AS ENERGI

Thyristor Modules
AMKT 280-22E H4

Symbols and parameters			Values	Units
I_{TAV}	Average on-state current	sin. 180; T_C = 85 (79)°C	252 (280)	A
I_{TRMS}	Nominal RMS on-state current	continuous operation	440	A
I_{TSM}	Surge on-state current	T_j = 25°C; 10 ms T_j = 125°C; 10 ms	8500 7500	A A
I^2t	I^2t value, rating for fusing	T_j = 25°C; 10 ms T_j = 125°C; 10 ms	361250 281250	A^2s A^2s
V_{RSM}	Non-repetitive peak reverse voltage		2300	V
V_{RRM} ; V_{DRM}	Repetitive peak reverse voltage; Repetitive peak off-state voltage		2200	V
$(di/dt)_{cr}$	Critical rate of rise of on-state current	T_j = 125°C	250	A/µs
$(dv/dt)_{cr}$	Critical rate of rise of off-state voltage	T_j = 125°C	1000	V/µs
T_j	Virtual junction temperature		-40 … +125	°C
T_{stg}	Storage temperature range		-40 … +125	°C
V_{ISOL}	Insulation test voltage (r.m.s.)	a.c. 50 Hz; r.m.s.; 1s / 1min.	4800 / 4000	V
V_T	On-state voltage	T_j = 25°C; I_T =750 A	max. 1.55	V
$V_{T(TO)}$	On-state threshold voltage	T_j = 125°C	max. 0.90	V
r_T	On-state slope resistance	T_j = 125°C	max. 0.75	mΩ
I_{DD} ; I_{RD}	Forward off-state current; Direct reverse current	T_j = 125°C, V_{RD}=V_{RRM}; V_{DD}=V_{DRM}	max. 90	mA
t_{gd}	Gate controlled turn-on delay time	T_j = 25 °C; I_G = 1 A; di_G/dt = 1 A/µs	1	µs
t_{gr}	Gate controlled rise time	V_D = 0,67 * V_{DRM}	2	µs
t_q	Turn-off time	T_j = 25°C; min. / typ. / max	50 / 150 / 150	µs
I_H	Holding current	T_j = 25°C; typ. / max	150 / 500	mA
I_L	Latching current	T_j = 25°C; R_G=33Ω; typ. / max	300 / 2000	mA
V_{GT}	Gate trigger voltage	T_j = 25°C; d.c.	min. 3	V
I_{GT}	Gate trigger current	T_j = 25°C; d.c.	min. 200	mA
V_{GD}	Gate non-trigger voltage	T_j = 125°C; d.c.	max. 0.25	V
I_{GD}	Gate non-trigger current	T_j = 125°C; d.c.	max. 10	mA
$R_{th(j-c)}$	Thermal resistance, junction to case	cont. DC; per chip / per module	0.11 / 0.055	K/W
		sin.180; per chip / per module	0.116 / 0.058	K/W
		rec.120; per chip / per module	0.13 / 0.065	K/W
$R_{th(c-s)}$	Thermal resistance, junction to heatsink	per chip / per module	0.04 / 0.02	K/W
M_S	Mounting torque on heatsink	min / max	4.25 / 5.75	Nm
M_t	Mounting torque for terminals	min / max	7.65 / 10.34	Nm
a	Maximum allowable acceleration		5*9.81	m/s^2
W	Weight	approx.	600	g

