

THREE PHASE RECTIFIER BRIDGE

REVERSE VOLTAGE **800 - 1600** Volts
 FORWARD CURRENT - **100** Amperes

FEATURES

- Three phase bridge and a Thyristor
- Blocking voltage: 800 to 1600V
- Low forward voltage

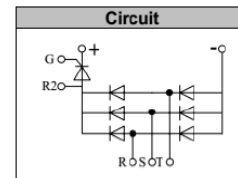
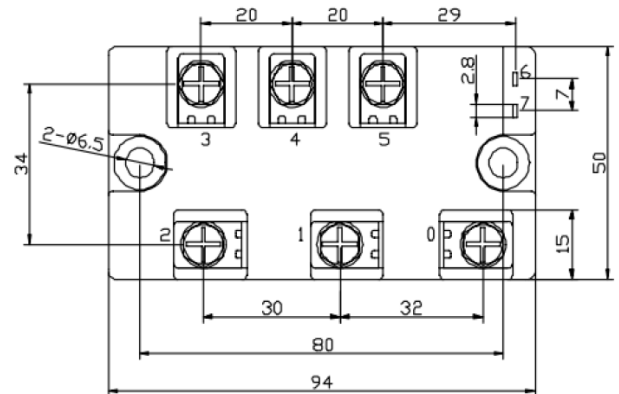
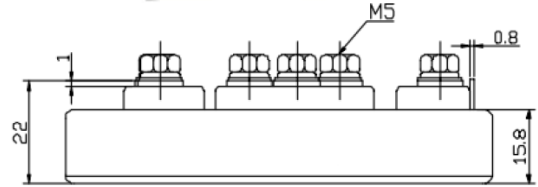
APPLICATIONS

- Three phase rectifiers for power supplies
- Inverter for AC or DC motor control
- Input rectifiers for variable frequency drives

MECHANICAL DATA

- Mt to terminals (M5): $3 \pm 15\%$ N·m
- Ms to heatsink (M5): $3 \pm 15\%$ N·m
- Module Weight: 210g (Approximately)

S4



Dimensions in millimeters

Diode Maximum Ratings

| CHARACTERISTICS | SYMBOL | SDT100-08 | SDT100-12 | SDT100-16 | UNIT |
|--|------------|-------------|-----------|-----------|----------------------|
| Maximum Recurrent Peak Reverse Voltage | V_{RRM} | 800 | 1200 | 1600 | V |
| non-repetitive peak reverse voltage | V_{RSM} | 900 | 1300 | 1700 | V |
| Output Current(D.C.) (Three phase, full wave $T_c=100^\circ\text{C}$) | I_D | 100 | | | A |
| Peak surge forward current ($t=10\text{ms}, T_v=45^\circ\text{C}$) | I_{FSM} | 1200 | | | A |
| Circuit Fusing Consideration | i^2t | 7200 | | | A^2S |
| Isolation Breakdown Voltage (RMS) (a.c.50HZ;r.m.s.;1min) | V_{ISOI} | 3000 | | | V |
| Operating Temperature Range | T_{vj} | -40 to +150 | | | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -40 to +125 | | | $^\circ\text{C}$ |

Thermal Characteristics

| | | | | | |
|--|-------------------|------|--|--|---------------------------|
| Thermal Impedance , max.(Junction to Case) | $R_{\theta(j-c)}$ | 0.18 | | | $^\circ\text{C}/\text{W}$ |
| Thermal Impedance , max.(Case to Heaksink) | $R_{\theta(c-s)}$ | 0.1 | | | $^\circ\text{C}/\text{W}$ |

Electrical Characteristics

| | | | | | |
|---|-----------|----------|--|--|----|
| Forward Voltage Drop,max. $T=25^\circ\text{C}$ $I_F=100\text{A}$ | V_{FM} | 1.35 | | | V |
| Repetitive Peak Reverse Current, max. $T_{vj}=25^\circ\text{C}$ $V_{RD}=V_{RRM}$ $T_{vj}=150^\circ\text{C}$ $V_{RD}=V_{RRM}$ | I_{RRM} | 0.5(Max) | | | mA |
| | | 6(Max) | | | mA |

