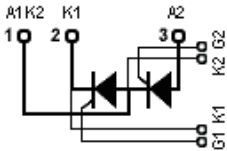


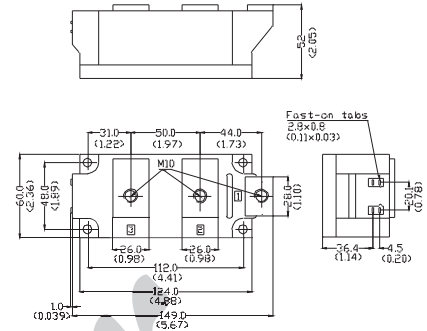
# STT500GKxxBT

## Thyristor-Thyristor Modules



| Type         | $V_{RSM}$ | $V_{RRM}$ |
|--------------|-----------|-----------|
|              | $V_{DSM}$ | $V_{DRM}$ |
|              | V         | V         |
| STT500GK08BT | 900       | 800       |
| STT500GK12BT | 1300      | 1200      |
| STT500GK14BT | 1500      | 1400      |
| STT500GK16BT | 1700      | 1600      |
| STT500GK18BT | 1900      | 1800      |

Dimensions in mm (1mm=0.0394")



| Symbol   | Test Conditions  | Maximum Ratings                 | Unit             |
|--|--|---------------------------------|------------------|
| $I_{TRMS}$ , $I_{FRMS}$<br>$I_{TAVM}$ , $I_{FAVM}$ | $T_{VJ}=T_{VJM}$<br>$T_C=85^{\circ}C$ ; 180° sine  | 785<br>500                      | A                |
| $I_{TSM}$ , $I_{FSM}$                              | $T_{VJ}=45^{\circ}C$<br>$V_R=0$<br>t=10ms (50Hz), sine<br>t=8.3ms (60Hz), sine   | 16000<br>18000                  | A                |
|  | $T_{VJ}=T_{VJM}$<br>$V_R=0$<br>t=10ms(50Hz), sine<br>t=8.3ms(60Hz), sine   | 13000<br>14400                  |                  |
| $\int i^2 dt$                                      | $T_{VJ}=45^{\circ}C$<br>$V_R=0$<br>t=10ms (50Hz), sine<br>t=8.3ms (60Hz), sine   | 1125000<br>1062000              | A <sup>2</sup> s |
|  | $T_{VJ}=T_{VJM}$<br>$V_R=0$<br>t=10ms(50Hz), sine<br>t=8.3ms(60Hz), sine   | 845000<br>813000                |                  |
| $(di/dt)_{cr}$                                     | $T_{VJ}=T_{VJM}$<br>f=50Hz, $t_p=200\mu s$<br>$V_D=2/3V_{DRM}$<br>$I_G=1A$<br>$di_G/dt=1A/\mu s$<br>repetitive, $I_T=960A$ | 100                             | A/ $\mu s$       |
|  | non repetitive, $I_T=I_{TAVM}$   | 500                             |                  |
| $(dv/dt)_{cr}$                                     | $T_{VJ}=T_{VJM}$ ;<br>$R_{GK}=\infty$ ; method 1 (linear voltage rise)<br>$V_{DR}=2/3V_{DRM}$                              | 1000                            | V/ $\mu s$       |
| $P_{GM}$   | $T_{VJ}=T_{VJM}$<br>$I_T=I_{TAVM}$<br>$t_p=30\mu s$<br>$t_p=500\mu s$  | 120<br>60                       | W                |
| $P_{GAV}$  |  | 20                              | W                |
| $V_{RGM}$  |  | 10                              | V                |
| $T_{VJ}$<br>$T_{VJM}$<br>$T_{stg}$                 |  | -40...+140<br>140<br>-40...+125 | °C               |
| $V_{ISOL}$   | 50/60Hz, RMS<br>$I_{ISOL} \leq 1mA$<br>t=1min<br>t=1s  | 3000<br>3600                    | V~               |
| $M_d$  | Mounting torque (M6)<br>Terminal connection torque (M8)  | 4.5-7/40-60<br>11-13/97-115     | Nm/lb.in.        |
| Weight   | Typical  | 1380                            | g                |