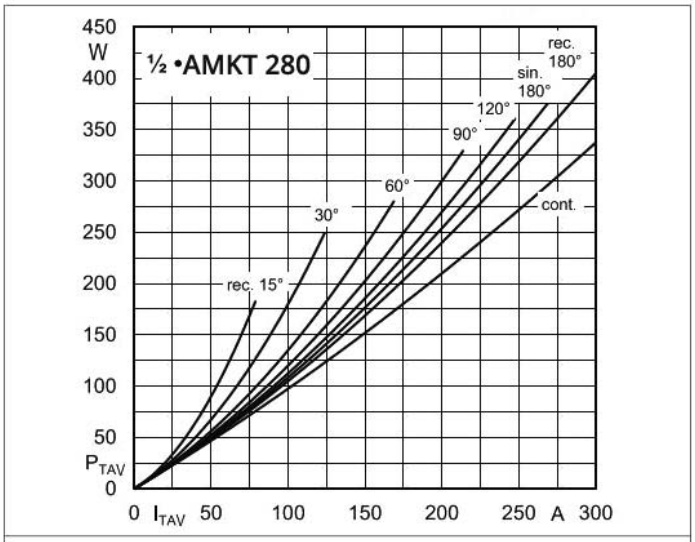


Fig. 1L: Power dissipation per thyristor vs. on-state current

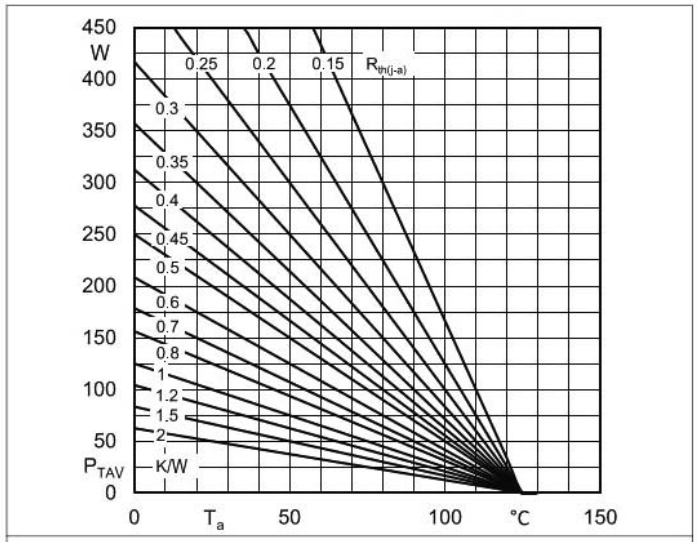


Fig. 1R: Power dissipation per thyristor vs. ambient temperature

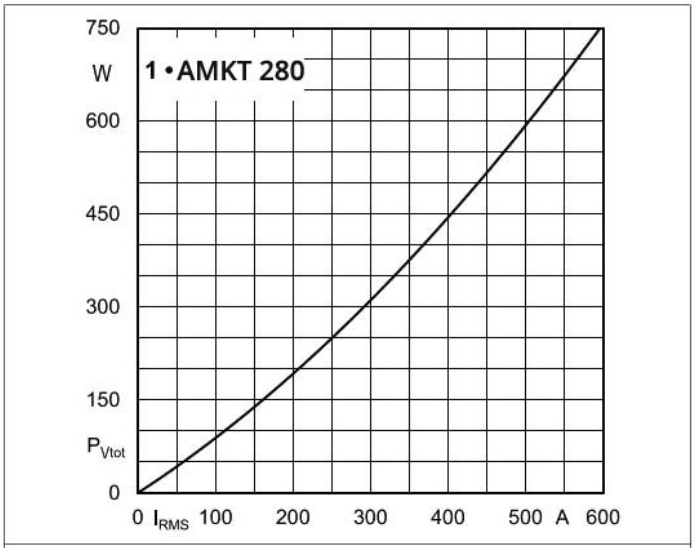


