SKNH 132/18 E H4

SEMIPACK® 2

Thyristor / Diode Modules

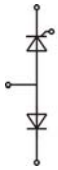
SKNH 132/18 E H4

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E63532

Typical Applications*

- DC motor control (e. g. for machine tools)
- AC motor soft starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)
- DC braking of AC motors



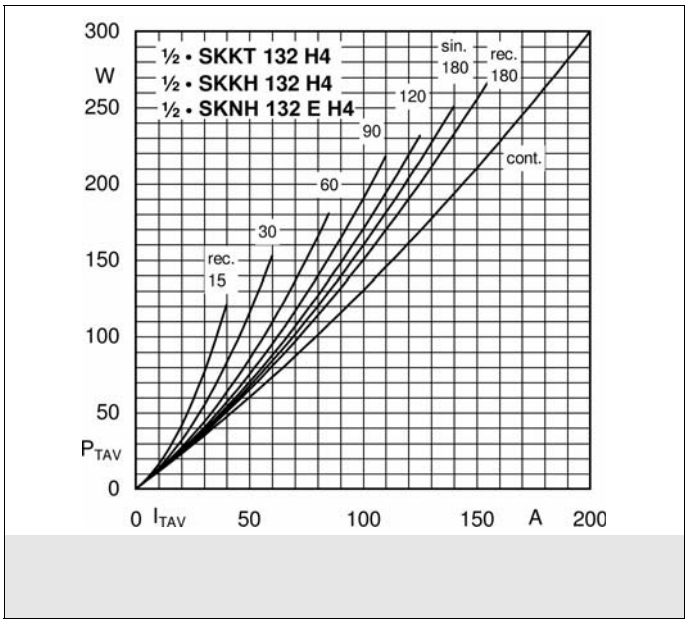
SKNH

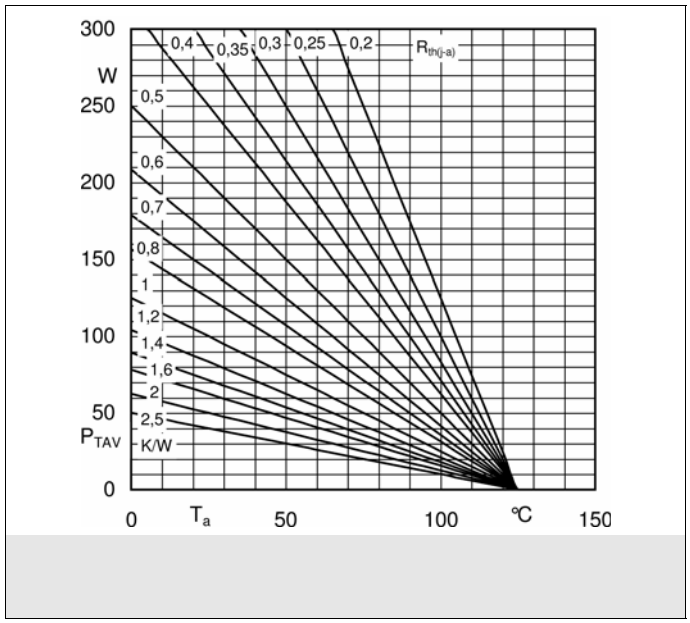
Absolute Maximum Ratings

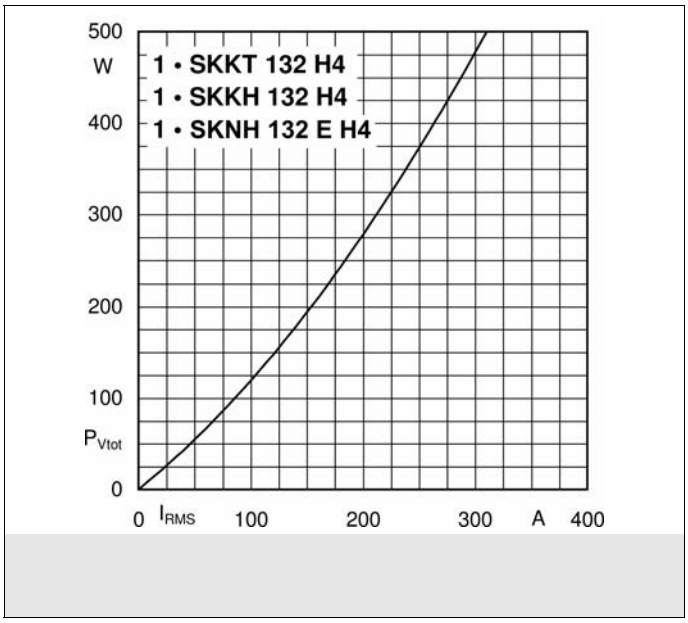
Symbol	Conditions		Values	Unit
Chip				
$I_{T(AV)}$	sinus 180°	T_c = 85 °C	128	A
		T_c = 100 °C	86	A
I_{TSM}	10 ms	T_j = 25 °C	4700	A
		T_j = 130 °C	3800	A
i^2t	10 ms	T_j = 25 °C	110450	A^2s
		T_j = 130 °C	72200	A^2s
V_{RSM}			1800	V
V_{RRM}			1800	V
V_{DRM}			1800	V
$(di/dt)_{cr}$	T_j = 125 °C		200	A/µs
$(dv/dt)_{cr}$	T_j = 125 °C		1000	V/µs
T_j			-40 ... 125	°C
Module				
T_{stg}			-40 ... 125	°C
V_{isol}	a.c.; 50 Hz; r.m.s.	1 min	4000	V
		1 s	4800	V

