



JX080 Series Sensitive gate SCRs

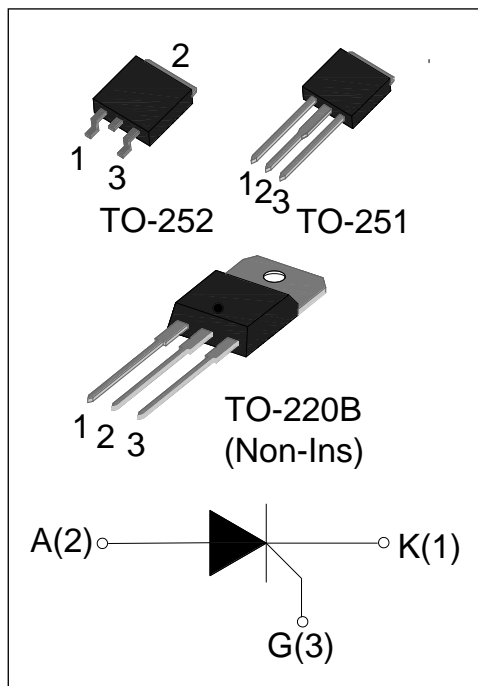
Rev.4.0

DESCRIPTION:

The JX080 SCR series provide high dv/dt rate with strong resistance to electromagnetic interface. They are especially recommended for use on residual current circuit breaker, straight hair, igniter etc.

MAIN FEATURES

| Symbol | Value | Unit |
|-------------------|---------|------|
| V_{DRM}/V_{RRM} | 600/800 | V |
| $I_{T(RMS)}$ | 8 | A |
| I_{GT} | ≤200 | μA |



ABSOLUTE MAXIMUM RATINGS

| Parameter | | Symbol | Value | Unit |
|--|--|--------------|-----------|------------------|
| Storage junction temperature range | | T_{stg} | -40 - 150 | °C |
| Operating junction temperature range | | T_j | -40 - 110 | °C |
| Repetitive peak off-state voltage | | V_{DRM} | 600/800 | V |
| Repetitive peak reverse voltage | | V_{RRM} | 600/800 | V |
| RMS on-state current | TO-251/ TO-252/ TO-220B(Non-Ins) ($T_C=100^\circ C$) | $I_{T(RMS)}$ | 8 | A |
| Non repetitive surge peak on-state current (tp=10ms) | | I_{TSM} | 70 | A |
| I^2t value for fusing (tp=10ms) | | I^2t | 24.5 | A ² s |
| Critical rate of rise of on-state current | | di/dt | 50 | A/μs |
| Peak gate current (tp=20μs, $T_j=110^\circ C$) | | I_{GM} | 4 | A |
| Peak gate power (tp=20μs, $T_j=110^\circ C$) | | P_{GM} | 5 | W |
| Average gate power dissipation($T_j=110^\circ C$) | | $P_{G(AV)}$ | 1 | W |

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise specified)

| Symbol | Test Condition | Value | | | Unit |
|----------|---|-------|------|------|------------------|
| | | MIN. | TYP. | MAX. | |
| I_{GT} | $V_D=12\text{V } R_L=33\Omega$ | - | 50 | 200 | μA |
| V_{GT} | | - | 0.6 | 0.8 | V |
| V_{GD} | $V_D=V_{DRM} T_j=110^\circ\text{C}$ | 0.2 | - | - | V |
| I_L | $I_G=1.2 I_{GT}$ | - | - | 6 | mA |
| I_H | $I_T=0.05\text{A}$ | - | - | 5 | mA |
| dV/dt | $V_D=2/3V_{DRM} T_j=110^\circ\text{C} R_{GK}=1\text{K}\Omega$ | 10 | - | - | V/ μs |

STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX) | Unit |
|-----------|--------------------------------------|-------------------------|------------|---------------|
| V_{TM} | $I_T=16\text{A } t_p=380\mu\text{s}$ | $T_j=25^\circ\text{C}$ | 1.5 | V |
| I_{DRM} | $V_D=V_{DRM} V_R=V_{RRM}$ | $T_j=25^\circ\text{C}$ | 5 | μA |
| I_{RRM} | | $T_j=110^\circ\text{C}$ | 100 | μA |