RATING AND CHARACTERISTIC CURVES
SDT100 Series



Thyristor Maximum Ratings

| CHARACTERISTICS | SYMBOL | TEST CONDITIONS | VALUES | UNIT |
|---|------------------|--|--------|------------------|
| Average on-State Current | ITAV | Single phase ,half wave 180°conduction Tc=92°C | 100 | A |
| Surge on-State Current | ITSM | t = 10ms(50 Hz) TVJ=45°C, sine VR=0 | 1200 | A |
| Circuit Fusing Consideration | I ² t | -- | 7200 | A ² s |
| Isolation Breakdown Voltage(R.M.S) | Visol | AC 50HZ;R.M.S.;1min | 2500 | V |
| Critical Rate of Rise of On-State Current | di/dt | TVJ=TVJM, VD=1/2VDRM,IG=100mA DiG/dt=0.1A/us | 150 | A/us |
| Critical Rate of Rise of Off-State Voltage, min | dv/dt | TVJ=TVJM, VD=2/3VDRM,linear voltage rise | 500 | V/us |

Electrical and Thermal Characteristics

| | | | | | |
|--|------------------------------------|---|----------|----------|----|
| Peak On-State Voltage, max | V _{TM} | T=25°C IT=300A | 1.7 | V | |
| Repetitive Peak Reverse Current, max. / Repetitive Peak Off-State Current, max | I _{RRM} /I _{DRM} | TVJ=TVJM, VD=VDRM,VR=VRRM | 20 | mA | |
| Threshold Voltage | V _{TO} | TVJ=TVJM | 0.9 | V | |
| Slope Resistance | r _T | | 2 | mΩ | |
| Gate Trigger Voltage , max. | V _{GT} | TVJ=25°C , VD=6V | 3 | V | |
| Gate Trigger Current , max. | I _{GT} | TVJ=25°C , VD=6V | 150 | mA | |
| Max. required DC gate voltage | V _{GD} | TVJ=125°C , VD=2/3 VDRM | 0.25 | V | |
| Max .required DC gate Current | I _{GD} | TVJ=125°C , VD=2/3 VDRM | 6 | V | |
| Maximum Latching Current | I _L | TVJ=25°C , R _G =33Ω | 300(Typ) | 600(Max) | mA |
| Maximum holding Current | I _H | TVJ=25°C , VD=6V | 150(Typ) | 250(Max) | V |
| Gate Controlled Delay Time | t _{gd} | TVJ=25°C , I _G =1A, diG/dt=0.1A/us | 1 | us | |
| Circuit commutated Turn-off time | t _q | TVJ=TVJM | 100 | us | |
| Maximum Thermal Impedance | R _{thJC} | Junction to Case | 0.26 | °C/W | |
| | R _{thCS} | Case to Heatsink | 0.1 | | |

Note:The typical data above is for reference only(典型值仅供参考).