**Sirectifier**<sup>®</sup>

# STT500GKXXBT

## Thyristor-Thyristor Modules

| Symbol                  | Test Conditions  | Characteristic Values | Unit             |
|-------------------------|--|-----------------------|------------------|
| <b>I<sub>RRM</sub></b>  | $T_{VJ}=T_{VJM}; V_R=V_{RRM}$  | 30                    | mA               |
| <b>V<sub>TM</sub></b>   | $I_{TM}=1500A; T_{VJ}=25^{\circ}C$   | 1.65                  | V                |
| <b>V<sub>TO</sub></b>   | For power-loss calculations only ( $T_{VJ}=T_{VJM}$ )  | 0.8                   | V                |
| <b>r<sub>T</sub></b>    |  | 0.38                  | m $\Omega$       |
| <b>V<sub>GT</sub></b>   | $V_D=6V; T_{VJ}=25^{\circ}C$<br>$T_{VJ}=-40^{\circ}C$  | 2<br>3                | V                |
| <b>I<sub>GT</sub></b>   | $V_D=6V; T_{VJ}=25^{\circ}C$<br>$T_{VJ}=-40^{\circ}C$  | 300<br>400            | mA               |
| <b>V<sub>GD</sub></b>   | $T_{VJ}=T_{VJM}; V_D=2/3V_{DRM}$   | 0.25                  | V                |
| <b>I<sub>GD</sub></b>   | $T_{VJ}=T_{VJM}; V_D=2/3V_{DRM}$   | 10                    | mA               |
| <b>I<sub>L</sub></b>    | $T_{VJ}=25^{\circ}C; t_p=30\mu s; V_D=6V$<br>$I_G=1A; di_G/dt=1A/\mu s$  | 400                   | mA               |
| <b>I<sub>H</sub></b>    | $T_{VJ}=25^{\circ}C; V_D=6V; R_{GK}=\infty$  | 300                   | mA               |
| <b>t<sub>gd</sub></b>   | $T_{VJ}=25^{\circ}C; V_D=1/2V_{DRM}$<br>$I_G=1A; di_G/dt=1A/\mu s$   | 2                     | $\mu s$          |
| <b>t<sub>q</sub></b>    | $T_{VJ}=T_{VJM}; I_T=500A; t_p=200\mu s; -di/dt=10A/\mu s$<br>$V_R=100V; dv/dt=50V/\mu s; V_D=2/3V_{DRM}$ typ. | 350                   | $\mu s$          |
| <b>R<sub>thJC</sub></b> | DC current   | 0.072                 | K/W              |
| <b>R<sub>thJK</sub></b> | DC current   | 0.096                 | K/W              |
| <b>ds</b>               | Creeping distance on surface   | 12.7                  | mm               |
| <b>da</b>               | Creepage distance in air   | 9.6                   | mm               |
| <b>a</b>                | Maximum allowable acceleration   | 50                    | m/s <sup>2</sup> |

### FEATURES

- \* International standard package
- \* Copper base plate
- \* Pressure Contact Technology
- \* BusBar Terminal
- \* Isolation voltage 3600 V~
- \* UL file NO.310749
- \* RoHS compliant

### APPLICATIONS

- \* Motor control, softstarter
- \* Power converter
- \* Heat and temperature control for industrial furnaces and chemical processes
- \* Lighting control
- \* Solid state switches

### ADVANTAGES

- \* Simple mounting
- \* Improved temperature and power cycling
- \* Reduced protection circuits

