

4.0A Sensitive Gate SCRs

Product Summary

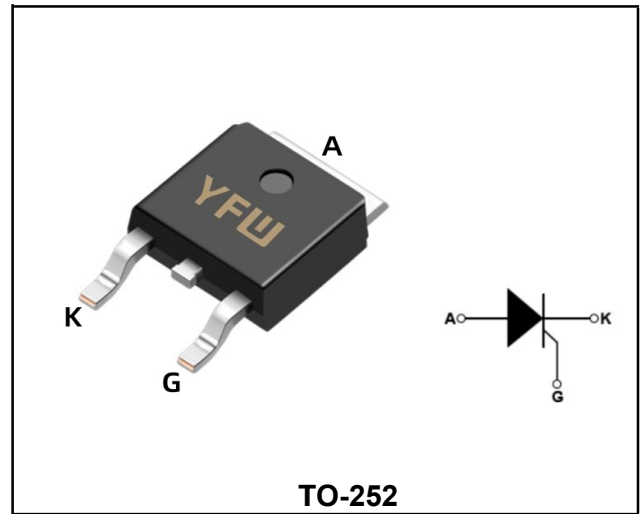
| Symbol | Value | Unit |
|---------------------|---------|---------|
| $I_{T(RMS)}$ | 4.0 | A |
| V_{DRM} V_{RRM} | 600/800 | V |
| I_{GT} | 200 | μA |

Features

With high ability to withstand the shock loading of large current, Provide high dv/dt rate with strong resistance to electromagnetic interference.

Application

Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.



Absolute maximum ratings (Ta=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|--------------|-----------|-----------|
| Repetitive peak off-state voltage | V_{DRM} | 600/800 | V |
| Repetitive peak reverse voltage | V_{RRM} | 600/800 | V |
| RMS on-state current | $I_{T(RMS)}$ | 4 | A |
| Non repetitive surge peak on-state current (full cycle, F=50Hz) | I_{TSM} | 30 | A |
| I^2t value for fusing (tp=10ms) | I^2t | 4.5 | A^2s |
| Critical rate of rise of on-state current ($I_G = 2 \times I_{GT}$) | di_T/dt | 50 | $A/\mu s$ |
| Peak gate current | I_{GM} | 1.2 | A |
| Average gate power dissipation | $P_G (AV)$ | 0.2 | W |
| Junction Temperature | T_J | -40~+110 | °C |
| Storage Temperature | T_{STG} | -40 ~+150 | °C |

Electrical characteristics (TA=25°C, unless otherwise noted)

