ChunZheng

高端电力电子器件和装置制造商

# CSG 30J2500

门极可关断晶闸管

## 特 性

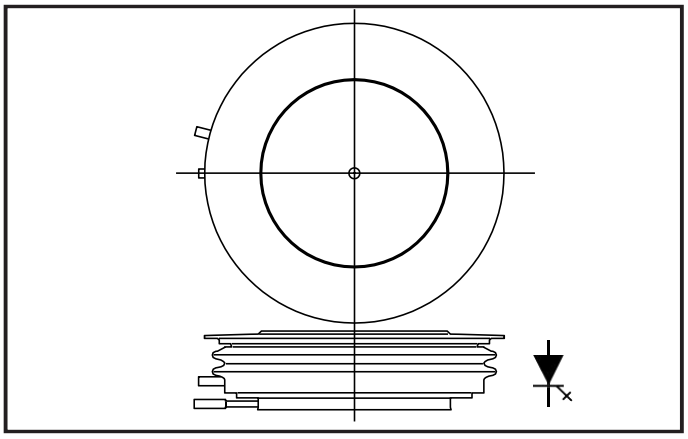
- 双面散热
- 可靠性高
- 高压性能
- 无快熔故障保护
- 大浪涌电流性能
- 关断性能可减少设备尺寸和重量，环保低噪音

## 关键参数

| | |
|---|---|
| $I_{TGQM}$ | 3000A |
| $V_{DRM}$ | 2500V |
| $I_{T(AV)}$ | 1300A |
| $di_T/dt$ | 300A/μs |

## 应 用

- 变速交流电机驱动逆变器(VSD-AC)
- 不间断电源
- 高电压转换器
- 斩波器
- 电焊机
- 感应加热
- DC / DC 转换器



**Outline type code: J .**
**See Package Details for further information.**

## 电压等级

| 型号 | 断态重复峰值电压 $V_{DRM}$ V | 反向重复峰值电压 $V_{RRM}$ V | 测试条件 |
|---|---|---|---|
| CSG30J2500 | 2500 | 17 | $T_{vj}$ = 125°C, $I_{DM}$ = 100mA, $I_{RRM}$ = 50mA |

## 电流等级

| 符号 | 参数 | 测试条件 | Max | 单位 |
|---|---|---|---|---|
| $I_{TGQM}$ | Repetitive peak controllable on-state current | $V_D$= 66% $V_{DRM}$, $T_j$= 125°C, $di_{GQ}/dt$ = 40A/μs, Cs =5μF | 3000 | A |
| $I_{T(AV)}$ | Mean on-state current | $T_{HS}$ = 80°C. Double side cooled, half sine 50Hz | 1350 | A |
| $I_{T(RMS)}$ | RMS on-state current | $T_{HS}$ = 80°C. Double side cooled, half sine 50Hz | 2100 | A |

## 浪涌等级

| 符号 | 参数 | 测试条件 | Max. | 单位 |
|---|---|---|---|---|
| $I_{TSM}$ | Surge (non-repetitive) on-state current | 10ms half sine. $T_j$ = 125°C | 30.0 | kA |
| $I^2t$ | $I^2t$ for fusing | 10ms half sine. $T_j$ =125°C | $4.5 \times 10^6$ | $A^2s$ |
| $di_T/dt$ | Critical rate of rise of on-state current | $I_T$ = 3000A, T = 125°C, $I_{FG}$ > 30A | 500 | A/μs |
| $dV_D/dt$ | Rate of rise of off-state voltage | To 66% $V_{DRM}$; $R_{GK} \leq 1.5\Omega$, $T_j$ = 125°C | 130 | V/μs |
| | | To 66% $V_{DRM}$; $V_{RG}$ = -2V, $T_j$ = 125°C | 1000 | V/μs |
| $L_S$ | Peak stray inductance in snubber circuit | $I_T$ = 3000A, $V_D$ = $V_{DRM}$, $T_j$ = 125°C, $dI/_{GQ}$ = 40A/μs, Cs = 3.0μF | 200 | nH |