Fig. 2L: Power dissipation of one module vs. rms current

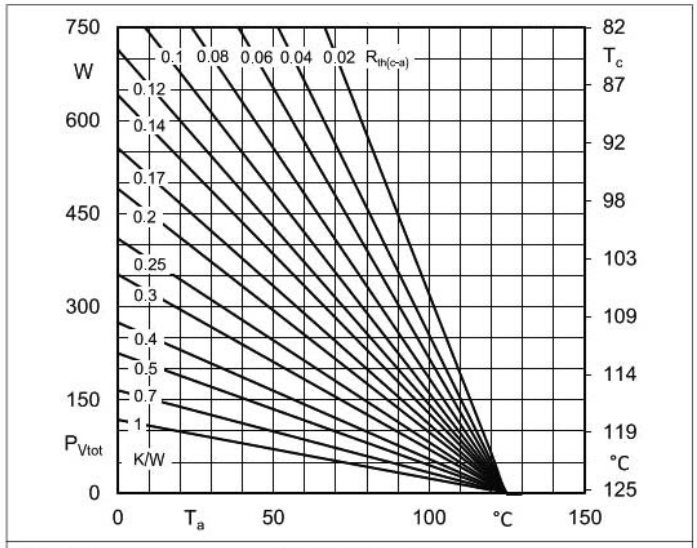


Fig. 2R: Max. power dissipation of one module vs. case temperature

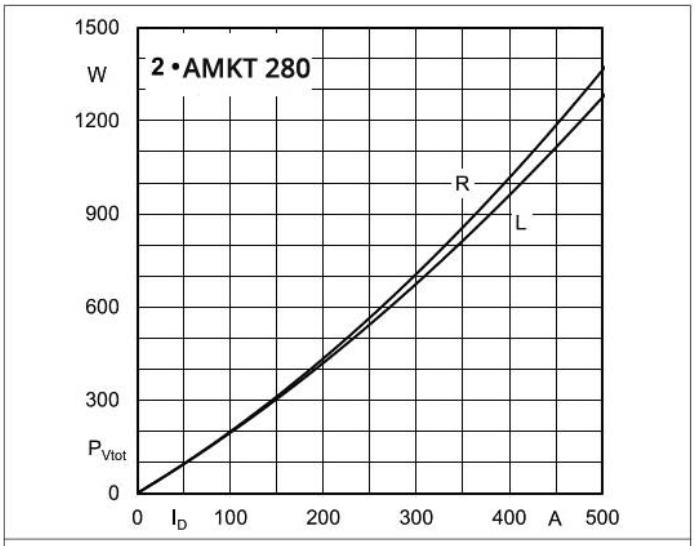


Fig. 3L: Power dissipation of two modules vs. direct current

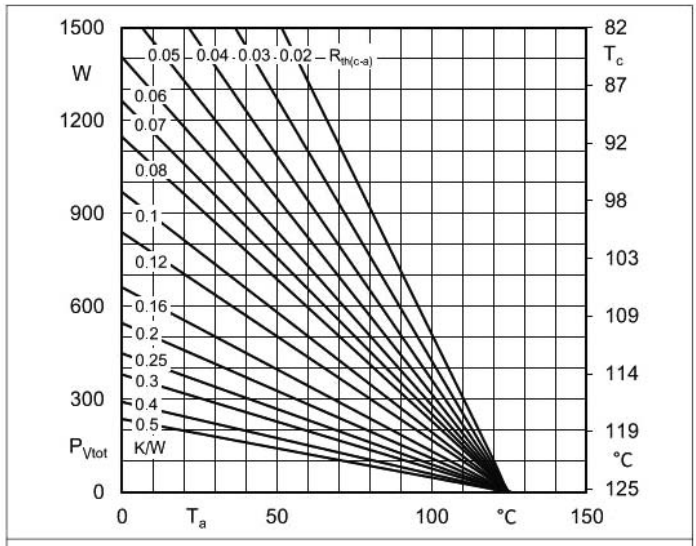


