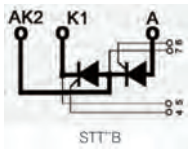
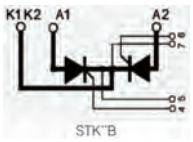
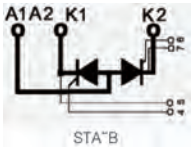
# STT60GKXXB

## Thyristor-Thyristor Modules



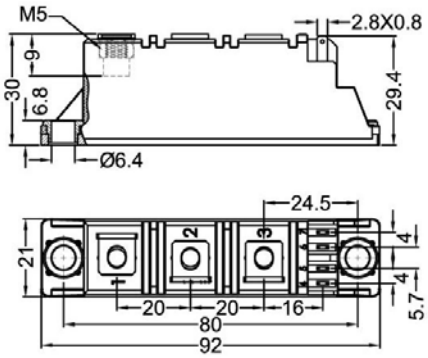



| Type | $V_{RSM}$ $V_{DSM}$ V | $V_{RRM}$ $V_{DRM}$ V |
|---|---|---|
| **STT60GK08B** | 900 | 800 |
| **STT60GK12B** | 1300 | 1200 |
| **STT60GK14B** | 1500 | 1400 |
| **STT60GK16B** | 1700 | 1600 |
| **STT60GK18B** | 1900 | 1800 |

**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>$T_C=85^oC$; 180° sine | | 94<br>60 | A |
| $I_{TSM}$, $I_{FSM}$ | $T_{VJ}=45^oC$<br>$V_R=0$ | t=10ms (50Hz), sine<br>t=8.3ms (60Hz), sine | 1500<br>1600 | A |
| | $T_{VJ}=T_{VJM}$<br>$V_R=0$ | t=10ms(50Hz), sine<br>t=8.3ms(60Hz), sine | 1350<br>1450 | |
| $\int i^2dt$ | $T_{VJ}=45^oC$<br>$V_R=0$ | t=10ms (50Hz), sine<br>t=8.3ms (60Hz), sine | 11200<br>10750 | $A^2s$ |
| | $T_{VJ}=T_{VJM}$<br>$V_R=0$ | t=10ms(50Hz), sine<br>t=8.3ms(60Hz), sine | 9100<br>8830 | |
| $(di/dt)_{cr}$ | $T_{VJ}=T_{VJM}$<br>f=50Hz, $t_p$=200us<br>$V_D=2/3V_{DRM}$<br>$I_G$=0.45A<br>$di_G/dt$=0.45A/us | repetitive, $I_T=150A$<br><br><br>non repetitive, $I_T=I_{TAVM}$ | 150<br><br><br>500 | A/us |
| $(dv/dt)_{cr}$ | $T_{VJ}=T_{VJM}$; $V_{DR}=2/3V_{DRM}$<br>$R_{GK}$=∞ ; method 1 (linear voltage rise) | | 1000 | V/us |
| $P_{GM}$ | $T_{VJ}=T_{VJM}$<br>$I_T=I_{TAVM}$ | $t_p$=30us<br>$t_p$=300us | 10<br>5 | W |
| $P_{GAV}$ | | | 0.5 | W |
| $V_{RGM}$ | | | 10 | V |
| $T_{VJ}$<br>$T_{VJM}$<br>$T_{stg}$ | | | -40...+125<br>125<br>-40...+125 | °C |
| $V_{ISOL}$ | 50/60Hz, RMS<br>$I_{ISOL}$≤1mA | t=1min<br>t=1s | 3000<br>3600 | V~ |
| $M_d$ | Mounting torque (M5)<br>Terminal connection torque (M5) | | 2.5-4.0/22-35<br>2.5-4.0/22-35 | Nm/lb.in. |
| **Weight** | Typical | | 110 | g |

