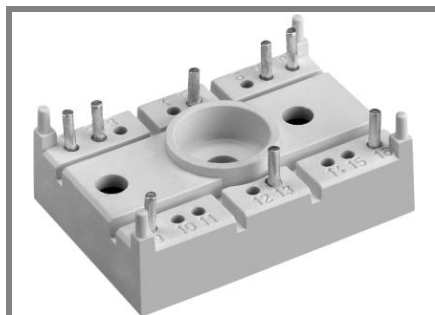




SEMITOP® 2

## Antiparallel Thyristor Module

### SK 45 WT

Preliminary Data

### Features

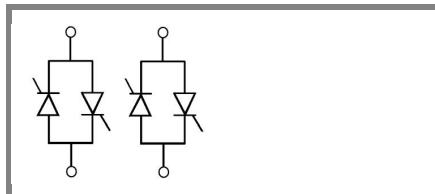
- Compact Design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DBC)
- Glass passivated thyristor chips
- Up to 1600V reverse voltage
- UL recognized, file no. E 63 532

### Typical Applications

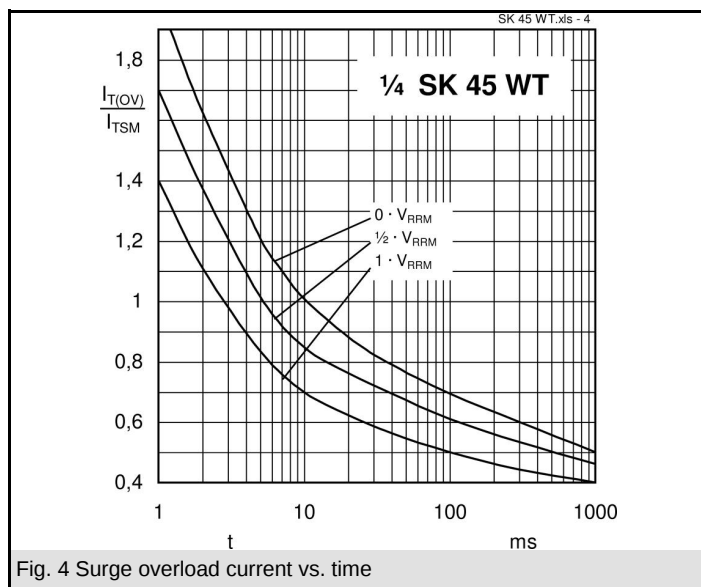
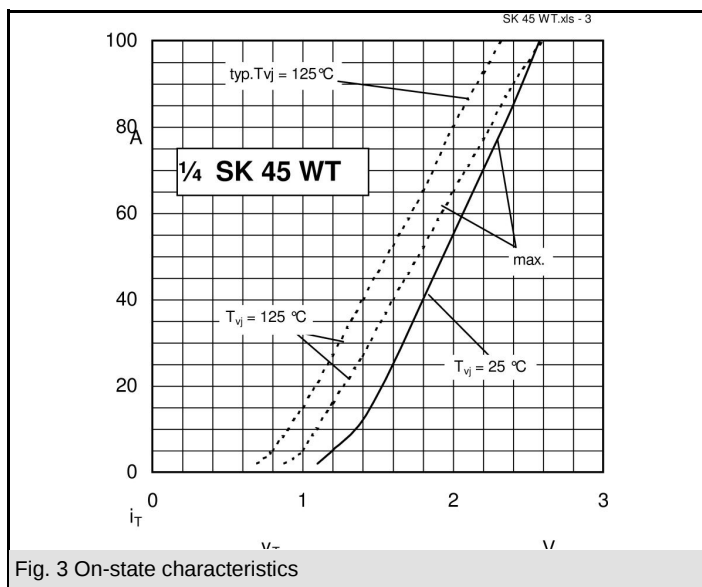
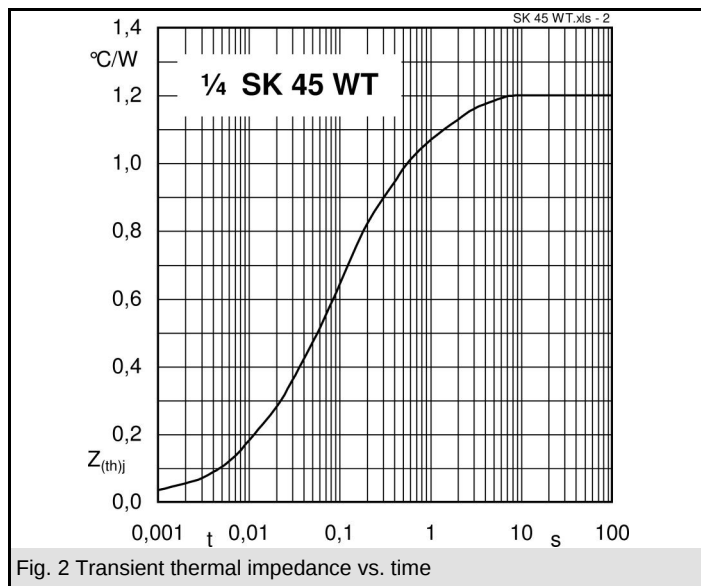
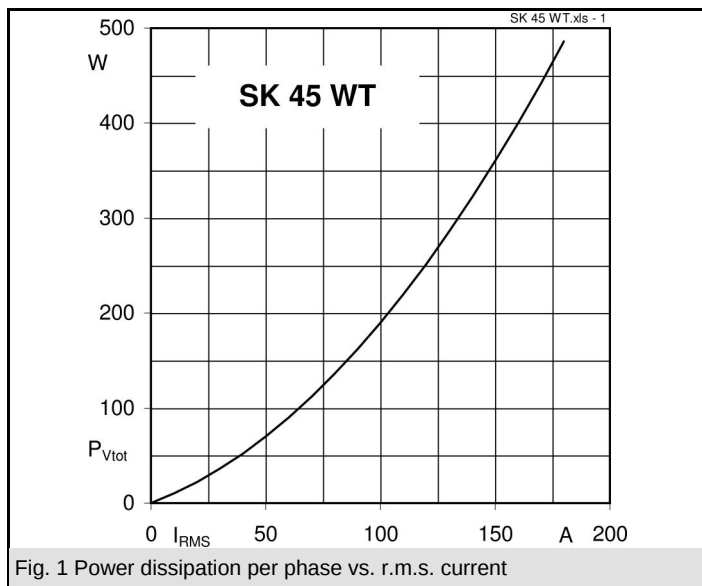
- Soft starters
- Light control (studios, theaters...)
- Temperature control