**Sirectifier**<sup>®</sup>

# STT500GKXXBT

## Thyristor-Thyristor Modules

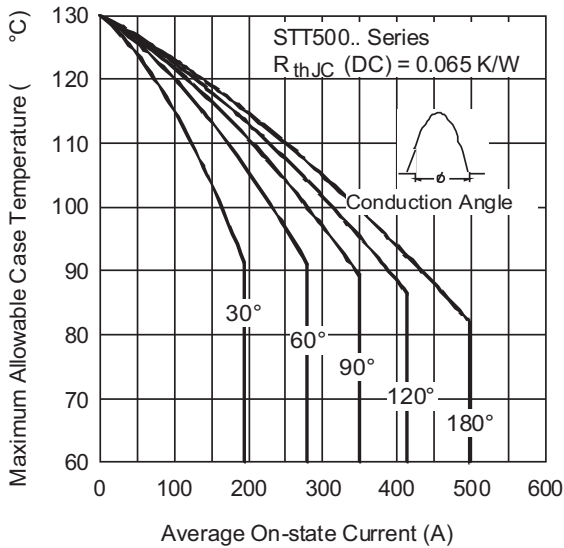


Fig. 1 - Current Ratings Characteristics

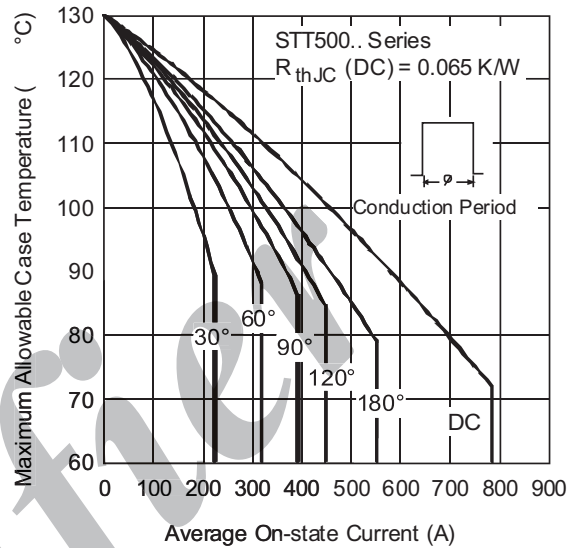


Fig. 2 - Current Ratings Characteristics

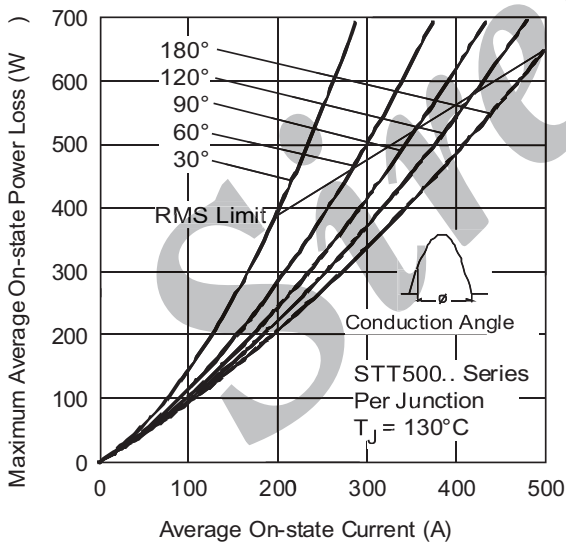


