AS ENERGI

Thyristor Diode Modules
AMKH 105

V_{RSM} V	V_{RRM}, V_{DRM} V	I_{TRMS} = 180 A (maximum value for continuous operation) I_{TAV} = 106 A (sin 180; T_C = 85 °C)	
500	400	–	AMKH 105-04D
700	600	AMKT 105-06E	AMKH 105-06D
900	800	AMKT 105-08E	AMKH 105-08D
1300	1200	AMKT 105-12E	AMKH 105-12E
1500	1400	AMKT 105-14E	AMKH 105-14E
1700	1600	AMKT 105-16E	AMKH 105-16E
1900	1800	AMKT 105-18E	AMKH 105-18E

Symbols and parameters			Values	Units
I_{TAV}	Average on-state current	sin 180; T_C = 85 (100)°C	106 (78)	A
I_D	Direct output current	P3/180F; T_a = 35°C; B2/B6 P16/180F; T_a = 35°C; B2/B6	145 / 180 190 /260	A A
I_{RMS}	Maximum RMS current	P3/180F; T_a =35°C; W1/W3	200 / 3*140	A
I_{TSM}	Surge on-state current	T_{vj} = 25°C; 10 ms T_{vj} = 130°C; 10 ms	2250 1900	A A
I^2t	I^2t value, rating for fusing	T_{vj} = 25°C; 8.3…10 ms T_{vj} = 130°C; 8.3…10 ms	25000 18000	A^2s A^2s
V_T	On-state voltage	T_{vj} = 25°C; I_T =300 A	max. 1.65	V
$V_{T(TO)}$	On-state threshold voltage	T_{vj} = 130°C	max. 0.9	V
r_T	On-state slope resistance	T_{vj} = 130°C	max. 2	mΩ
I_{DD} ; I_{RD}	Forward off-state current; Direct reverse current	T_{vj} = 130°C, V_{RD}=V_{RRM}; V_{DD}=V_{DRM}	max. 20	mA
t_{gd}	Gate controlled turn-on delay time	T_{vj} = 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
$(di/dt)_{cr}$	Critical rate of rise of on-state current	T_{vj} = 130°C	max. 150	A/µs
$(dv/dt)_{cr}$	Critical rate of rise of off-state voltage	T_{vj} = 130°C	max. 500 / 1000	V/µs
t_q	Turn-off time	T_{vj} = 130°C	100	µs
I_H	Holding current	T_{vj} = 25°C; typ. / max	150 / 250	mA
I_L	Latching current	T_{vj} = 25°C; R_G=33 Ω; typ. / max	300 / 600	mA
V_{GT}	Gate trigger voltage	T_{vj} = 25°C; d.c.	min. 3	V
I_{GT}	Gate trigger current	T_{vj} = 25°C; d.c.	min. 150	mA
V_{GD}	Gate non-trigger voltage	T_{vj} = 130°C; d.c.	max. 0.25	V
I_{GD}	Gate non-trigger current	T_{vj} = 130°C; d.c.	max. 6	mA
$R_{th(j-c)}$	Thermal resistance, junction to case	cont.; per thyristor/per module	0.28 / 0.14	K/W
		sin.180; per thyristor / per module	0.3 / 0.15	K/W
		rec.120; per thyristor / per module	0.32 / 0.16	K/W
$R_{th(c-s)}$	Thermal resistance, junction to heatsink	per thyristor / per module	0.2 / 0.1	K/W
T_{vj}	Virtual junction temperature		- 40 … + 130	°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.	3600 / 3000	V~
M_S	Mounting torque on heatsink		5 ± 15 %	Nm
M_t	Mounting torque for terminals		5 ± 15 %	Nm
a	Maximum allowable acceleration		5 * 9.81	m/s^2
W	Weight	approx.	95	g

