



SEMIPACK® 6

Thyristor Modules

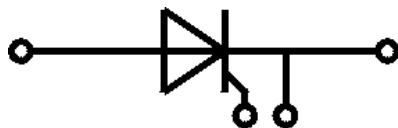
SKET 801/18 E

Features

- Precious metal pressure contacts for high reliability
- Thyristor with amplifying gate
- UL recognized, file no. E 63 532

Typical Applications*

- DC motor control (e. g. for machine tools)
- Temperature control (e. g. for ovens, chemical processes)
- Softstart application



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Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Chip				
I _{T(AV)}	sinus 180°	T _c = 85 °C	819	A
		T _c = 100 °C	564	A
I _{TRMS}	continuous operation		1500	A
I _{TSM}	10 ms	T _j = 25 °C	35000	A
		T _j = 125 °C	30000	A
i ² t	10 ms	T _j = 25 °C	6125000	A ² s
		T _j = 125 °C	4500000	A ² s
V _{RSM}			1900	V
V _{RRM}			1800	V
V _{DRM}			1800	V
(di/dt) _{cr}			200	A/μs
(dv/dt) _{cr}			1000	V/μs
T _j			-40 ... 125	°C
Module				
T _{stg}			-40 ... 130	°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
Chip					
V_T	$T_j = 125\text{ °C}$, $I_T = 3000\text{ A}$			1.51	V
$V_{T(TO)}$	$T_j = 125\text{ °C}$			0.82	V
r_T	$T_j = 125\text{ °C}$			0.17	mΩ
$I_{DD}; I_{RD}$	$T_j = 125\text{ °C}$, $V_{DD} = V_{DRM}$; $V_{RD} = V_{RRM}$			150	mA
t_{gd}	$T_j = 25\text{ °C}$, $I_G = 1\text{ A}$, $di_G/dt = 1\text{ A/μs}$			4	μs
t_q			240		μs
I_H	$T_j = 25\text{ °C}$			500	mA
I_L	$T_j = 25\text{ °C}$, $R_G = 33\text{ Ω}$			2500	mA
V_{GT}	$T_j = 25\text{ °C}$, d.c.	2			V
I_{GT}	$T_j = 25\text{ °C}$, d.c.	250			mA
V_{GD}	$T_j = 125\text{ °C}$, d.c.			0.2	V
I_{GD}	$T_j = 125\text{ °C}$, d.c.			10	mA
$R_{th(j-c)}$	cont.			0.0405	K/W
				0.0405	K/W
$R_{th(j-c)}$	sin. 180°			0.042	K/W
				0.042	K/W
$R_{th(j-c)}$	rec. 120°			0.043	K/W
				0.043	K/W
Module					
$R_{th(c-s)}$	chip			0.015	K/W
	module			0.015	K/W
M_s	to heatsink M6	5.1		6.9	Nm
M_t	to terminal M12	16.2		19.8	Nm
a				5 * 9,81	m/s ²
w				1950	g