Fig. 3 - On-state Power Loss Characteristics

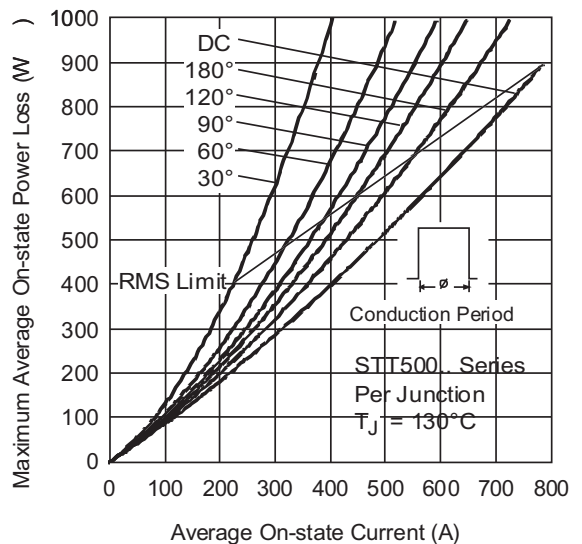


Fig. 4 - On-state Power Loss Characteristics

# STT500GKXXBT

## Thyristor-Thyristor Modules

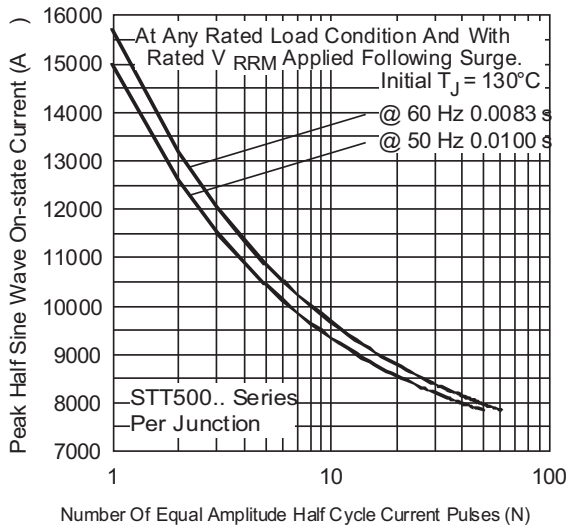


Fig. 5 - Maximum Non-Repetitive Surge Current

