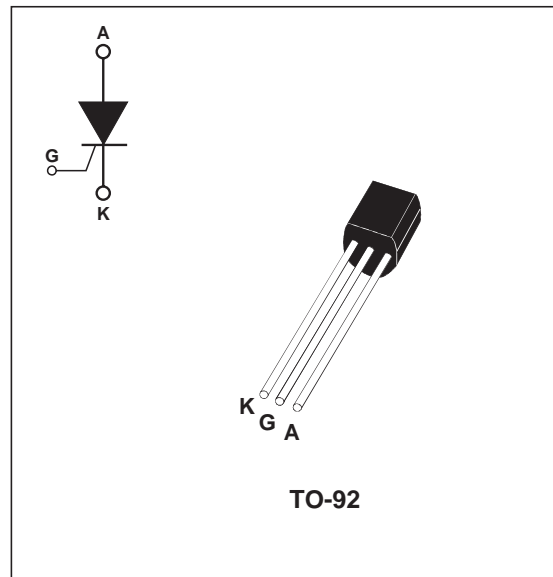


SENSITIVE GATE 0.8A SCR's
MAIN FEATURES

| Symbol | Value | Unit |
|--------------|-------|---------|
| $I_{T(RMS)}$ | 0.8 | A |
| V_{DRM} | 400 | V |
| I_{GT} | 200 | μA |

DESCRIPTION

Thanks to its highly sensitive triggering levels, the XL0840 device is suitable for all high volumes applications where the available gate current is limited, such as Christmas lights control.


ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit | |
|--------------------|---|------------------------|---------------------|--------------------------------|--------------------|
| $I_{T(RMS)}$ | RMS on-state current (180° conduction angle) | $T_I = 55^\circ C$ | 0.8 | A | |
| $I_{T(AV)}$ | Average on-state current (180° conduction angle) | $T_I = 55^\circ C$ | 0.5 | A | |
| I_{TSM} | Non repetitive surge peak on-state current | $t_p = 8.3 \text{ ms}$ | 8 | A | |
| | | $t_p = 10 \text{ ms}$ | | | $T_j = 25^\circ C$ |
| I^2t | I^2t Value for fusing | $t_p = 10 \text{ ms}$ | $T_j = 25^\circ C$ | 0.24 | A^2s |
| di/dt | Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100ns$ | $F = 60 \text{ Hz}$ | $T_j = 125^\circ C$ | 30 | $A/\mu s$ |
| I_{GM} | Peak gate current | $t_p = 20\mu s$ | $T_j = 125^\circ C$ | 1 | A |
| $P_{G(AV)}$ | Average gate power dissipation | | $T_j = 125^\circ C$ | 0.1 | W |
| T_{stg} T_j | Storage junction temperature range Operating junction temperature range | | | - 40 to + 150 - 40 to + 125 | $^\circ C$ |

XL0840

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

| Symbol | Test Conditions | | XL0840 | Unit | | |
|------------------|--|------------------------|------------------------|------|------|----|
| I _{GT} | V _D =12V R _L =140Ω | | MAX. | 200 | μA | |
| V _{GT} | | | MAX. | 0.8 | V | |
| V _{GD} | V _D =V _{DRM} R _L =3.3kΩ R _{GK} = 1kΩ | T _j = 125°C | MIN. | 0.1 | V | |
| V _{RG} | I _{RG} = 10μA | | MIN. | 8 | V | |
| I _H | I _T = 50mA R _{GK} = 1kΩ | | MAX. | 5 | mA | |
| I _L | I _G = 1mA R _{GK} = 1kΩ | | MAX. | 6 | mA | |
| dV/dt | V _D =67% V _{DRM} R _{GK} = 1kΩ | T _j = 125°C | MIN. | 75 | V/μs | |
| V _{TM} | I _{TM} = 1.6A t _p = 380μs | T _j = 25°C | MAX. | 1.95 | V | |
| V _{TO} | Threshold voltage | | T _j = 125°C | MAX. | 1.0 | V |
| R _d | Dynamic resistance | | T _j = 125°C | MAX. | 600 | mΩ |
| I _{DRM} | V _{DRM} R _{GK} = 1kΩ | | T _j = 25°C | MAX. | 1 | μA |
| | | | T _j = 125°C | | | |