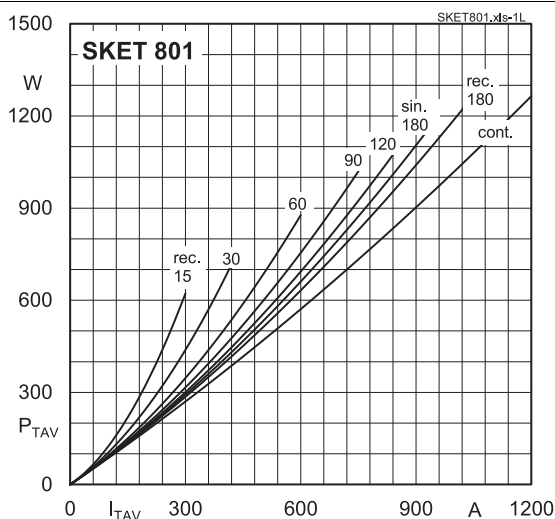


Fig. 1L: Power dissipation per thyristor vs. on-state current

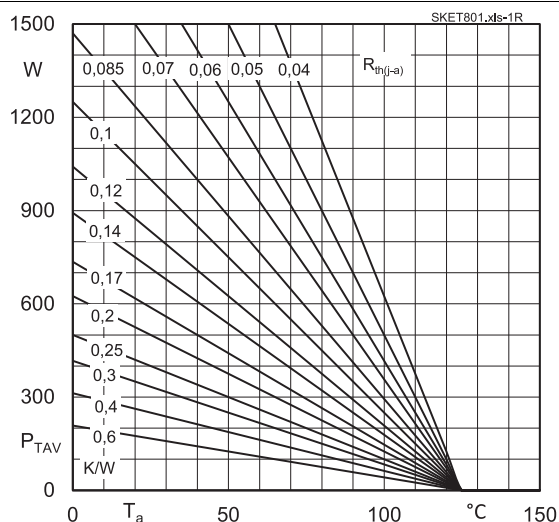


Fig. 1R: Power dissipation per thyristor vs. ambient temperature

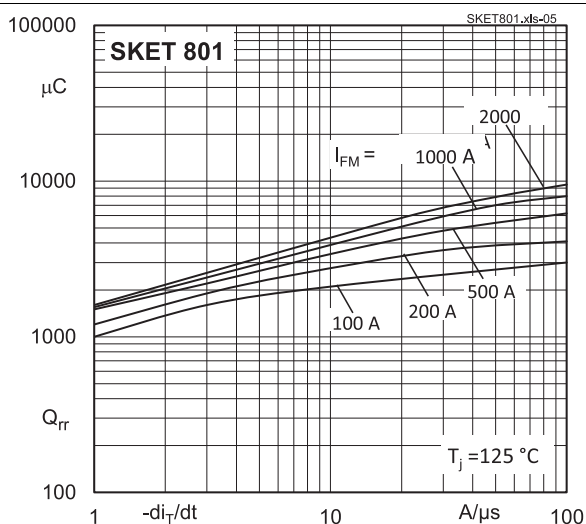


Fig. 5: Recovered charge vs. current decrease

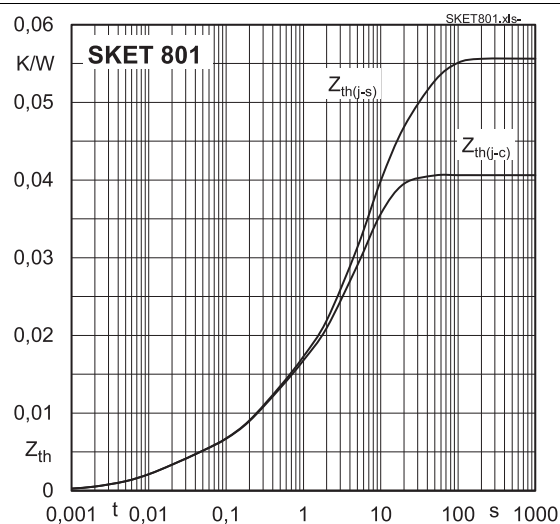


Fig. 6: Transient thermal impedance vs. time

