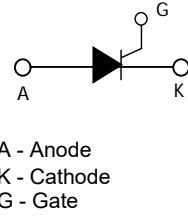
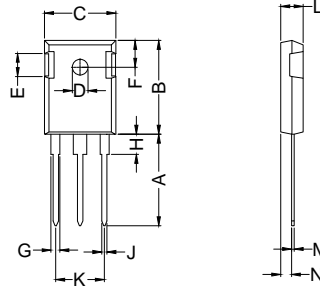


STOE50G12B2

High Efficiency Thyristor Discretes



Dimensions TO-247AD



| Dim. | Millimeter | | Inches | |
|------|------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 19.81 | 20.32 | 0.780 | 0.800 |
| B | 20.80 | 21.46 | 0.819 | 0.845 |
| C | 15.75 | 16.26 | 0.620 | 0.640 |
| ØD | 3.15 | 3.65 | 0.124 | 0.144 |
| E | 4.32 | 5.49 | 0.170 | 0.216 |
| F | 5.40 | 6.30 | 0.213 | 0.248 |
| G | 1.65 | 2.18 | 0.065 | 0.086 |
| H | 3.80 | 4.50 | 0.150 | 0.177 |
| J | 1.00 | 1.40 | 0.039 | 0.055 |
| K | 10.80 | 11.10 | 0.425 | 0.437 |
| L | 4.70 | 5.30 | 0.185 | 0.209 |
| M | 0.40 | 0.80 | 0.016 | 0.031 |
| N | 1.50 | 2.49 | 0.059 | 0.098 |

| | V _{RRM} V | V _{RSM} V |
|--|-----------------------|-----------------------|
|--|-----------------------|-----------------------|

STOE50G12B2 1200 1300



| Symbol | Test Conditions | Maximum Ratings | Unit |
|---|--|---------------------------------|------------------|
| I _{TRMS} I _{TAVM} | T _{VJ} =T _{VJM} T _C =125°C; 180°sine | 80 50 | A |
| I _{TSM} | T _{VJ} =45°C V _R =0 t=10ms (50Hz), sine t=8.3ms (60Hz), sine | 650 700 | A |
| | T _{VJ} =T _{VJM} V _R =0 t=10ms(50Hz), sine t=8.3ms(60Hz), sine | 556 600 | |
| I ² _t | T _{VJ} =45°C V _R =0 t=10ms (50Hz), sine t=8.3ms (60Hz), sine | 2120 2040 | A ² s |
| | T _{VJ} =T _{VJM} V _R =0 t=10ms(50Hz), sine t=8.3ms(60Hz), sine | 1540 1480 | |
| (di/dt) _{cr} | T _{VJ} =T _{VJM} f=50Hz, t _p =200us V _D =2/3V _{DRM} I _G =0.3A dig/dt=0.3A/us repetitive, I _T =150A non repetitive, I _T =50A | 150 500 | A/us |
| (dv/dt) _{cr} | T _{VJ} =T _{VJM} ; R _{GK} =∞; method 1 (linear voltage rise) V _D R=2/3V _{DRM} | 1000 | V/us |
| P _{GM} | T _{VJ} =T _{VJM} I _T =I _{TAVM} t _p =30us t _p =300us | 10 5 | W |
| P _{GAV} | | 0.5 | W |
| V _{RGM} | | 10 | V |
| T _{VJ} T _{VJM} T _{stg} | | -55...+150 150 -55...+150 | °C |
| M _d F _c | Mounting torque (M3) Mounting force with clip | 0.8...1.2 20...120 | Nm N |
| Weight | typical | 6 | g |