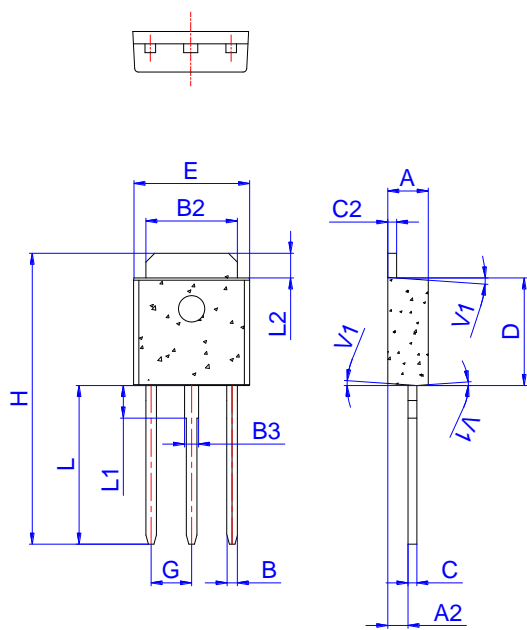
THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|---------------|------------------|------------------|-------|--------------------|
| $R_{th(j-c)}$ | junction to case | TO-251/ TO-252 | 20 | $^\circ\text{C/W}$ |
| | | TO-220B(Non-Ins) | 15 | |

ORDERING INFORMATION

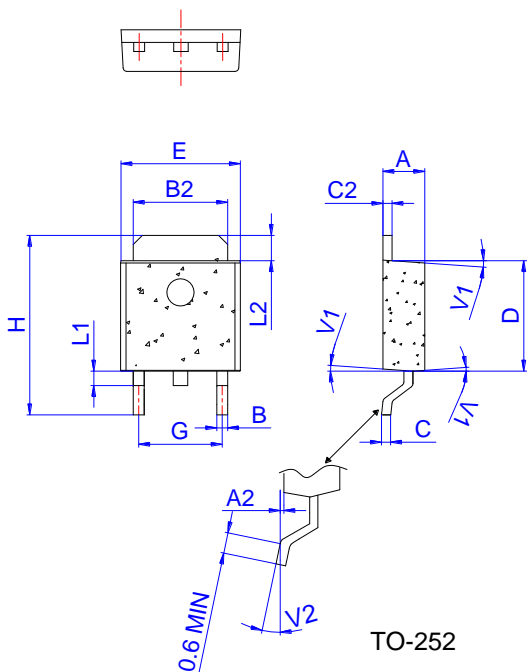
| | |
|---|---|
| <div style="display: flex; justify-content: space-around; font-size: 2em; font-weight: bold;"> J X 080 H </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px;">JieJie Microelectronics Co.,Ltd</div> <div style="border: 1px solid black; padding: 2px;">B:TO-220B(Non-Ins) H:TO-251 K:TO-252</div> </div> <div style="text-align: center; margin-top: 10px;"> <u>Sensitive gate SCRs</u> </div> | <div style="border: 1px solid black; padding: 2px; margin: 0 auto; width: 100px;"> $I_{T(RMS)}:8\text{A}$ </div> |
|---|---|