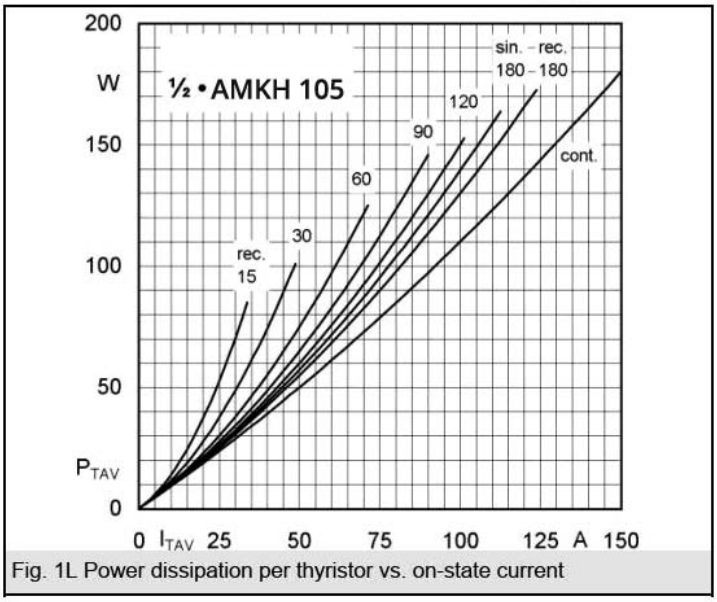

Fig. 1L Power dissipation per thyristor vs. on-state current

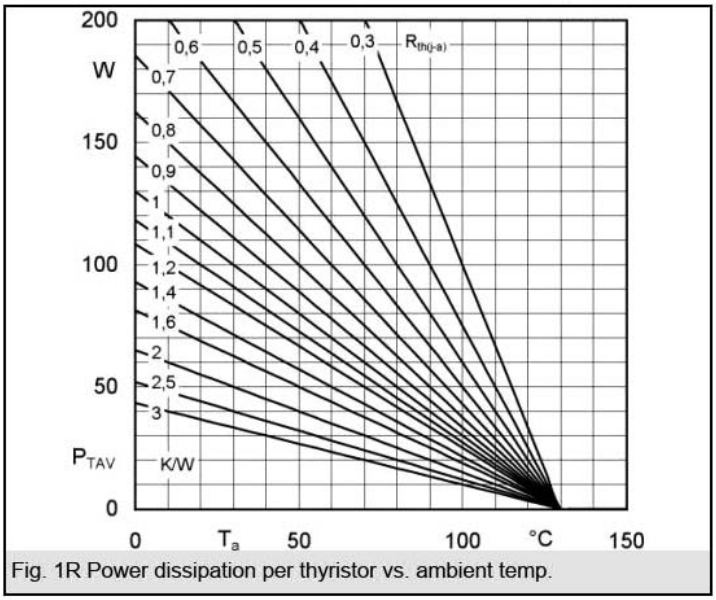

Fig. 1R Power dissipation per thyristor vs. ambient temp.