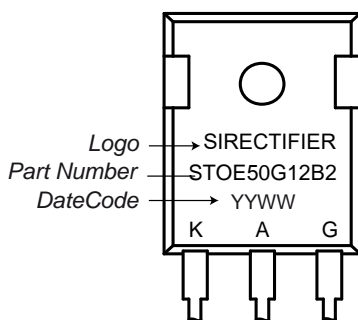
Sirectifier®

STOE50G12B2

High Efficiency Thyristor Discretes

| Symbol | Test Conditions | Characteristic Values | Unit |
|------------|---|-----------------------|------------------|
| I_R, I_D | $T_{VJ}=T_{VJM}; V_R=V_{RRM}; V_D=V_{DRM}$ | 3 | mA |
| V_{TM} | $I_{TM}=50A; T_{VJ}=25^{\circ}C$ | 1.30 | V |
| V_{TO} | For power-loss calculations only ($T_{VJ}=150^{\circ}C$) | 0.88 | V |
| r_T | | 7.7 | m Ω |
| V_{GT} | $V_D=6V;$ $T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$ | 1.5 1.6 | V |
| I_{GT} | $V_D=6V;$ $T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$ $T_{VJ}=125^{\circ}C$ | 50 80 30 | mA |
| V_{GD} | $T_{VJ}=T_{VJM};$ $V_D=2/3V_{DRM}$ | 0.2 | V |
| I_{GD} | | 3 | mA |
| I_L | $T_{VJ}=25^{\circ}C; t_p=10\mu s;$ $I_G=0.3A; di_G/dt=0.3A/\mu s$ | 125 | mA |
| I_H | $T_{VJ}=25^{\circ}C; V_D=6V; R_{GK}=\infty$ | 100 | mA |
| t_{gd} | $T_{VJ}=25^{\circ}C; V_D=1/2V_{DRM}$ $I_G=0.3A; di_G/dt=0.3A/\mu s$ | 2 | us |
| R_{thJC} | DC current | 0.25 | K/W |
| R_{thch} | DC current | 0.25 | K/W |
| a | Max. acceleration, 50 Hz | 50 | m/s ² |

Product Marking



Features / Advantages:

- Thyristor for line frequency
- Glass passivated chip

Applications:

- Line rectifying 50/60 Hz
- Softstart AC motor control
- DC Motor control
- Power converter
- AC power control
- Lighting and temperature control

Package: TO-247AD

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Standard applicable

- IEC191-1/4
- IEC747-1
- IEC747-6
- IEC68-2-...
- UL94-V0

ORDERING INFORMATION

| Part Number | Package | Shipping | Marking Code |
|-------------|----------|--------------|--------------|
| STOE50G12B2 | TO-247AD | 30pcs / Tube | STOE50G12B2 |

Sirectifier[®]

STOE50G12B2

High Efficiency Thyristor Discretes

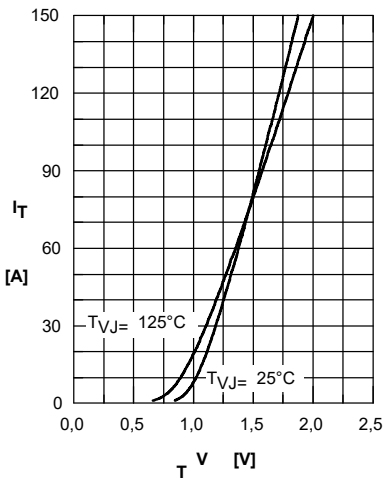


Fig. 1 Forward characteristics

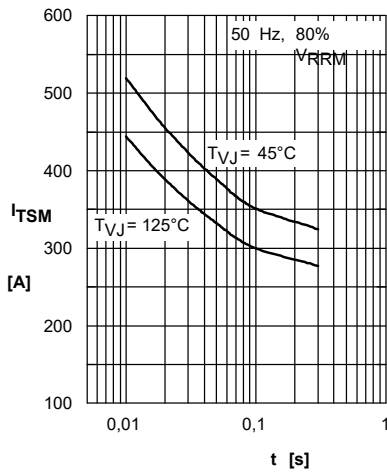


Fig. 2 Surge overload current
I_{TSM}: crest value, t: duration

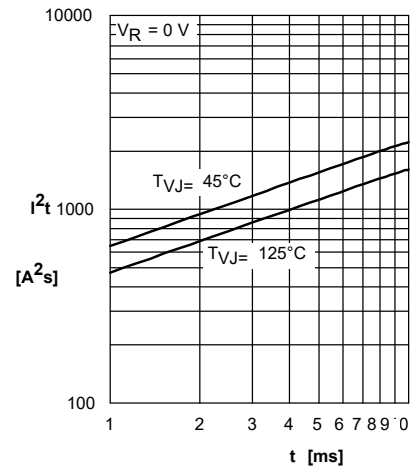


Fig. 3 I²t versus time (1-10 s)

