# USR Semiconductor Co., Ltd

S10-XX00
FAST TURN-OFF
THYRISTOR

| SYMBOL | CHARACTERISTIC | TEST CONDITIONS | $T_j$(°C) | VALUE | | | UNIT |
|---|---|---|---|---|---|---|---|
| | | | | Min | Type | Max | |
| $I_{T(AV)}$ | Mean on-state current | 180° half sine wave 50Hz<br>Double side cooled,$T_{hS}$=55°C | 115 | | | 1040 | A |
| $I_{T(AV)}$ | Mean on-state current | 180° half sine wave 50Hz<br>Double side cooled,$T_{hS}$=80°C | 115 | | | 688 | A |
| $V_{DRM}$<br>$V_{RRM}$ | Repetitive peak off-state voltage<br>Repetitive peak reverse voltage | $V_{DRM}$&$V_{RRM}$ tp=10ms<br>$V_{DsM}$&$V_{RsM}$= $V_{DRM}$&$V_{RRM}$+100V respectively | 115 | 800 | | 1800 | V |
| $I_{DRM}$<br>$I_{RRM}$ | Repetitive peak current | at $V_{DRM}$<br>at $V_{RRM}$ | 115 | | | 80 | mA |
| $I_{TSM}$ | Surge on-state current | 10ms half sine wave<br>$V_R$=0.6$V_{RRM}$ | 115 | | | 12 | KA |
| $I^2T$ | $I^2T$ for fusing coordination | | | | | 720 | $A^2s*10^3$ |
| $V_{TO}$ | Threshold voltage | | 115 | | | 1.56 | V |
| $r_T$ | On-state slop resistance | | | | | 0.33 | mΩ |
| $V_{TM}$ | Peak on-state voltage | $I_{TM}$=3000A, F=24KN | 115 | | | 2.55 | V |
| dv/dt | Critical rate of rise of off-state voltage | $V_{DM}$=0.67$V_{DRM}$ | 115 | | | 500 | V/μs |
| di/dt | Critical rate of rise of on-state current | From 67%$V_{DRM}$<br>to 1000A, Gate source 1.5A<br>$t_r$ ≤0.5μs Repetitive | 115 | | | 600 | A/μs |
| $I_{rm}$ | Reverse recovery current | $I_{TM}$=800A,tp=1000μs,<br>di/dt=-40A/μs,<br>$V_R$=50V | 115 | | 100 | | A |
| $t_{rr}$ | Reverse recovery time | | | | 5.8 | | μs |
| $Q_{rr}$ | Recovery charge | | | | 290 | 320 | μC |
| tq | Circuit commutated turn-off time | $I_{TM}$=800A,tp=1000μs, $V_R$ =50V<br>dv/dt=30V/μs ,di/dt=-40A/μs | 115 | 15 | | 35 | |
| $I_{GT}$ | Gate trigger current | $V_A$=12V, $I_A$=1A | 25 | 40 | | 300 | mA |
| $V_{GT}$ | Gate trigger voltage | | | 0.9 | | 3.0 | V |
| $I_H$ | Holding current | | | 20 | | 500 | mA |
| $V_{GD}$ | Non-trigger gate voltage | At 67%$V_{DRM}$ | 115 | | | 0.3 | V |
| $R_{th(j-h)}$ | Thermal resistance<br>Junction to heatsink | At $180^0$ sine, double side cooled<br>Clamping force 24KN | | | | 0.024 | °C /W |
| $F_m$ | Mounting force | | | 19 | | 26 | KN |
| $T_{stg}$ | Stored temperature | | | -40 | | 140 | °C |
| $W_t$ | Weight | | | | 470 | | g |
| Outline | KT50cT | | | | | | |

Outline