SKKH 75/16 E

SEMIPACK® 1

Thyristor / Diode Modules

SKKH 75/16 E

Features*

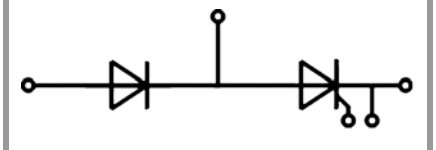
- Heat transfer through aluminium oxide ceramic insulated metal baseplate
- UL recognized, file no. E63532

Typical Applications

- Rectifier for motor drives
- Process control
- Rectifier for power supplies

Absolute Maximum Ratings				
Symbol	**Conditions**		**Values**	**Unit**
Thyristor / diode				
$I_{F(AV)}/I_{T(AV)}$	sin. 180°	T_c = 85 °C	75	A
	T_j = 130 °C	T_c = 100 °C	57	A
I_{FSM}/I_{TSM}	t_p = 10 ms	T_j = 25 °C	1500	A
		T_j = 130 °C	1200	A
i^2t	t_p = 10 ms	T_j = 25 °C	11250	A^2s
		T_j = 130 °C	7200	A^2s
V_{RSM}	T_j = 25 °C, thyristor, diode		1700	V
V_{RRM}	T_j = 25 °C, thyristor, diode		1600	V
V_{DRM}	T_j = 25 °C, thyristor		1600	V
$(di/dt)_{cr}$	T_j = 130 °C, thyristor		200	A/µs
$(dv/dt)_{cr}$	T_j = 130 °C, thyristor		1000	V/µs
T_j			-40 ... 130	°C
Module				
T_{stg}			-40 ... 125	°C
V_{isol}	a.c.; 50 Hz; r.m.s.	1 min	3000	V
		1 s	3600	V

Characteristics					
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
Thyristor					
V_T	T_j = 25 °C, I_T = 225 A			1.81	V
$V_{T(TO)}$	T_j = 130 °C			0.92	V
r_T	T_j = 130 °C			4.6	mΩ
$I_{DD};I_{RD}$	T_j = 130 °C, $V_{DD} = V_{DRM}$; $V_{RD} = V_{RRM}$			15	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 = 130 °C		200		µs
I_H	T_j = 25 °C			220	mA
I_L	T_j = 25 °C, R_G = 33 Ω			550	mA
V_{GT}	T_j = 25 °C, d.c.	2.5			V
I_{GT}	T_j = 25 °C, d.c.	100			mA
V_{GD}	T_j = 130 °C, d.c.			0.25	V
I_{GD}	T_j = 130 °C, d.c.			4	mA
$R_{th(j-c)}$	cont., per chip			0.23	K/W
	sin. 180°, per chip			0.30	K/W
	rec. 120°, per chip			0.32	K/W
Diode					
V_F	T_j = 25 °C, I_F = 225 A			1.65	V
V_{F0}	T_j = 130 °C			0.85	V
r_F	T_j = 130 °C			3.90	mΩ
I_R	T_j = 130 °C, $V_{RD} = V_{RRM}$			1.7	mA
$R_{th(j-c)}$	cont., per chip			0.30	K/W
	sin. 180°, per chip			0.38	K/W
	rec. 120°, per chip			0.40	K/W



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Characteristics					
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
Module					
$R_{th(c-s)}$	thyristor (λ_{grease} = 0.81 W/(m*K))		0.09		K/W
	diode (λ_{grease} = 0.81 W/(m*K))		0.09		K/W
	module (λ_{grease} = 0.81 W/(m*K))		0.05		K/W
M_s	to heatsink M5	4.25		5.75	Nm
M_t	to terminals M5	2.55		3.45	Nm
a				5 * 9.81	m/s^2
w			75		g

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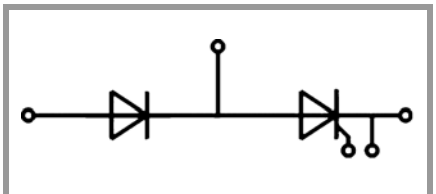

