

SEMITOP® 3

3-phase bridge rectifier+  
series thyristor

### SK 30 DTA

#### Target Data

#### Features

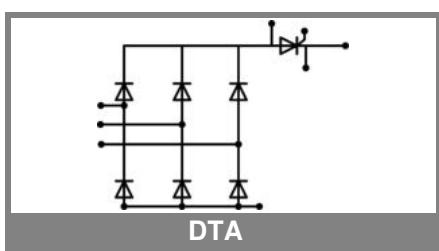
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DBC)
- Glass passivated thyristor chips
- Reverse voltage up to 1600 V
- High surge currents

#### Typical Applications\*

- Soft starters
- Light control
- Temperature control

$V_{RSM}$	$V_{RRM}, V_{DRM}$	$I_D = 25 \text{ A}$ ( $T_s = 80^\circ\text{C}$ )
$V$	$V$	SK 30 DTA 08
900	800	SK 30 DTA 12
1300	1200	SK 30 DTA 16
1700	1600	

Characteristics		$T_s = 25^\circ\text{C}$ unless otherwise specified	
Symbol	Conditions	Values	Units
$I_D$	$T_s = 80^\circ\text{C}$ ; Ind. load	25	A
$I_{TAV}$	sin. 180°; $T_s = 25$ ( $80^\circ\text{C}$ ) per thyristor	31 (19)	A
$I_{FAV}$	sin. 180°; $T_s = 25$ ( $80^\circ\text{C}$ ) per diode	37 (25)	A
$I_{TSM}/I_{FSM}$	$T_{vj} = 25$ ( $125^\circ\text{C}$ ); 10 ms	1000 (900)	A
$I^2t$	$T_{vj} = 25$ ( $125^\circ\text{C}$ ); 8,3 ... 10 ms	5000 (4000)	A <sup>2</sup> s
$T_{stg}$		-40,...+125	°C
$T_{solder}$	terminals, 10 s	260	°C
Thyristor			
$(dv/dt)_{cr}$	$T_{vj} = 125^\circ\text{C}$	1000	V/μs
$(di/dt)_{cr}$	$T_{vj} = 125^\circ\text{C}$ ; $f = f = 50 \dots 60 \text{ Hz}$	50	A/μs
$t_q$	$T_{vj} = 125^\circ\text{C}$ ; typ.	80	μs
$I_H$	$T_{vj} = 25^\circ\text{C}$ ; typ. / max.	100 / 200	mA
$I_L$	$T_{vj} = 25^\circ\text{C}$ ; $R_G = 33 \Omega$ ; typ. / max.	200 / 400	mA
$V_T$	$T_{vj} = 25^\circ\text{C}$ ; ( $I_T = 120 \text{ A}$ ); max.	1,8	V
$V_{T(TO)}$	$T_{vj} = 125^\circ\text{C}$	max. 1	V
$r_T$	$T_{vj} = 125^\circ\text{C}$	max. 6	mΩ
$I_{DD}; I_{RD}$	$T_{vj} = 125^\circ\text{C}$ ; $V_{DD} = V_{DRM}$ ; $V_{RD} = V_{RRM}$	max. 8	mA
$R_{th(j-s)}$	Cont. per thyristor	0,8	K/W
$T_{vj}$		-40 ... +125	°C
$V_{GT}$	$T_{vj} = 25^\circ\text{C}$ ; d.c.	2	V
$I_{GT}$	$T_{vj} = 25^\circ\text{C}$ ; d.c.	100	mA
$V_{GD}$	$T_{vj} = 125^\circ\text{C}$ ; d.c.	0,25	V
$I_{GD}$	$T_{vj} = 125^\circ\text{C}$ ; d.c.	5	mA
Diode			
$V_F$	$T_{vj} = 25^\circ\text{C}$ ; ( $I_F = 25 \text{ A}$ ); max.	1,25	V
$V_{(TO)}$	$T_{vj} = 150^\circ\text{C}$	0,8	V
$r_T$	$T_{vj} = 150^\circ\text{C}$	4	mΩ
$I_{RD}$	$T_{vj} = 150^\circ\text{C}$ ; $V_{RD} = V_{RRM}$	4	mA
$R_{th(j-s)}$	per diode	1,7	K/W
$T_{vj}$		-40...+150	°C
Mechanical data			
$V_{isol}$	a. c. 50 Hz; r.m.s.; 1 s / 1 min	3000 (2500)	V
$M_1$	mounting torque	2,5	Nm
w		30	g
Case	SEMITOP® 3	T 45	



