



JX075 Series Sensitive gate SCRs

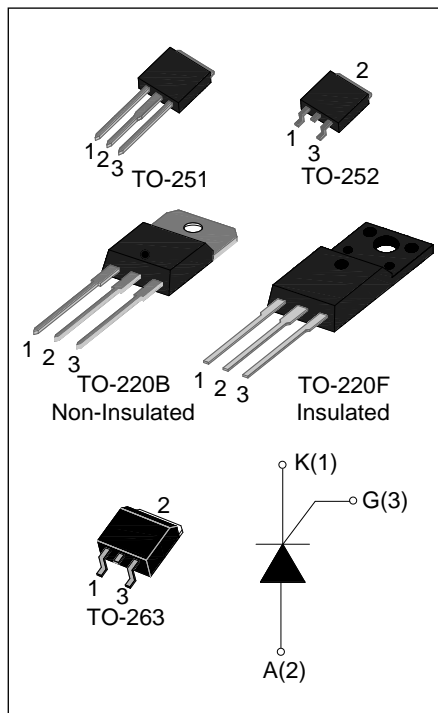
Rev.2.0

DESCRIPTION:

The JX075 SCR series provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on residual current circuit breaker, straight hair, igniter etc. JX075F provides insulation voltage rated at 2000V RMS from all three terminals to external heatsink.

MAIN FEATURES

| Symbol | Value | Unit |
|-------------------|------------|---------|
| V_{DRM}/V_{RRM} | 1000 | V |
| $I_{T(RMS)}$ | 12 | A |
| I_{GT} | ≤ 200 | μA |



ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit | |
|---|--------------|--|-------------|---|
| Storage junction temperature range | T_{stg} | -40-150 | $^{\circ}C$ | |
| Operating junction temperature range | T_j | -40-110 | $^{\circ}C$ | |
| Repetitive peak off-state voltage | V_{DRM} | 1000 | V | |
| Repetitive peak reverse voltage | V_{RRM} | 1000 | V | |
| RMS on-state current | $I_{T(RMS)}$ | TO-251/ TO-252/ TO-220B(Non-Ins) ($T_C=90^{\circ}C$) | 12 | A |
| | | TO-220F(Ins) ($T_C=85^{\circ}C$) | | |
| | | TO-263 ($T_C=95^{\circ}C$) | | |
| Non repetitive surge peak on-state current (tp=10ms) | I_{TSM} | 110 | A | |
| I^2t value for fusing (tp=10ms) | I^2t | 45 | A^2s | |
| Critical rate of rise of on-state current | dl/dt | 50 | $A/\mu s$ | |
| Peak gate current (tp=20 μs , $T_j=110^{\circ}C$) | I_{GM} | 1.2 | A | |

| | | | |
|--|--------------------|-----|---|
| Peak gate power (tp=20μs, Tj=110°C) | P _{GM} | 3 | W |
| Average gate power dissipation(Tj=110°C) | P _{G(AV)} | 0.2 | W |

ELECTRICAL CHARACTERISTICS (T_j=25°C unless otherwise specified)

| Symbol | Test Condition | Value | | | Unit |
|-----------------|--|-------|------|------|------|
| | | MIN. | TYP. | MAX. | |
| I _{GT} | V _D =12V R _L =33Ω | - | 60 | 200 | μA |
| V _{GT} | | - | - | 0.8 | V |
| V _{GD} | V _D =V _{DRM} T _j =110°C | 0.1 | - | - | V |
| I _L | I _G =1.2 I _{GT} | - | - | 5 | mA |
| I _H | I _T =0.05A | - | - | 6 | mA |
| dV/dt | V _D =2/3V _{DRM} T _j =110°C R _{GK} =1KΩ | 5 | - | - | V/μs |

STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX) | Unit |
|------------------|---|-----------------------|------------|------|
| V _{TM} | I _{TM} =24A tp=380μs | T _j =25°C | 1.6 | V |
| I _{DRM} | V _D =V _{DRM} V _R =V _{RRM} | T _j =25°C | 10 | μA |
| I _{RRM} | | T _j =110°C | 2 | mA |