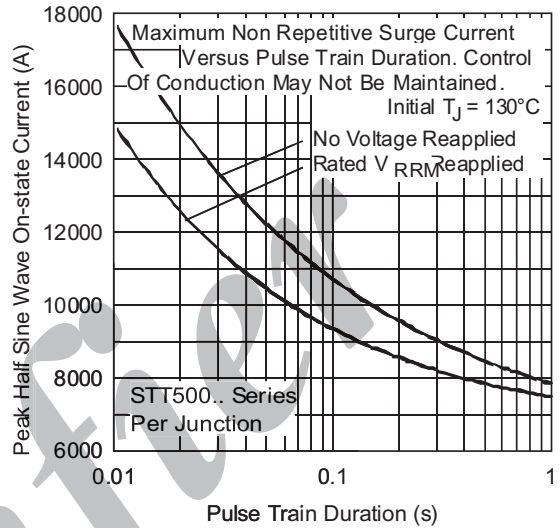


Fig. 6 - Maximum Non-Repetitive Surge Current

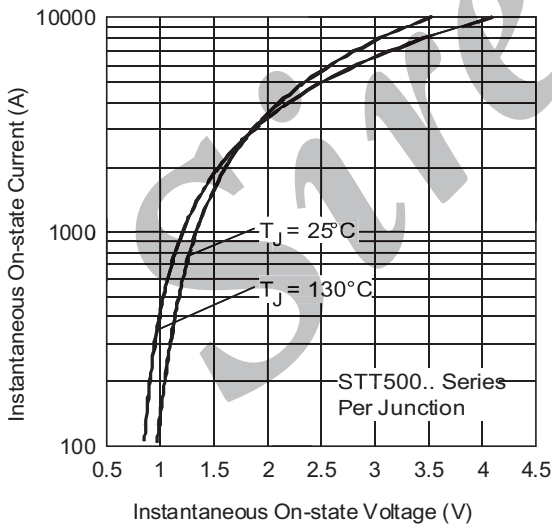


Fig. 7 - On-state Voltage Drop Characteristics

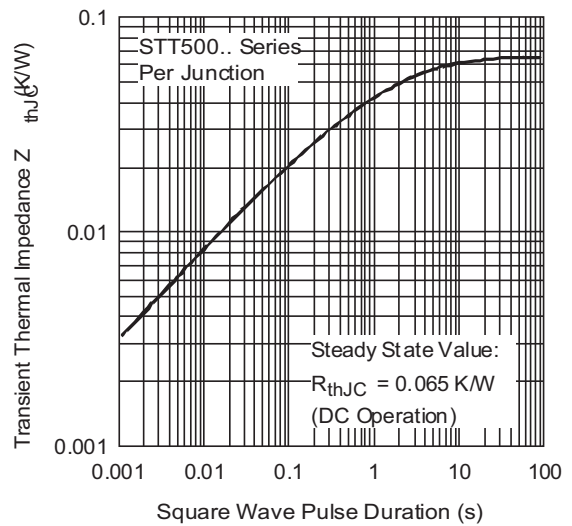


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristics