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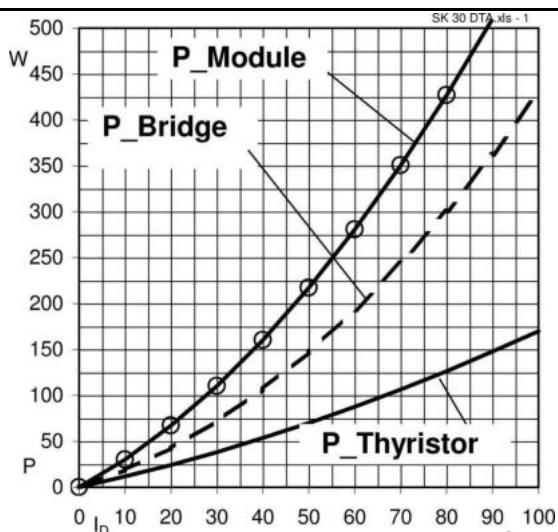


Fig. 1 Power dissipation per module vs. output bridge current

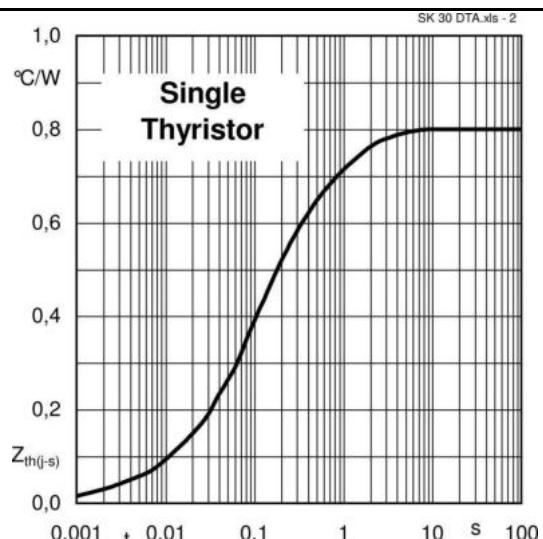


Fig. 2 Transient thermal impedance vs time

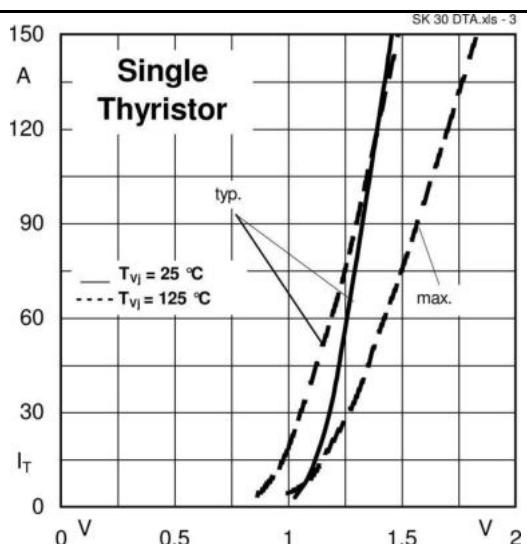


Fig. 3a Thyristor On-state characteristics

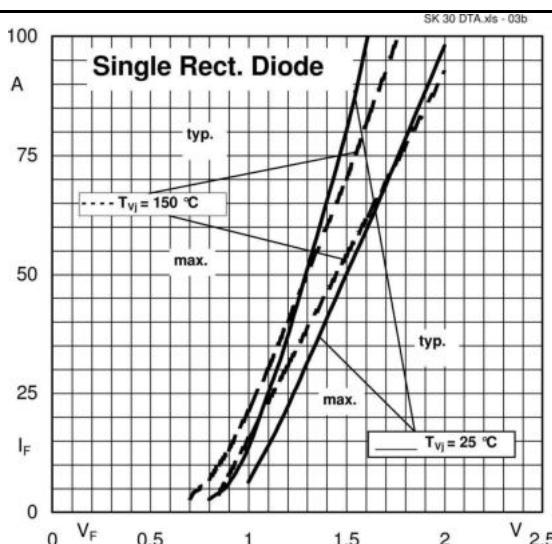


