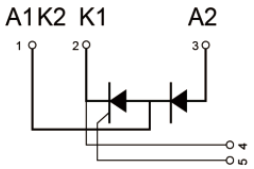
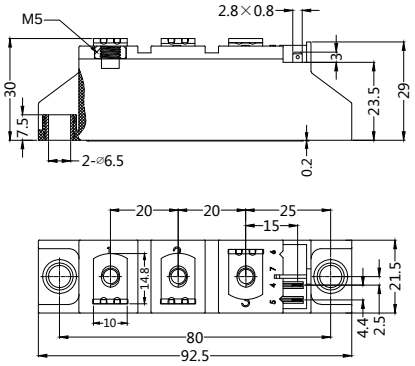
# STD100GK22

## Thyristor-Diode Modules




| Type | $V_{RSM}$ $V_{DSM}$ V | $V_{RRM}$ $V_{DRM}$ V |
|---|---|---|
| **STD100GK08** | 900 | 800 |
| **STD100GK12** | 1300 | 1200 |
| **STD100GK14** | 1500 | 1400 |
| **STD100GK16** | 1700 | 1600 |
| **STD100GK18** | 1900 | 1800 |
| **STD100GK20** | 2100 | 2000 |
| **STD100GK22** | 2300 | 2200 |

**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 | | 157<br>100 | A |
| $I_{TSM}$, $I_{FSM}$ | $T_{VJ}=45^oC$<br>$V_R=0$ | t=10ms (50Hz), sine<br>t=8.3ms (60Hz), sine | 1700<br>1800 | A |
| | $T_{VJ}=T_{VJM}$<br>$V_R=0$ | t=10ms(50Hz), sine<br>t=8.3ms(60Hz), sine | 1540<br>1640 | |
| ∫i2dt | $T_{VJ}=45^oC$<br>$V_R=0$ | t=10ms (50Hz), sine<br>t=8.3ms (60Hz), sine | 14450<br>13500 | $A^2s$ |
| | $T_{VJ}=T_{VJM}$<br>$V_R=0$ | t=10ms(50Hz), sine<br>t=8.3ms(60Hz), sine | 11850<br>11300 | |
| $(di/dt)_{cr}$ | $T_{VJ}=T_{VJM}$<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, $I_T=250A$<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>$R_{GK}=\infty$; 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}\leq$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** | Typ. | | 81 | g |



www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com

# STD100GK22

## Thyristor-Diode Modules

| Symbol | Test Conditions | Characteristic Values | Unit |
|---|---|---|---|
| $I_{RRM}$, $I_{DRM}$ | $T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$; $V_D=V_{DRM}$ | 15 | mA |
| $V_T$, $V_F$ | $I_T$, $I_F$=300A; $T_{VJ}$=25°C | 1.74 | V |
| $V_{TO}$ | For power-loss calculations only ($T_{VJ}=T_{VJM}$) | 0.85 | V |
| $r_T$ | | 3.2 | 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 |
| $V_{GD}$ | $T_{VJ}=T_{VJM}$; $V_D=2/3V_{DRM}$ | 0.25 | V |
| $I_{GD}$ | $T_{VJ}=T_{VJM}$; $V_D=2/3V_{DRM}$ | 10 | mA |
| $I_L$ | $T_{VJ}$=25°C; $t_p$=30us; $V_D$=6V<br>$I_G$=0.45A; $di_G/dt$=0.45A/us | 200 | mA |
| $I_H$ | $T_{VJ}$=25°C; $V_D$=6V; $R_{GK}$=∞ | 150 | mA |
| $t_{gd}$ | $T_{VJ}$=25°C; $V_D=1/2V_{DRM}$<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; $V_D=2/3V_{DRM}$ | 185 | us |
| $Q_S$ | $T_{VJ}=T_{VJM}$; $I_T$=50A; -di/dt=6A/us | 170 | uC |
| $I_{RM}$ | | 45 | A |
| $R_{thJC}$ | per thyristor/diode; DC current<br>per module | 0.22<br>0.11 | K/W |
| $R_{thJK}$ | per thyristor/diode; DC current<br>per module | 0.42<br>0.21 | K/W |
| $d_S$ | Creeping distance on surface | 12.7 | mm |
| $d_A$ | Creepage distance in air | 9.6 | mm |
| a | Maximum allowable acceleration | 50 | $m/s^2$ |