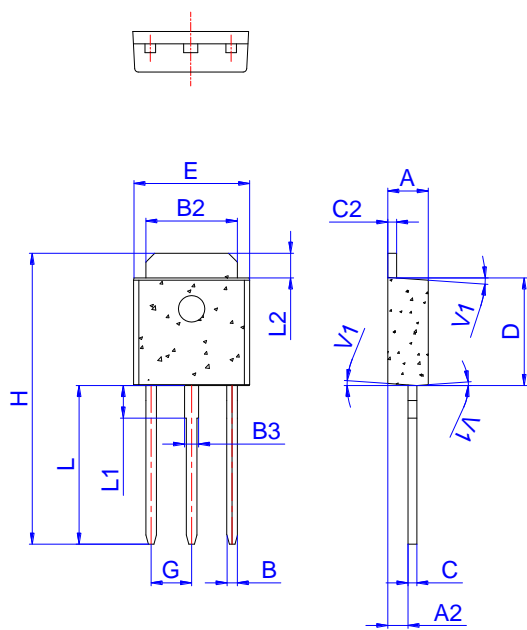
THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|----------------------|------------------|---------------------------------|-------|------|
| R _{th(j-c)} | junction to case | TO-251/ TO-252/ TO-220F(Ins) | 2.2 | °C/W |
| | | TO-220B(Non-Ins) | 2.0 | |
| | | TO-263 | 1.9 | |

ORDERING INFORMATION

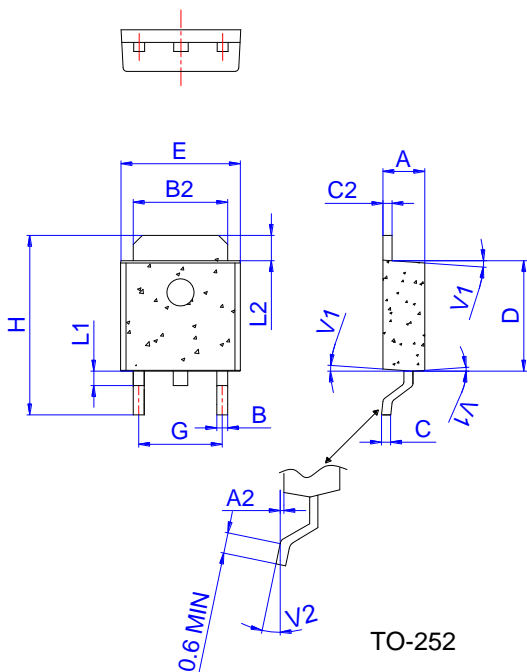
| | | | |
|--|-------------------------|------------|---|
| J JieJie Microelectronics Co.,Ltd Sensitive gate SCRs | X IT(RMS):12A | 075 | H E:TO-263 F:TO-220F(Ins) B:TO-220B(Non-Ins) H:TO-251 K:TO-252 |
|--|-------------------------|------------|---|

PACKAGE MECHANICAL DATA



TO-251

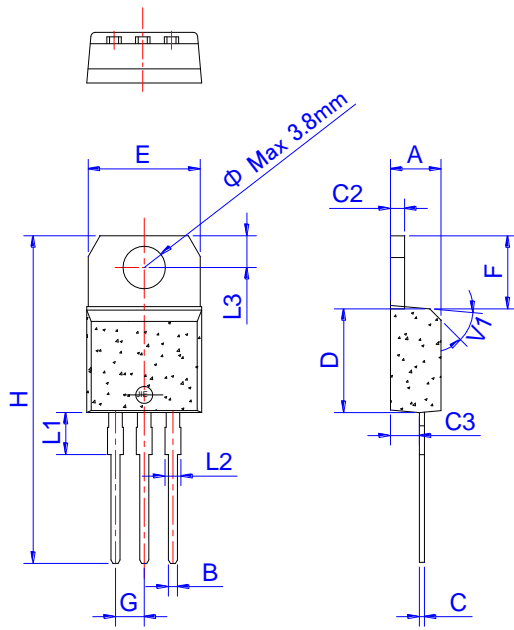
| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.20 | | 2.40 | 0.086 | | 0.095 |
| A2 | 0.90 | | 1.20 | 0.035 | | 0.047 |
| B | 0.55 | | 0.65 | 0.022 | | 0.026 |
| B2 | 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° | |