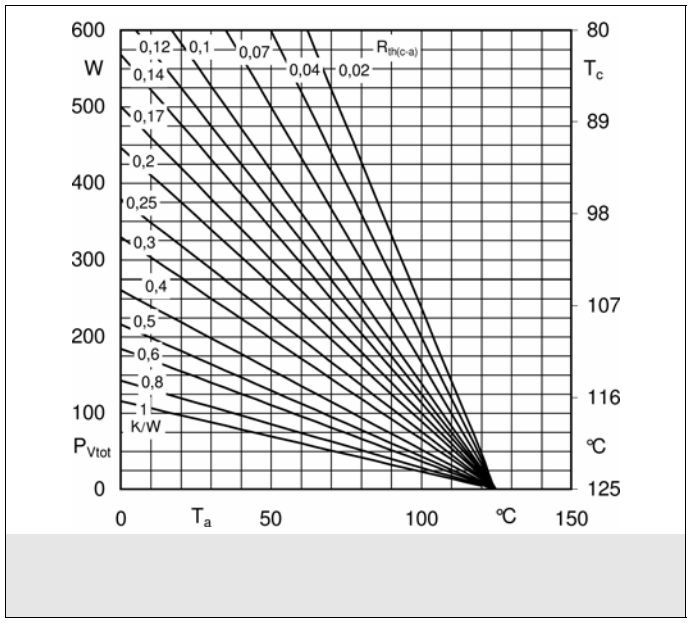
Characteristics

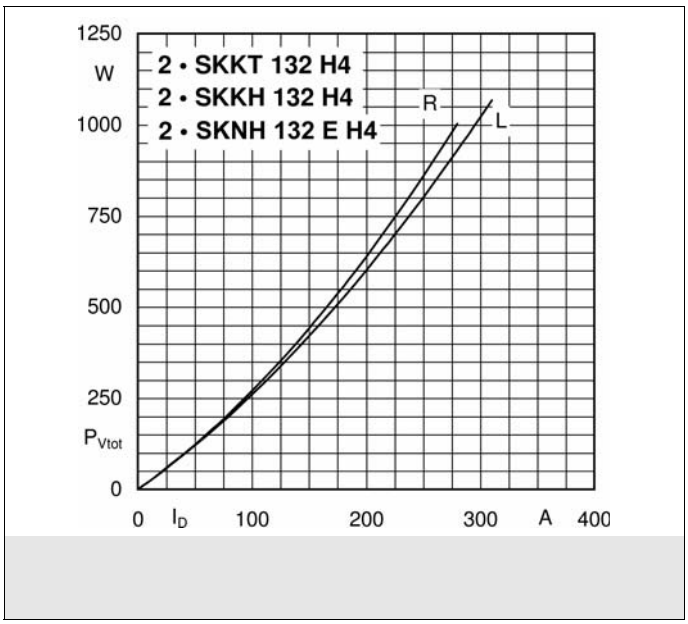
Symbol	Conditions		min.	typ.	max.	Unit
Chip						
V_T	T_j = 25 °C, I_T = 500 A				1.8	V
$V_{T(TO)}$	T_j = 125 °C				1.1	V
r_T	T_j = 125 °C				2.00	mΩ
I_{DD};I_{RD}	T_j = 125 °C, V_{DD} = V_{DRM}; V_{RD} = V_{RRM}				40	mA
t_{gd}	T_j = 25 °C, I_G = 1 A, di_G/dt = 1 A/µs			1		µs
t_{gr}	V_D = 0.67 * V_{DRM}			2		µs
t_q	T_j = 125 °C		50	150	150	µs
I_H	T_j = 25 °C			150	400	mA
I_L	T_j = 25 °C, R_G = 33 Ω			300	1000	mA
V_{GT}	T_j = 25 °C, d.c.		2			V
I_{GT}	T_j = 25 °C, d.c.		150			mA
V_{GD}	T_j = 125 °C, d.c.				0.25	V
I_{GD}	T_j = 115 °C, d.c.				10	mA
$R_{th(j-c)}$	continuous DC	per chip			0.18	K/W
		per module			0.09	K/W
$R_{th(j-c)}$	sin. 180°	per chip			0.19	K/W
		per module			0.095	K/W
$R_{th(j-c)}$	rec. 120°	per chip			0.21	K/W
		per module			0.105	K/W
Module						
$R_{th(c-s)}$	chip			0.1		K/W
	module				0.05	K/W
M_s	to heatsink M5		4.25		5.75	Nm
M_t	to heatsink M6		4.25		5.75	Nm
a					5 * 9,81	m/s^2
w				165		g

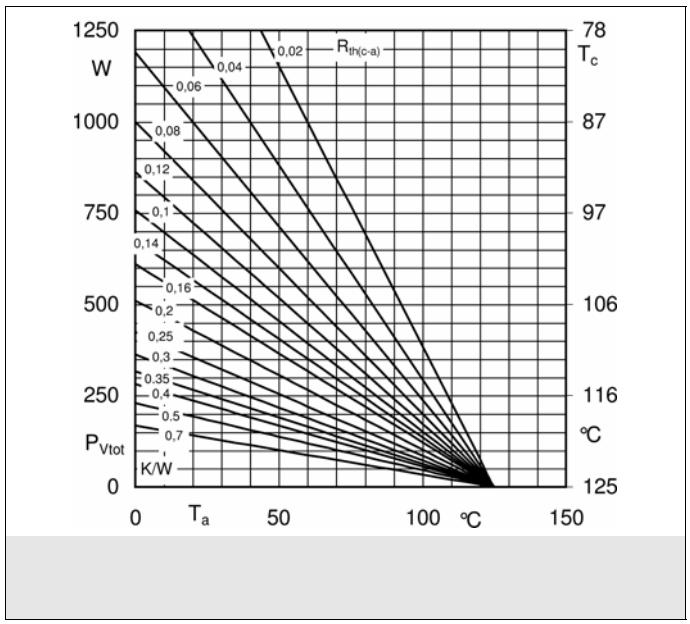

½ • SKKT 132 H4
½ • SKKH 132 H4
½ • SKNH 132 E H4
sin. 180
rec. 180
120
90
60
30
rec. 15
cont.
300
W
250
200
150
100
50
P_TAV
0
0 I_TAV 50 100 150 A 200