## 门极等级

| 符号 | 参数 | 测试条件 | Min. | Max. | 单位 |
|---|---|---|---|---|---|
| $V_{RGM}$ | Peak reverse gate voltage | This value maybe exceeded during turn-off | - | 17 | V |
| $I_{FGM}$ | Peak forward gate current | | 20 | 100 | A |
| $P_{FG(AV)}$ | Average forward gate power | | - | 20 | W |
| $P_{RGM}$ | Peak reverse gate power | | - | 24 | kW |
| $di_{GQ}/dt$ | Rate of rise of reverse gate current | | 20 | 60 | A/μs |
| $t_{ON(min)}$ | Minimum permissable on time | | 100 | - | μs |
| $t_{OFF(min)}$ | Minimum permissable off time | | 100 | - | μs |

## 热学&力学参数

| 符号 | 参数 | 测试条件 | | Min. | Max. | 单位 |
|---|---|---|---|---|---|---|
| $R_{th(j-hs)}$ | DC thermal resistance - junction to heatsink surface | Double side cooled | | - | 0.011 | °C/W |
| | | Anode side cooled | | - | 0.017 | °C/W |
| | | Cathode side cooled | | - | 0.03 | °C/W |
| $R_{th(c-hs)}$ | Contact thermal resistance | Clamping force 40.0kN With mounting compound | per contact | - | 0.0021 | °C/W |
| $T_{vj}$ | Virtual junction temperature | | | -40 | 125 | °C |
| $T_{OP}/T_{stg}$ | Operating junction/storage temperature range | | | -40 | 125 | °C |
| - | Clamping force | | | 36.0 | 44.0 | kN |