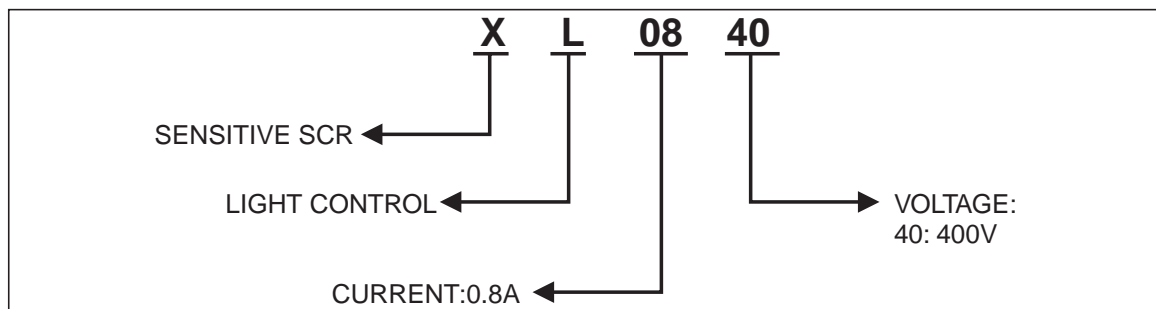
THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|----------------------|--------------------------|-------|------|
| R _{th(j-a)} | Junction to ambient (DC) | 150 | °C/W |
| R _{th(j-l)} | Junction to lead (DC) | 80 | °C/W |

PRODUCT SELECTOR

| Part Number | Voltage | Sensitivity | Package |
|-------------|---------|-------------|---------|
| XL0840 | 400V | 200 μA | TO-92 |

ORDERING INFORMATION



OTHER INFORMATION

| Part Number | Marking | Weight | Base quantity | Packing mode |
|-------------|---------|--------|---------------|--------------|
| XL0840 | XL0840 | 0.2 g | 2500 | Bulk |

Fig. 1: Maximum average power dissipation versus average on-state current.