| $V_{RSM}$<br>V | $V_{RRM}, V_{DRM}$<br>V | $I_{RMS} = 47 \text{ A A (full conduction)}$<br>( $T_s = 85^\circ \text{C}$ ) |
|----------------|-------------------------|-------------------------------------------------------------------------------|
| 900            | 800                     | SK 45 WT 08                                                                   |
| 1300           | 1200                    | SK 45 WT 12                                                                   |
| 1700           | 1600                    | SK 45 WT 16                                                                   |

| Symbol                                                                  | Conditions                                                                                                                                                                                                                                        | Values                                                            | Units                                      |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------|
| $I_{RMS}$                                                               | W1C ; sin. $180^\circ$ ; $T_s = 100^\circ \text{C}$<br>W1C ; sin. $180^\circ$ ; $T_s = 85^\circ \text{C}$                                                                                                                                         | 33<br>47                                                          | A<br>A                                     |
| $I_{TSM}$                                                               | $T_{vj} = 25^\circ \text{C}$ ; 10 ms<br>$T_{vj} = 125^\circ \text{C}$ ; 10 ms                                                                                                                                                                     | 450<br>380                                                        | A<br>A                                     |
| $i^2t$                                                                  | $T_{vj} = 25^\circ \text{C}$ ; 8,3...10 ms<br>$T_{vj} = 125^\circ \text{C}$ ; 8,3...10 ms                                                                                                                                                         | 1000<br>720                                                       | A <sup>2</sup> s<br>A <sup>2</sup> s       |
| $V_T$<br>$V_{T(TO)}$<br>$r_T$<br>$I_{DD}, I_{RD}$                       | $T_{vj} = 25^\circ \text{C}$ , $I_T = 75 \text{ A}$<br>$T_{vj} = 125^\circ \text{C}$<br>$T_{vj} = 125^\circ \text{C}$<br>$T_{vj} = 25^\circ \text{C}$ , $V_{RD} = V_{RRM}$<br>$T_{vj} = 125^\circ \text{C}$ , $V_{RD} = V_{RRM}$                  | max. 1,9<br>max. 1<br>max. 10<br>max. 0,5<br>max. 10              | V<br>V<br>mΩ<br>mA<br>mA                   |
| $t_{gd}$<br>$t_{gr}$                                                    | $T_{vj} = 25^\circ \text{C}$ , $I_G = 1 \text{ A}$ ; $di_G/dt = 1 \text{ A}/\mu\text{s}$<br>$V_D = 0,67 \cdot V_{DRM}$                                                                                                                            | 1<br>2                                                            | μs<br>μs                                   |
| $(dv/dt)_{cr}$<br>$(di/dt)_{cr}$<br>$t_q$<br>$I_H$<br>$I_L$             | $T_{vj} = 125^\circ \text{C}$<br>$T_{vj} = 125^\circ \text{C}$ ; $f = 50...60 \text{ Hz}$<br>$T_{vj} = 125^\circ \text{C}$ ; typ.<br>$T_{vj} = 25^\circ \text{C}$ ; typ. / max.<br>$T_{vj} = 25^\circ \text{C}$ ; $R_G = 33 \Omega$ ; typ. / max. | 1000<br>50<br>120<br>80 / 150<br>150 / 300                        | V/μs<br>A/μs<br>μs<br>mA<br>mA             |
| $V_{GT}$<br>$I_{GT}$<br>$V_{GD}$<br>$I_{GD}$                            | $T_{vj} = 25^\circ \text{C}$ ; d.c.<br>$T_{vj} = 25^\circ \text{C}$ ; d.c.<br>$T_{vj} = 125^\circ \text{C}$ ; d.c.<br>$T_{vj} = 125^\circ \text{C}$ ; d.c.                                                                                        | min. 3<br>min. 100<br>max. 0,25<br>max. 3                         | V<br>mA<br>V<br>mA                         |
| $R_{th(j-s)}$<br>$R_{th(j-s)}$<br>$T_{vj}$<br>$T_{stg}$<br>$T_{solder}$ | cont. per thyristor<br>sin $180^\circ$ per thyristor<br>cont. per W1C<br>sin $180^\circ$ per W1C<br><br>terminals, 10s                                                                                                                            | 1,2<br>1,24<br>0,6<br>0,62<br>-40 ... +125<br>-40 ... +125<br>260 | K/W<br>K/W<br>K/W<br>K/W<br>°C<br>°C<br>°C |
| $V_{isol}$<br>$M_s$<br>$M_t$<br>$a$<br>$m$                              | a. c. 50 Hz; r.m.s.; 1 s / 1 min.<br>Mounting torque to heatsink                                                                                                                                                                                  | 3000 / 2500<br>1,5<br><br>13                                      | V~<br>Nm<br>Nm<br>m/s <sup>2</sup><br>g    |
| Case                                                                    | SEMITOP® 2                                                                                                                                                                                                                                        | T 37                                                              |                                            |