## 特 性

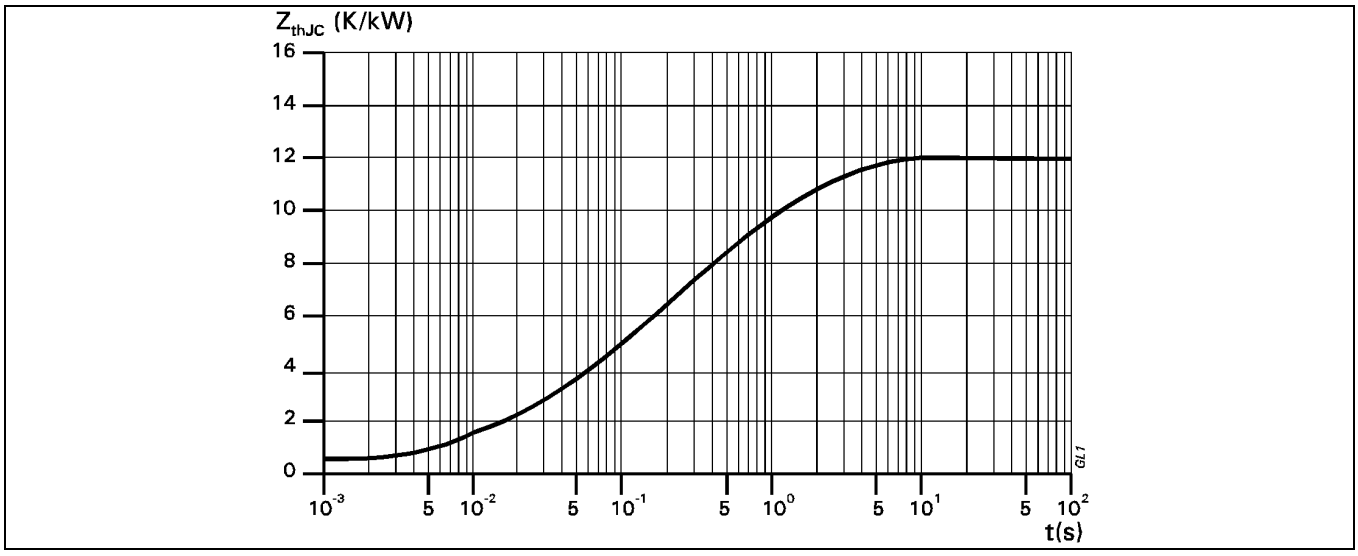
$T_j$ = 125°C unless stated otherwise

| Symbol | Parameter | Conditions | Min. | Max. | Units |
|---|---|---|---|---|---|
| $V_{TM}$ | On-state voltage | At 3000A peak, $I_{G(ON)}$ = 10A d.c. | - | 2.5 | V |
| $I_{DM}$ | Peak off-state current | $V_{DRM}$ = 4500V, $V_{RG}$ = 0V | - | 100 | mA |
| $I_{RRM}$ | Peak reverse current | At $V_{RRM}$ | - | 50 | mA |
| $V_{GT}$ | Gate trigger voltage | $V_D$ = 24V, $I_T$ = 100A, $T_j$ = 25°C | - | 1.2 | V |
| $I_{GT}$ | Gate trigger current | $V_D$ = 24V, $I_T$ = 100A, $T_j$ = 25°C | - | 4.0 | A |
| $I_{RGM}$ | Reverse gate cathode current | $V_{RGM}$ = 16V, No gate/cathode resistor | - | 50 | mA |
| $E_{ON}$ | Turn-on energy per pulse | $V_D$ = 0.5$V_{DRM}$ | - | 2 | Ws |
| $t_d$ | Delay time | $I_T$ = 3000A, $dI_T/dt$ = 300A/μs | - | 2.5 | μs |
| $t_r$ | Rise time | $I_{FG}$ = 30A | - | 6.0 | μs |
| $E_{OFF}$ | Turn-off energy per pulse | | - | 4.7 | Ws |
| $t_{gs}$ | Storage time | | - | 25.0 | μs |
| $t_{gf}$ | Fall time | $I_T$ = 3000A, $V_{DM}$ = $V_{DRM}$ | - | 3.0 | μs |
| $I_{GQM}$ | Peak reverse gate current | Cs = 5.0μF, $di_{GQ}/dt$ = 40A/μs | - | 1000 | A |

**Analytical function for transient thermal impedance:**

$$Z_{thJC}(t) = \sum_{i=1}^{4} R_i(1 - e^{-t/t_i})$$

| i | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| $R_i$ (K/kW) | 5.4 | 4.5 | 1.7 | 0.4 |
| $\tau_i$ (s) | 1.2 | 0.17 | 0.01 | 0.001 |