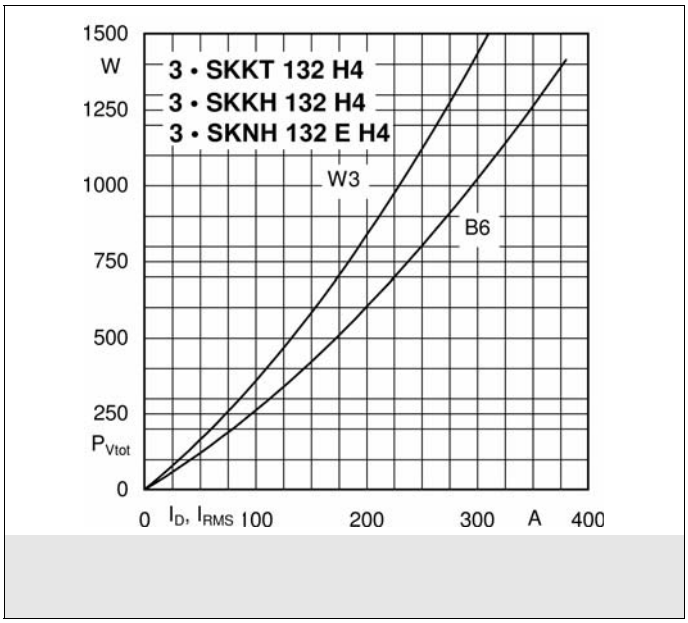

0,4 0,35 0,3 0,25 0,2 R_th(j-a)
0,5
0,6
0,7
0,8
1
1,2
1,4
1,6
2
2,5
K/W
300
W
250
200
150
100
50
P_TAV
0
0 T_a 50 100 °C 150