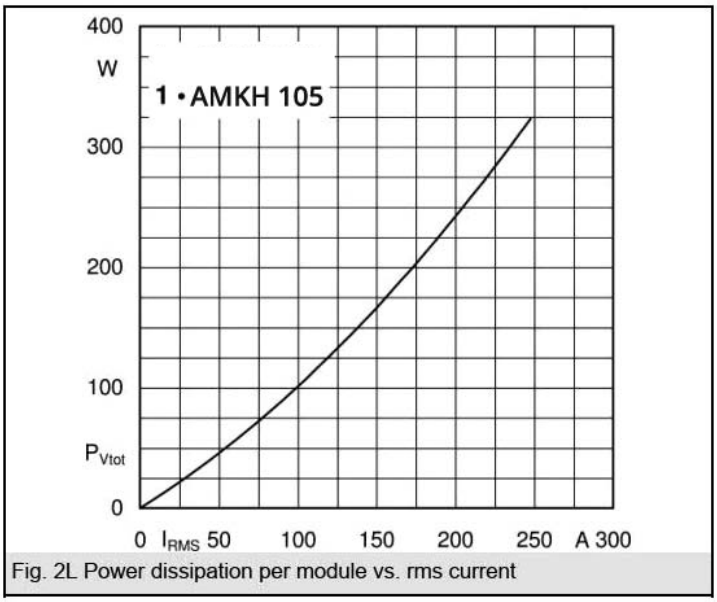

Fig. 2L Power dissipation per module vs. rms current

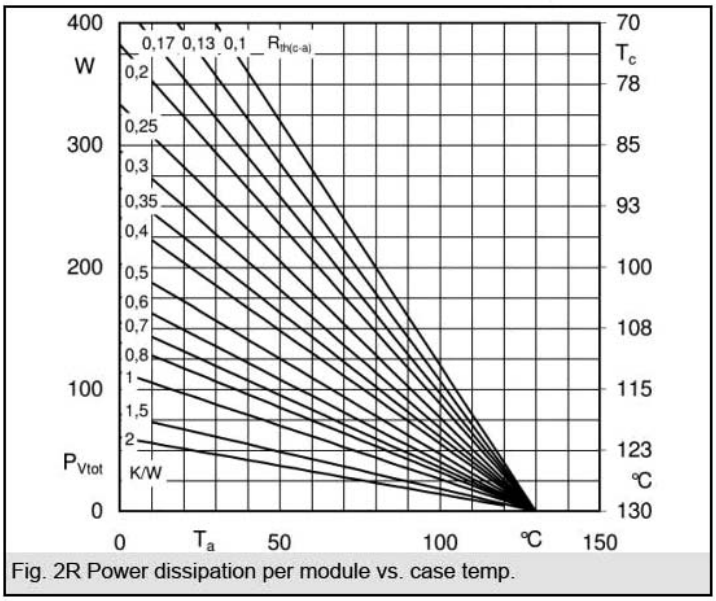

Fig. 2R Power dissipation per module vs. case temp.

