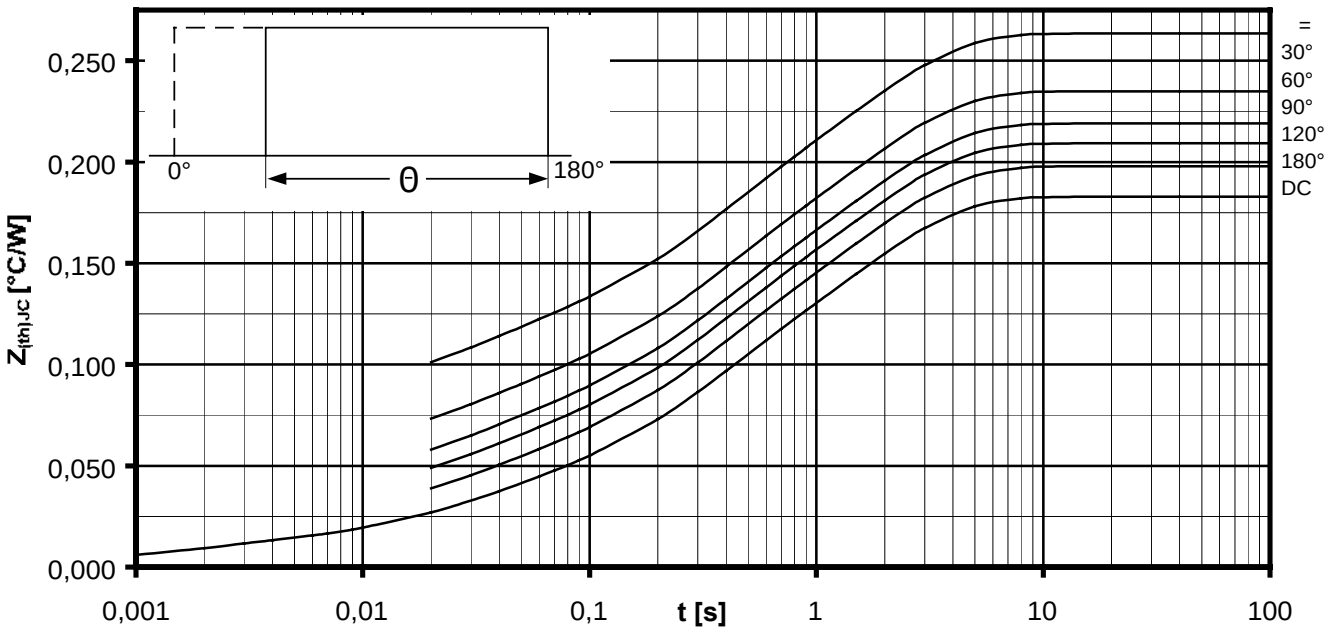


Transient thermal impedance per arm Z_{thJC} = f(t) / Sinusoidal current / Current conduction angle



Transient thermal impedance per arm Z_{thJC} = f(t) / Rectangular current / Current conduction angle