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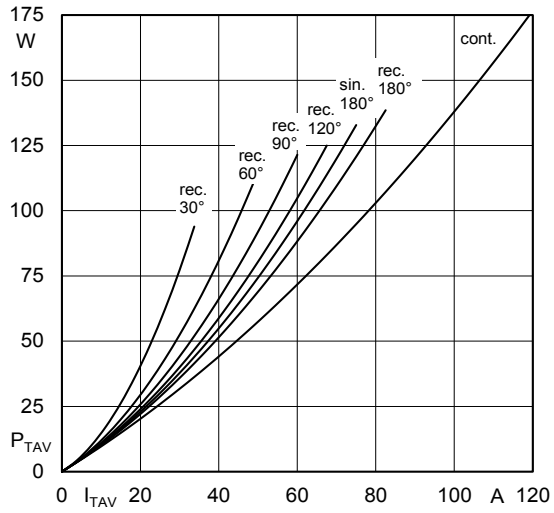


Fig. 1L: Power dissipation per thyristor vs. on-state current

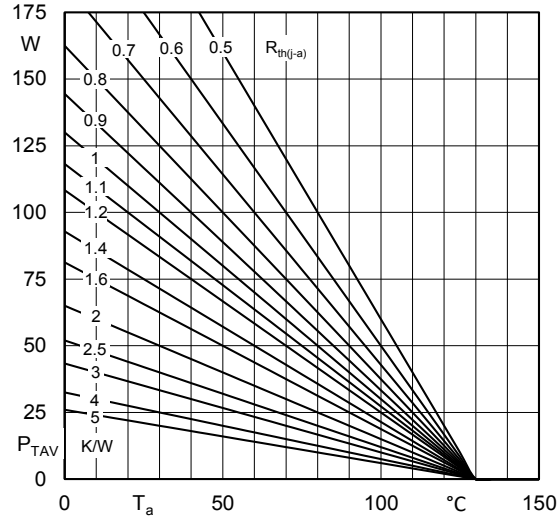


Fig. 1R: Max. power dissipation per thyristor vs. ambient temperature

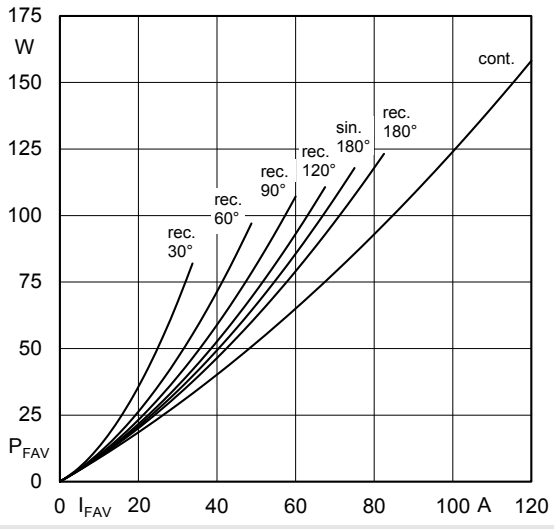


Fig. 2L: Power dissipation per diode vs. forward current

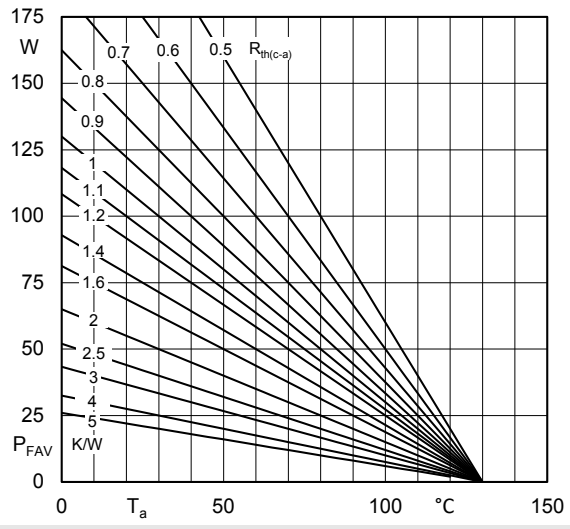


