■DESCRIPTION:

With high ability to withstand the shock loading of large current TG80C16 series triacs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 Quadrants products especially recommended for use on inductive load.

■特征

PNPN四层结构硅芯片
三象限、三端双向可控硅开关
双台面玻璃钝化工艺
多层金属化电极提高瞬间浪涌电流承受力
较高阻断电压、较强抗电流冲击能力

■应用领域

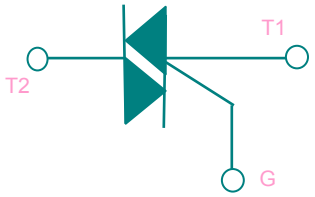
自动化电气设备、交流/直流电源变换
电加热控制、无功补偿
复合开关、大功率路灯
大功率捕鱼器、电机马达调速控制电路

TG-C

■ QUICK REFERENCE

| Part Number | Industry Part № | $I_{T(RMS)}$ | $V_{DRM}$ / $V_{RRM}$ | $I_{GT}$ (mA) | Marking |
|---|---|---|---|---|---|
| TG80C06 | BTB80-600BW | 80 A | 600 V | $I_{GT}$ ≤50mA<br>3-Q<br>3 Quadrants Triacs | H<br>TG80C16<br>KKGaabb<br>H: HAOHAI<br>KKG:注册商标<br>aabb:生产周期 |
| TG80C08 | BTB80-800BW | | 800 V | | |
| TG80C10 | BTB80-1000BW | | 1000 V | | |
| TG80C12 | BTB80-1200BW | | 1200 V | | |
| TG80C14 | BTB80-1400BW | | 1400 V | | |
| TG80C16 | BTB80-1600BW | | 1600 V | | |
| 三象限、大电流、高压、特殊机种，1200V、1600V 常规出货，其它高压需订制 | | | | | |

■ PINNING: TG-C

| Pin | Symbol | Description | Practicality in Pin Arrange | Pin Polarity Circuit diagram |
|---|---|---|---|---|
| 1 | T1 | Main terminal 1 |  | 1=T1<br>2=T2<br>3=G<br>  |
| 2 | T2 | Main terminal 2 | | |
| 3 | G | Gate | | |
| 4 | Tab | ---- | | |

## ■ ABSOLUTE MAXIMUM RATINGS

| SYMBOL | Paramenter & Test Conditions | Value | Unit |
|---|---|---|---|
| $I_{T(RMS)}$ | RMS on-state current ($T_C$=77℃) | 80 | A |
| $I_{TSM}$ | Non repetitive surge peak on-state current (full cycle, F=50Hz) | 800 | |
| $I_{GM}$ | Peak gate current | 8 | |
| $V_{DRM}$ | Repetitive peak off-state voltage ($T_j$=25℃) | 600~1600 | V |
| $V_{RRM}$ | Repetitive peak reverse voltage ($T_j$=25℃) | 600~1600 | |
| $V_{DSM}$ | Non repetitive surge peak Off-state voltage | $V_{DRM}$+100 | |
| $V_{RSM}$ | Non repetitive peak reverse voltage | $V_{RRM}$+100 | |
| $I^2t$ | $I^2t$ value for fusing (tp=10ms) | 3200 | $A^2ses$ |
| dI/dt | Critical rate of rise of on-state current ($I_G$=2$I_{GT}$) | 100 | A/μS |
| $T_J$ | Operating junction temperature range | -40 ~ +125 | ℃ |
| $T_{stg}$ | Storage junction temperature range | -40 ~ +150 | |
| $P_{G(AV)}$ | Average gate power dissipation | 2.0 | W |
| $P_{GM}$ | Peak gate power | 10 | |

