



SEMITOP® 3 Press-Fit

Antiparallel Thyristor Module

SK 25 UT 16p

Features*

- Compact Design
- One screw mounting
- Heat transfer and insulation through direct copper bonded aluminium oxide ceramic (DBC)
- Glass passivated thyristor chip
- Up to 1600V reverse voltage
- UL recognized file no. E 63 532

Typical Applications

- Soft starter
- Light control (studios, theater)
- Temperature control

Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Thyristor 1				
I _{T(AV)}	sin 180°	T _s = 25 °C	31	A
		T _s = 70 °C	22	A
I _{TSM}	10 ms	T _j = 25 °C	370	A
		T _j = 130 °C	280	A
i ² t	10 ms	T _j = 25 °C	685	A ² s
		T _j = 130 °C	392	A ² s
V _{RRM}			1600	V
V _{DRM}			1600	V
(di/dt) _{cr}	T _j = 130 °C		50	A/μs
(dv/dt) _{cr}	T _j = 130 °C		1000	V/μs
T _j			-40 ... 125	°C

Absolute Maximum Ratings

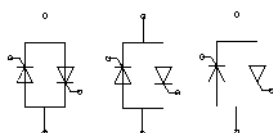
Symbol	Conditions	Values	Unit
Module			
$I_{t(RMS)}$	$\Delta T_{\text{terminal}}$ at PCB joint = 30 K, per pin	35	A
T_{stg}	module without TIM	-40 ... 125	$^\circ\text{C}$
V_{isol}	AC, sinusoidal, $t = 1 \text{ min}$	2500	V

Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
Thyristor 1					
V_T	$T_j = 25^\circ\text{C}$, $I_T = 25 \text{ A}$			1.26	V
$V_{T(TO)}$	$T_j = 130^\circ\text{C}$			0.85	V
r_T	$T_j = 130^\circ\text{C}$			13.90	$\text{m}\Omega$
$I_{DD}; I_{RD}$	$T_j = 130^\circ\text{C}$, $V_{DD} = V_{DRM}$; $V_{RD} = V_{RRM}$			6	mA
t_{gd}	$T_j = 25^\circ\text{C}$, $I_G = 1 \text{ A}$, $di_G/dt = 1 \text{ A}/\mu\text{s}$		1		μs
t_{gr}	$V_D = 0.67 \cdot V_{DRM}$		2		μs
t_q	$T_j = 130^\circ\text{C}$		150		μs
I_H	$T_j = 25^\circ\text{C}$	220			mA
I_L	$T_j = 25^\circ\text{C}$, $R_G = 33 \Omega$	550			mA
V_{GT}	$T_j = 25^\circ\text{C}$, d.c.	2			V
I_{GT}	$T_j = 25^\circ\text{C}$, d.c.	100			mA
V_{GD}	$T_j = 130^\circ\text{C}$, d.c.			0.25	V
I_{GD}	$T_j = 130^\circ\text{C}$, d.c.			6	mA
$R_{th(j-s)}$	per thyristor, $\lambda_{\text{paste}} = 0.8 \text{ W}/(\text{mK})$, $\sin. 180^\circ$		1.7		K/W

Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
Module					
M_s	to heatsink	2.25		2.5	Nm
w	weight		30		g



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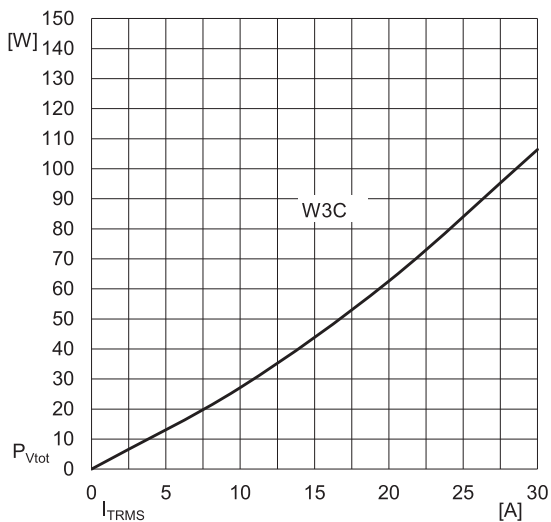