WT



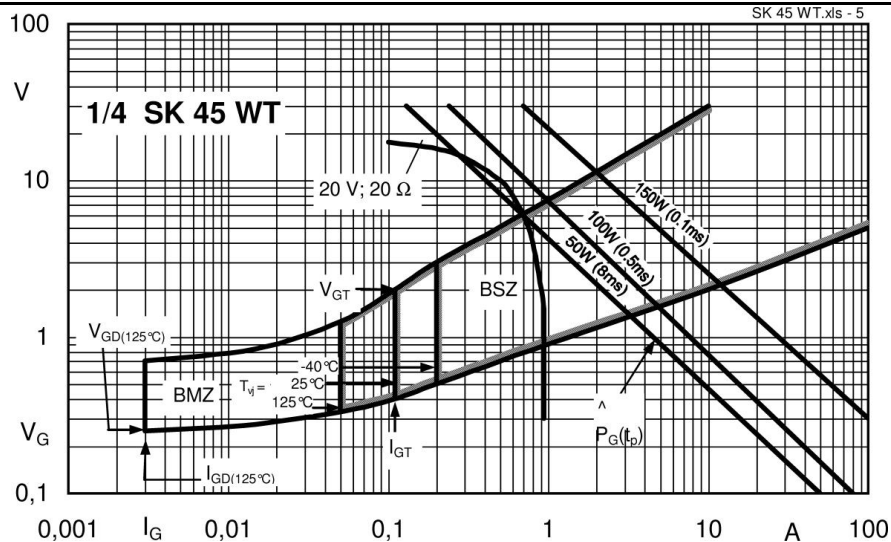
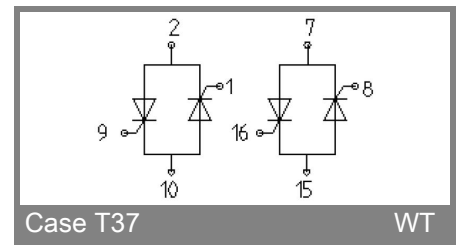
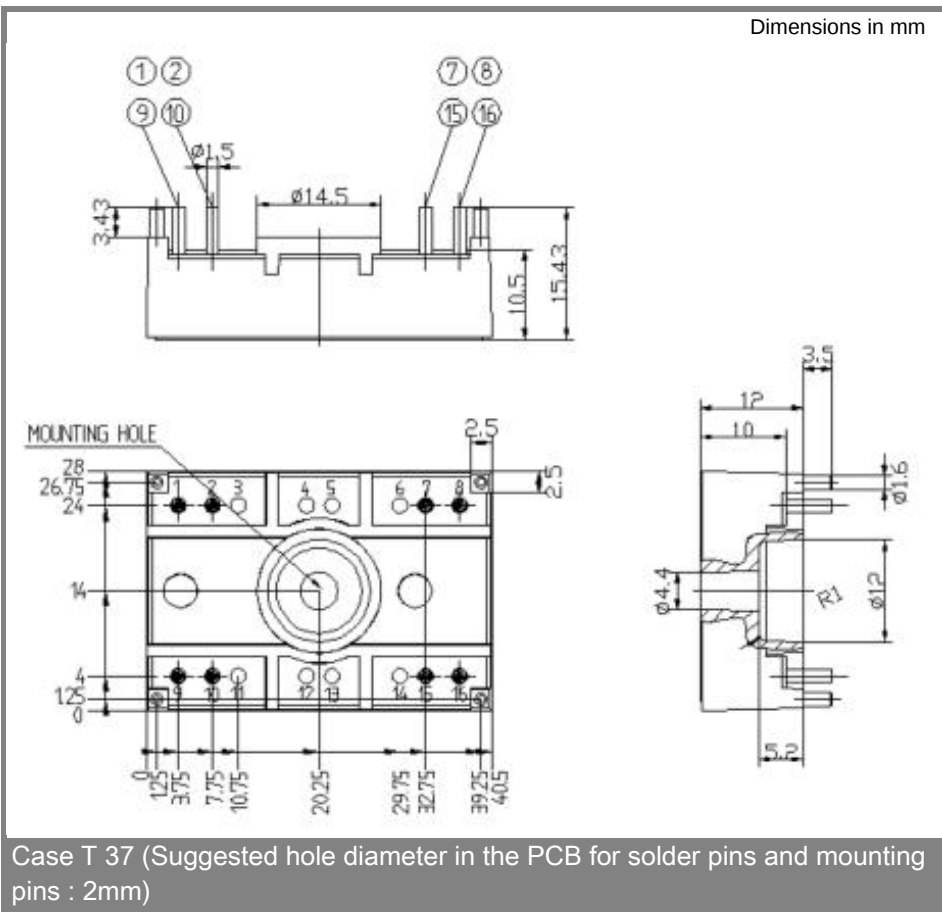


Fig. 5 Gate trigger characteristics



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