Fig. 2R: Max power dissipation per diode vs. ambient temperature

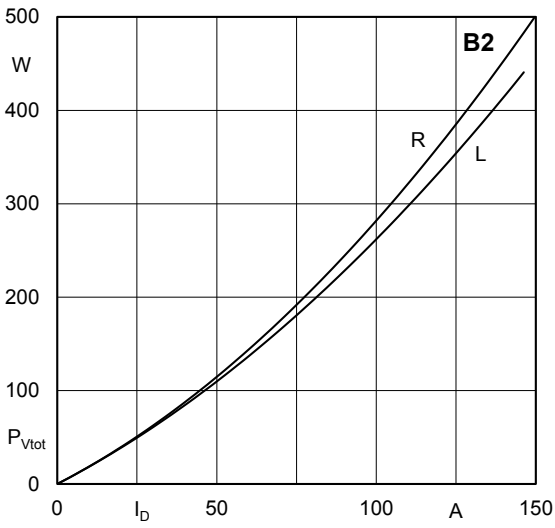


Fig. 3L: Max. power dissipation of two modules vs. direct current

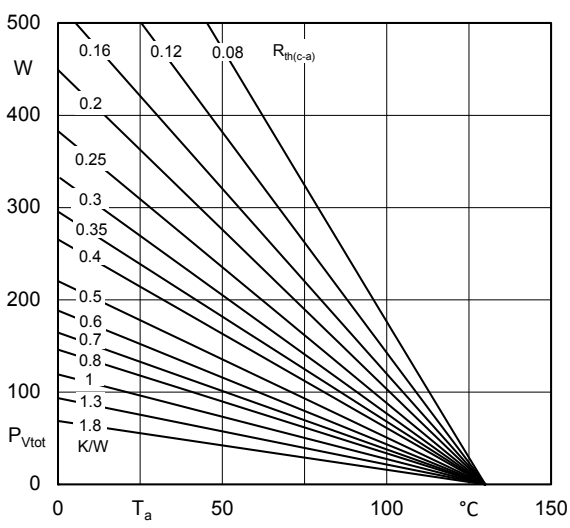


Fig. 3R: Max. power dissipation of two modules vs. ambient temperature

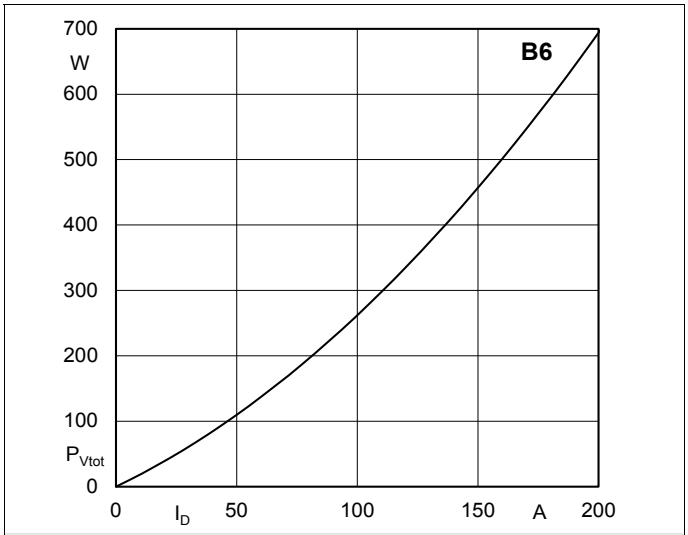


Fig. 4L: Max. power dissipation of three modules vs. direct current

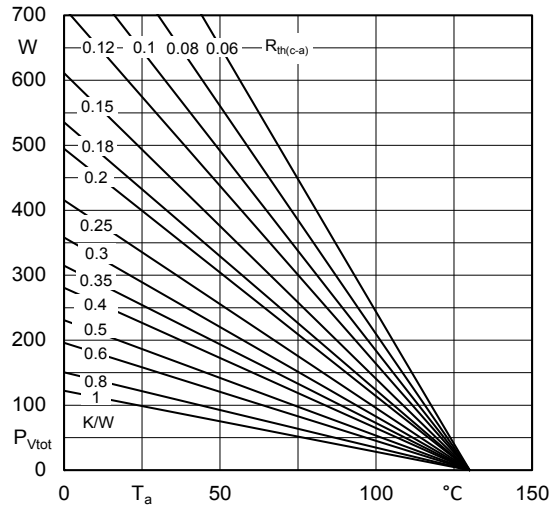