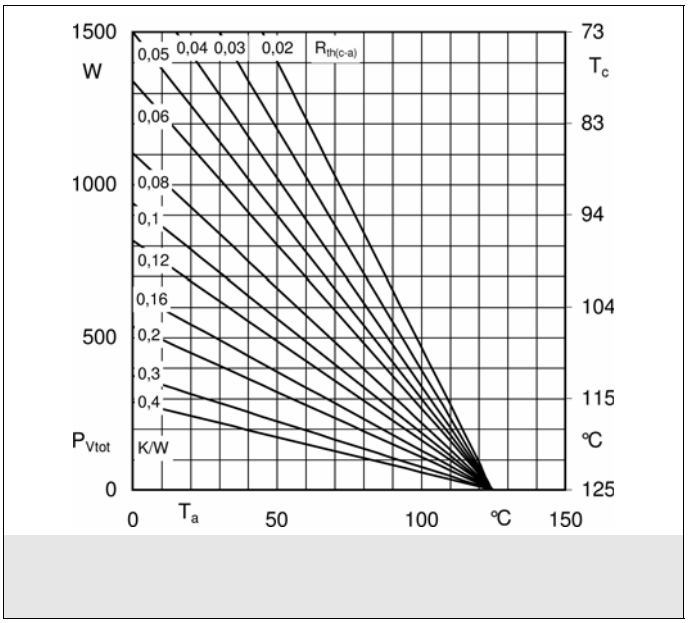

1 • SKKT 132 H4
1 • SKKH 132 H4
1 • SKNH 132 E H4
500
W
400
300
200
100
P_Vtot
0
0 I_RMS 100 200 300 A 400

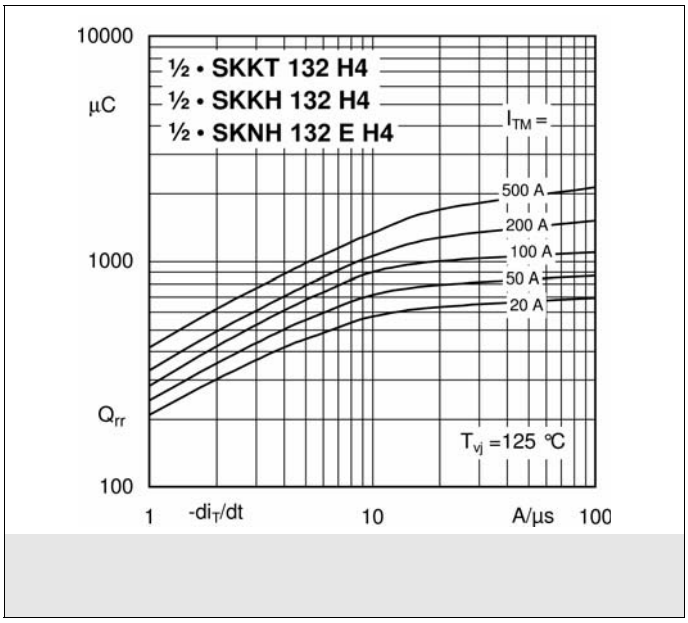

0,12 0,1 0,07 R_th(c-a)
0,14 0,04 0,02
0,17
0,2
0,25
0,3
0,4
0,5
0,6
0,8
1
K/W
600
W
500
400
300
200
100
P_Vtot
0
80
T_c
89
98
107
116
°C
125
0 T_a 50 100 °C 150