### *FEATURES*

* International standard package
* DCB base plate
* Glass passivated chips
* Isolation voltage 3600 V~
* UL file NO.310749
* 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



www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com

# STD100GK22

## Thyristor-Diode Modules

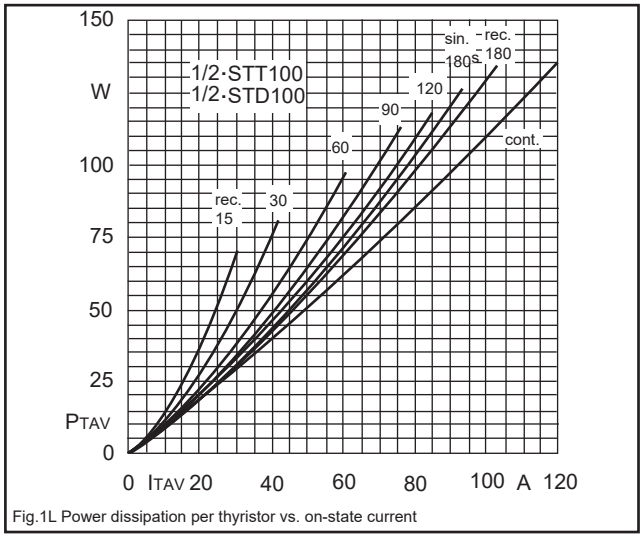


Fig.1L Power dissipation per thyristor vs. on-state current

