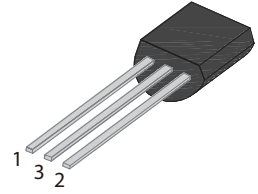


FEATURES

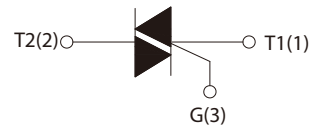
- | Direct interfacing to logic level ICs
- | Direct interfacing to low power gate drive circuits
- | High blocking voltage capability
- | Planar passivated for voltage ruggedness and reliability
- | Triggering in all four quadrant



TO-92

APPLICATIONS

- | General purpose motor control circuits
- | Phase control operations in light dimmers and motor speed controllers
- | Home appliances



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|---|---------------------|----------|------------------------|
| Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$) | V_{DRM} | 600 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$) | V_{RRM} | 600 | V |
| RMS on-state current ($T_c=50^\circ\text{C}$) | $I_{\text{T(RMS)}}$ | 0.8 | A |
| Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$) | I_{TSM} | 9 | |
| I^2t value for fusing ($t_p=10\text{ms}$) | I^2t | 0.45 | A^2S |
| Critical rate of rise of on-state current ($I_G=2*I_{GT}$) | I - II - III | 50 | $\text{A}/\mu\text{s}$ |
| | IV | 20 | |
| Peak gate current | I_{GM} | 1 | A |
| Average gate power dissipation | $P_{\text{G(AV)}}$ | 0.1 | W |
| Peak gate power | P_{GM} | 1 | W |
| Operating junction temperature range | T_j | -40~+125 | $^\circ\text{C}$ |
| Storage junction temperature range | T_{STG} | -40~+150 | |

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

| Symbol | Test Condition | Quadrant | Value | | Unit |
|---------------------|---|-----------------------|-------|-----|------|
| | | | D | T | |
| I _{GT} | V _D =12V | I - II - III | ≤5 | ≤5 | mA |
| | | IV | ≤10 | ≤5 | |
| V _{GT} | | ALL | ≤1.3 | | V |
| V _{GD} | V _D =V _{DRM} , R _L =3.3KΩ, T _j =125°C | | ≥0.2 | | V |
| I _H | I _t =100mA | | ≤7 | ≤5 | mA |
| I _L | I _G =1.2I _{GT} | I - III | ≤10 | ≤5 | |
| | | II - IV | ≤20 | ≤15 | |
| dV _D /dt | V _D =67%V _{DRM} , T _j =125°C | | ≥30 | ≥10 | V/μs |
| V _{TM} | I _{TM} =1.1A, tp=380μs | | ≤1.5 | | V |
| I _{DRM} | V _D =V _{DRM} , V _R =V _{RRM} | T _j =25°C | ≤5 | | μA |
| I _{RRM} | | T _j =125°C | ≤100 | | μA |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|----------------------|----------------------|-------|------|
| R _{th(j-c)} | Junction to case(AC) | 75 | °C/W |