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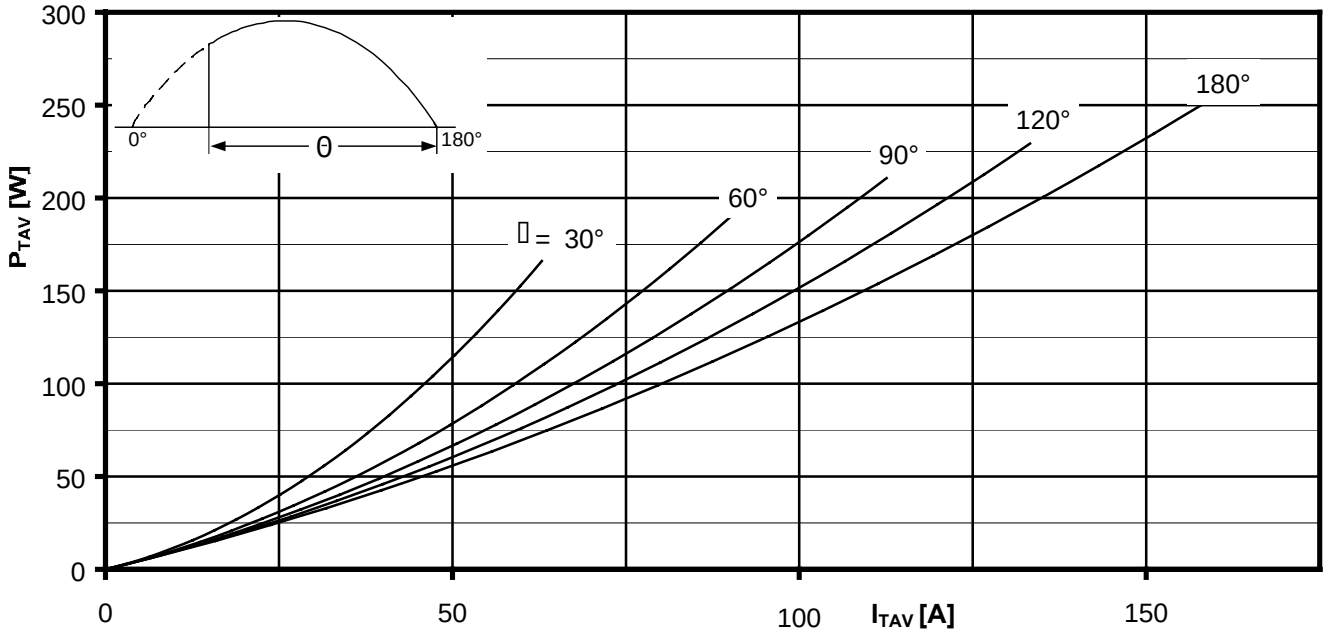
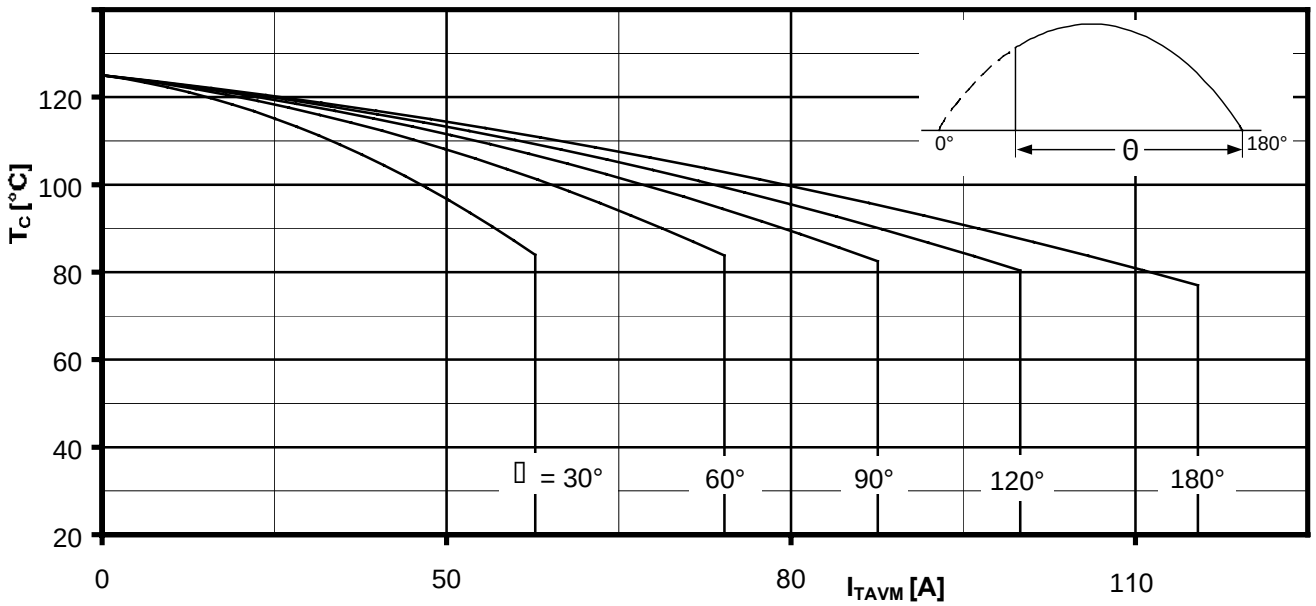