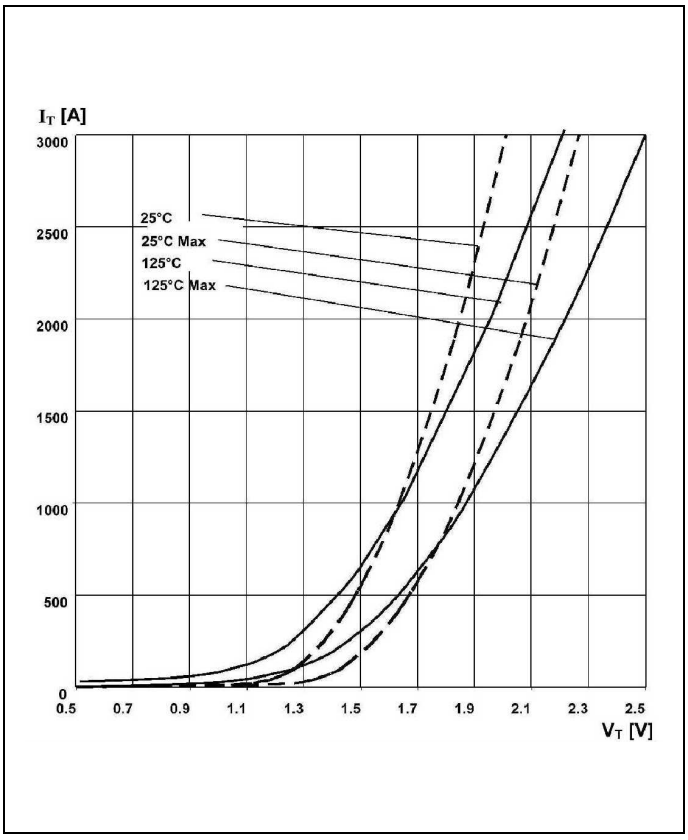




**Fig. 1** On-state characteristics

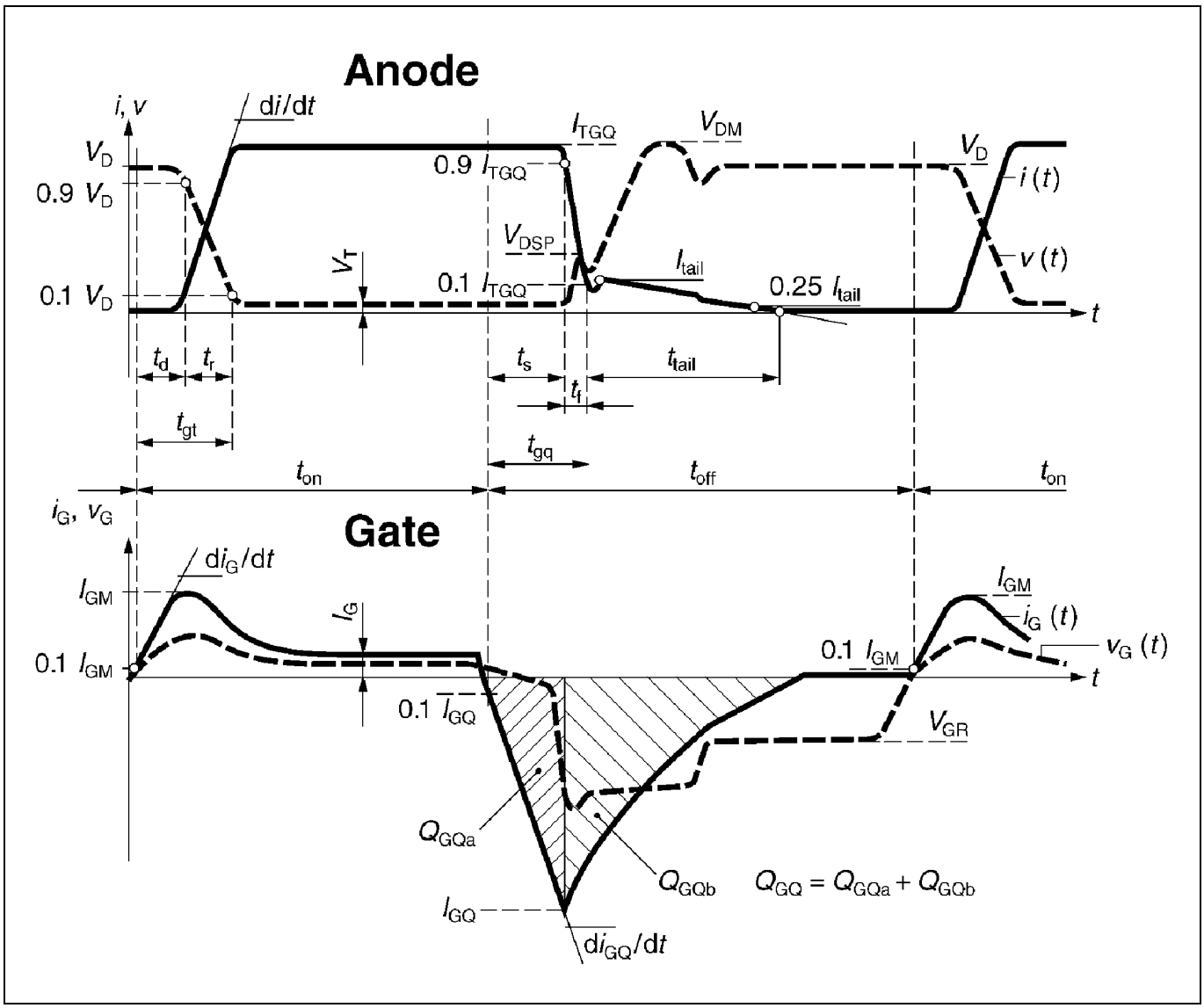
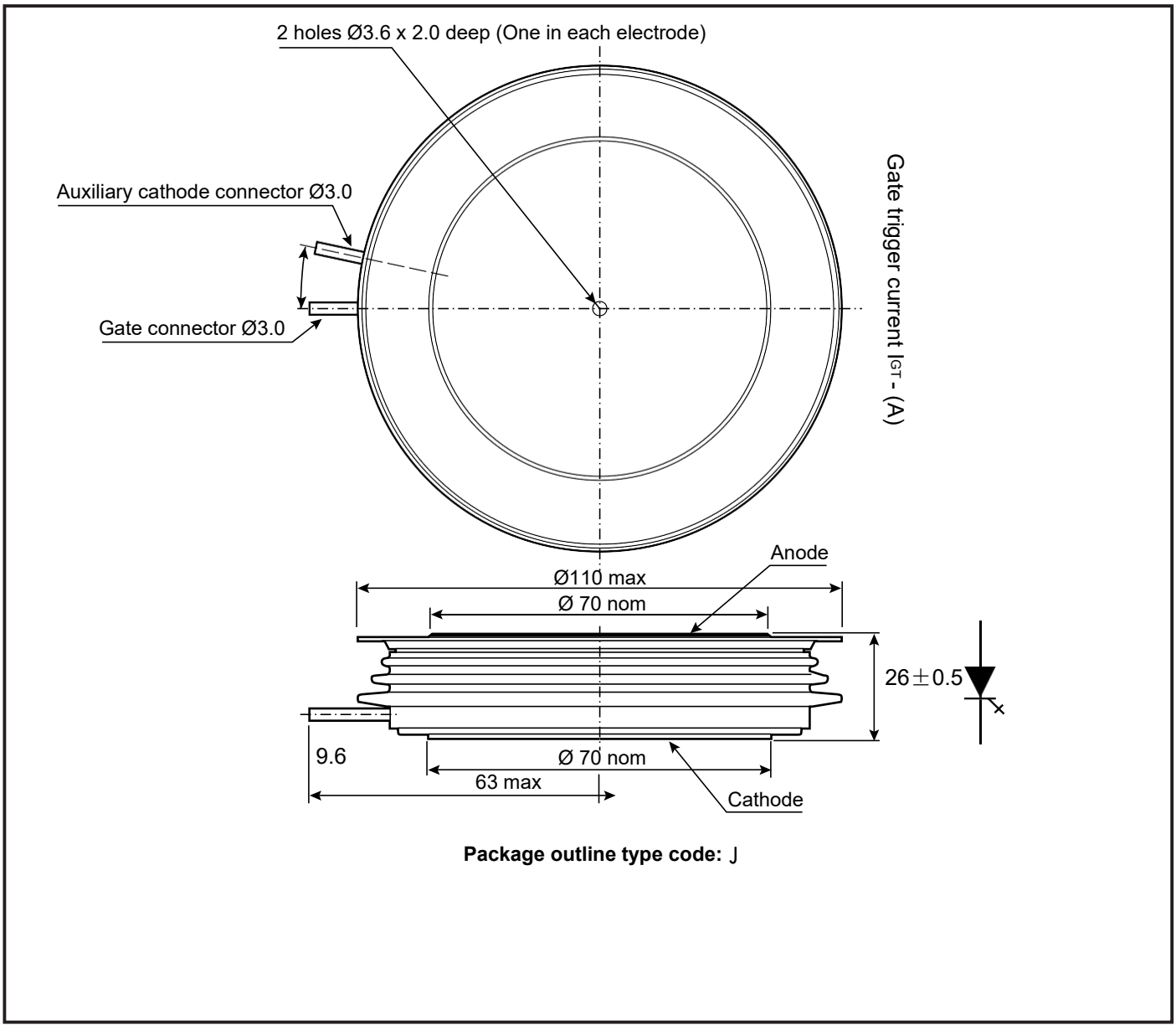



**Fig. 2** General current and voltage waveforms with GTO-specific symbols

产品外形尺寸

All dimensions in mm, unless stated otherwise. DO NOT SCALE.




**Package outline type code:** J