Fig. 3R: Power dissipation of two modules vs. case temperature

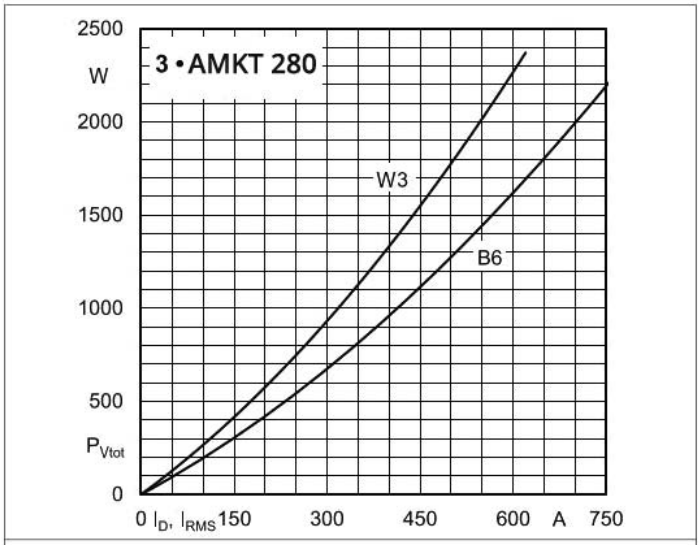


Fig. 4L: Power dissipation of three modules vs. direct and rms current

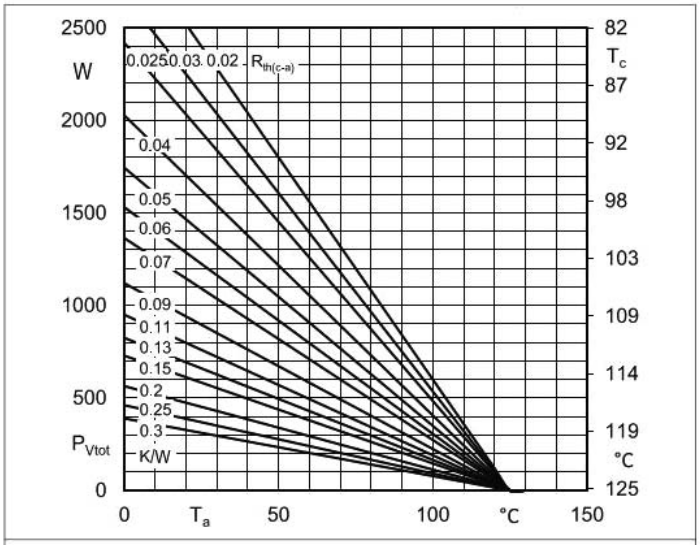


Fig. 4R: Power dissipation of three modules vs. case temperature