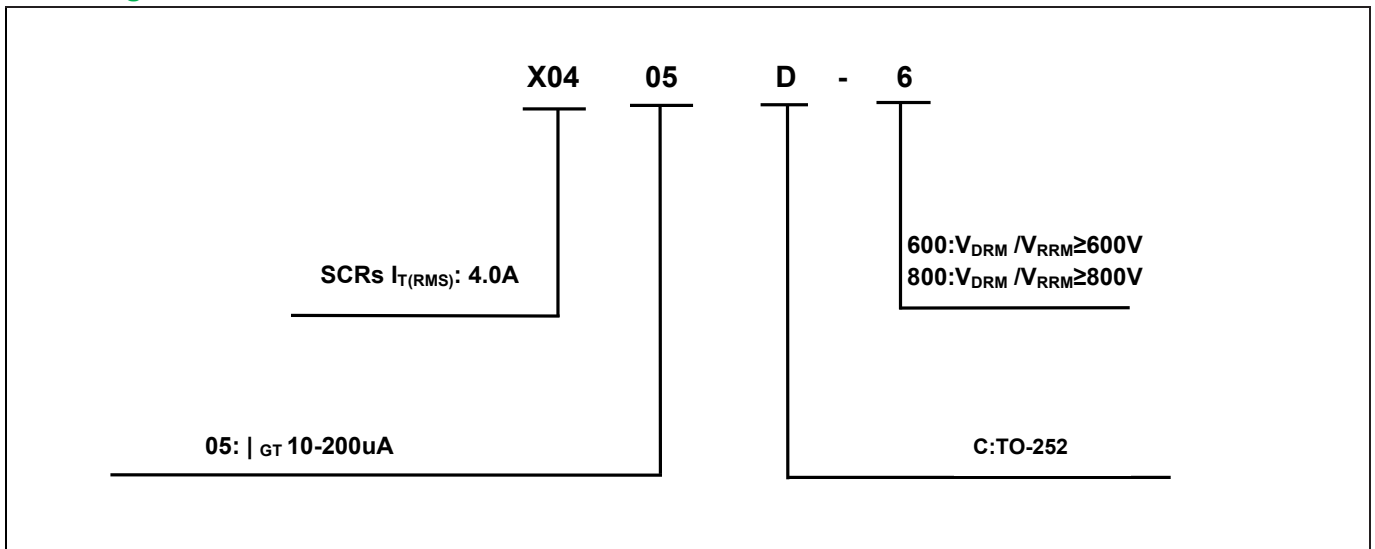
| Parameter | Symbol | Test Condition | Value | | Unit |
|--|-----------|--|-------|-----|------------|
| | | | Min | Max | |
| Gate trigger current | I_{GT} | $V_D = 12V R_L = 140\Omega T_j = 25^\circ C$ | 10 | 200 | μA |
| Gate trigger voltage | V_{GT} | | - | 0.8 | V |
| Gate non-trigger voltage | V_{GD} | $V_D = V_{DRM} R_{GK} = 1k\Omega T_j = 110^\circ C$ | 0.2 | - | V |
| latching current | I_L | $I_G = 1mA R_{GK} = 1k\Omega T_j = 25^\circ C$ | - | 6 | mA |
| Holding current | I_H | $I_T = 50mA R_{GK} = 1k\Omega T_j = 25^\circ C$ | - | 5 | mA |
| Critical-rate of rise of commutation voltage | dV_D/dt | $V_D = 2/3V_{DRM} R_{GK} = 1k\Omega T_j = 110^\circ C$ | 10 | - | V/ μs |

STATIC CHARACTERISTICS

| | | | | | | |
|-----------------------------------|-----------|-------------------------------|---------------------|------|------|---------|
| Forward "on" voltage | V_{TM} | $I_{TM} = 8A t_p = 380\mu s$ | - | 1.55 | V | |
| Repetitive Peak Off-State Current | I_{DRM} | $V_D = V_{DRM} V_R = V_{RRM}$ | $T_j = 25^\circ C$ | - | 5 | μA |
| Repetitive Peak Reverse Current | I_{RRM} | | $T_j = 110^\circ C$ | - | 0.15 | mA |

THERMAL RESISTANCES

| | | | | | |
|--------------------|---------------|-----------------------|------|-----|--------------|
| Thermal resistance | $R_{th(j-c)}$ | Junction to case (AC) | TYP. | 7.2 | $^\circ C/W$ |
| | $R_{th(j-a)}$ | Junction to ambient | TYP. | 100 | $^\circ C/W$ |

Ordering Information


Typical Characteristics

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

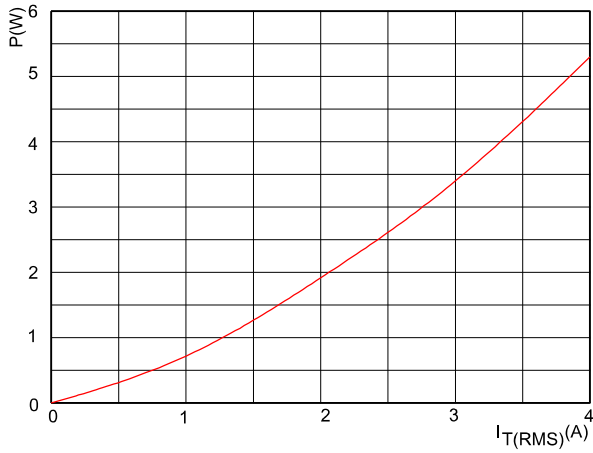


FIG.2: RMS on-state current versus case temperature (full cycle)