Fig. 4R: Max. power dissipation of three modules vs. ambient temperature

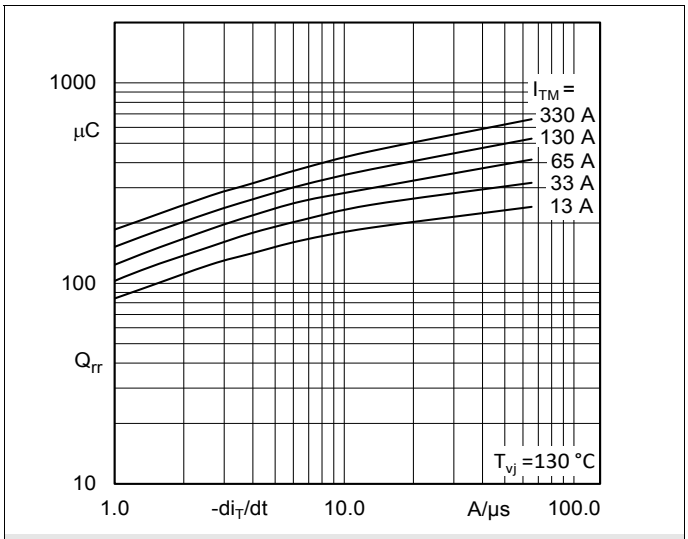


Fig. 5: Recovered charge vs. current decrease

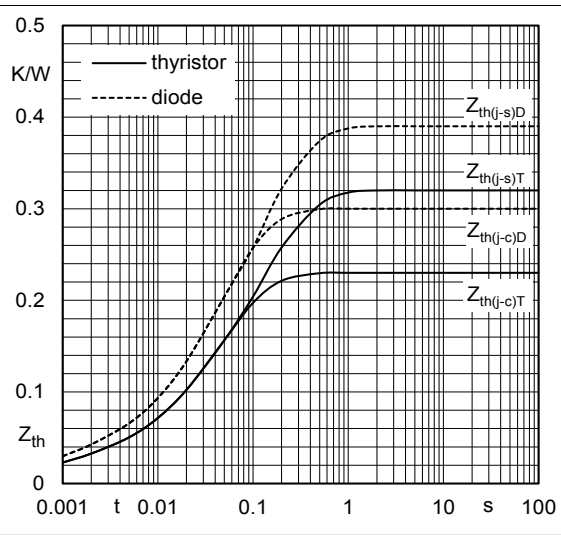


Fig. 6: Transient thermal impedance vs. time

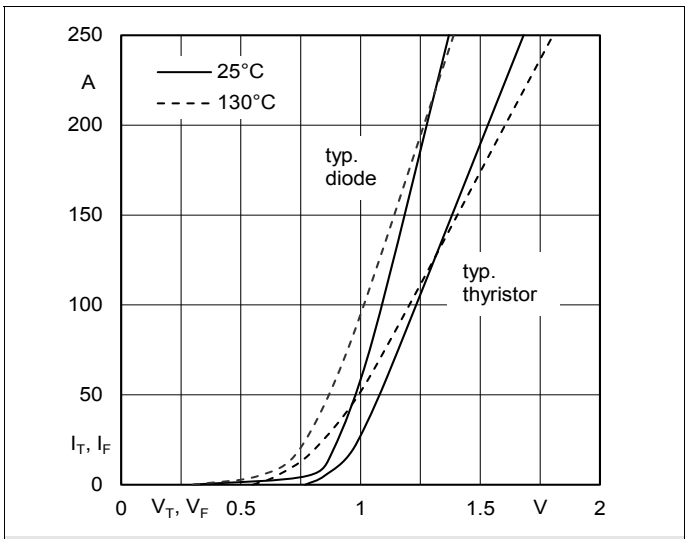


Fig. 7: On-state characteristics

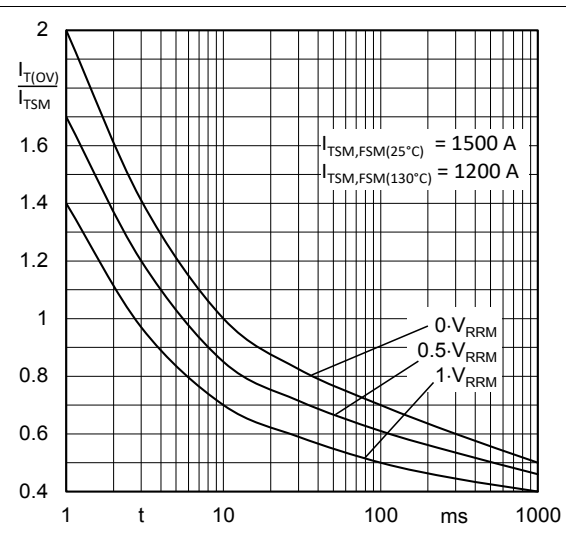


Fig. 8: Surge overload current vs. time

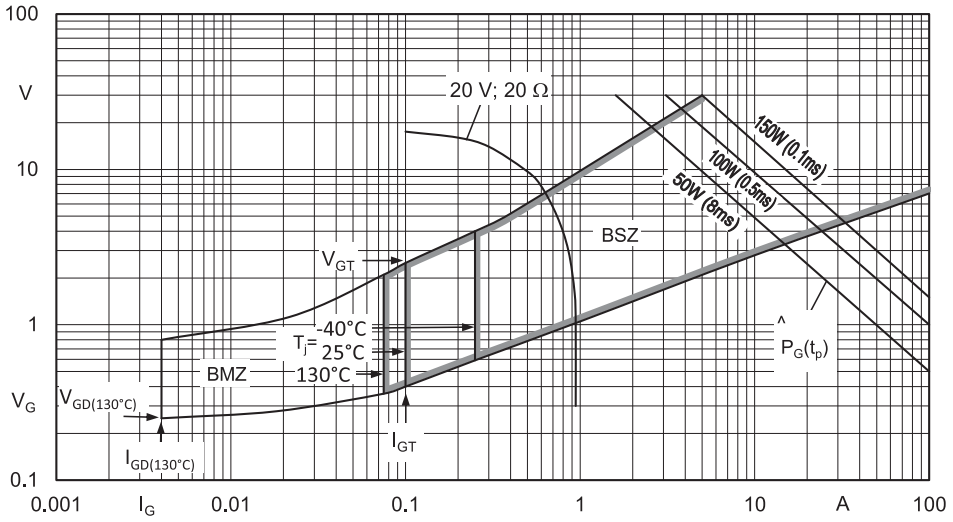