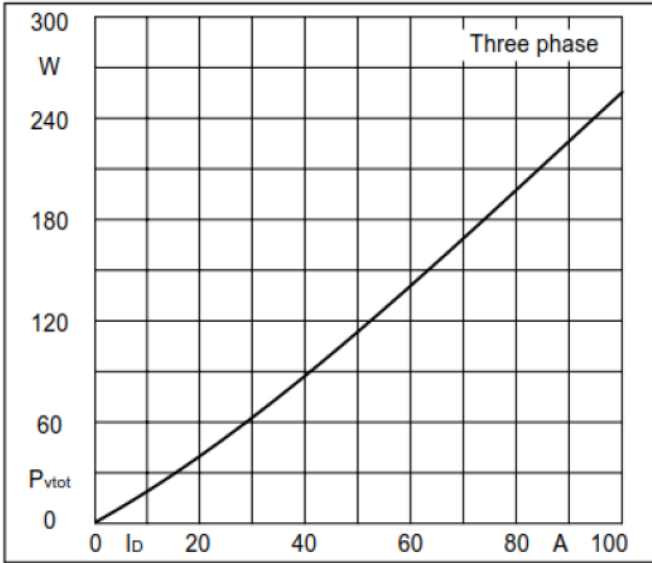


Fig1. Power dissipation

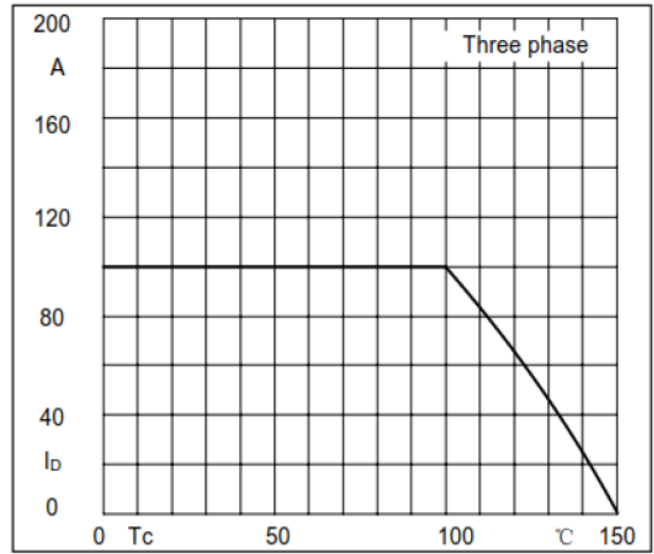


Fig2. Forward Current Derating Curve

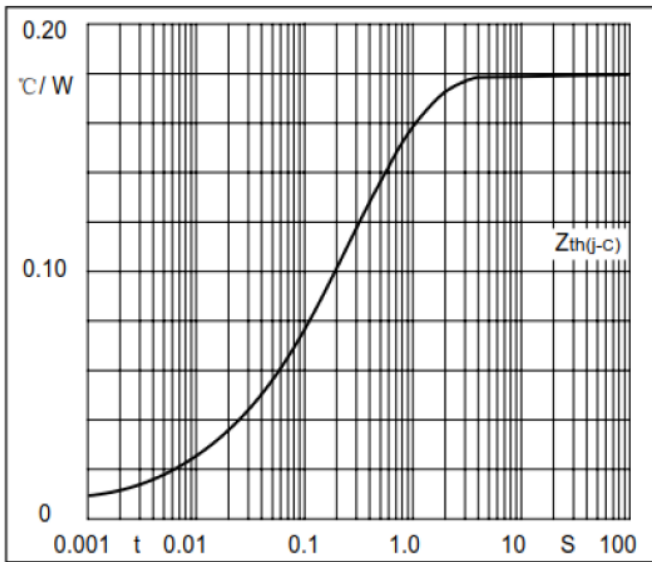


Fig3. Transient thermal impedance

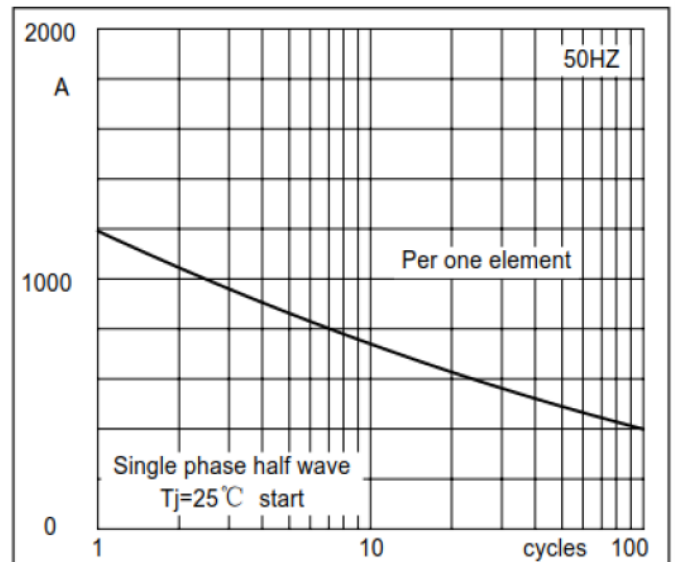