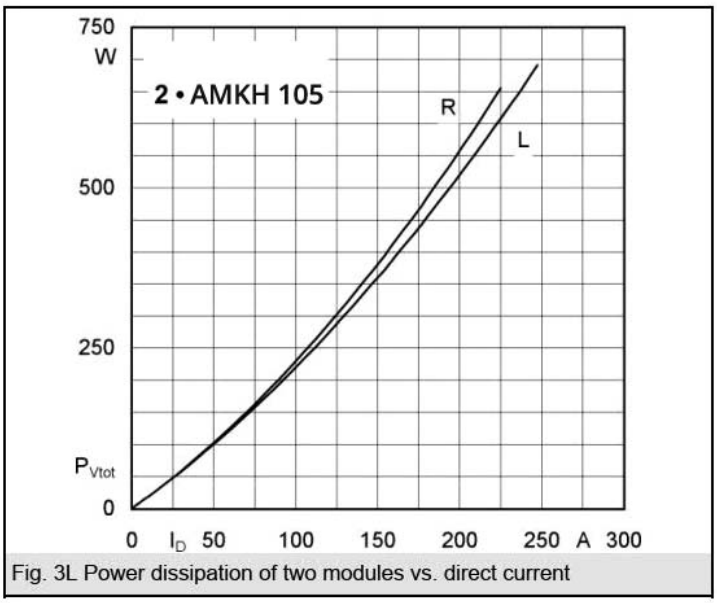

Fig. 3L Power dissipation of two modules vs. direct current

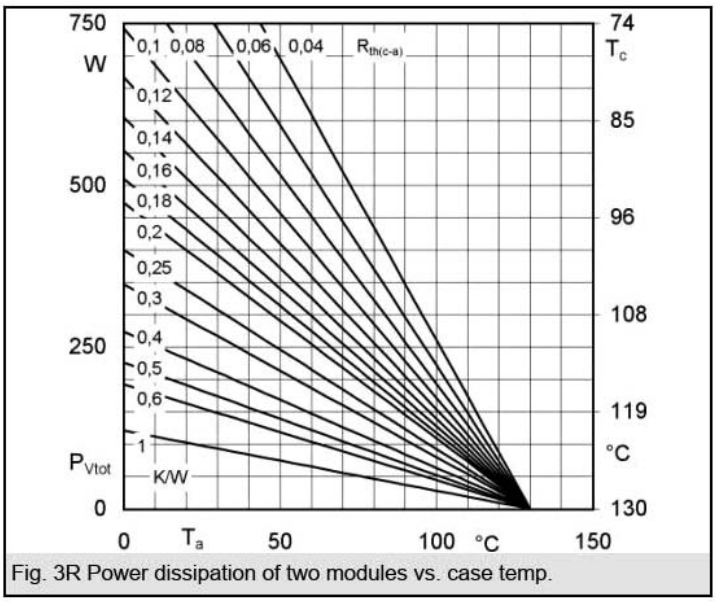

Fig. 3R Power dissipation of two modules vs. case temp.

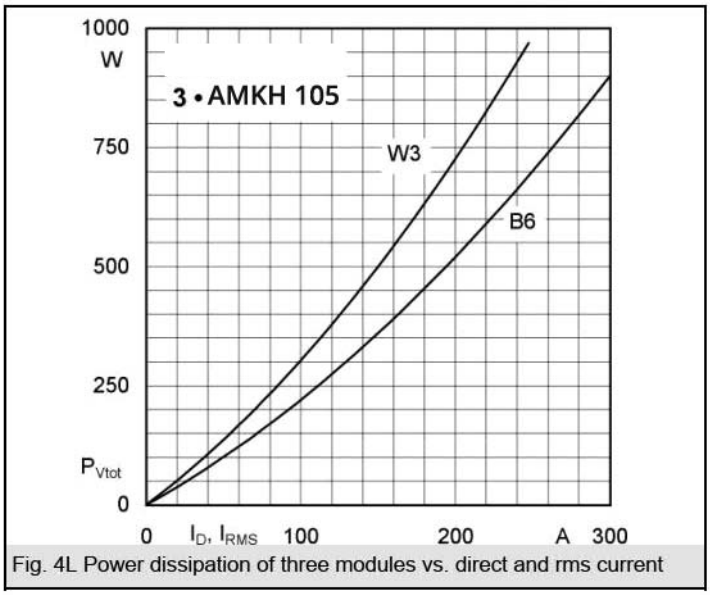

Fig. 4L Power dissipation of three modules vs. direct and rms current

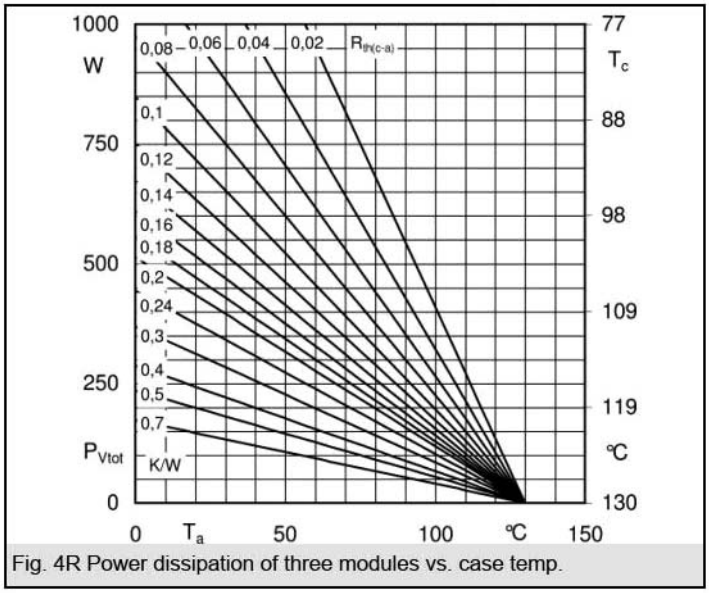

Fig. 4R Power dissipation of three modules vs. case temp.