On-state power loss per arm $P_{TAV} = f(I_{TAV})$ / Sinusoidal current / Current load per arm / Current conduction angle

Calculation base P_{TAV} (switching losses should be considered separately)



Maximum allowable case temperature $T_C = f(I_{TAVM})$ / Sinusoidal current / Current load per/Carmurrentconductionangle

Calculation base P_{TAV} (switching losses should be considered separately)

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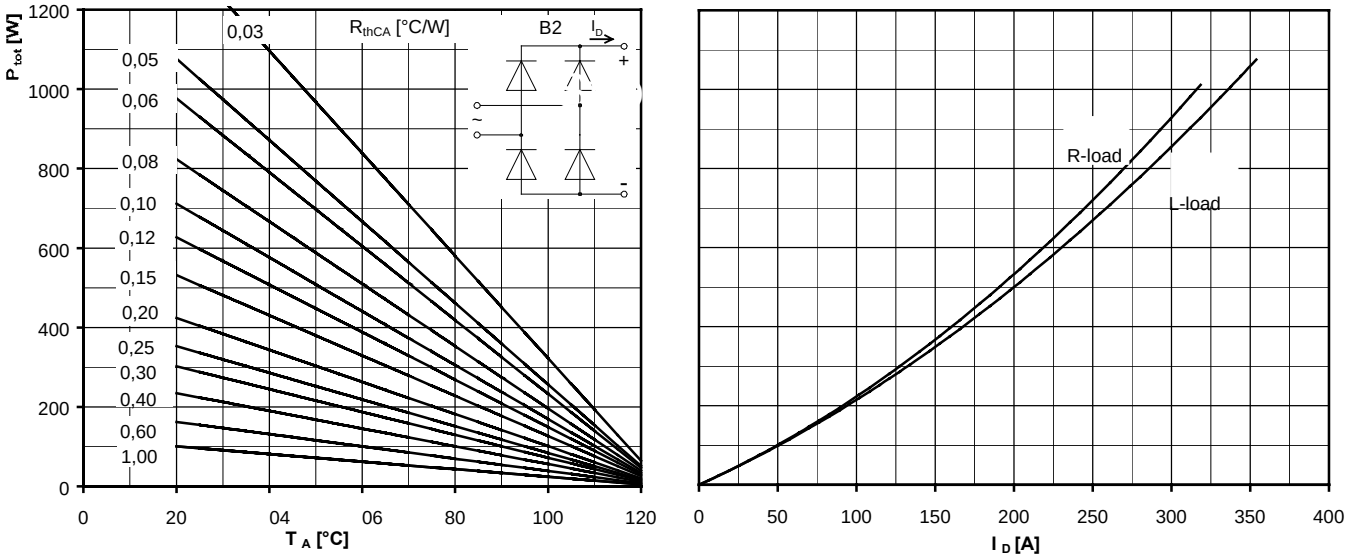
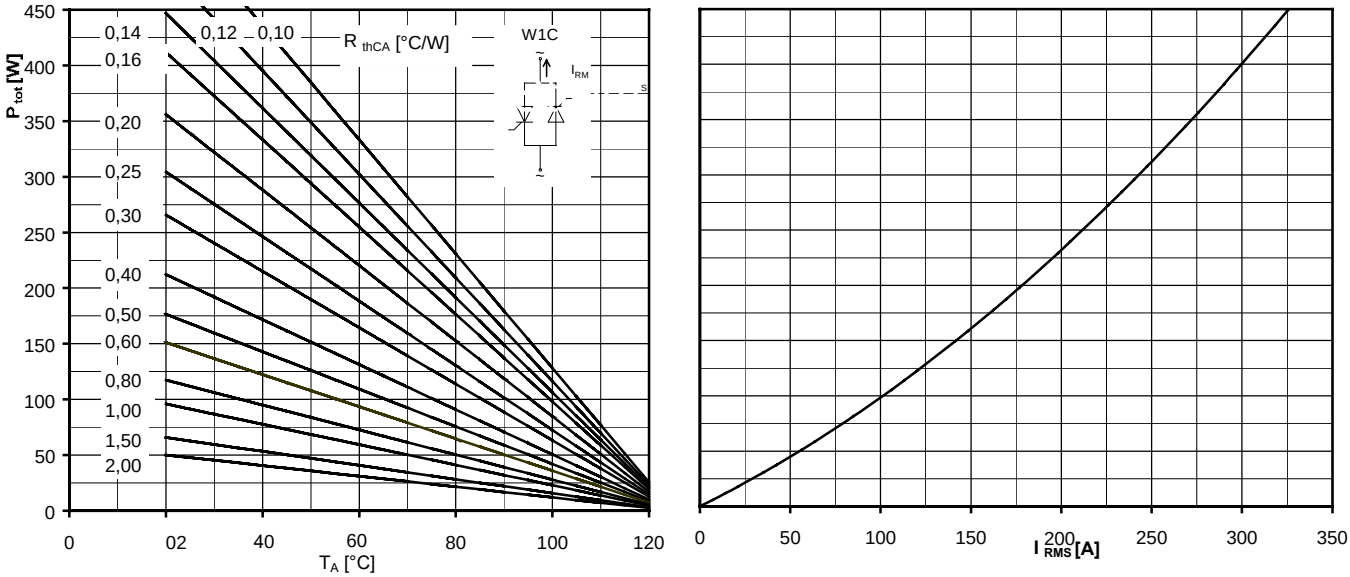