Fig4. Max Non-Repetitive Forward Surge Current

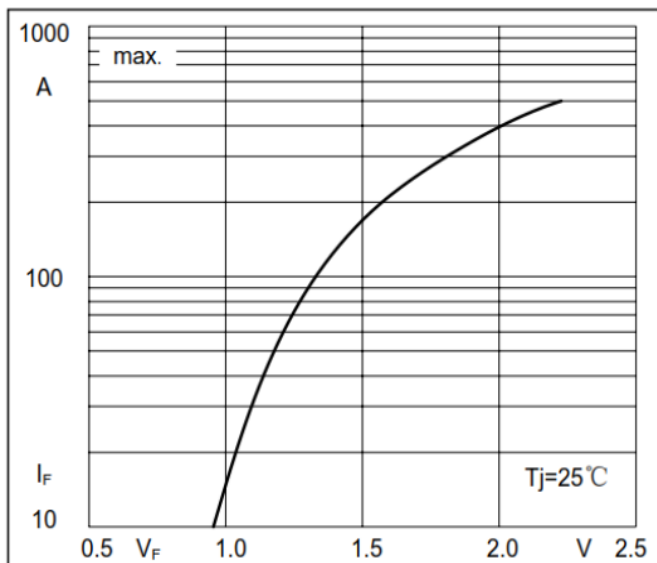


Fig5. Forward Characteristics

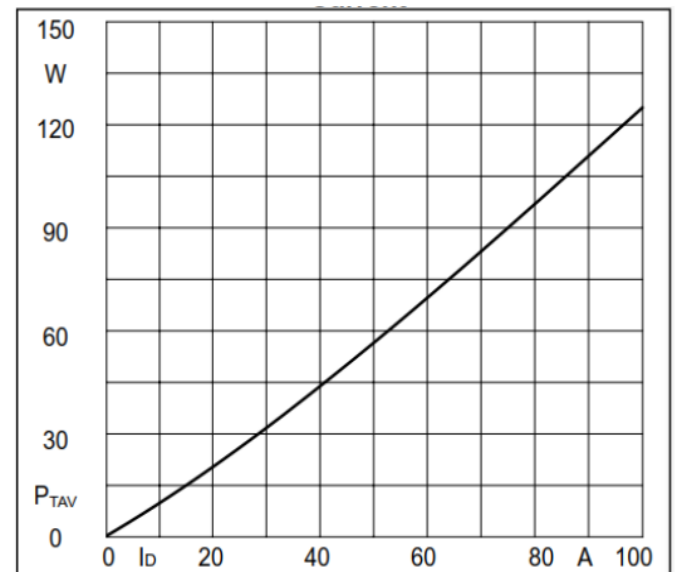


Fig6. SCR Power dissipation

The cure graph is for reference only, can't be the basis for judgment(曲线图仅供参考)!