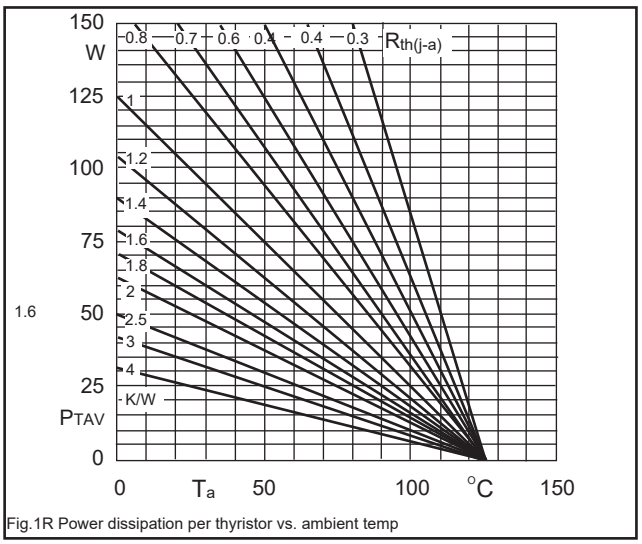


Fig.1R Power dissipation per thyristor vs. ambient temp

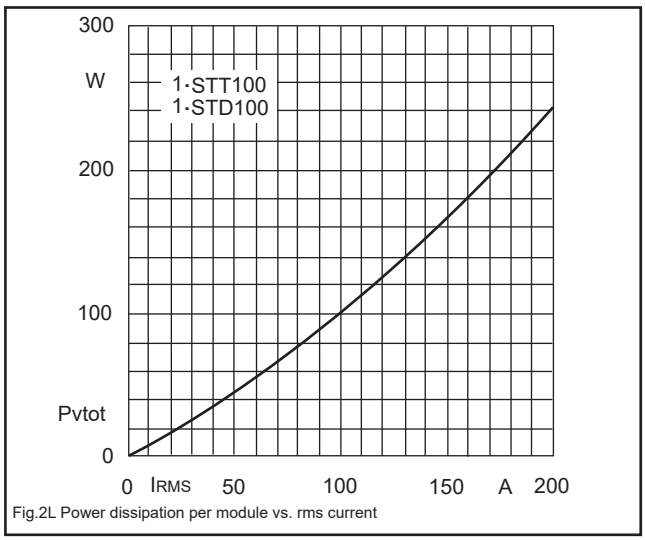


Fig.2L Power dissipation per module vs. rms current

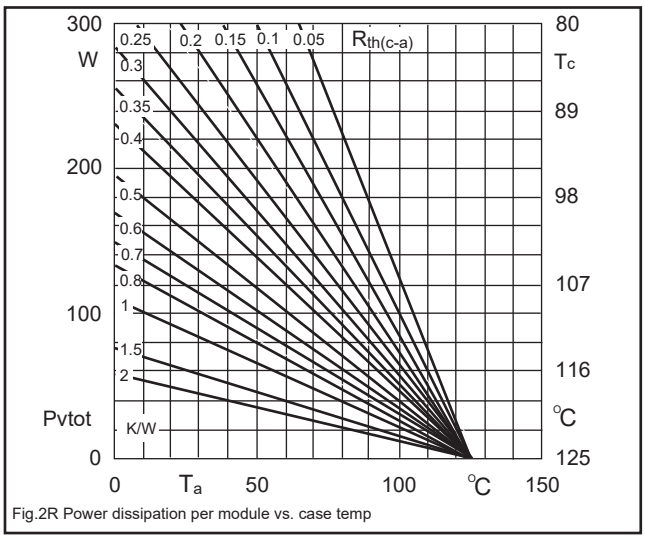


Fig.2R Power dissipation per module vs. case temp

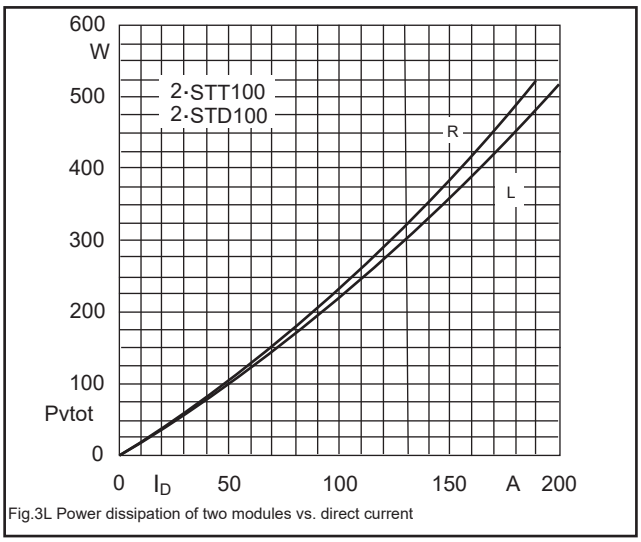


Fig.3L Power dissipation of two modules vs. direct current

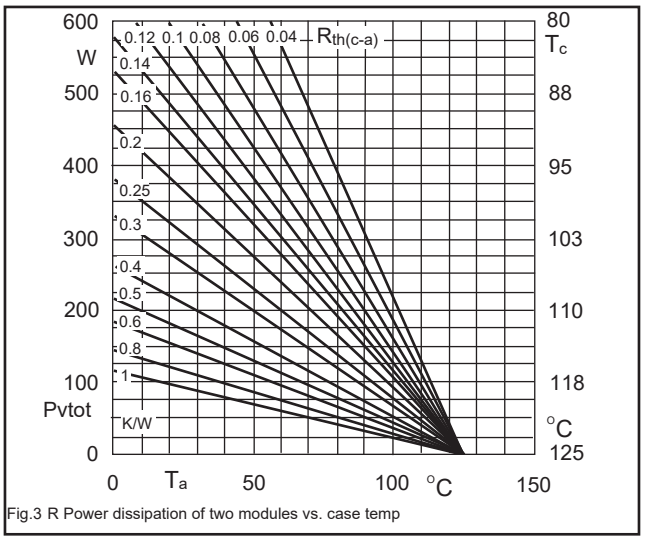