PARAMETER CHARACTERISTIC CURVE

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

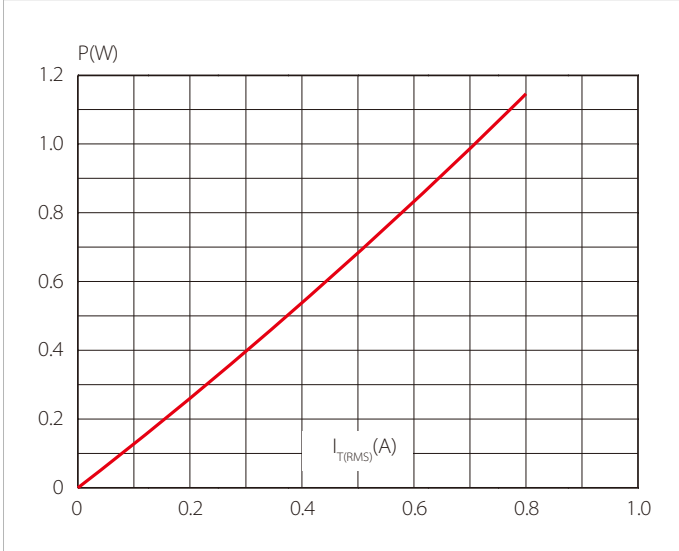


FIG.2: RMS on-state current versus case temperature

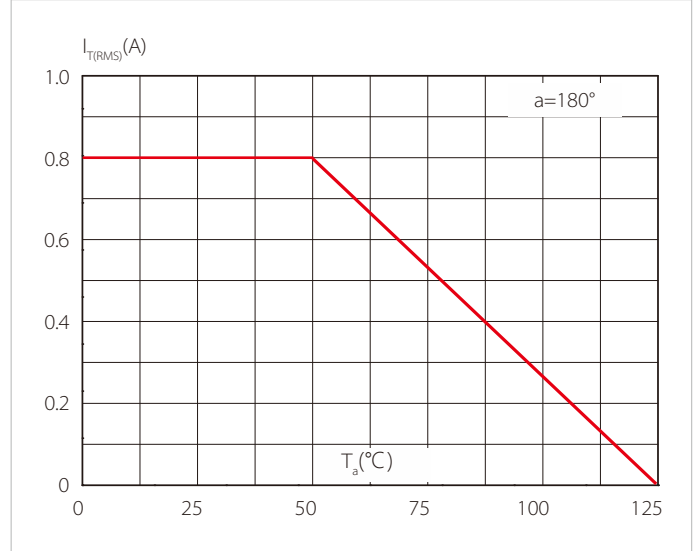


FIG.3: Surge peak on-state current versus number of cycles

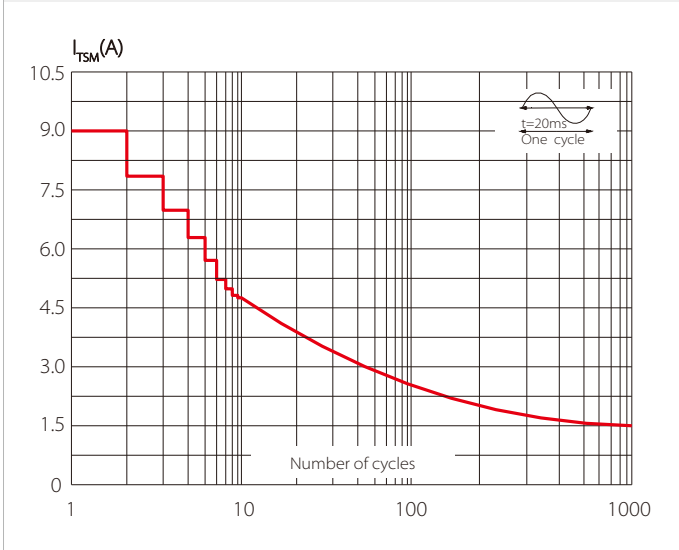


FIG.4 On-state characteristics (maximum values)