Maximum rated output current I_D / Two-pulse bridge circuit / Total power dissipation at circuit P_{tot}

Thermal resistance cases to ambient R_{thCA}



Maximum rated RMS current I_{RMS} / Single-phase inverse parallel circuit / Total power dissipation at circuit P_{tot}

Thermal resistance case to ambient R_{thCA}

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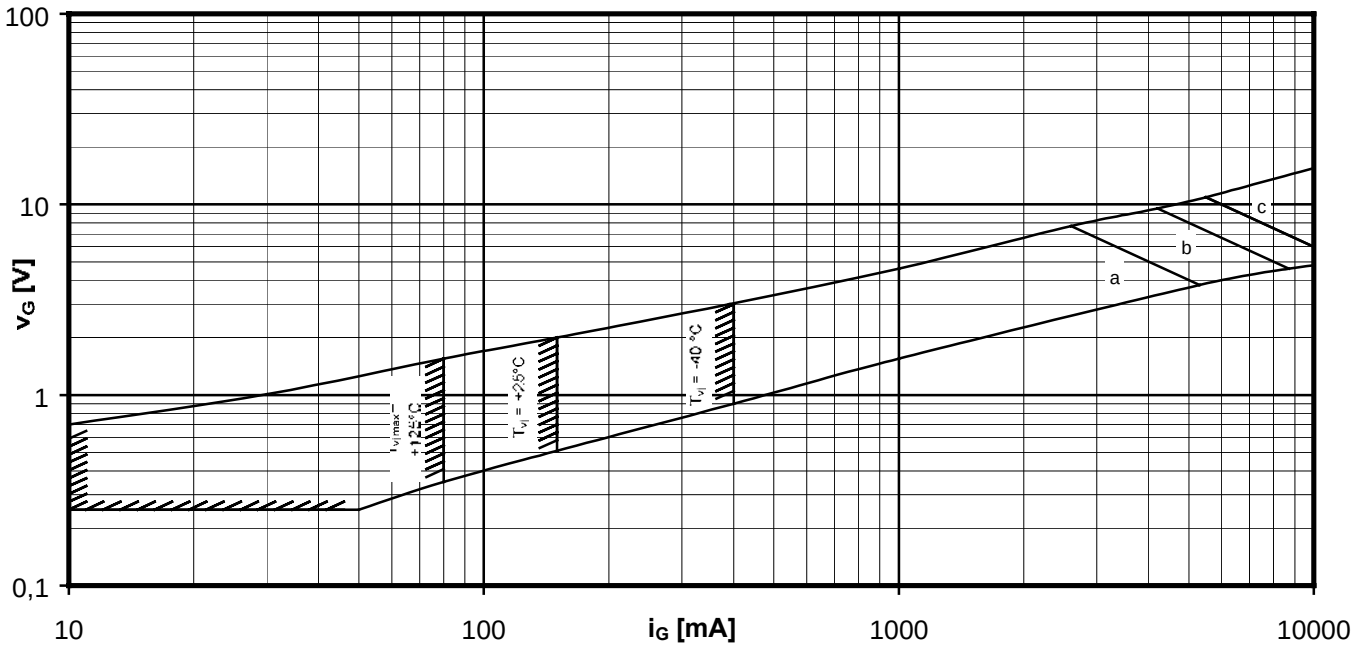
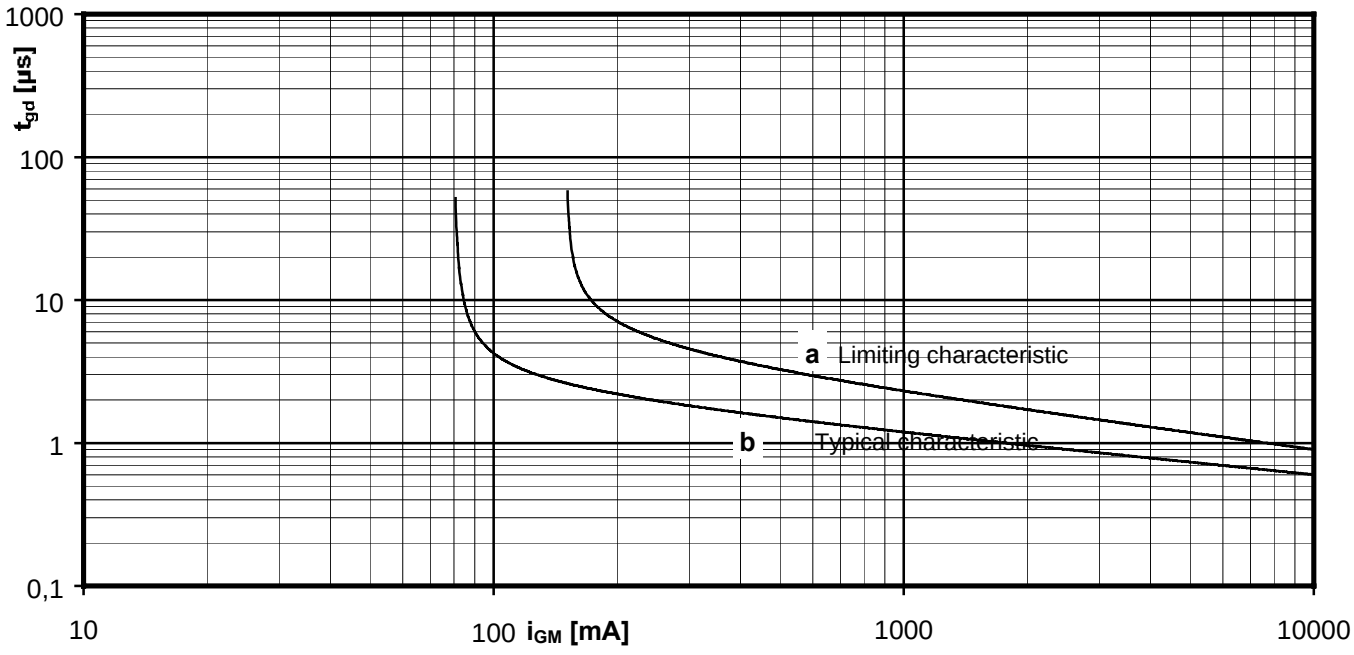


Gate characteristic v_G= f(i_G) with triggering area for V_D=6V/Maximum rated peak gate power dissipation
P_{GM}=f(t_g):a- 20W/10ms b-40W/1ms c-60 W/0,5ms