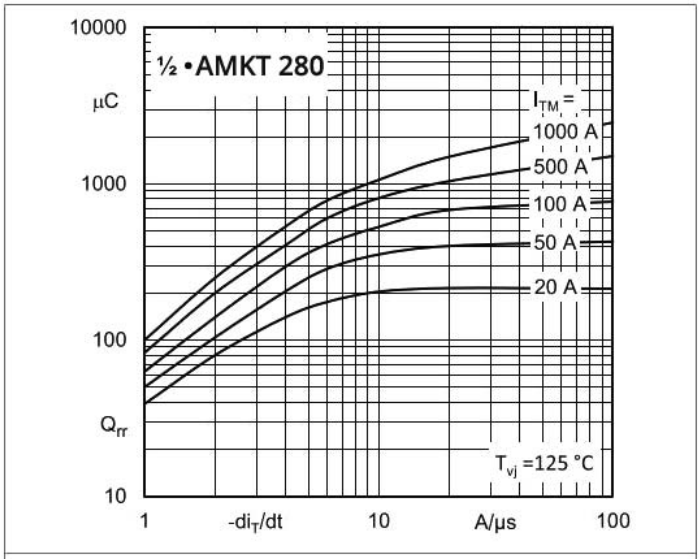


Fig. 5: Recovered charge vs. current decrease

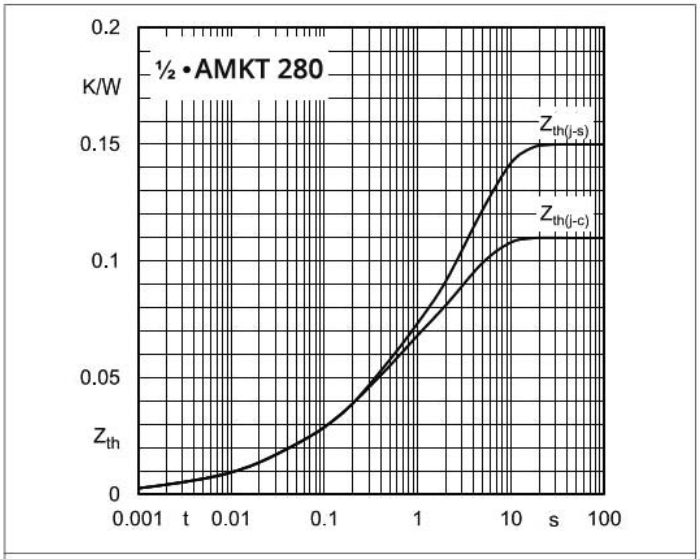


Fig. 6: Transient thermal impedance vs. time

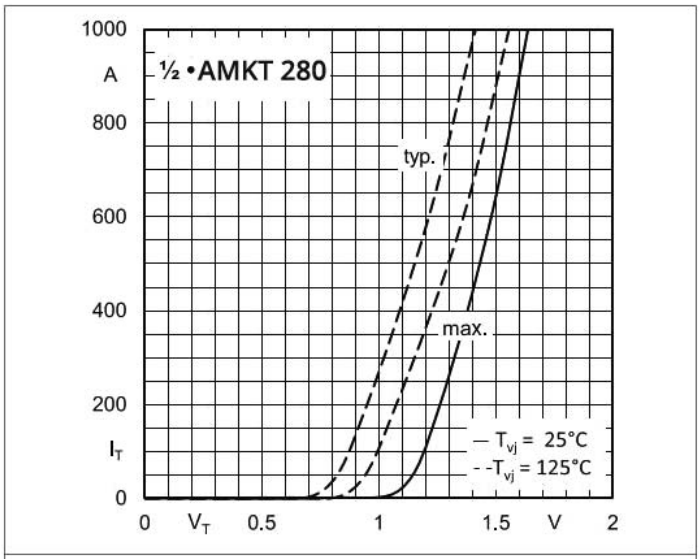


Fig. 7: On-state characteristics

