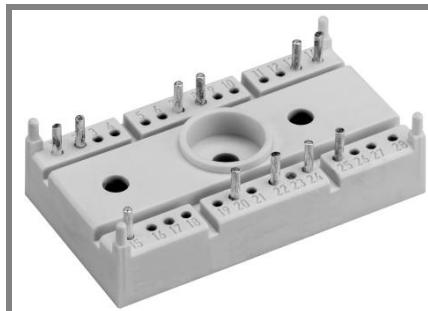


SK 80 DTA



SEMITOP® 3

3-phase bridge rectifier+ series thyristor

SK 80 DTA

Preliminary Data

Features

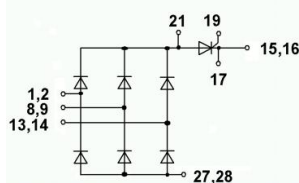
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DBC)
- Glass passivated thyristor chips
- Reverse voltage up to 1600 V
- High surge currents

Typical Applications

- Soft starters
- Light control
- Temperature control

V_{RSM} V	V_{RRM}, V_{DRM} V	$I_D = 81\text{ A}$ ($T_s = 80\text{ °C}$)
900	800	SK 80 DTA 08
1300	1200	SK 80 DTA 12
1700	1600	SK 80 DTA 16

Characteristics $T_s = 25\text{ °C}$ unless otherwise specified			
Symbol	Conditions	Values	Units
I_D	$T_s = 80\text{ °C}$; Ind. load	81	A
I_{TAV}	sin. 180° ; $T_s = 25\text{ (80) °C}$ per thyristor	113 (65)	A
I_{FAV}	sin. 180° ; $T_s = 25\text{ (80) °C}$ per diode	65 (45)	A
I_{TSM}/I_{FSM}	$T_{vj} = 25\text{ (125) °C}$; 10 ms	2000 (1800)	A
I^2t	$T_{vj} = 25\text{ (125) °C}$; 8,3 ... 10 ms	20000 (16200)	A ² s
T_{stg}		-40,...+125	°C
T_{solder}	terminals, 10 s	260	°C
Thyristor			
$(dv/dt)_{cr}$	$T_{vj} = 125\text{ °C}$	1000	V/μs
$(di/dt)_{cr}$	$T_{vj} = 125\text{ °C}$; $f = f_{\text{max}}$	50	A/μs
t_q	$T_{vj} = 125\text{ °C}$; typ.	120	μs
I_H	$T_{vj} = 25\text{ °C}$; typ. / max.	100 / 200	mA
I_L	$T_{vj} = 25\text{ °C}$; $R_G = 33\text{ Ω}$; typ. / max.	200 / 500	mA
V_T	$T_{vj} = 25\text{ °C}$; ($I_T = 300\text{ A}$); max.	1,85	V
$V_{T(TO)}$	$T_{vj} = 125\text{ °C}$	max. 0,9	V
r_T	$T_{vj} = 125\text{ °C}$	max. 3,5	mΩ
I_{DD}, I_{RD}	$T_{vj} = 125\text{ °C}$; $V_{DD} = V_{DRM}$; $V_{RD} = V_{RRM}$	max. 20	mA
$R_{th(j-s)}$	Cont. per thyristor	0,45	K/W
T_{vj}		- 40 ... + 125	°C
V_{GT}	$T_{vj} = 25\text{ °C}$; d.c.	2	V
I_{GT}	$T_{vj} = 25\text{ °C}$; d.c.	100	mA
V_{GD}	$T_{vj} = 125\text{ °C}$; d.c.	0,25	V
I_{GD}	$T_{vj} = 125\text{ °C}$; d.c.	5	mA
Diode			
V_F	$T_{vj} = 25\text{ °C}$; ($I_F = 75\text{ A}$); max.	1,45	V
$V_{T(TO)}$	$T_{vj} = 125\text{ °C}$	0,8	V
r_T	$T_{vj} = 125\text{ °C}$	4,5	mΩ
I_{RD}	$T_{vj} = 125\text{ °C}$; $V_{RD} = V_{RRM}$	2	mA
$R_{th(j-s)}$	per diode	1	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	