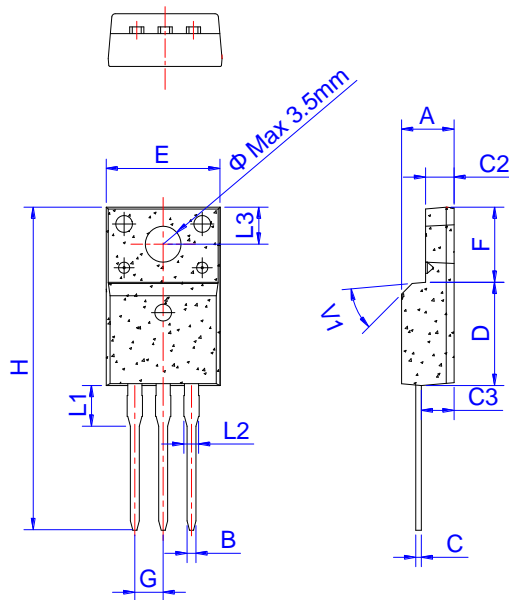
TO-252

| 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



| 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° | |



| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.40 | | 4.80 | 0.173 | | 0.189 |
| B | 0.74 | 0.80 | 0.83 | 0.029 | 0.031 | 0.033 |
| C | 0.48 | | 0.75 | 0.019 | | 0.030 |
| C2 | 2.40 | | 2.70 | 0.094 | | 0.106 |
| C3 | 2.60 | | 3.00 | 0.102 | | 0.118 |
| D | 8.80 | | 9.30 | 0.346 | | 0.366 |
| E | 9.70 | | 10.3 | 0.382 | | 0.406 |
| F | 6.40 | | 7.00 | 0.252 | | 0.276 |
| G | | 2.54 | | | 0.1 | |
| H | 28.0 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.63 | | | 0.143 | |
| L2 | 1.14 | | 1.70 | 0.045 | | 0.067 |
| L3 | | 3.30 | | | 0.130 | |
| V1 | | 45° | | | 45° | |