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# STT60GKXXB

## Thyristor-Thyristor Modules

| Symbol | Test Conditions | Characteristic Values | Unit |
|---|---|---|---|
| $I_{RRM}$, $I_{DRM}$ | $T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$; $V_D=V_{DRM}$ | 5 | mA |
| $V_{TM}$ | $I_{TM}$=180A; $T_{VJ}$=25°C | 1.75 | V |
| $V_{TO}$ | For power-loss calculations only ($T_{VJ}$=125°C) | 0.85 | V |
| $r_T$ | | 3.7 | mΩ |
| $V_{GT}$ | $V_D$=6V; $T_{VJ}$=25°C<br>$T_{VJ}$=-40°C | 1.5<br>1.6 | V |
| $I_{GT}$ | $V_D$=6V; $T_{VJ}$=25°C<br>$T_{VJ}$=-40°C | 100<br>200 | mA |
| $V_{GD}$ | $T_{VJ}=T_{VJM}$; $V_D$=2/3$V_{DRM}$ | 0.2 | V |
| $I_{GD}$ | | 10 | mA |
| $I_L$ | $T_{VJ}$=25°C; $t_p$=10us; $V_D$=6V<br>$I_G$=0.45A; $di_G/dt$=0.45A/us | 450 | mA |
| $I_H$ | $T_{VJ}$=25°C; $V_D$=6V; $R_{GK}$=∞ | 200 | mA |
| $t_{gd}$ | $T_{VJ}$=25°C; $V_D$=1/2$V_{DRM}$<br>$I_G$=0.45A; $di_G/dt$=0.45A/us | 2 | us |
| $t_q$ | $T_{VJ}=T_{VJM}$; $I_T$=150A; $t_p$=200us; -di/dt=10A/us typ.<br>$V_R$=100V; dv/dt=20V/us; $V_D$=2/3$V_{DRM}$ | 150 | us |
| $Q_S$ | $T_{VJ}=T_{VJM}$; $I_T$, $I_F$=50A; -di/dt=3A/us | 100 | uC |
| $I_{RM}$ | | 24 | A |
| $R_{thJC}$ | per thyristor/diode; DC current<br>per module | 0.45<br>0.225 | K/W |
| $R_{thJK}$ | per thyristor/diode; DC current<br>per module | 0.65<br>0.325 | K/W |
| $d_S$ | Creeping distance on surface | 12.7 | mm |
| $d_A$ | Strike distance through air | 9.6 | mm |
| a | Maximum allowable acceleration | 50 | $m/s^2$ |

### *FEATURES*

* International standard package
* Copper base plate
* Glass passivated chips
* Isolation voltage 3600 V~
* UL file NO.E310749
* RoHS compliant

### *APPLICATIONS*

* DC motor control
* Softstart AC motor controller
* Light, heat and temperature control

### *ADVANTAGES*

* Space and weight savings
* Simple mounting with two screws
* Improved temperature and power cycling
* Reduced protection circuits