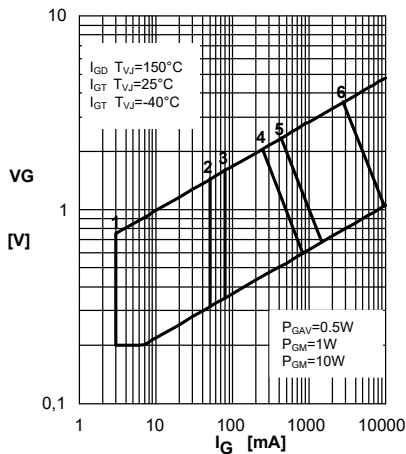


Fig. 4 Gate voltage & gate current

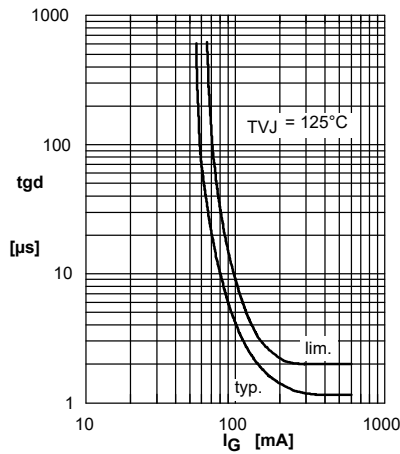


Fig. 5 Gate controlled delay time t_{gd}

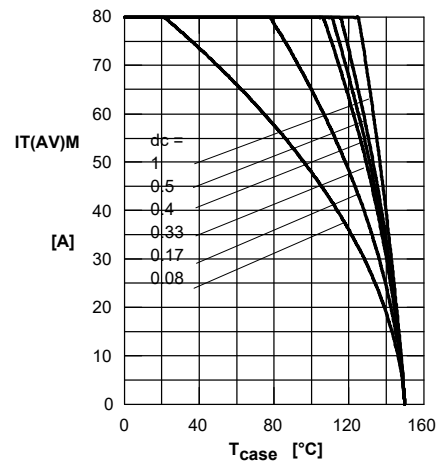


Fig. 6 Max. forward current at case temperature

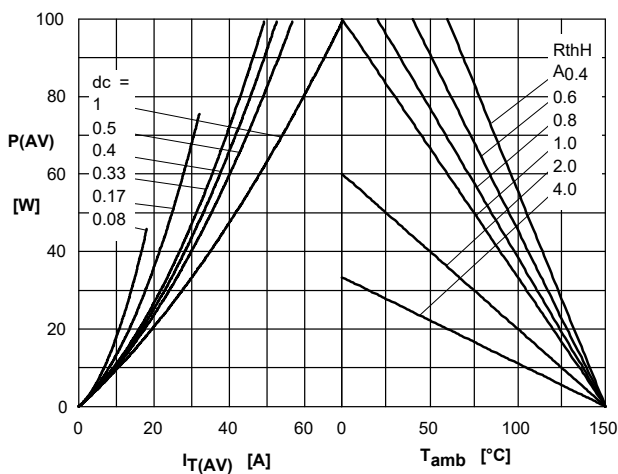


Fig. 7a Power dissipation versus direct output current

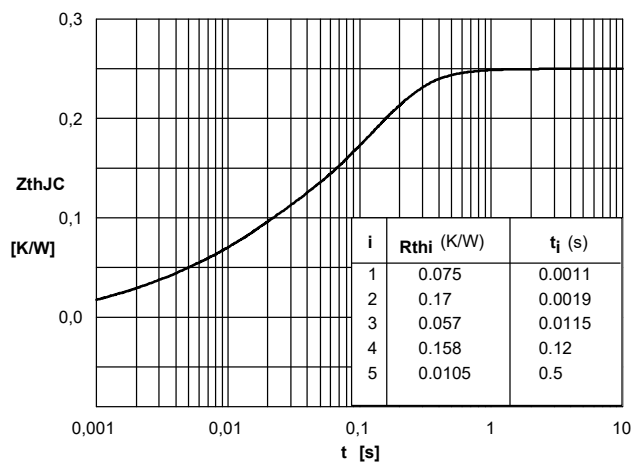


Fig. 7 Transient thermal impedance junction to case