Fig.3 R Power dissipation of two modules vs. case temp



www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com

# STD100GK22

## Thyristor-Diode Modules

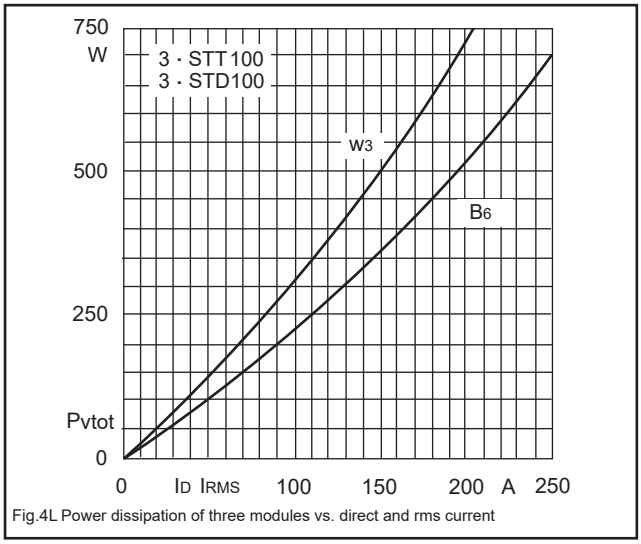


Fig.4L Power dissipation of three modules vs. direct and rms current

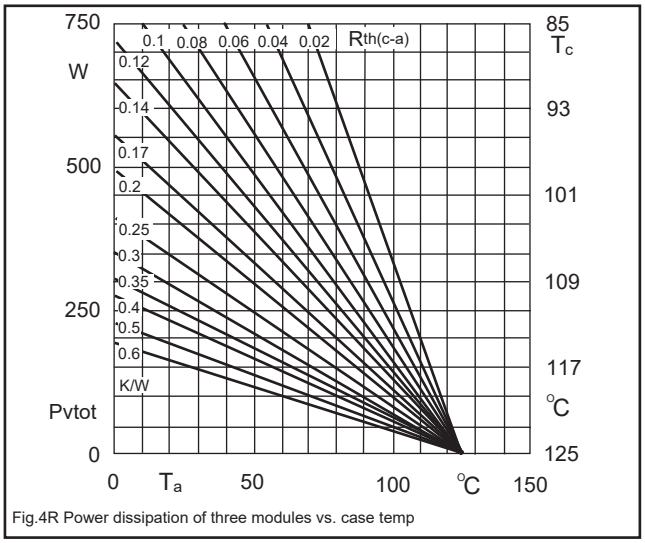


Fig.4R Power dissipation of three modules vs. case temp