DTA

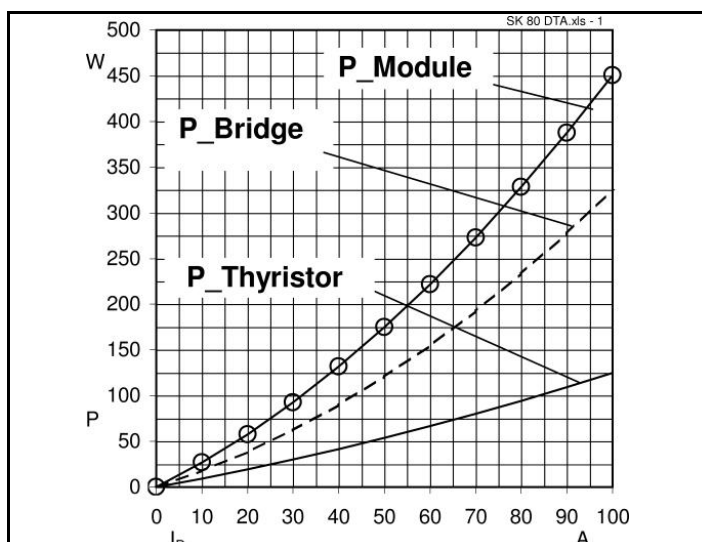


Fig. 1 Power dissipation per module vs. output bridge current

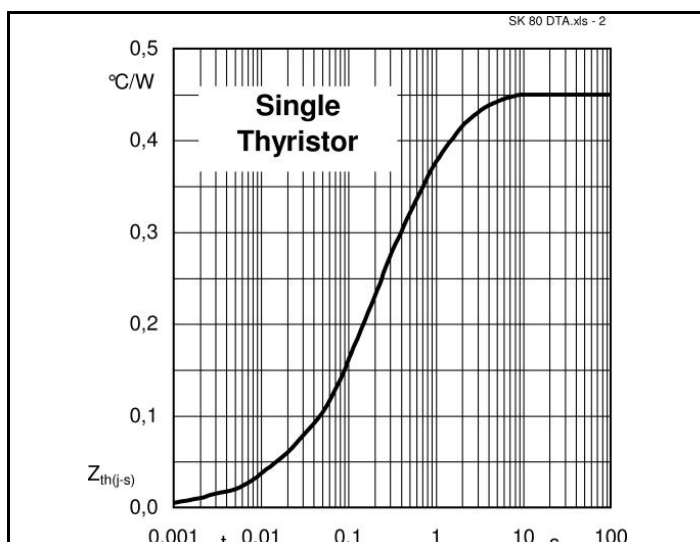


Fig. 2 Transient thermal impedance vs time

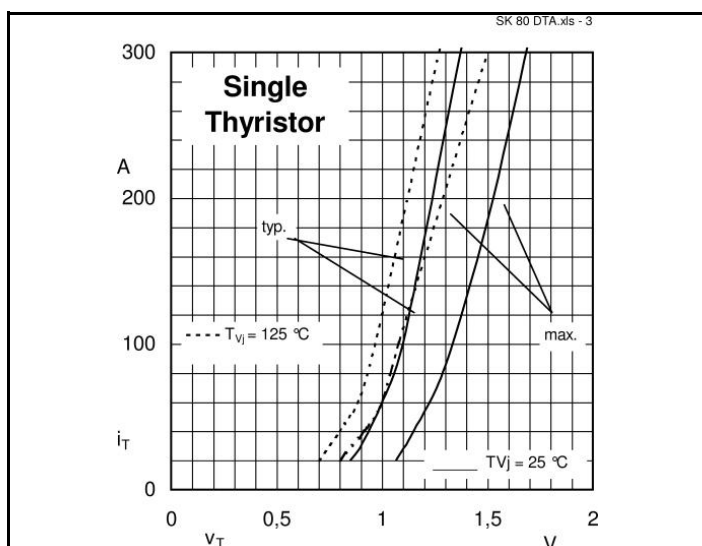


Fig. 3a Thyristor On-state characteristics