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# STT60GKXXB

## Thyristor-Thyristor Modules

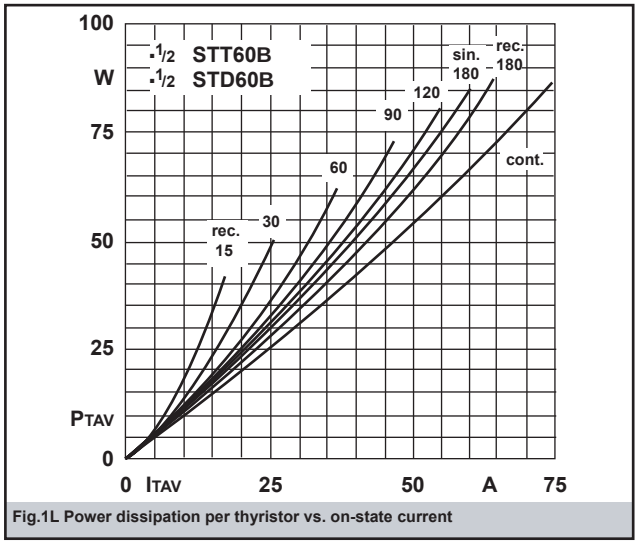



Fig.1L Power dissipation per thyristor vs. on-state current

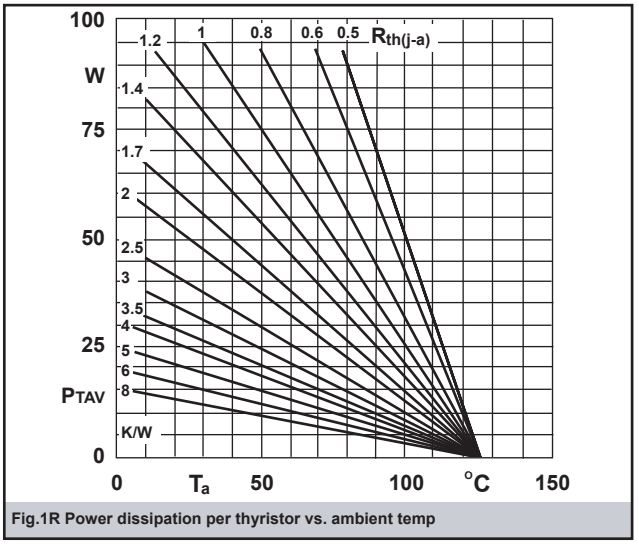



Fig.1R Power dissipation per thyristor vs. ambient temp

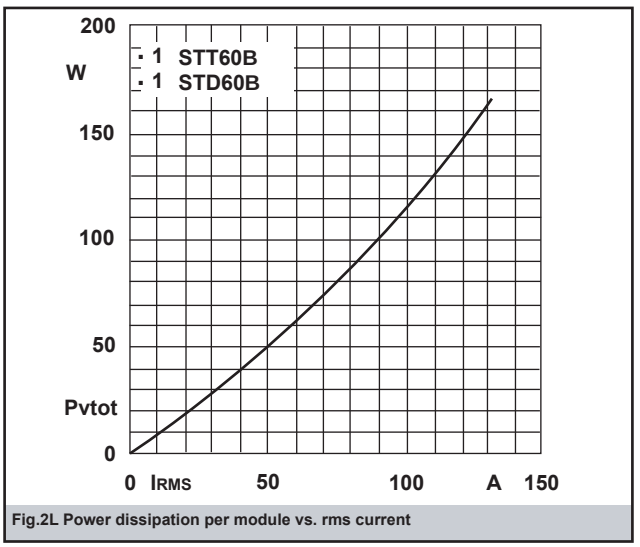



Fig.2L Power dissipation per module vs. rms current

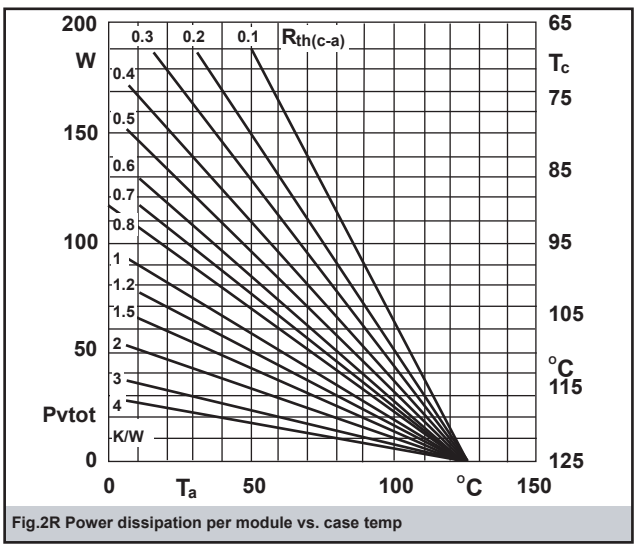