PACKAGE MECHANICAL DATA



TO-251

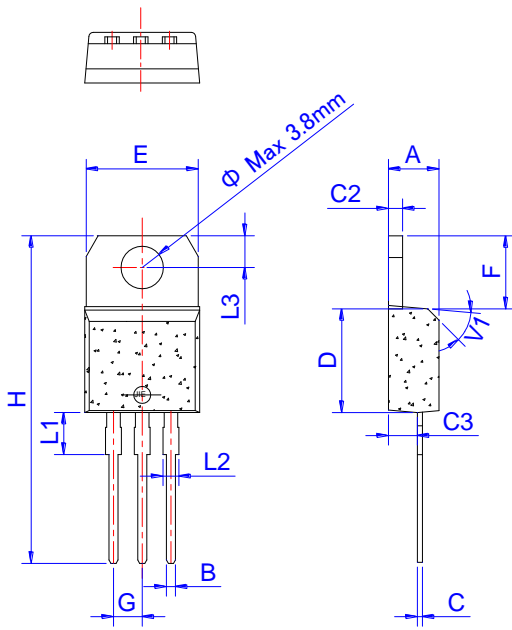
| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.20 | | 2.40 | 0.086 | | 0.095 |
| A2 | 0.90 | | 1.20 | 0.035 | | 0.047 |
| B | 0.55 | | 0.65 | 0.022 | | 0.026 |
| B2 | 5.10 | | 5.40 | 0.200 | | 0.213 |
| B3 | 0.76 | | 0.85 | 0.030 | | 0.033 |
| C | 0.45 | | 0.62 | 0.018 | | 0.024 |
| C2 | 0.48 | | 0.62 | 0.019 | | 0.024 |
| D | 6.00 | | 6.20 | 0.236 | | 0.244 |
| E | 6.40 | | 6.70 | 0.252 | | 0.264 |
| G | | 2.30 | | | 0.091 | |
| H | 16.0 | | 17.0 | 0.630 | | 0.669 |
| L | 8.90 | | 9.40 | 0.350 | | 0.370 |
| L1 | 1.80 | | 1.90 | 0.071 | | 0.075 |
| L2 | 1.37 | | 1.50 | 0.054 | | 0.059 |
| V1 | | 4° | | | 4° | |



TO-252

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.20 | | 2.40 | 0.086 | | 0.095 |
| A2 | 0.03 | | 0.23 | 0.001 | | 0.009 |
| B | 0.55 | | 0.65 | 0.022 | | 0.026 |
| B2 | 5.10 | | 5.40 | 0.200 | | 0.213 |
| C | 0.45 | | 0.62 | 0.018 | | 0.024 |
| C2 | 0.48 | | 0.62 | 0.019 | | 0.024 |
| D | 6.00 | | 6.20 | 0.236 | | 0.244 |
| E | 6.40 | | 6.70 | 0.252 | | 0.264 |
| G | 4.40 | | 4.70 | 0.173 | | 0.185 |
| H | 9.35 | | 10.6 | 0.368 | | 0.417 |
| L1 | 1.30 | | 1.70 | 0.051 | | 0.067 |
| L2 | 1.37 | | 1.50 | 0.054 | | 0.059 |
| V1 | | 4° | | | 4° | |
| V2 | 0° | | 8° | 0° | | 8° |

PACKAGE MECHANICAL DATA



TO-220B Non-Ins

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| B | 0.61 | | 0.88 | 0.024 | | 0.035 |
| C | 0.46 | | 0.70 | 0.018 | | 0.028 |
| C2 | 1.21 | | 1.32 | 0.048 | | 0.052 |
| C3 | 2.40 | | 2.72 | 0.094 | | 0.107 |
| D | 8.60 | | 9.70 | 0.339 | | 0.382 |
| E | 9.60 | | 10.4 | 0.378 | | 0.409 |
| F | 6.20 | | 6.60 | 0.244 | | 0.260 |
| G | | 2.54 | | | 0.1 | |
| H | 28.0 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.75 | | | 0.148 | |
| L2 | 1.14 | | 1.70 | 0.045 | | 0.067 |
| L3 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| V1 | | 45° | | | 45° | |