PACKAGE MECHANICAL DATA

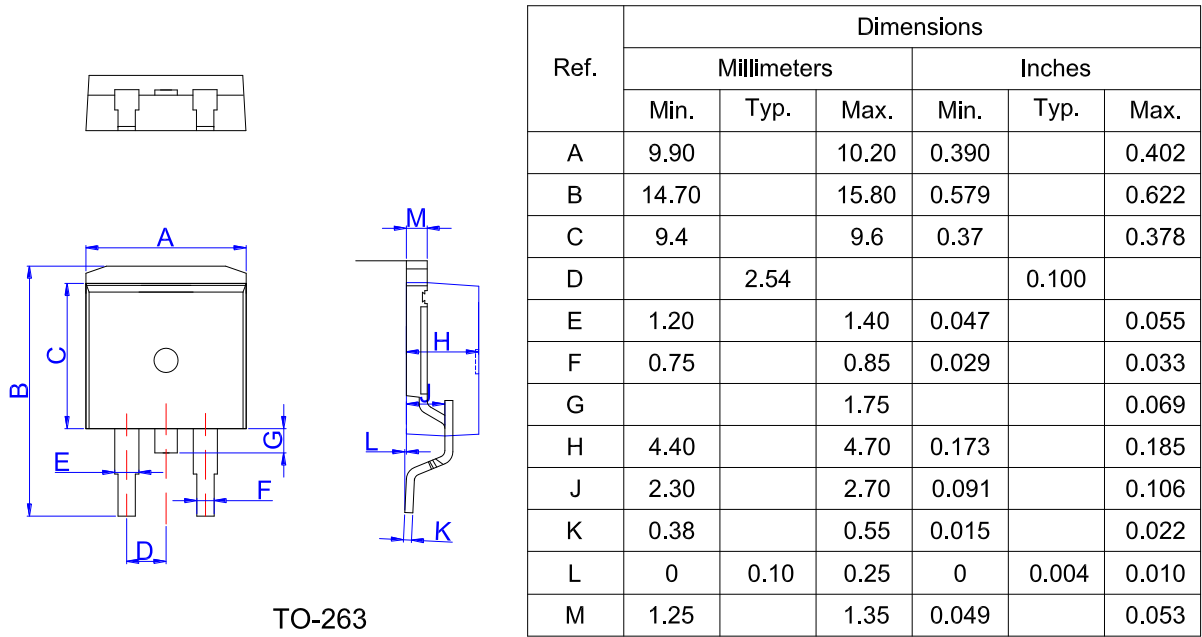


FIG.1 Maximum power dissipation versus RMS on-state current

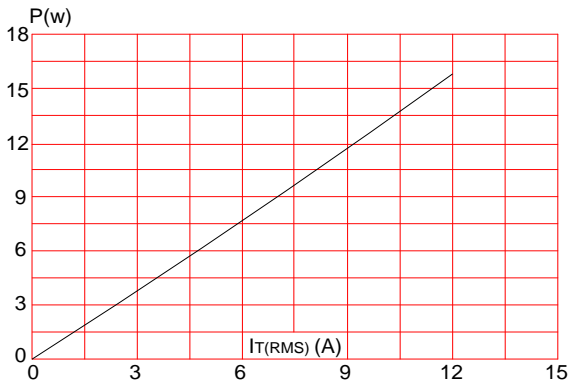


FIG.2: RMS on-state current versus case temperature

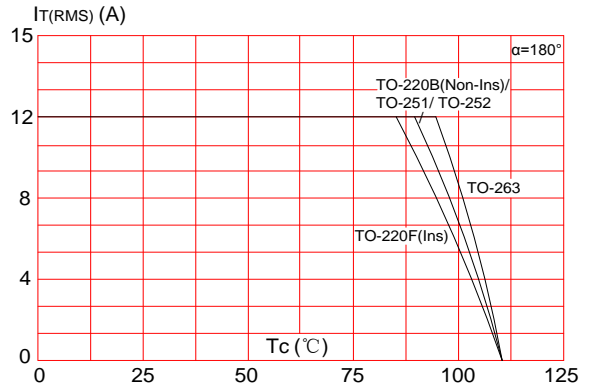


FIG.3: Surge peak on-state current versus number of cycles

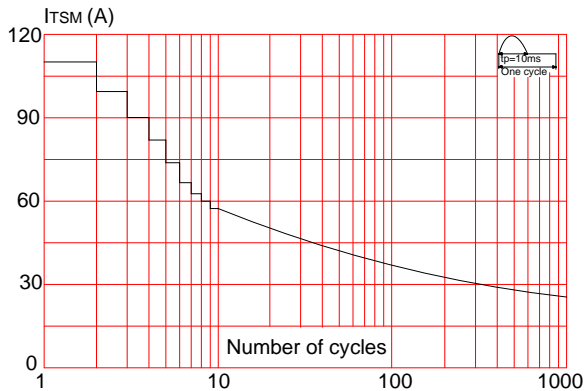


FIG.4: On-state characteristics (maximum values)

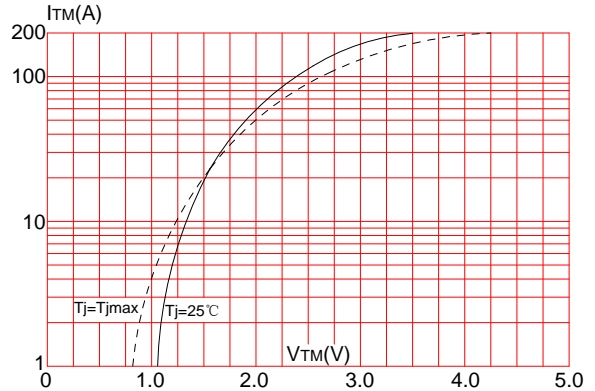


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

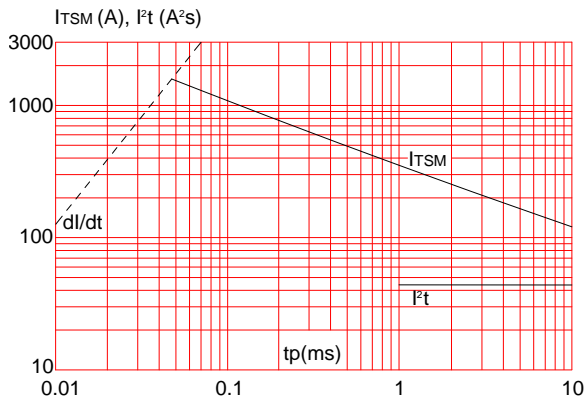
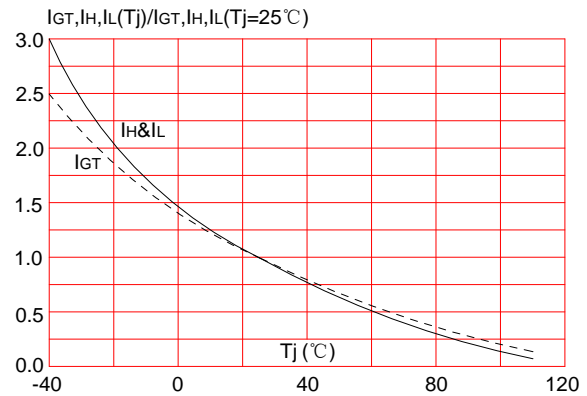



FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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