Fig.2R Power dissipation per module vs. case temp

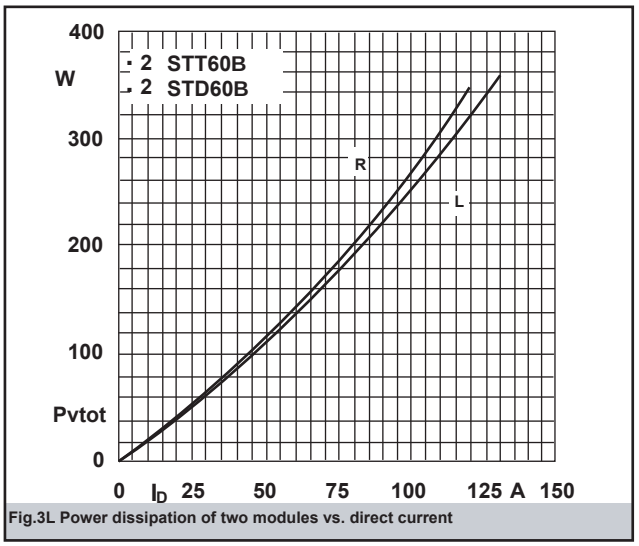



Fig.3L Power dissipation of two modules vs. direct current

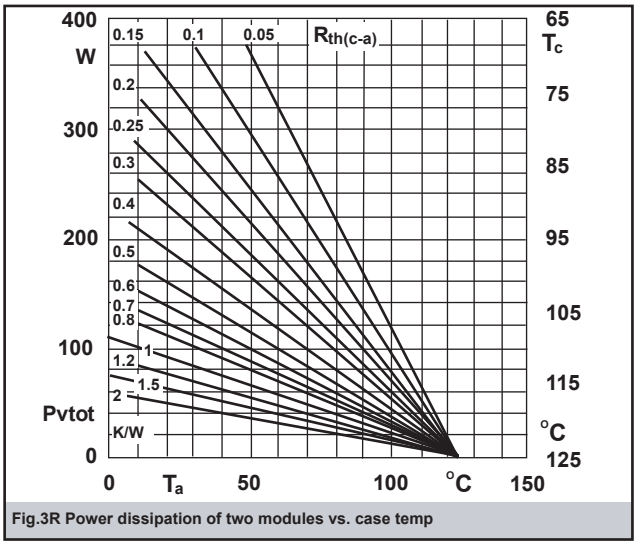



Fig.3R Power dissipation of two modules vs. case temp



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# STT60GKXXB

## Thyristor-Thyristor Modules

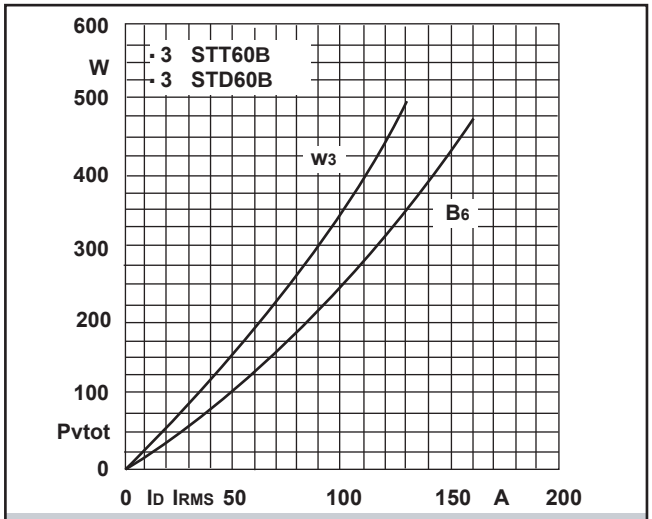



Fig.4L Power dissipation of three modules vs. direct and rms current

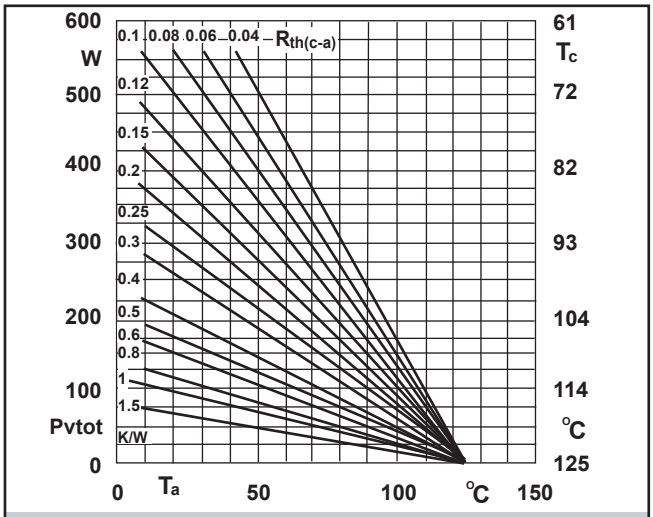