Fig. 3b Rect. Diode On-state characteristics

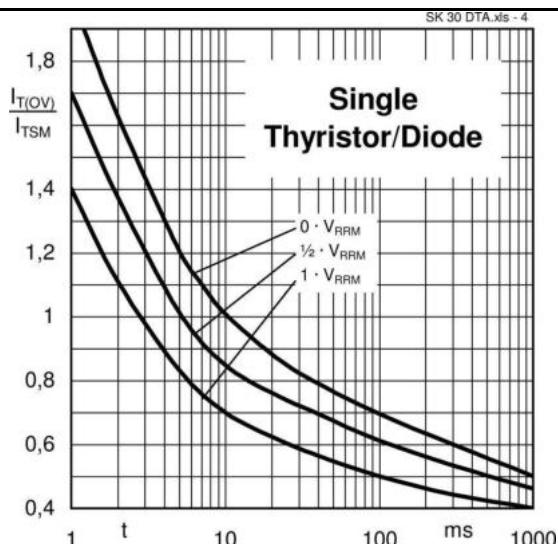


Fig. 4 Surge overload current vs. time

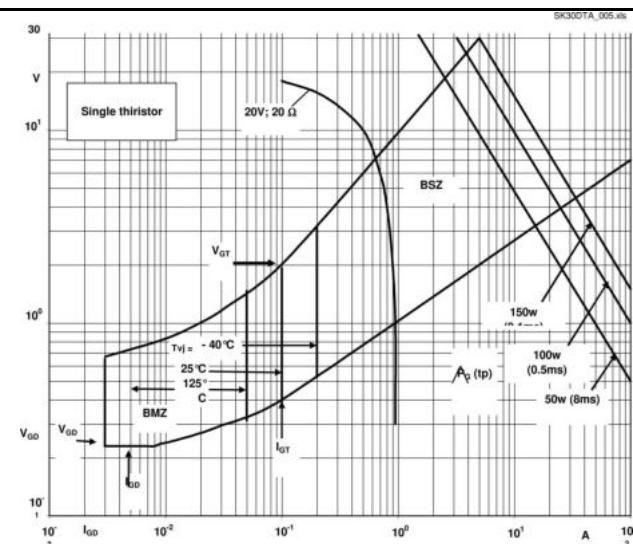
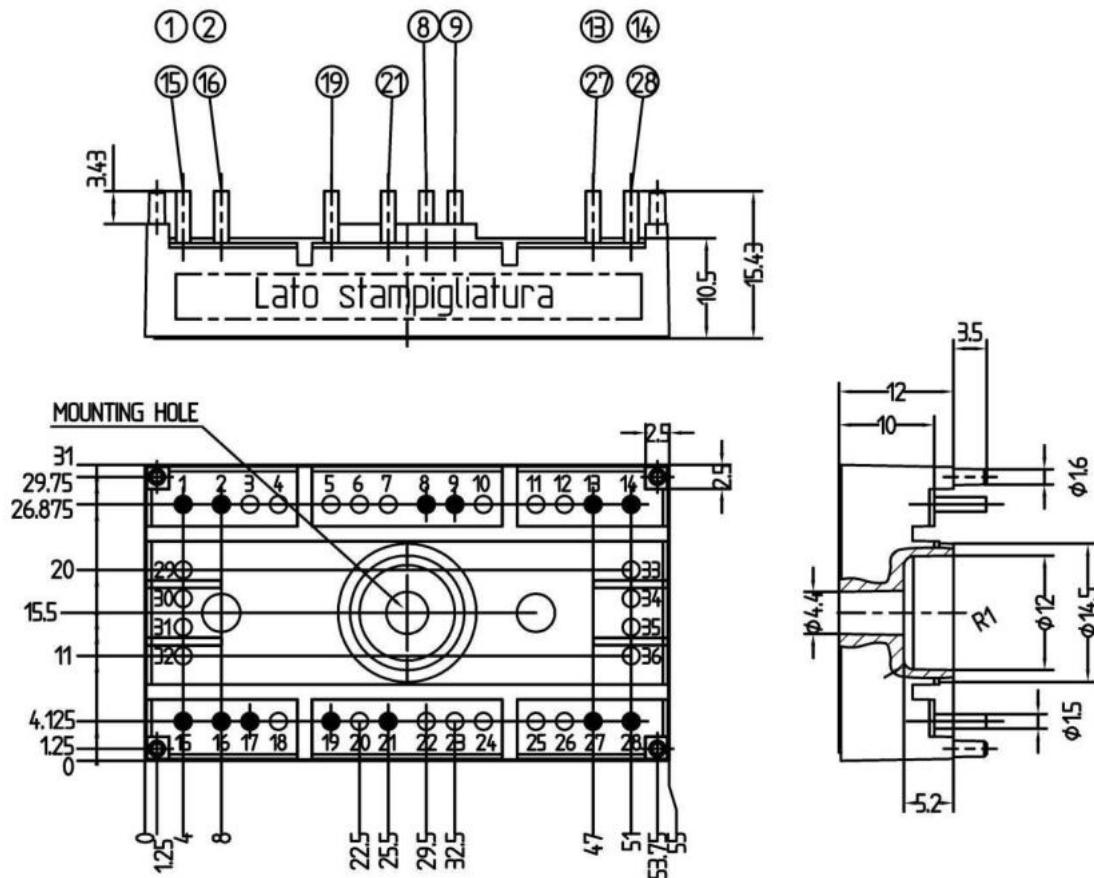


Fig. 5 Gate trigger characteristics

Dimensions in mm



SUGGESTED HOLEDIAMETER FOR THE SOLDER PINS AND THE MOUNTING PINS IN THE PCB: 2 mm

Case T45 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