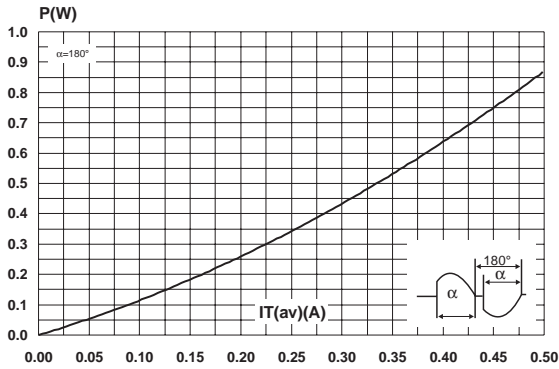


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

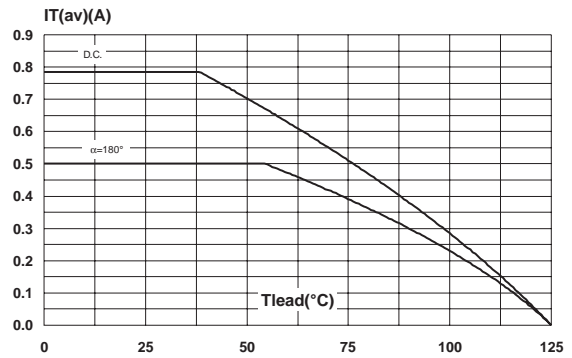


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

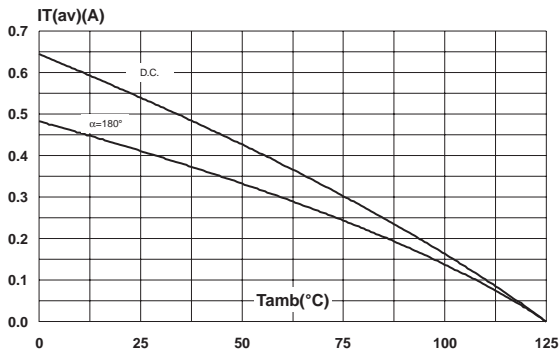


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

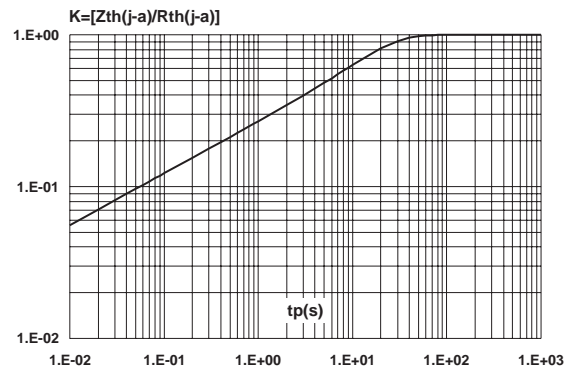


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

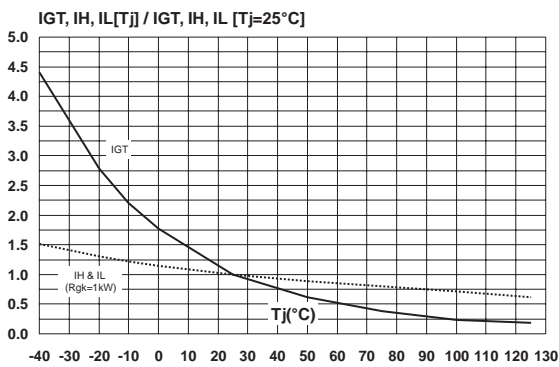


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

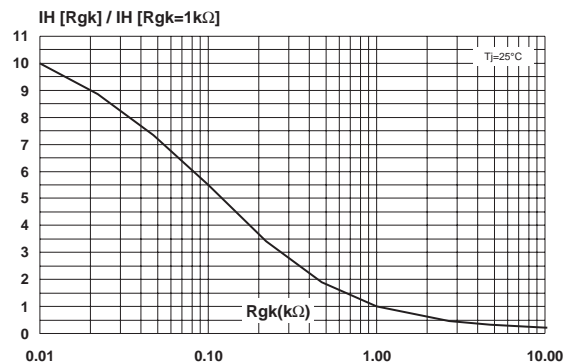


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

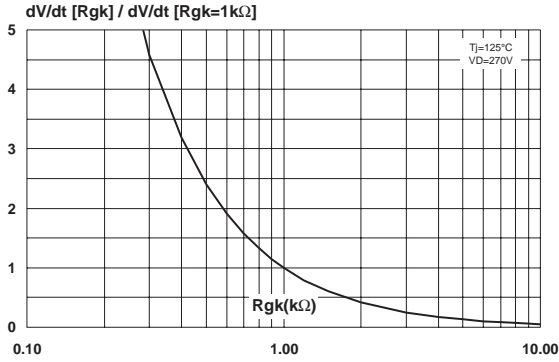


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

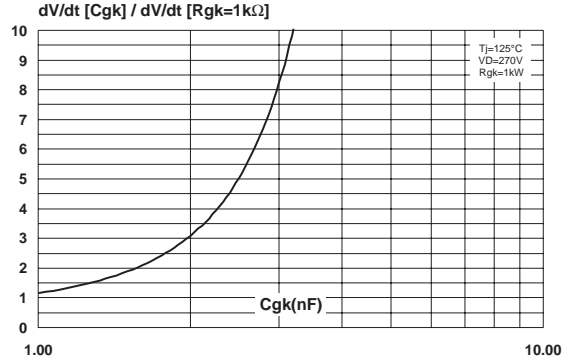


Fig. 8: Surge peak on-state current versus number of cycles.

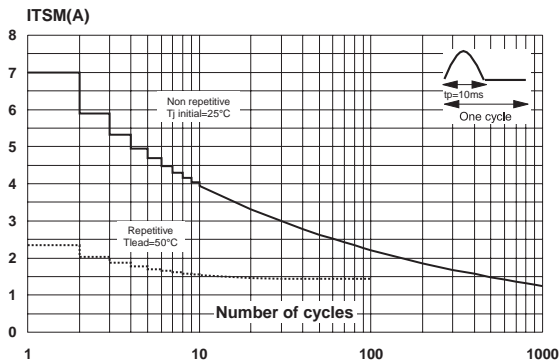


Fig. 9: Non repetitive surge peak on-state current for a sinusoidal pulse with width $tp < 10ms$, and corresponding value of I^2t .

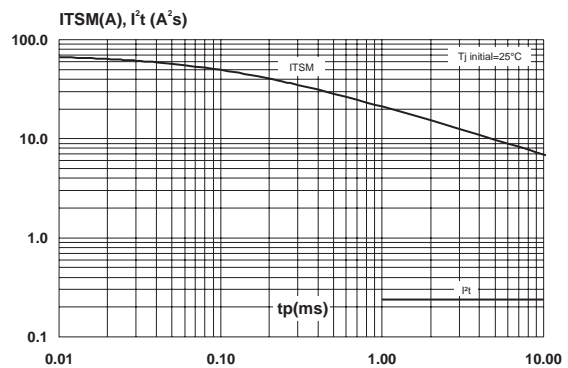
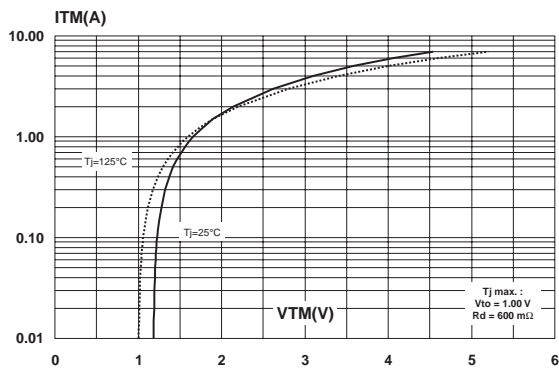


Fig. 10: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA
TO-92

| REF. | DIMENSIONS | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | | 1.35 | | | 0.053 | |
| B | | | 4.70 | | | 0.185 |
| C | | 2.54 | | | 0.100 | |
| D | 4.40 | | | 0.173 | | |
| E | 12.70 | | | 0.500 | | |
| F | | | 3.70 | | | 0.146 |
| a | | | 0.50 | | | 0.019 |

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