Gate controlled delay time t_{gd}=f(i_G) T_{vj}=25°C, di_G/dt=i_{GM}/1µs

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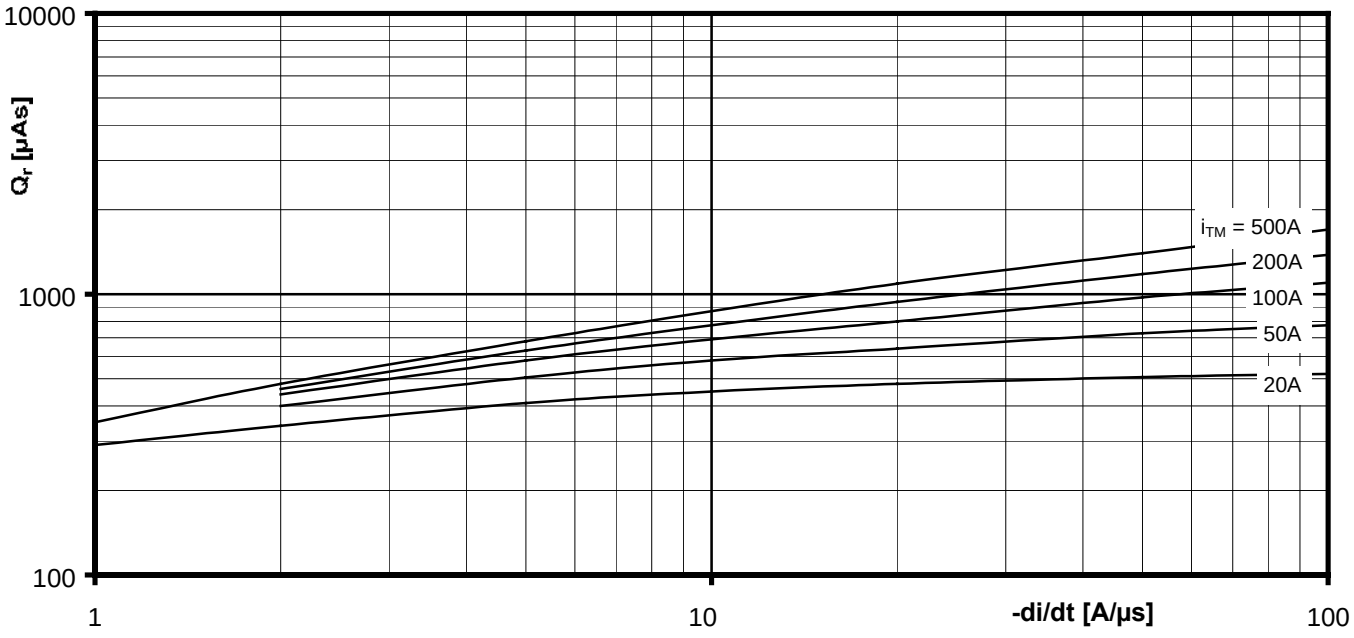
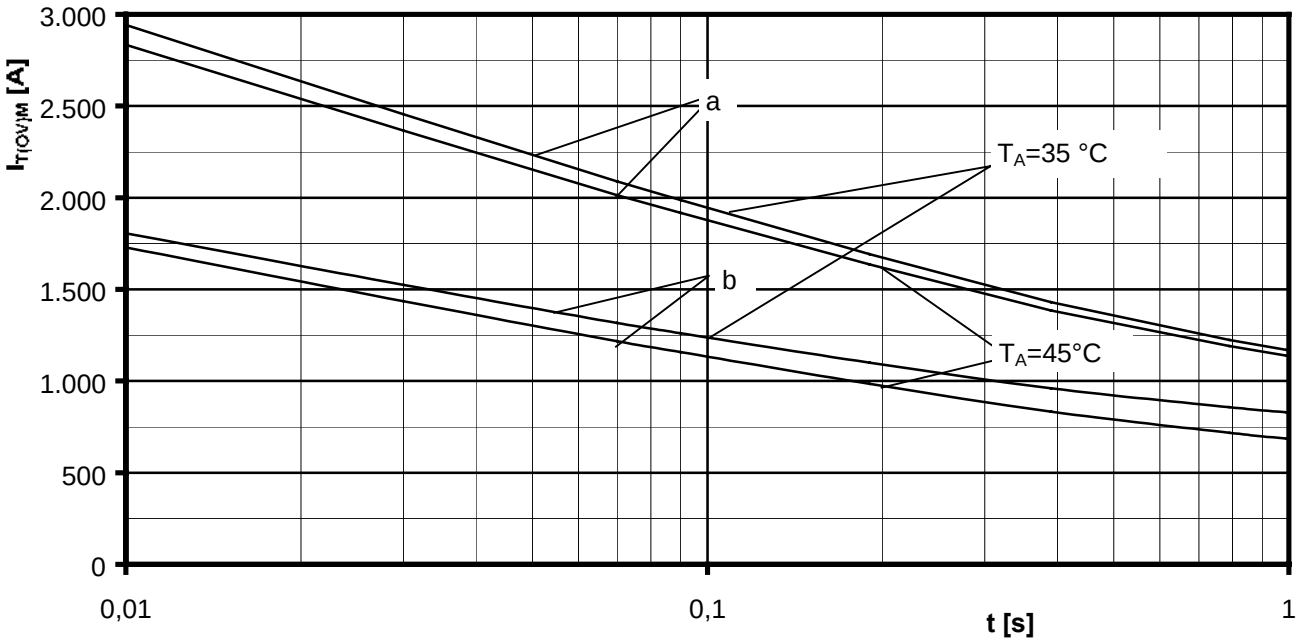