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

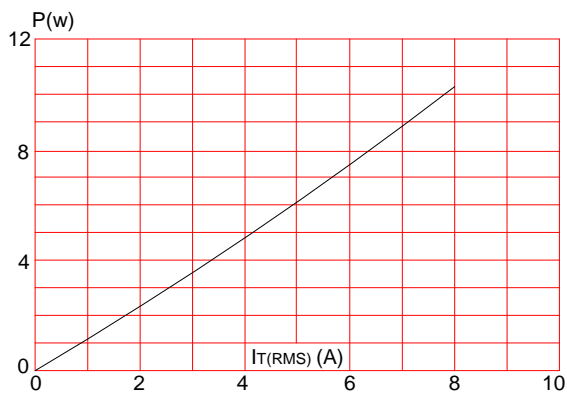


FIG.3: Surge peak on-state current versus number of cycles

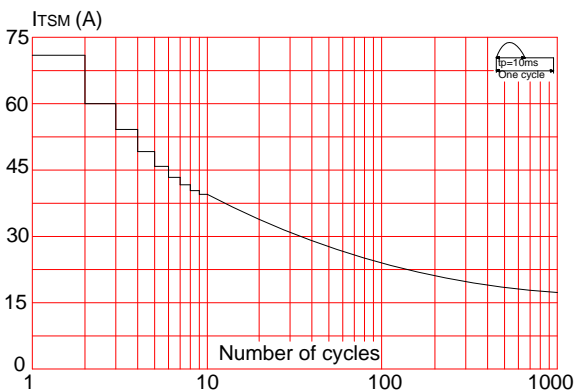


FIG.2: RMS on-state current versus case temperature

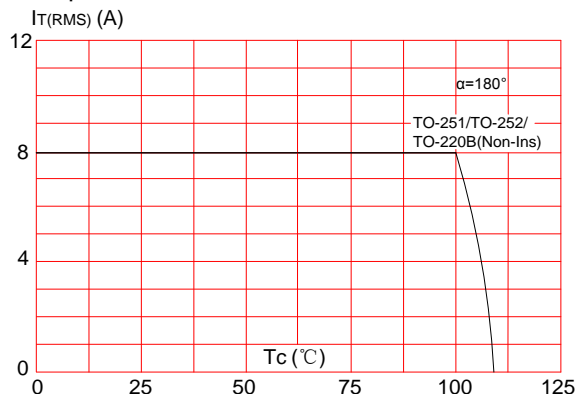


FIG.4: On-state characteristics (maximum values)

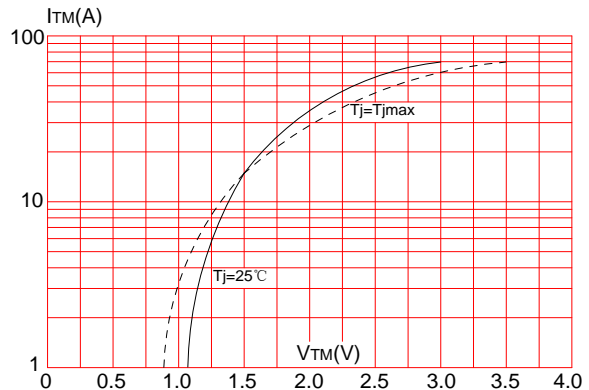


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

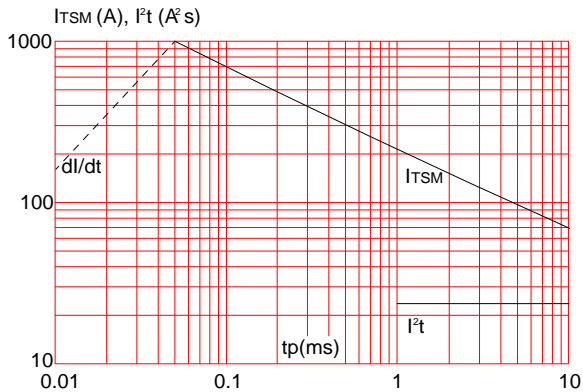
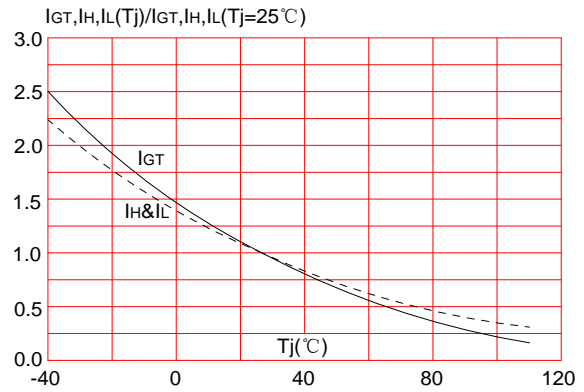



FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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