## ■ ELECTRICAL CHARACTERISTICs ($T_j$=25℃ Unless Otherwise Noted)

| SYMBOL | Paramenter & Test Conditions | Quadrant | | Value | Unit |
|---|---|---|---|---|---|
| $I_{GT}$ | $V_D$=12$V_{DC}$, $R_L$=33Ω | Ⅰ-Ⅱ-Ⅲ | MAX | 50 | mA |
| $I_L$ | Latching Current ($I_G$=1.2$I_{GT}$) | Ⅰ-Ⅲ | MAX | 80 | mA |
| | | Ⅱ | MAX | 120 | |
| $I_H$ | $I_T$=100mA | | MAX | 70 | |
| $V_{GT}$ | $V_D$=12$V_{DC}$, $R_L$=33Ω | Ⅰ-Ⅱ-Ⅲ | MAX | 1.3 | V |
| $V_{GD}$ | $V_D$=$V_{DRM}$, $R_L$=3.3KΩ, $T_j$=125℃ | Ⅰ-Ⅱ-Ⅲ | MIN | 0.2 | |
| dv/dt | $V_D$=2/3$V_{DRM}$, Gate Open $T_j$=125℃ | | MIN | 1500 | V/μS |

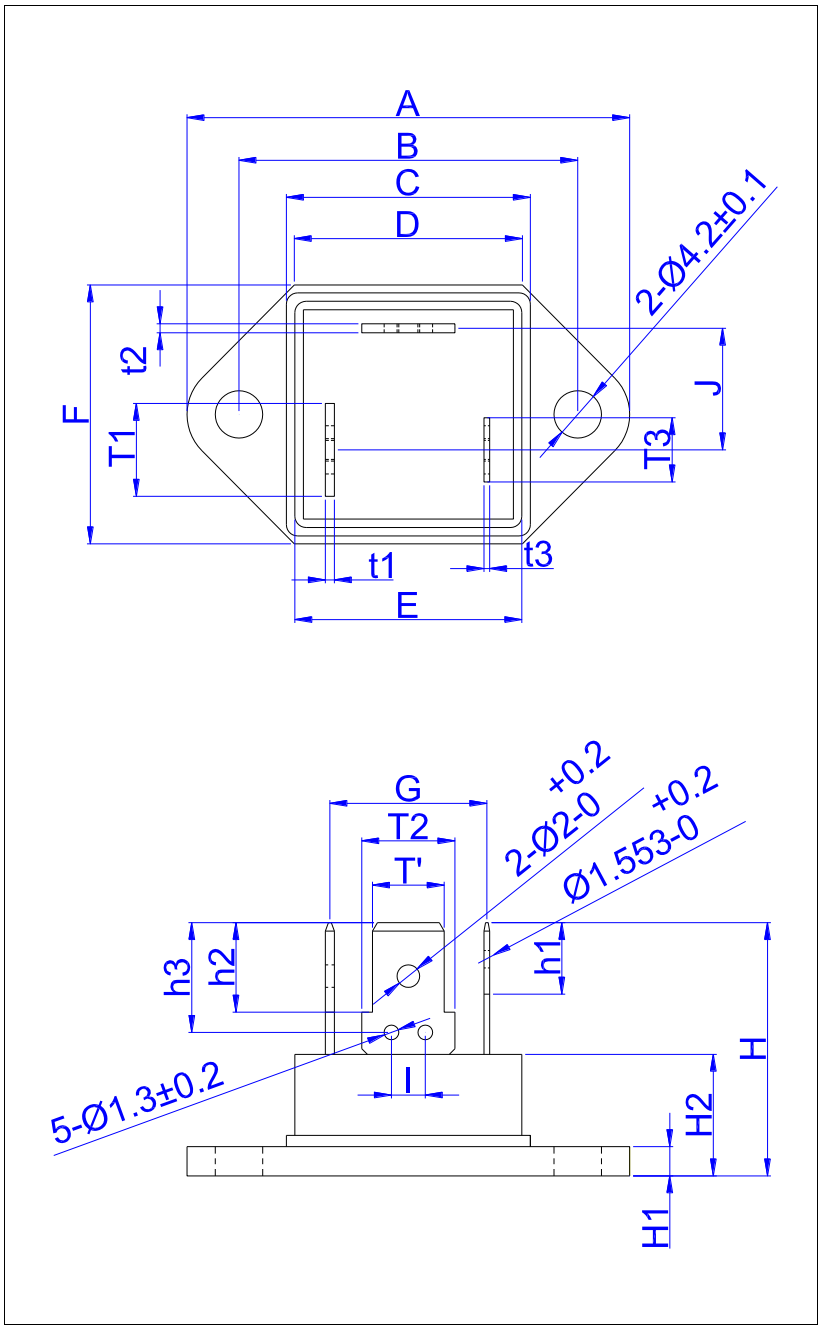
## ■ STATIC CHARACTERISTICS

| SYMBOL | Paramenter & Test Conditions | | Value (MAX) | Unit |
|---|---|---|---|---|
| $V_{TM}$ | $I_{TM}$=120A, tp=380μS | $T_J$=125℃ | 1.5 | V |
| $I_{DRM}$ | $V_D$=$V_{DRM}$, $V_R$=$V_{RRM}$ | $T_J$=25℃ | 20 | μA |
| $I_{RRM}$ | | $T_J$=125℃ | 10 | mA |