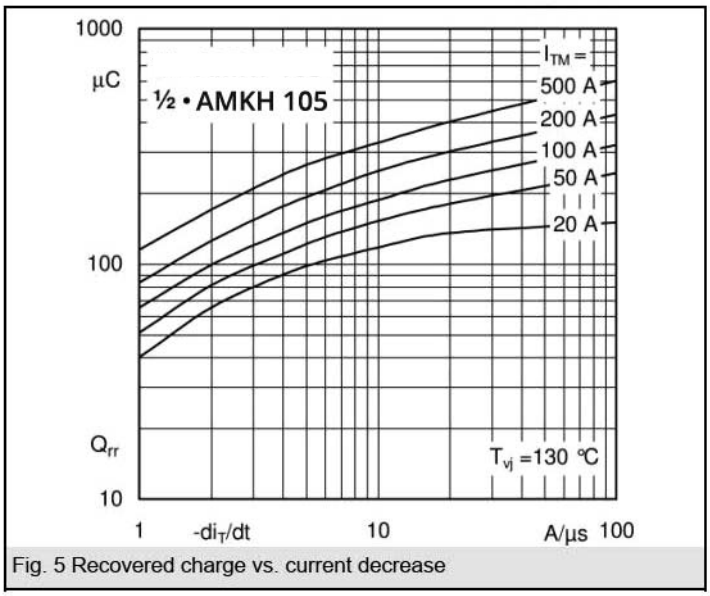

Fig. 5 Recovered charge vs. current decrease

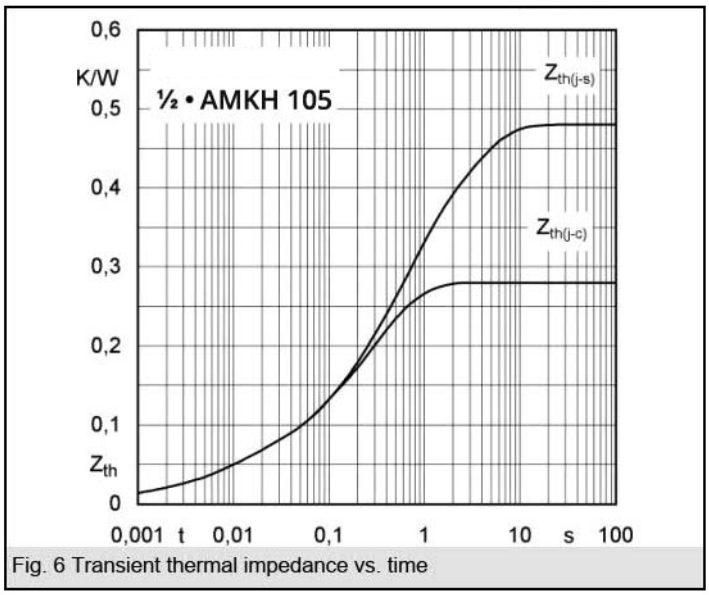

Fig. 6 Transient thermal impedance vs. time

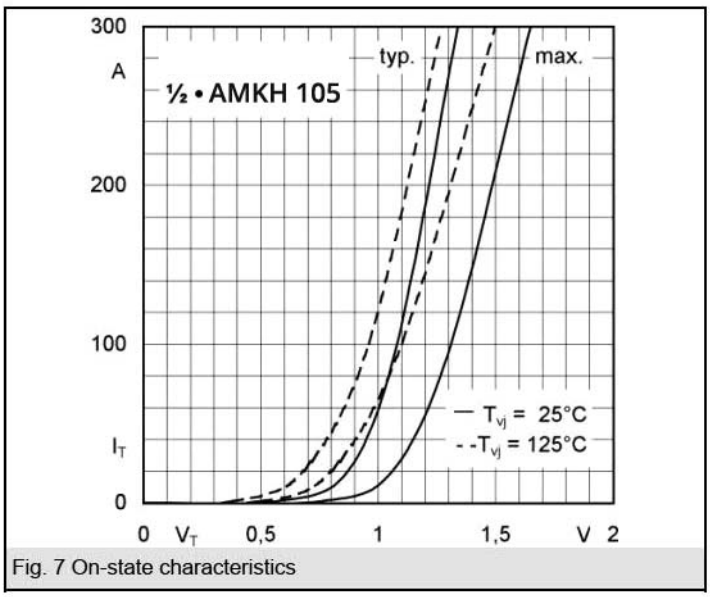