# STT500GKXXBT

## Thyristor-Thyristor Modules

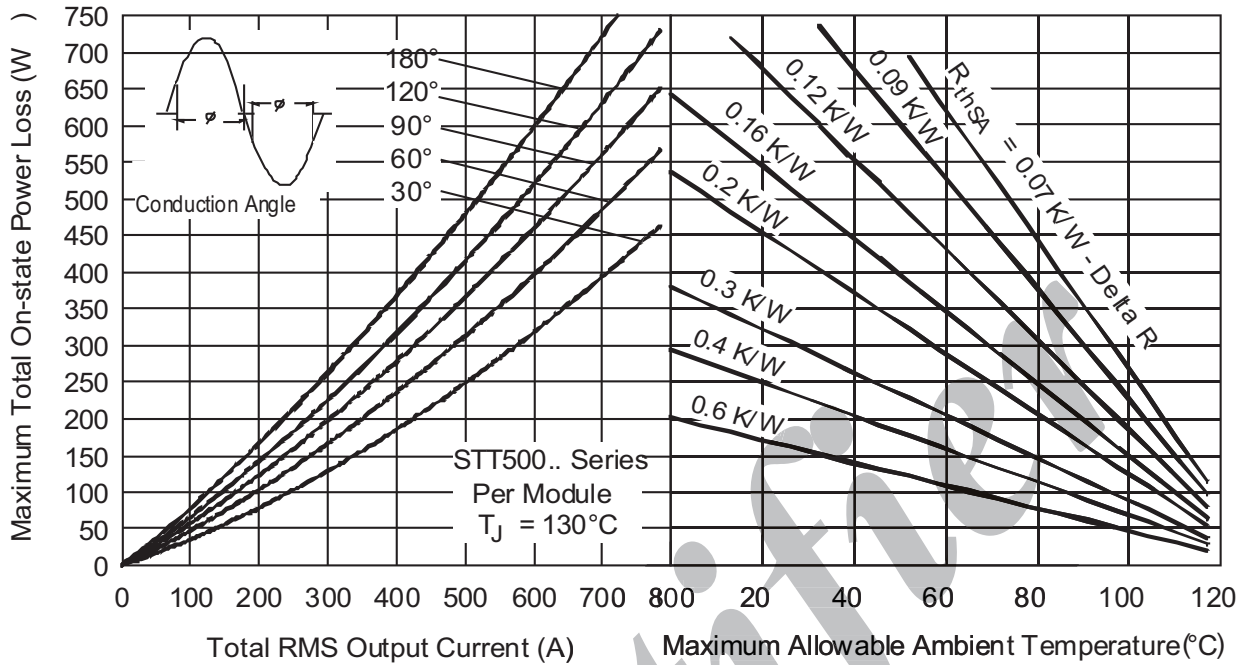


Fig. 9 - On-state Power Loss Characteristics

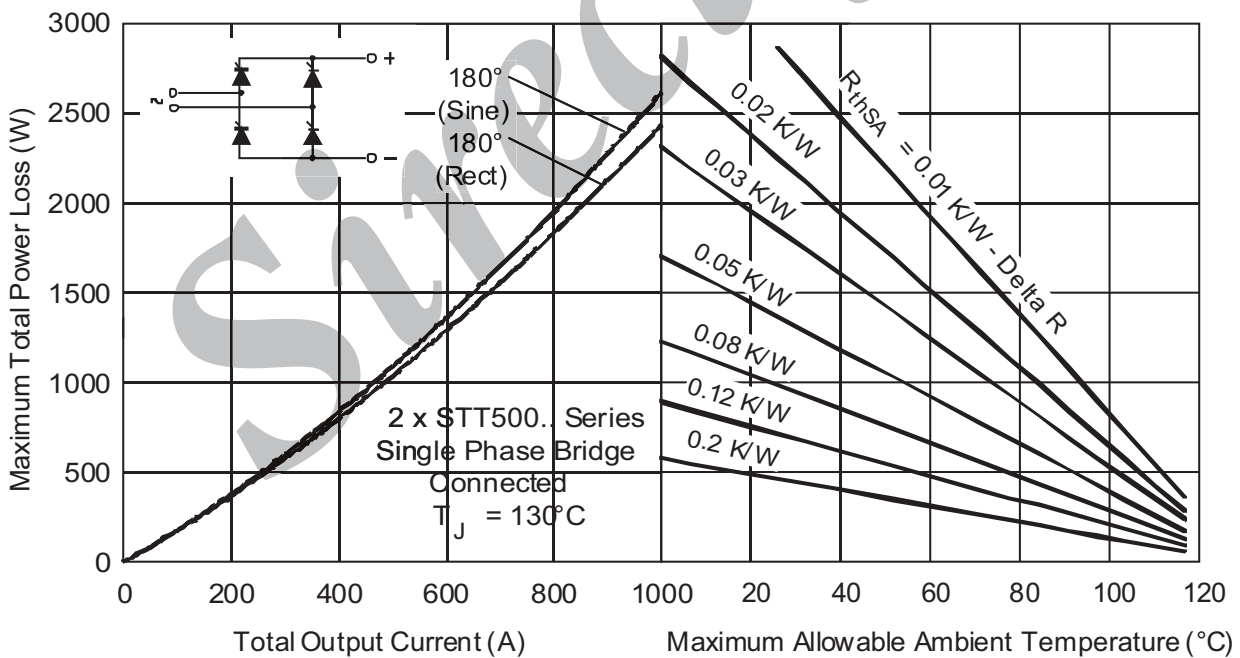


Fig. 10 - On-state Power Loss Characteristics

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## Thyristor-Thyristor Modules