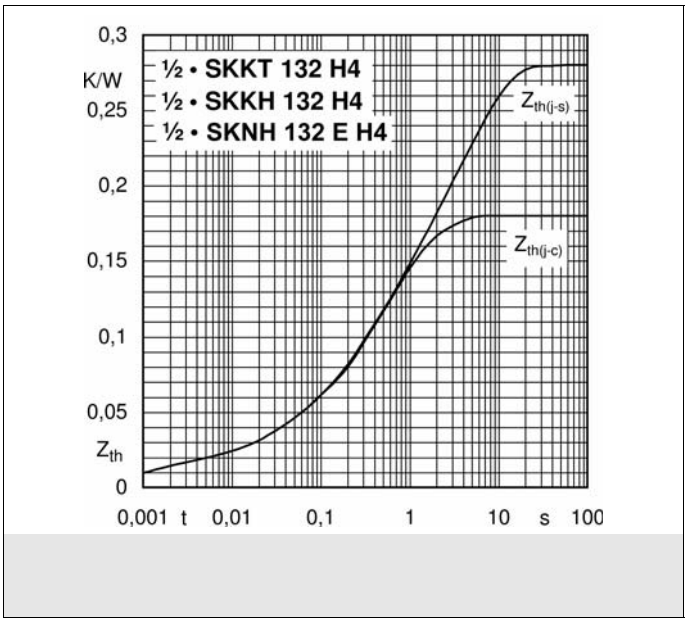

2 • SKKT 132 H4
2 • SKKH 132 H4
2 • SKNH 132 E H4
R
L
1250
W
1000
750
500
250
P_Vtot
0
0 I_D 100 200 300 A 400

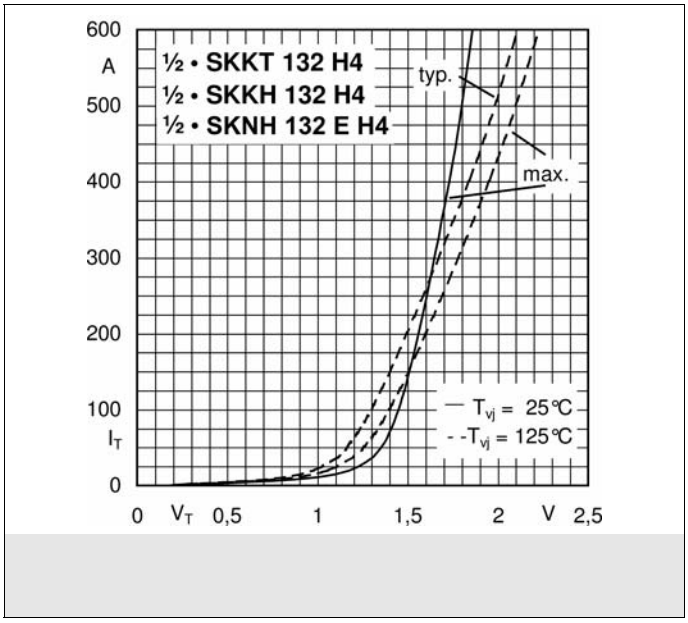

0,02 R_th(c-a)
0,04
0,06
0,08
0,12
0,1
0,14
0,16
0,2
0,25
0,3
0,35
0,4
0,5
0,7
K/W
1250
W
1000
750
500
250
P_Vtot
0
78
T_c
87
97
106
116
°C
125
0 T_a 50 100 °C 150