Fig. 7 On-state characteristics

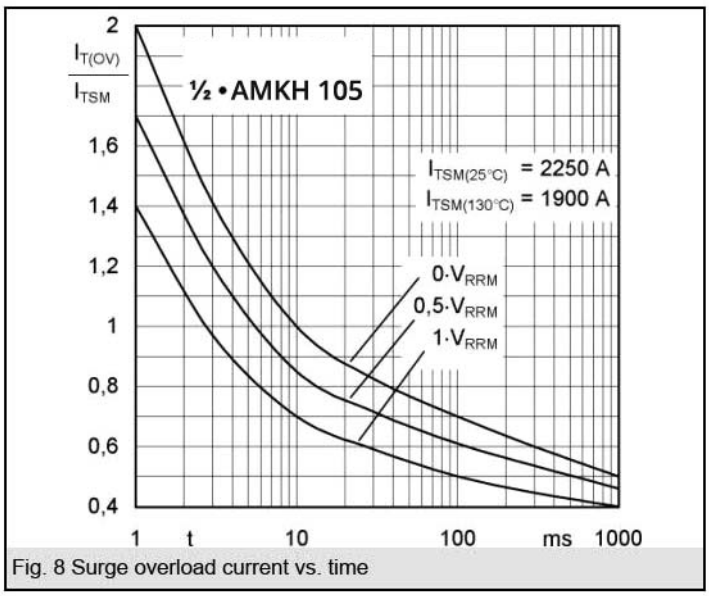

Fig. 8 Surge overload current vs. time

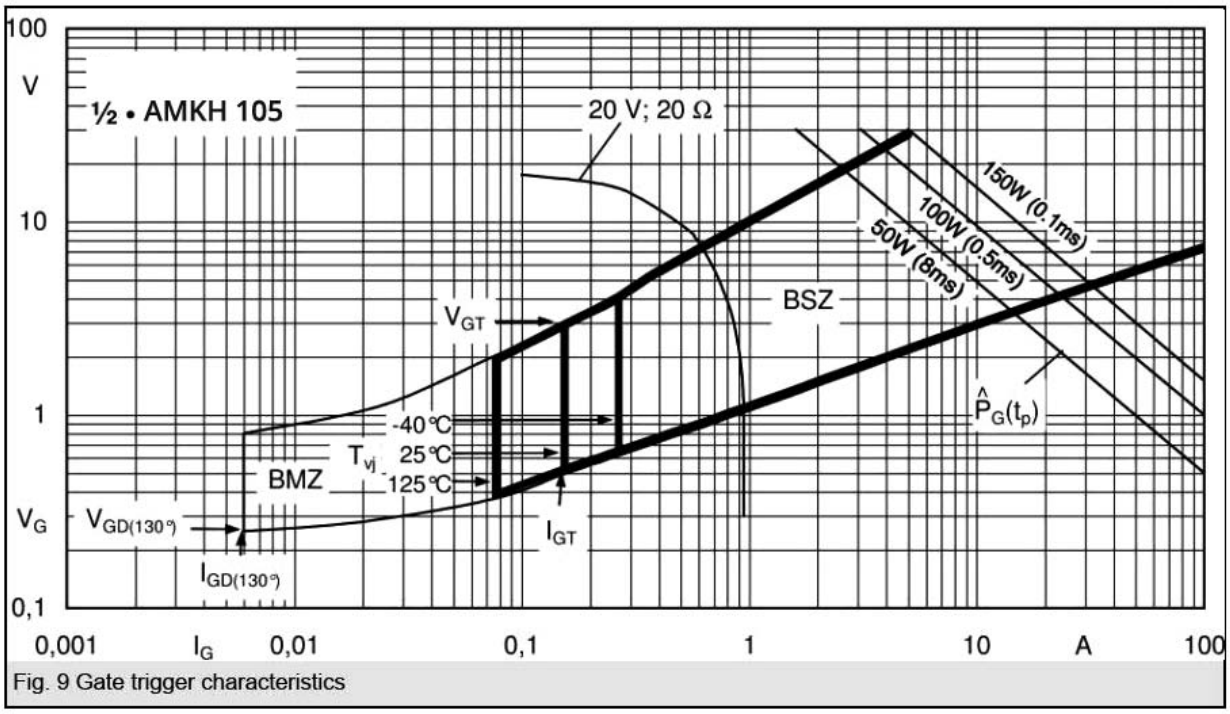

Fig. 9 Gate trigger characteristics

DIMENSIONS