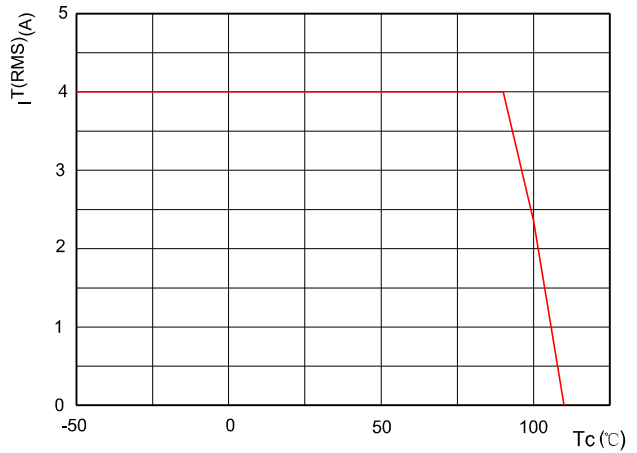


FIG.3: Surge peak on-state current versus number of cycles

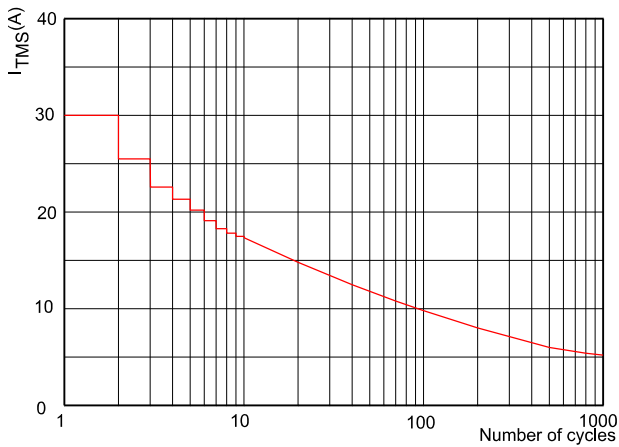


FIG.4: On-state characteristics (maximum values)