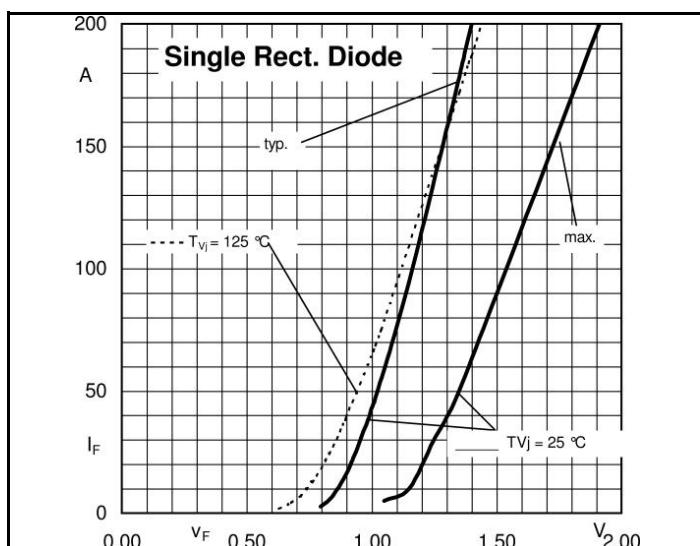


Fig. 3b Rect. Diode On-state characteristics

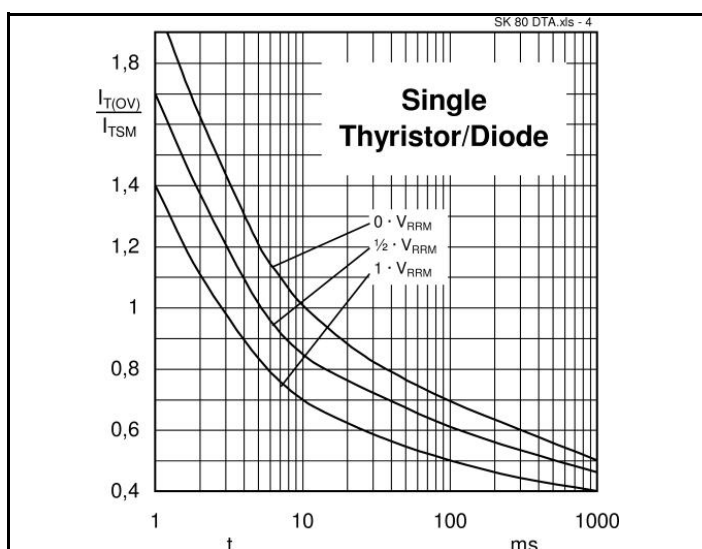


Fig. 4 Surge overload current vs. time

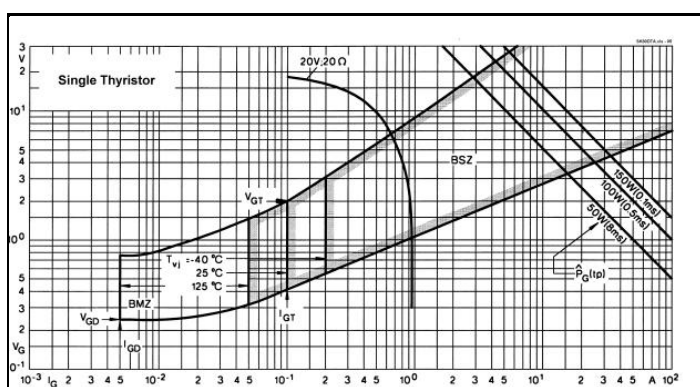
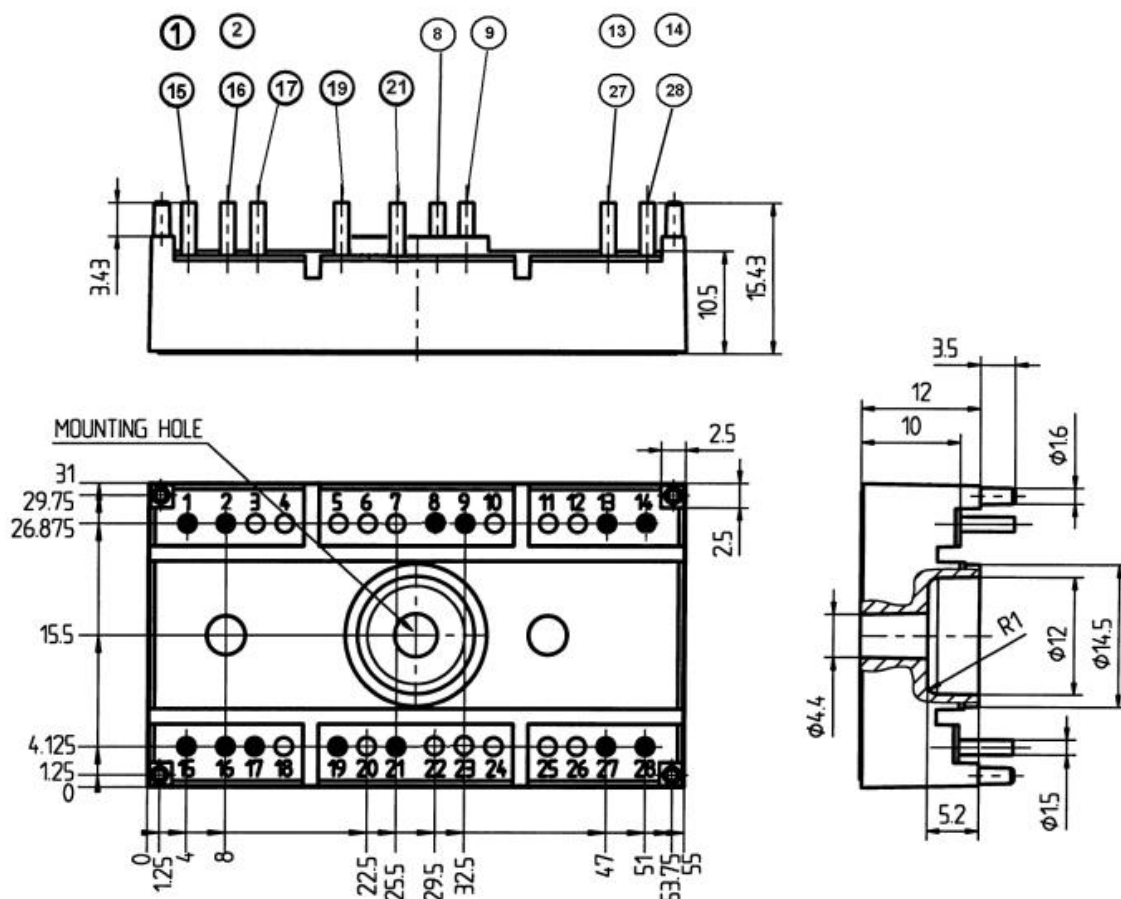
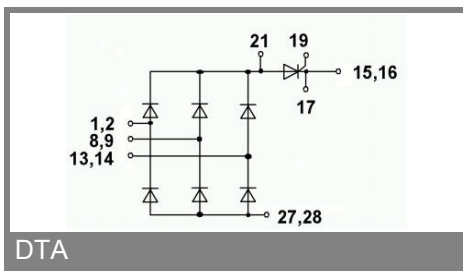


Fig. 5 Gate trigger characteristics



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

Case T45



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

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