Fig.4R Power dissipation of three modules vs. case temp

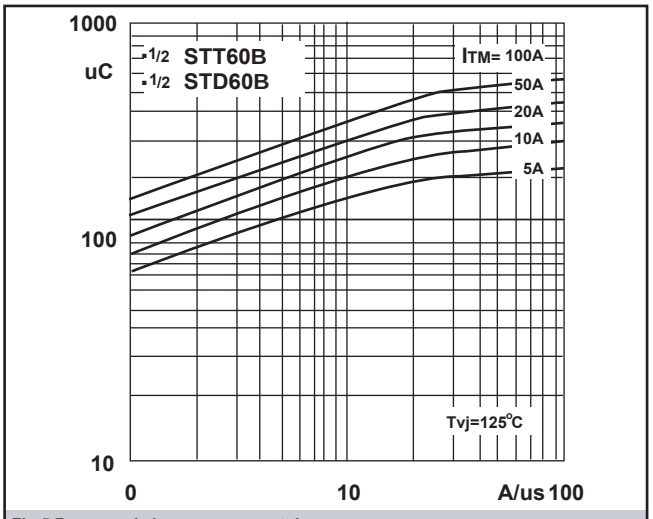



Fig.5 Recovered charge vs. current decrease

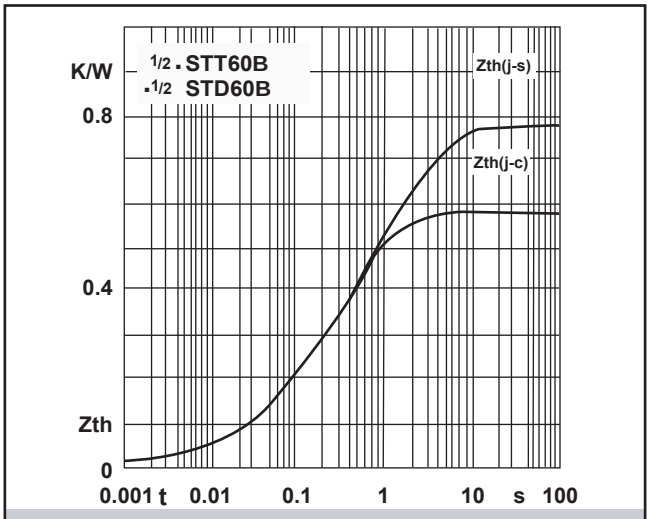



Fig.6 Transient thermal impedance vs. time

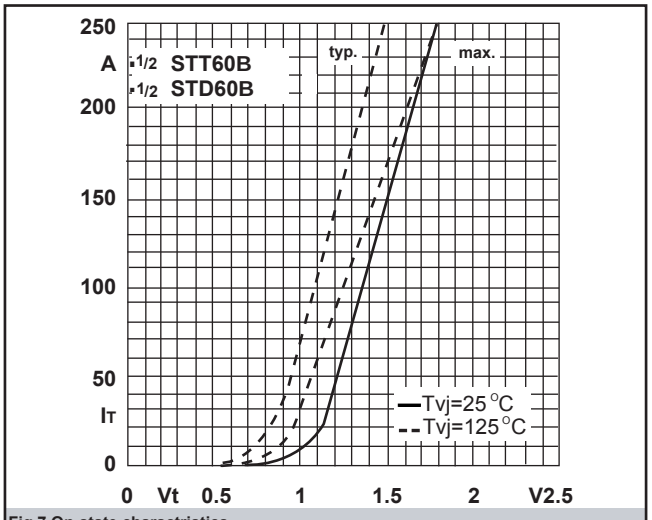



Fig.7 On-state charactristics

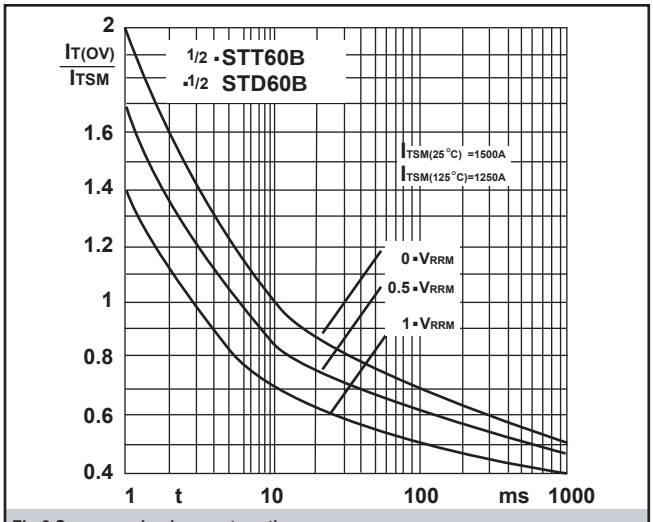



Fig.8 Surge overload current vs. time



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