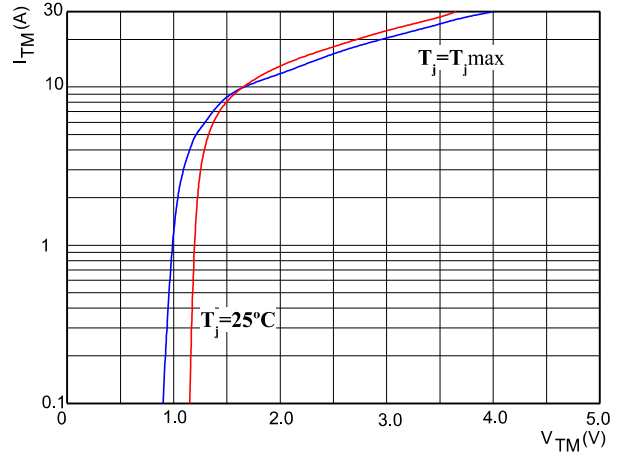


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

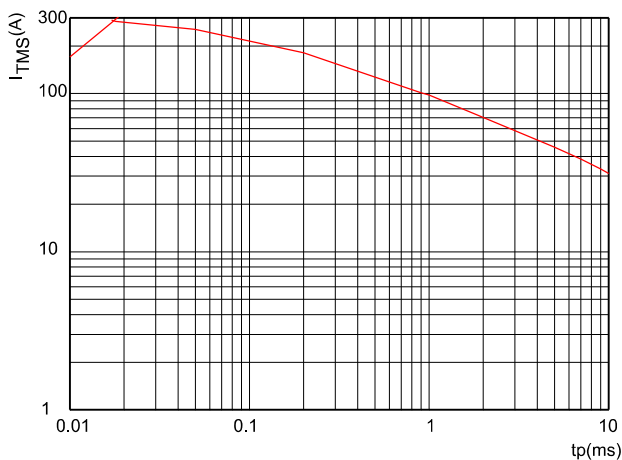
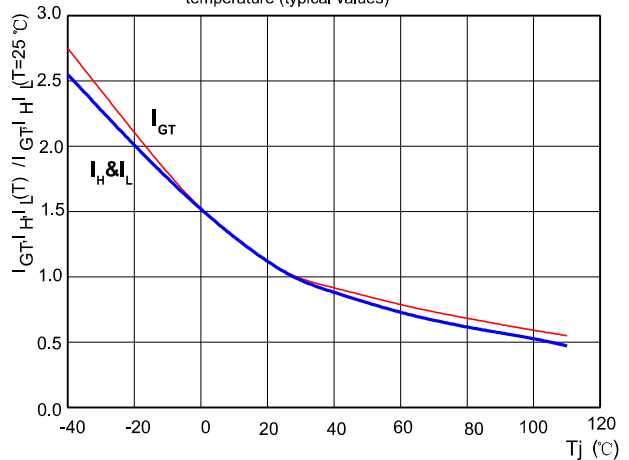
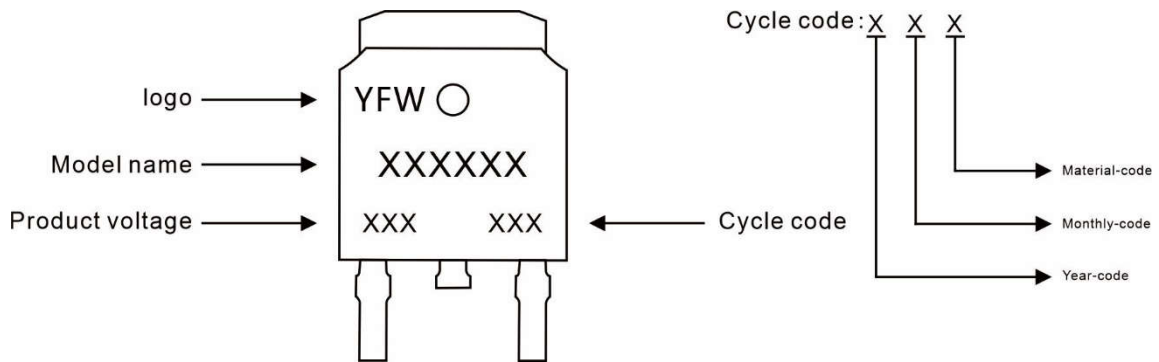


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Marking Diagram



Ordering information

| Model name | Package | Unit Weight | Base Quantity | Packing Quantity |
|------------|---------|----------------|---------------|-----------------------------|
| X0405D | TO-252 | 0.011oz(0.32g) | 3000pcs/reel | 6000pcs/box 30000pcs/Carton |

**Package Dimensions
TO-252**

| Dim | Millimeter | | Inches | |
|-----|------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.20 | 2.50 | 0.087 | 0.098 |
| A1 | 0.00 | 0.12 | 0.000 | 0.005 |
| A2 | 2.20 | 2.40 | 0.087 | 0.094 |
| B | 1.20 | 1.60 | 0.047 | 0.063 |
| b | 0.50 | 0.70 | 0.020 | 0.028 |
| b1 | 0.70 | 0.90 | 0.028 | 0.035 |
| c | 0.40 | 0.60 | 0.016 | 0.024 |
| c1 | 0.40 | 0.60 | 0.016 | 0.024 |
| D | 6.35 | 6.65 | 0.250 | 0.262 |
| D1 | 5.20 | 5.40 | 0.205 | 0.213 |
| E | 5.40 | 5.70 | 0.213 | 0.224 |
| e | 2.20 | 2.40 | 0.087 | 0.094 |
| e1 | 4.40 | 4.80 | 0.173 | 0.189 |
| L | 10.00 | 11.00 | 0.393 | 0.433 |
| L1 | 2.70 | 3.10 | 0.106 | 0.122 |
| L2 | 1.40 | 1.80 | 0.055 | 0.071 |
| L3 | 0.90 | 1.50 | 0.035 | 0.059 |

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