Recovered charge Q_r = f(-di/dt) $T_{vj}=T_{vjmax}$,v_R0,5V_{RRM}, v_{RM}=0,8V_{RRM}

On-state current i_{TM}



Maximum overload on-state current $I_{T(OV)M}$= f(t),v_{RM}=0,8V_{RRM} a:No-load conditions b:after load with I_{TAVM}

T_A = 35°C, Forced air cooling

T_A = 45°C, Natural air cooling

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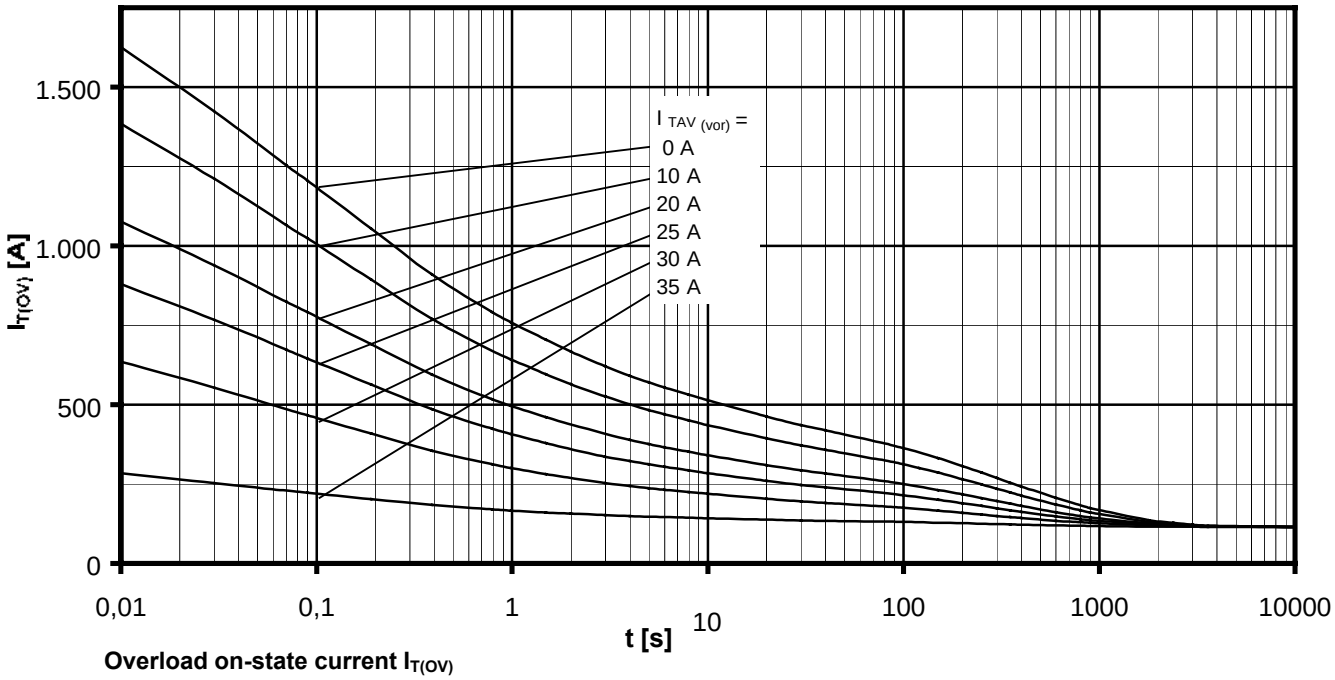
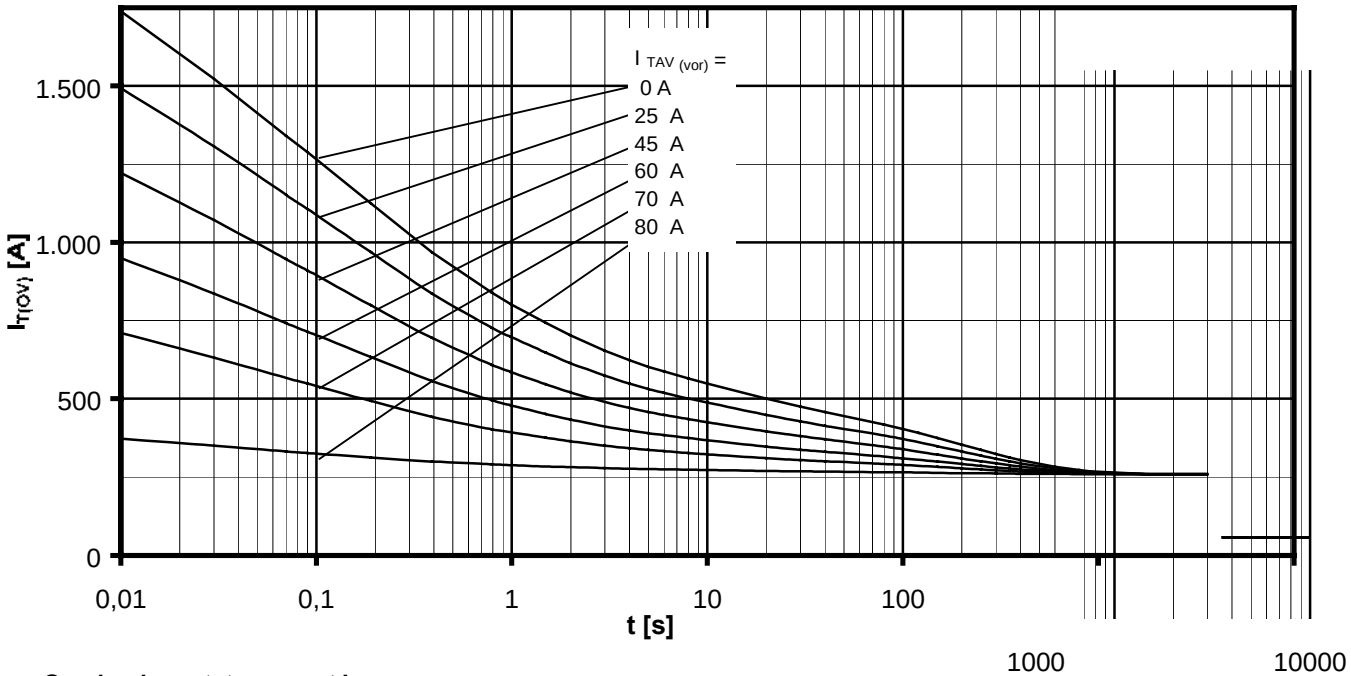


Overload on-state current $I_{T(OV)}$

Six-pulse bridge circuit, 120° rectangular / Heatsink type KM17 (45W) / Natural cooling at T_A = 45°C

Pre-load current per arm $I_{TAV(vor)}$



Overload on-state current $I_{T(OV)}$ / Six-pulse bridge circuit, 120° recta / Heatsink type KM17 (Papst 4650N)

Forced cooling at ngular / Pre-load current per arm $I_{TAV(vor)}$ T_A = 35°C

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