Fig. 1: Power dissipation per module vs. rms current

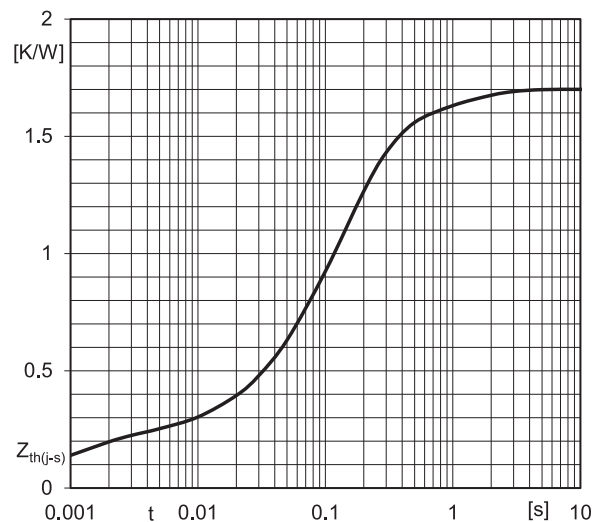


Fig. 2: Typ. transient thermal impedance

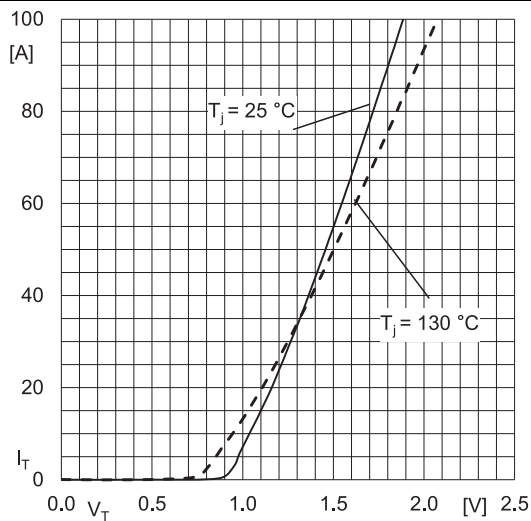


Fig. 3: Typ. forward characteristic of single thyristor

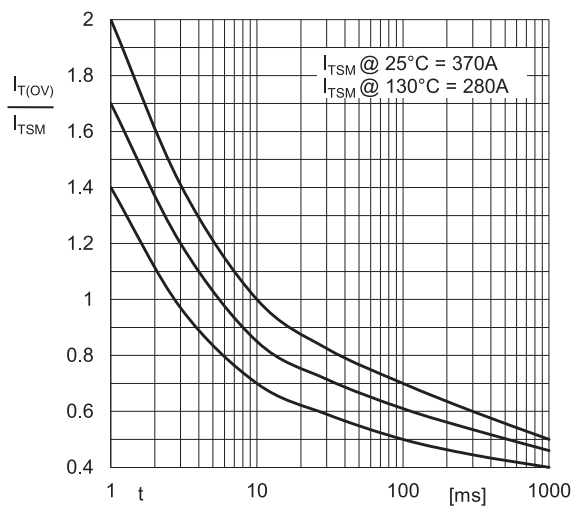


Fig. 4 : Surge overload current vs. time

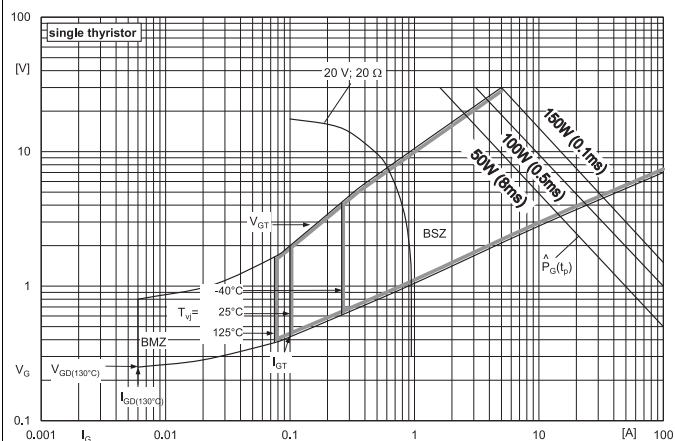
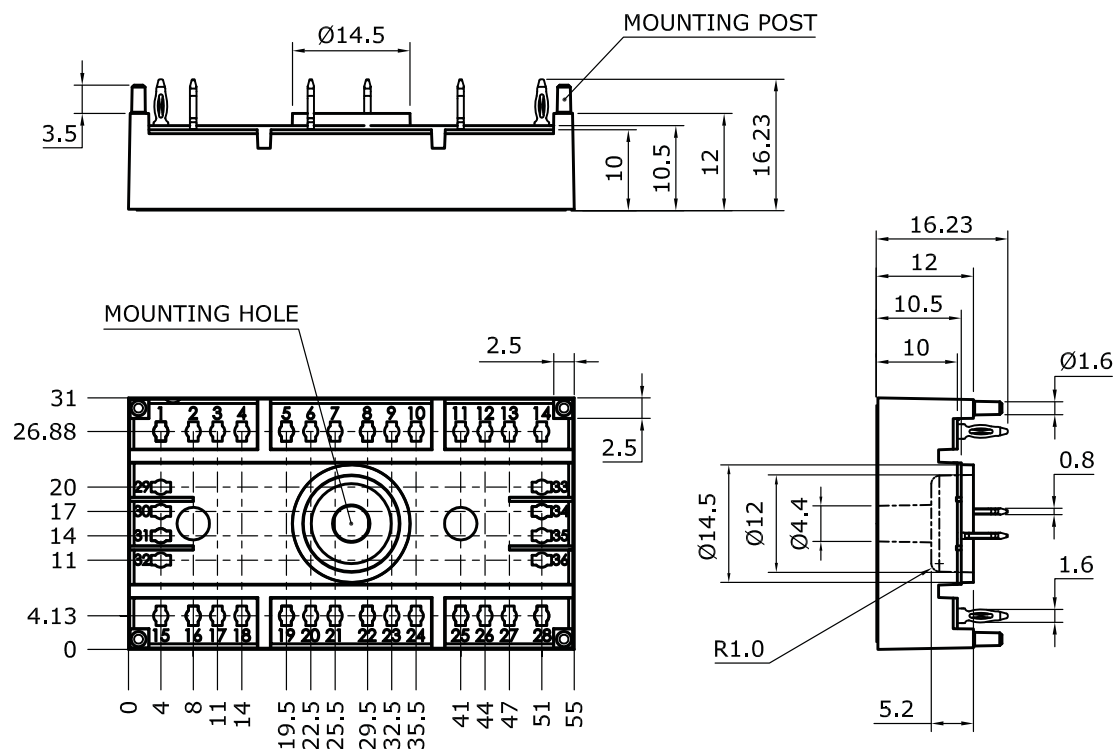


Fig. 5: Gate trigger characteristic

Dimensions: mm

Tolerance system: ISO 2768-m



Suggested drilled hole diameter for terminal pins in the circuit board:

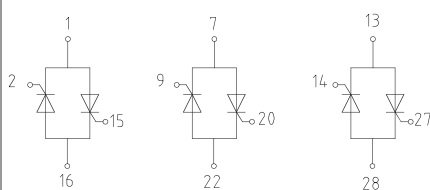
- minimum: 1.575 mm
- typical: 1.6 mm
- maximum: 1.625 mm

Suggested hole diameter for the mounting post in the circuit board:

- 2 mm

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

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