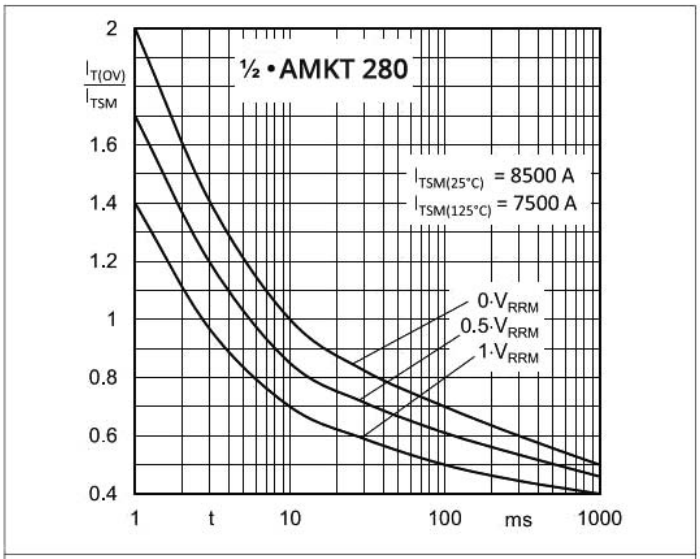


Fig. 8: Surge overload current vs. time

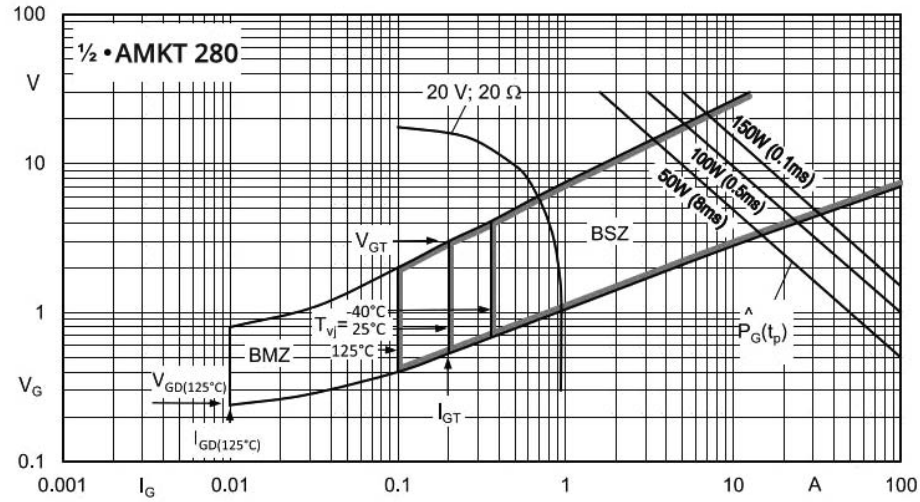
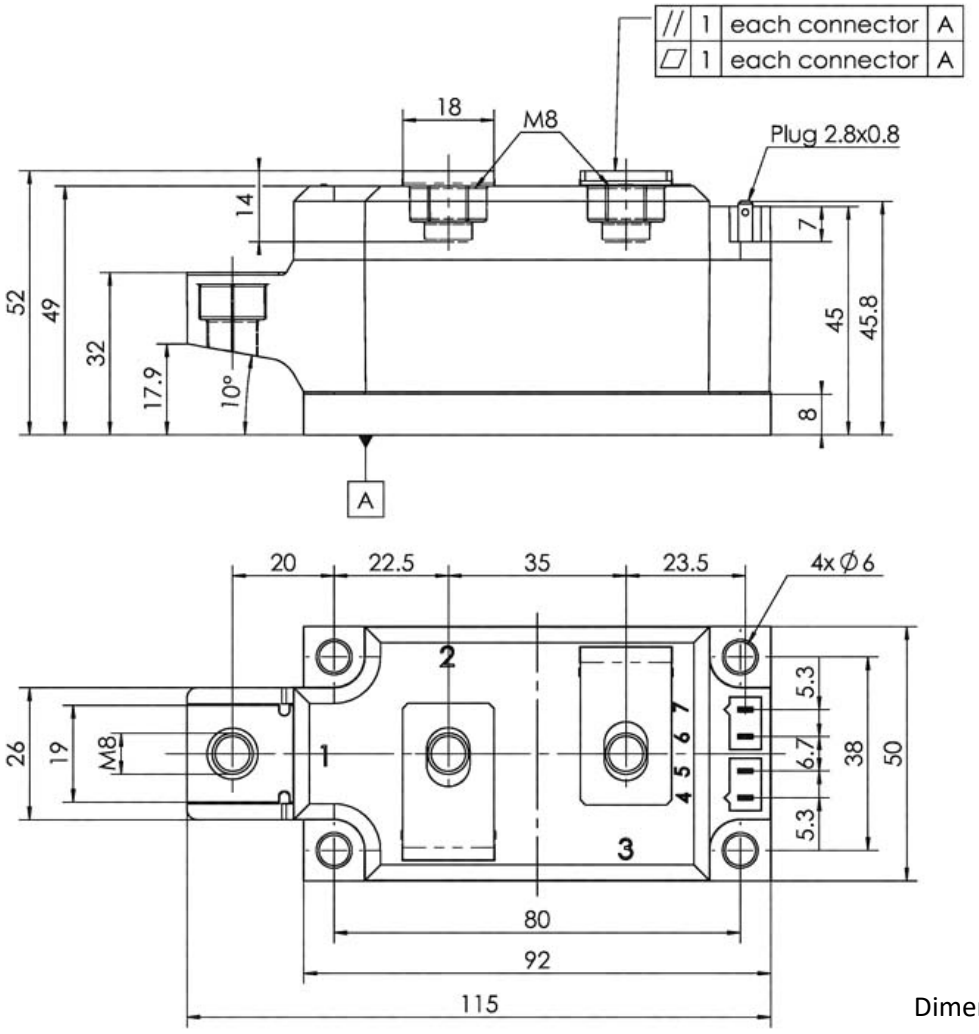


Fig. 9: Gate trigger characteristics

DIMENSIONS



Dimensions in mm

TOPOLOGY OF INTERNAL CONNECTION