## ■ THERMAL RESISTANCES

| SYMBOL | Paramenter & Test Conditions | | Value (MAX) | Unit |
|---|---|---|---|---|
| $R_{th(j-c)}$ | junction to case (AC) | TG-C | 0.31 | ℃/W |

## ■ TG-C Package Information （mm & Inches）




| Ref. | Dimensions | | | |
|---|---|---|---|---|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | | 39.2 | | 1.543 |
| B | 29.8 | 30.2 | 1.173 | 1.189 |
| C | | 21.6 | | 0.850 |
| D | | 20.2 | | 0.795 |
| E | | 20.5 | | 0.791 |
| F | | 23 | | 0.906 |
| T1, T2 | 8.10 Typ. | | 0.318 Typ. | |
| T3 | 5.65 Typ. | | 0.222 Typ. | |
| T` | 6.35 Typ. | | 0.250 Typ. | |
| t1, t2 | 0.80 Typ. | | 0.031 Typ. | |
| t3 | 0.60 Typ. | | 0.023 Typ. | |
| G | 13.9 Typ. | | 0.547 Typ. | |
| H1 | 2.60 Typ. | | 0.102 Typ. | |
| H2 | 10.8 Typ. | | 0.425 Typ. | |
| H | | 22.80 | | 0.886 |
| h1 | 6.20 | 6.50 | 0.244 | 0.256 |
| h2 | 7.80 | 8.10 | 0.307 | 0.319 |
| h3 | 9.45 | 10.05 | 0.372 | 0.396 |
| I | 2.70 | 3.30 | 0.106 | 0.130 |
| J | 10.8 Typ. | | 0.425 Typ. | |