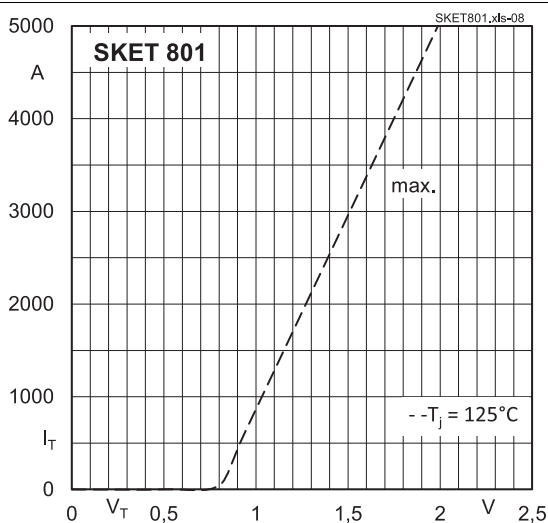


Fig. 7: On-state characteristics

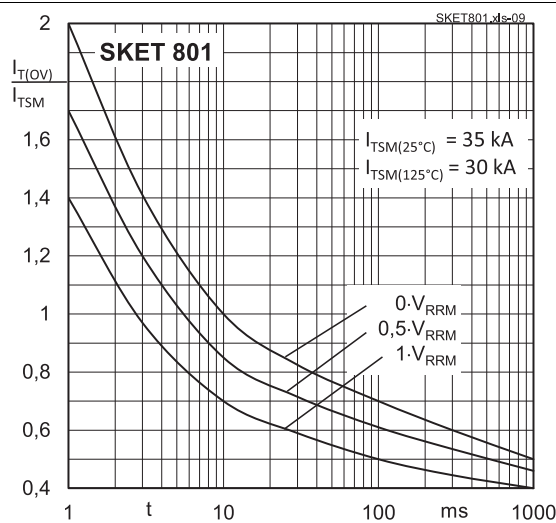


Fig. 8: Surge overload current vs. time

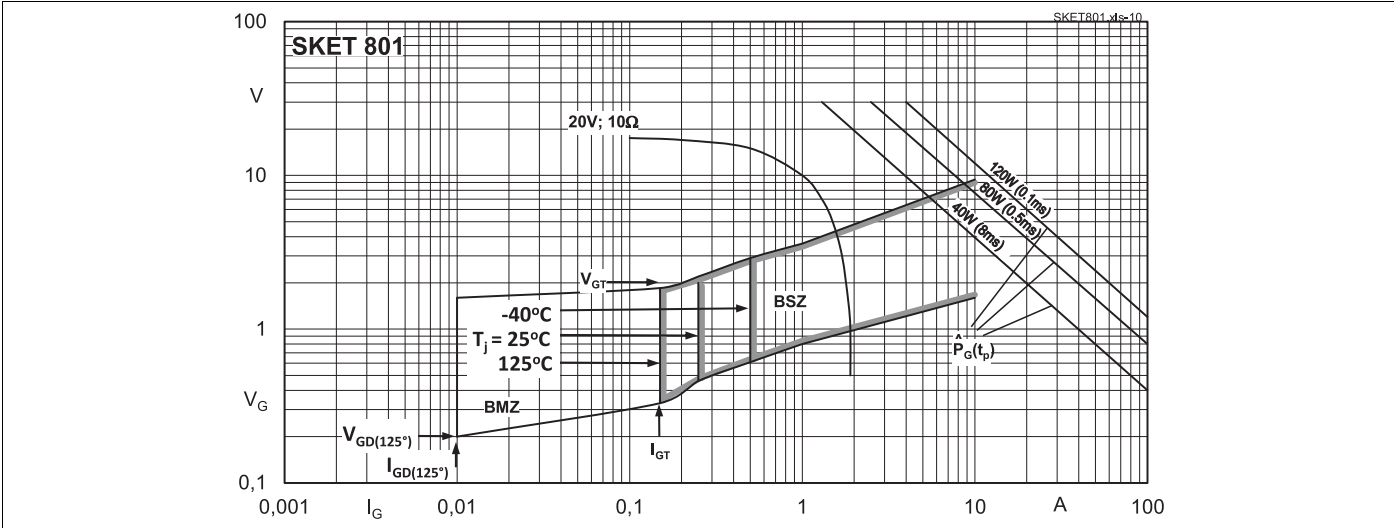
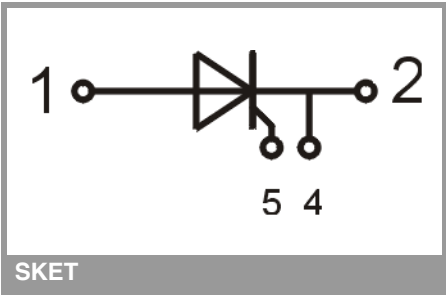
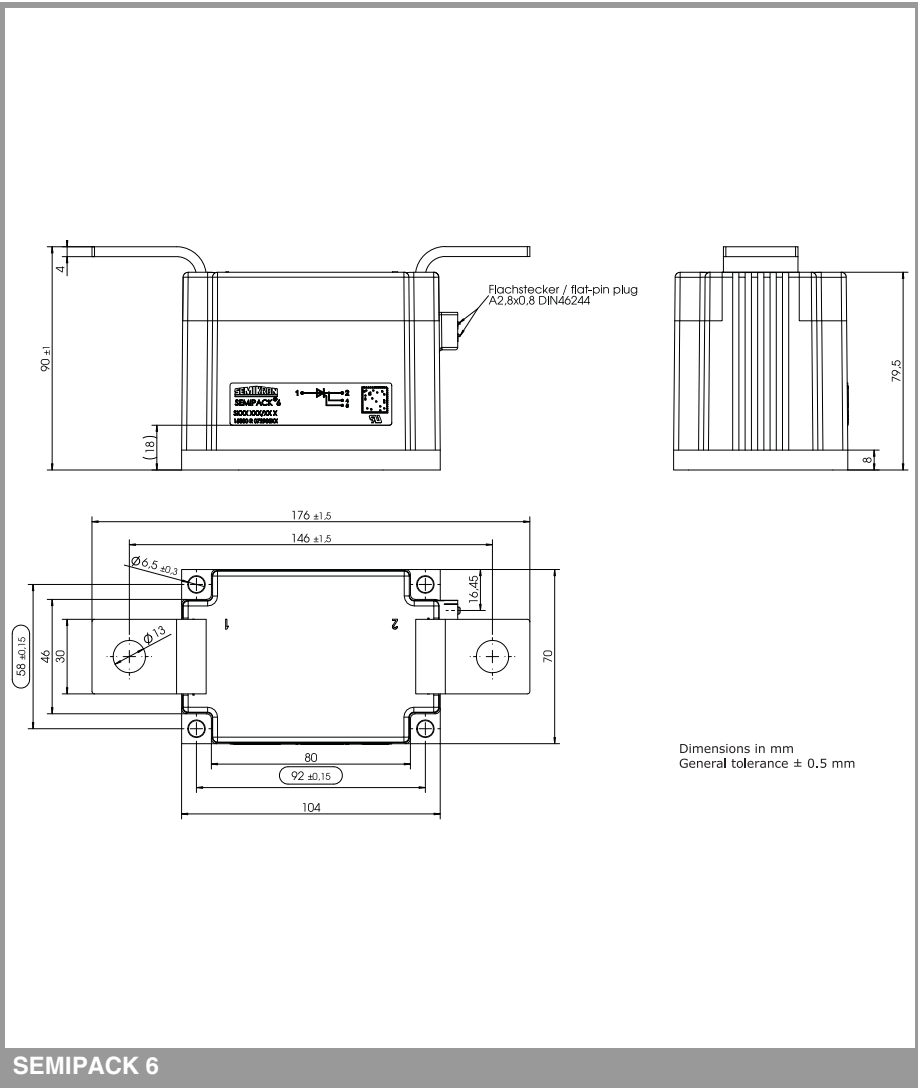


Fig. 9: Gate trigger characteristics



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

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