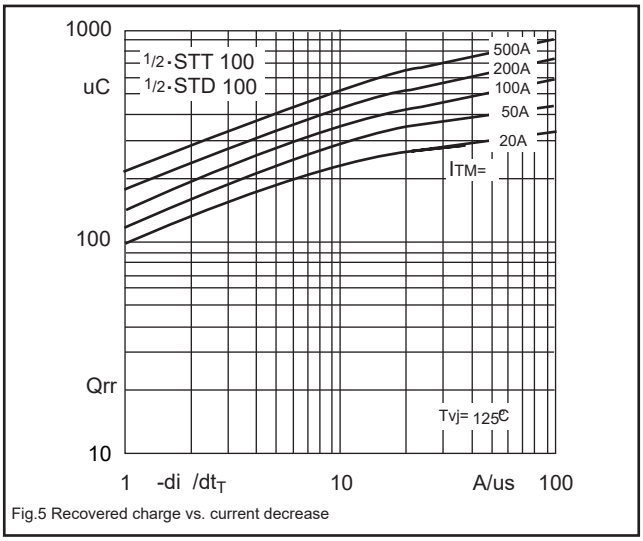


Fig.5 Recovered charge vs. current decrease

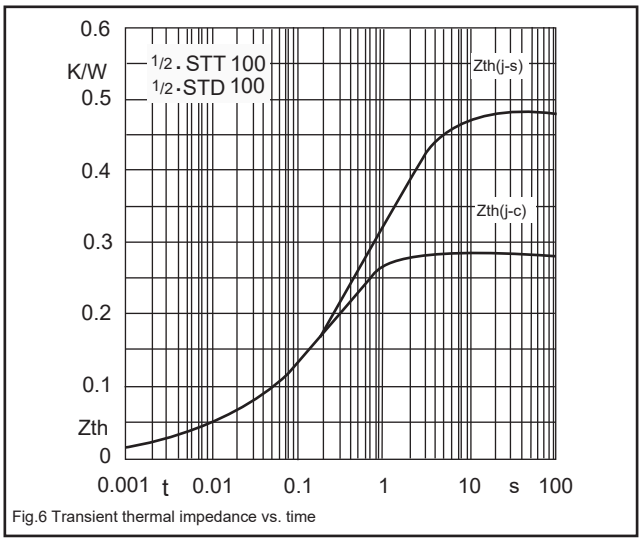


Fig.6 Transient thermal impedance vs. time

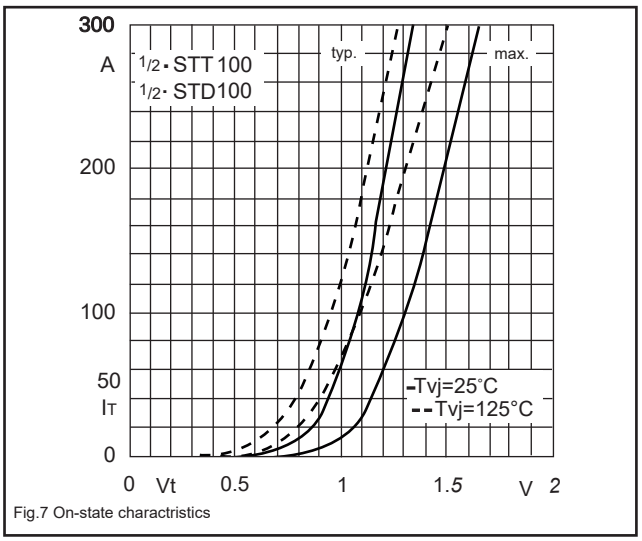


Fig.7 On-state charactristics

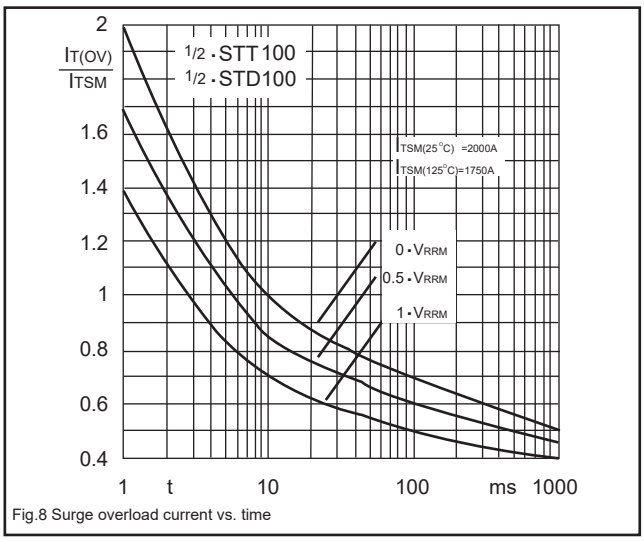


Fig.8 Surge overload current vs. time



www.sirectifier.com Tel: +86-519-86800000 Fax: +86-519-88019019 E-mail: sales@sirectifier.com