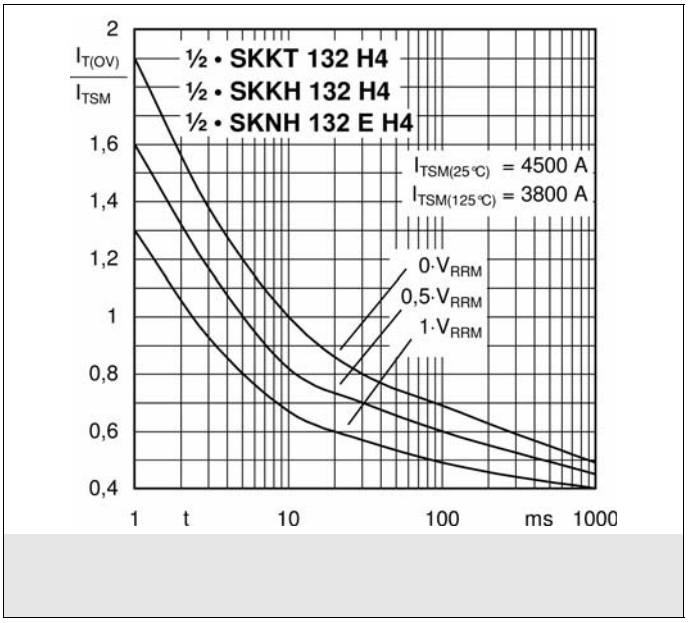

1500
W
1250
1000
750
500
250
P_{Vtot}
0
3 • SKKT 132 H4
3 • SKKH 132 H4
3 • SKNH 132 E H4
W3
B6
0 I_D, I_{RMS} 100 200 300 A 400


1500
W
1000
500
P_{Vtot}
0
0,05 0,04 0,03 0,02 $R_{th(c-a)}$
0,06
0,08
0,1
0,12
0,16
0,2
0,3
0,4
K/W
73
T_c
83
94
104
115
℃
125
0 T_a 50 100 ℃ 150


10000
µC
1000
Q_{rr}
100
½ • SKKT 132 H4
½ • SKKH 132 H4
½ • SKNH 132 E H4
I_{TM} =
500 A
200 A
100 A
50 A
20 A
T_{vj} =125 ℃
1 $-di_T/dt$ 10 A/µs 100


0,3
K/W
0,25
0,2
0,15
0,1
0,05
Z_{th}
0
½ • SKKT 132 H4
½ • SKKH 132 H4
½ • SKNH 132 E H4
$Z_{th(j-s)}$
$Z_{th(j-c)}$
0,001 t 0,01 0,1 1 10 s 100


600
A
500
400
300
200
100
I_T
0
½ • SKKT 132 H4
½ • SKKH 132 H4
½ • SKNH 132 E H4
typ.
max.
— T_{vj} = 25℃
- - T_{vj} = 125℃
0 V_T 0,5 1 1,5 2 V 2,5


2
$I_{T(OV)}$
I_{TSM}
1,6
1,4
1,2
1
0,8
0,6
0,4
½ • SKKT 132 H4
½ • SKKH 132 H4
½ • SKNH 132 E H4
$I_{TSM(25℃)}$ = 4500 A
$I_{TSM(125℃)}$ = 3800 A
$0 \cdot V_{RRM}$
$0{,}5 \cdot V_{RRM}$
$1 \cdot V_{RRM}$
1 t 10 100 ms 1000