# Electrical characteristics & Typical characteristics

**FIG.1** Maximum power dissipation versus RMS on-state current

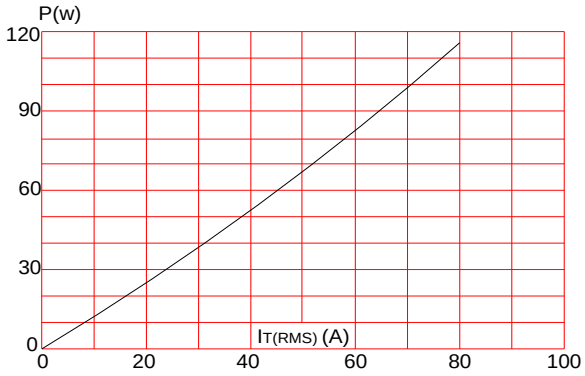



**FIG.2:** RMS on-state current versus case temperature

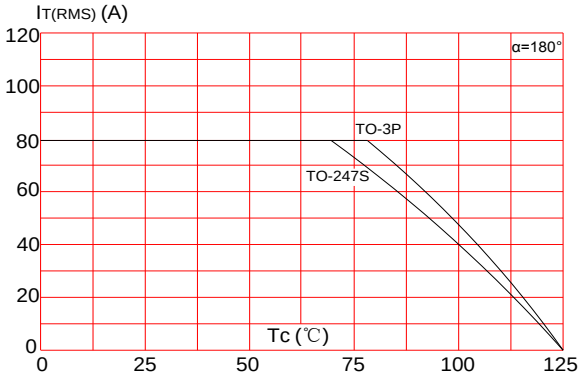



**FIG.3:** Surge peak on-state current versus number of cycles

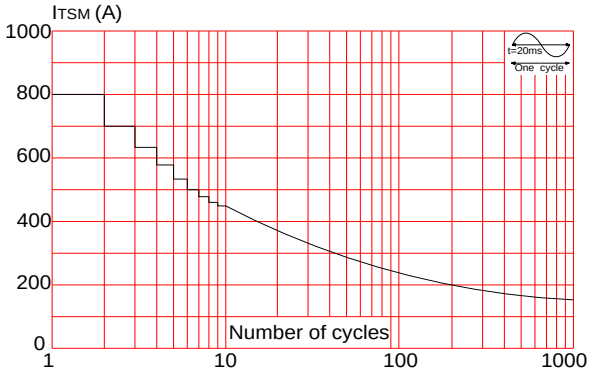



**FIG.4:** On-state characteristics (maximum values)

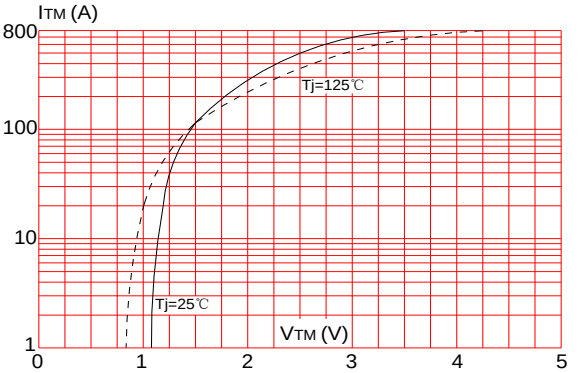



**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of $I^2t$ (dI/dt < 100A/μs)

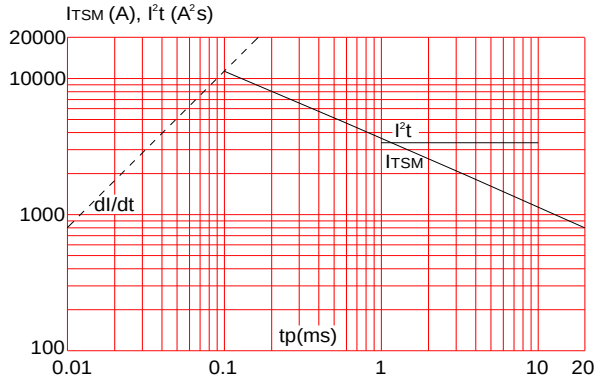
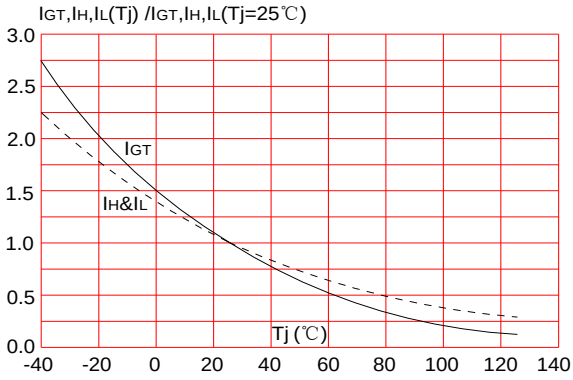



**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



Manufacturers version information
2011-06-10，KKG ™ Product Data-1.1
2016-06-10，KKG ™ Product Data-2.1



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