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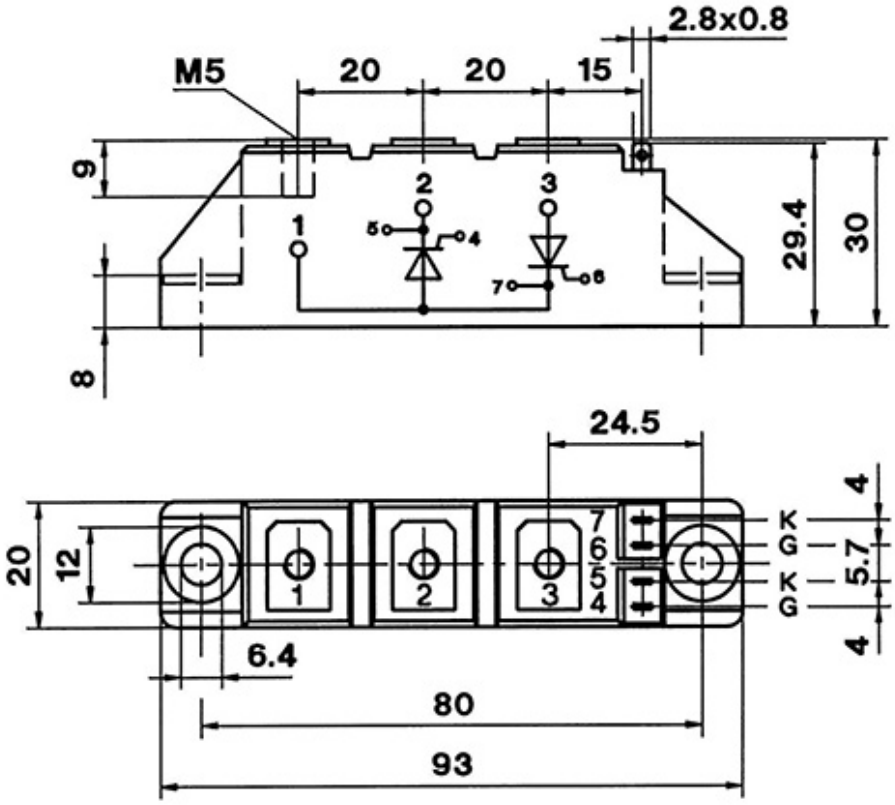

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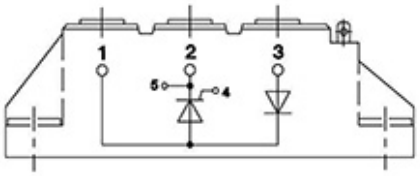

Dimensions in mm

TOPOLOGY OF INTERNAL CONNECTION