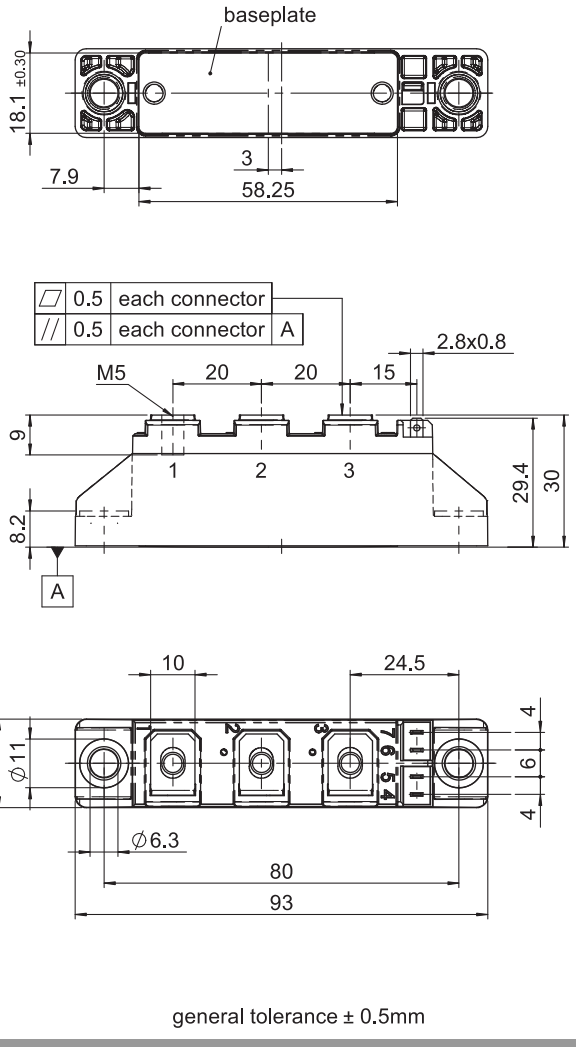


Fig. 9: Gate trigger characteristics



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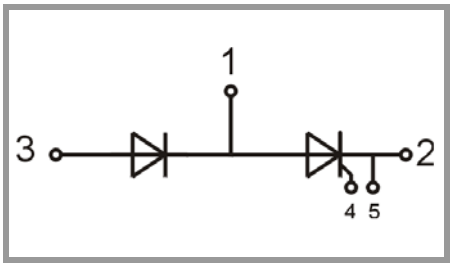

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IMPORTANT INFORMATION AND WARNINGS

This is an electrostatic discharge sensitive device (ESDS) according to international standard IEC 61340.

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