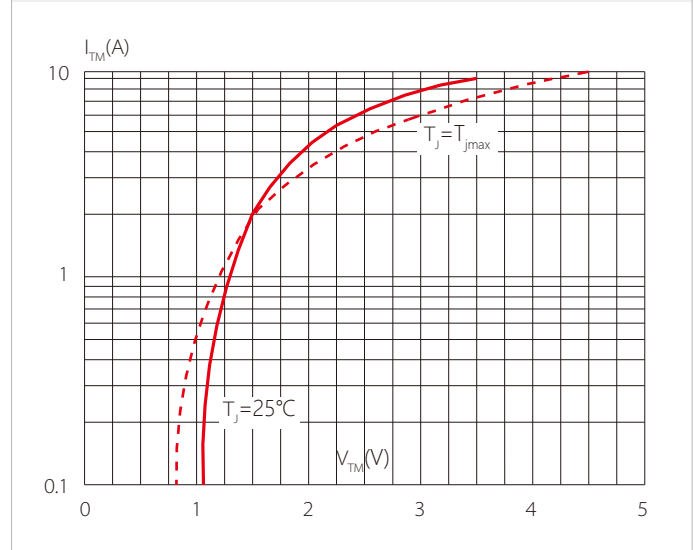


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

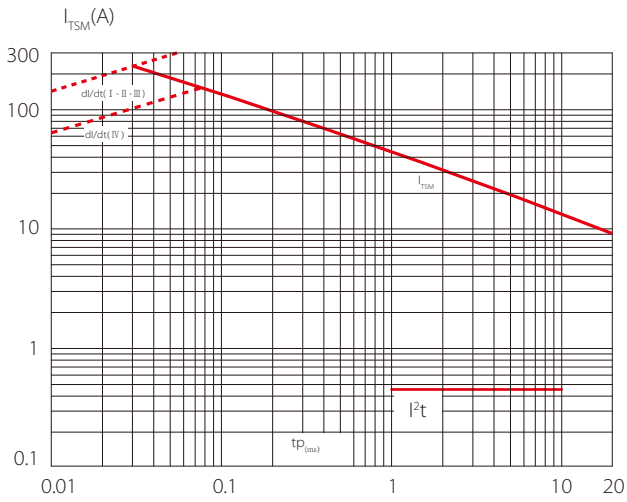


FIG.6 Relative variations of gate trigger current versus junction temperature

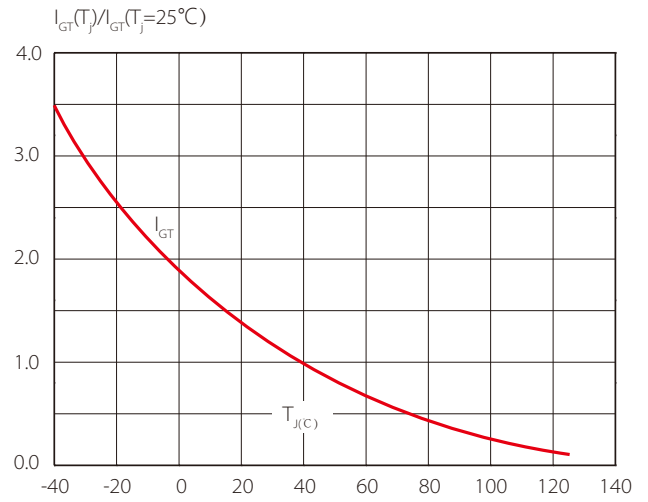


FIG.7 Relative variations of holding current versus junction temperature

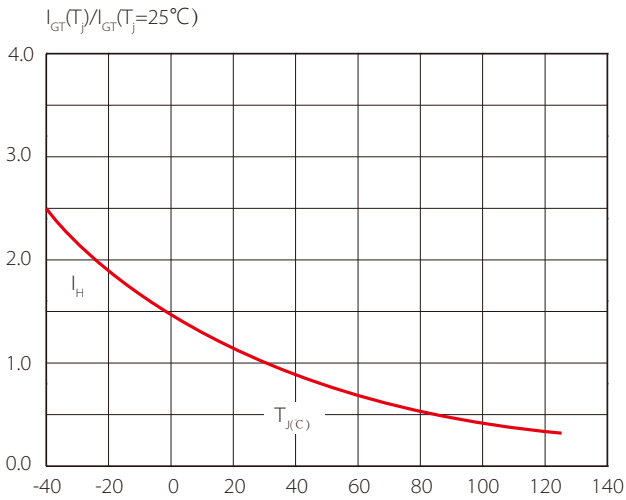
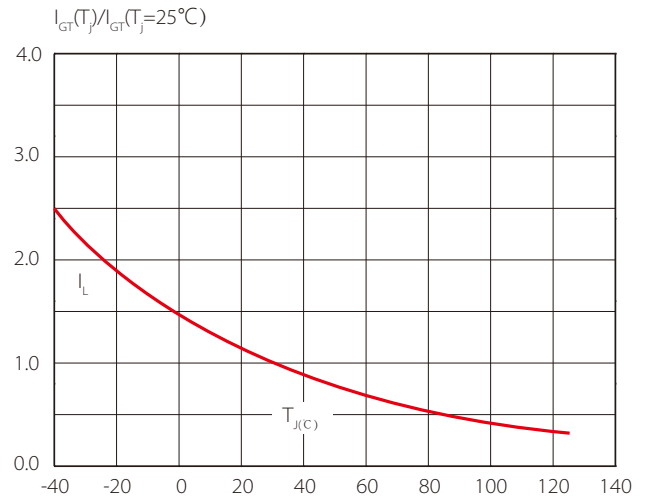
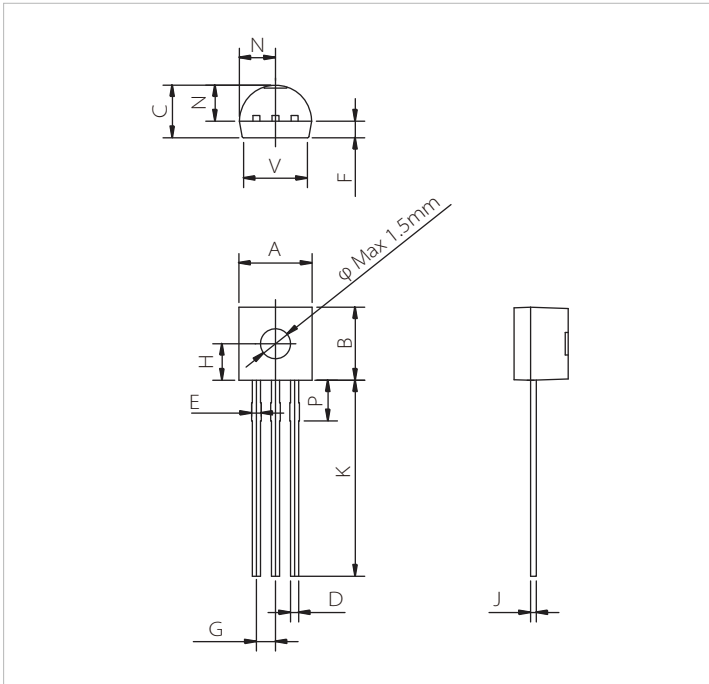


FIG.8 Relative variations of latching current versus junction temperature



TO-92 PACKAGE DIMENSIONS



| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.45 | | 5.20 | 0.175 | | 0.205 |
| B | 4.32 | | 5.33 | 0.170 | | 0.210 |
| C | 3.18 | | 4.19 | 0.125 | | 0.165 |
| D | 0.40 | | 0.54 | 0.016 | | 0.021 |
| E | 0.60 | | 0.80 | 0.024 | | 0.031 |
| F | | 1.10 | | | 0.043 | |
| G | | 1.27 | | | 0.050 | |
| H | | 2.30 | | | 0.091 | |
| J | 0.36 | | 0.50 | 0.014 | | 0.020 |
| K | 12.7 | | 15.0 | 0.500 | | 0.591 |
| N | 2.04 | | 2.66 | 0.080 | | 0.105 |
| P | 1.86 | | 2.06 | 0.073 | | 0.081 |
| V | | | 4.30 | | | 0.169 |

ORDERING INFORMATION

| Part Number | Package | Qty/pcs | | |
|--------------|---------|---------------|-----------|--------|
| | | Shielding Bag | Inner Box | Carton |
| STN08Q60D(T) | TO-92 | 1000 | 10000 | 30000 |

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