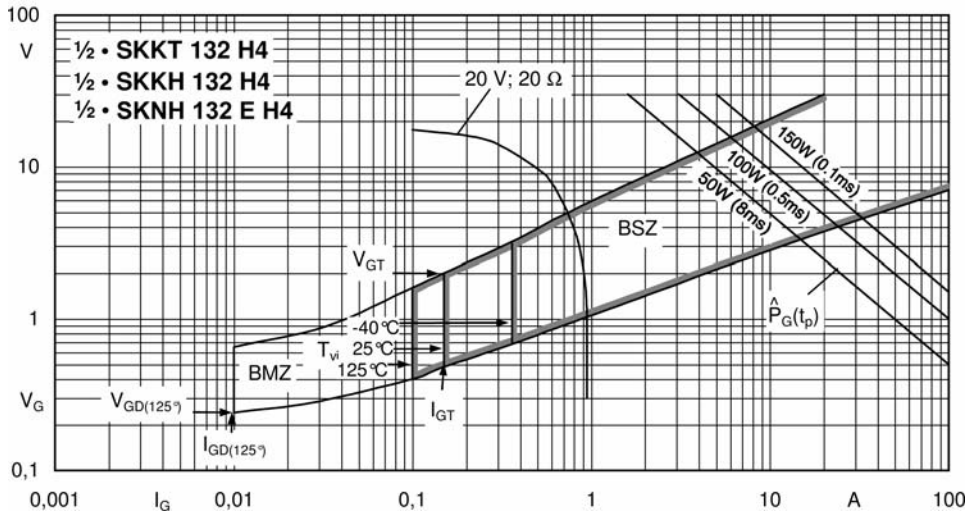
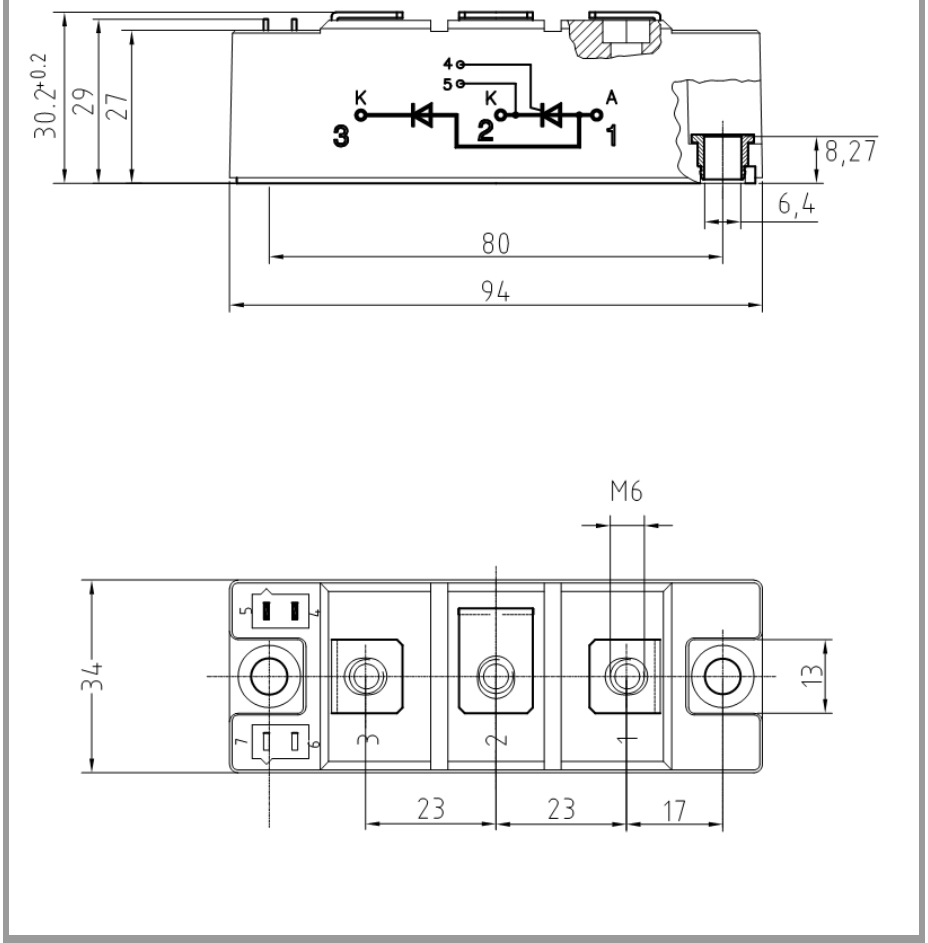


Fig. 9: Gate trigger characteristics



SEMIPACK 2

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our staff.