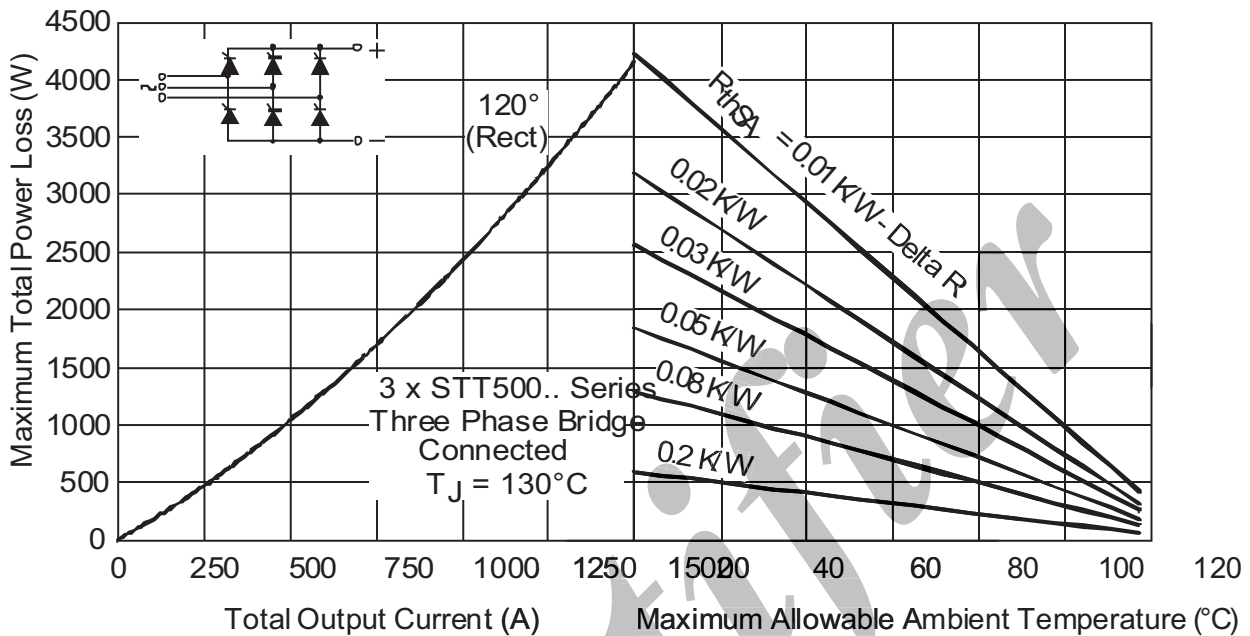


Fig. 11 - On-state Power Loss Characteristics

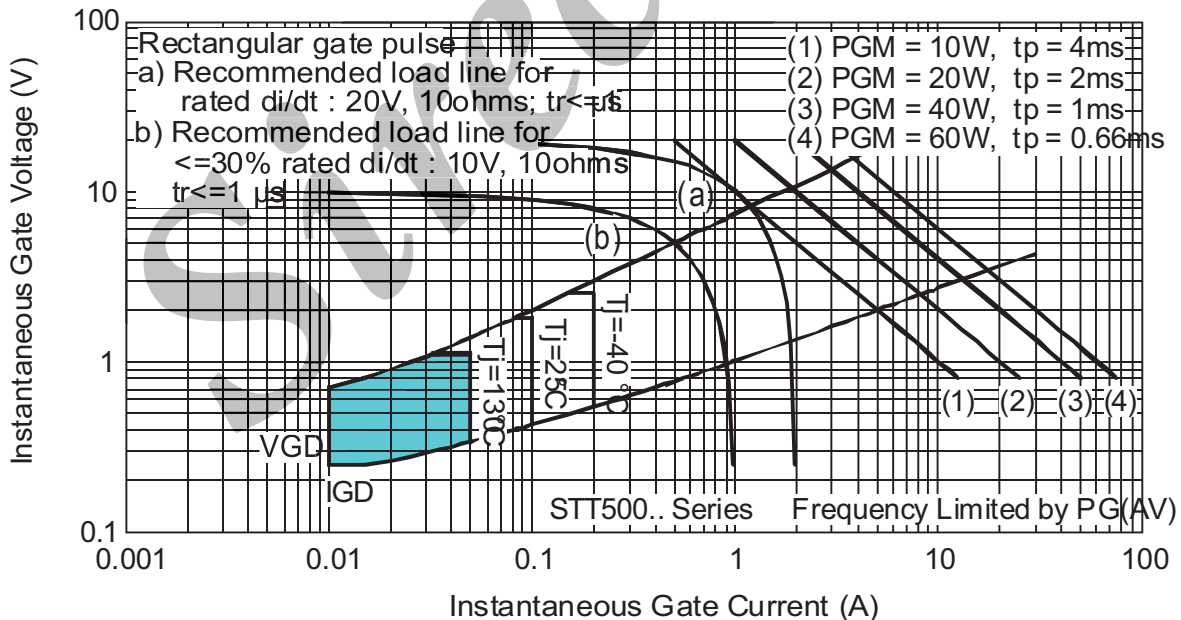


Fig. 12 - Gate Characteristics