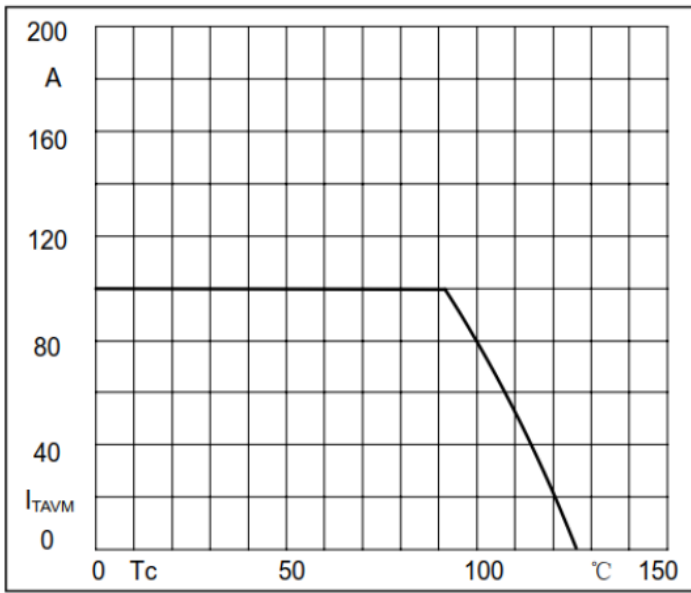


Fig7. SCR Forward Current Derating Curve

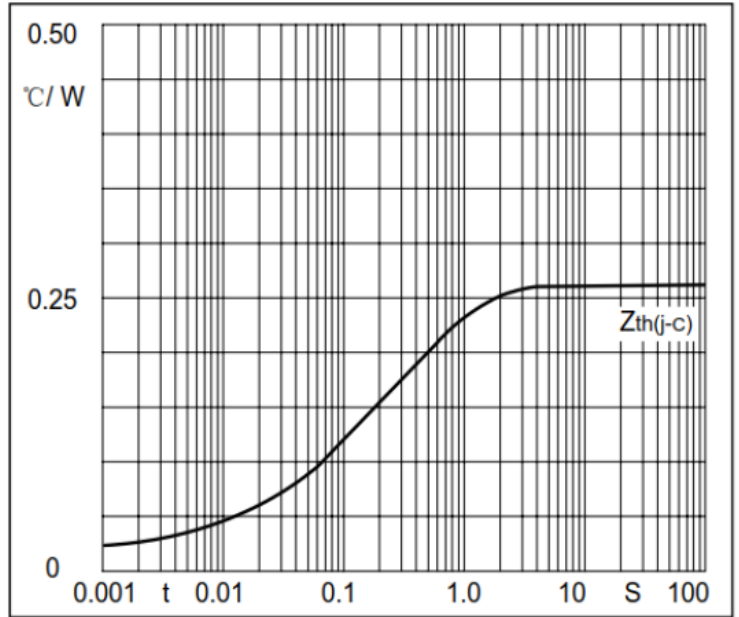


Fig8. SCR Transient thermal impedance

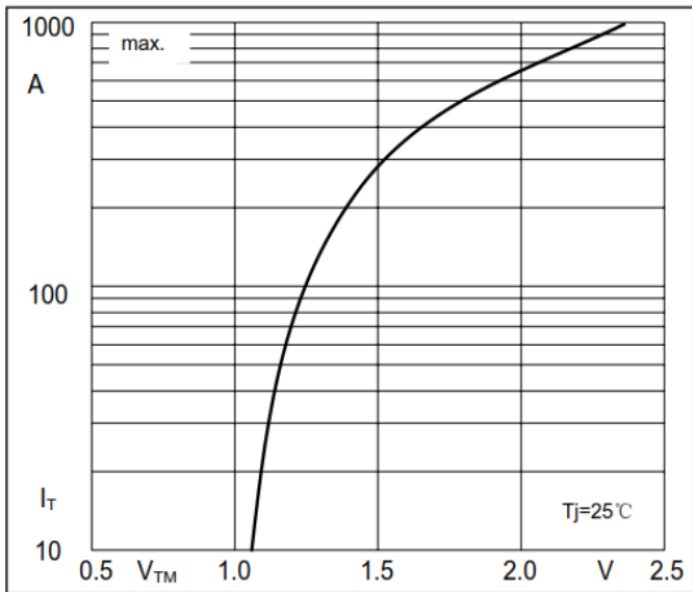


Fig9. SCR Forward Characteristics

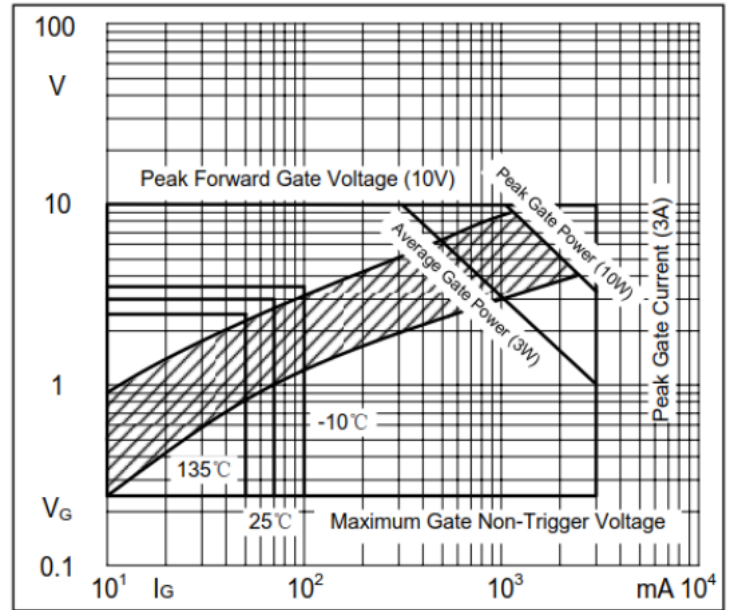


Fig10. Gate trigger Characteristics



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