



TO-126K Plastic-Encapsulate Thyristors

CS040E Sensitive Gate SCRs

MAIN CHARACTERISTICS

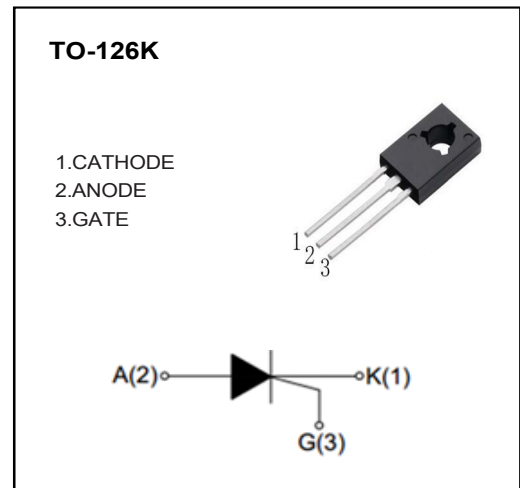
| | |
|-------------------|-----------------------------|
| $I_{T(AV)}$ | 2.5A |
| V_{DRM}/V_{RRM} | 600V |
| I_{GT} | 200μA |

FEATURES

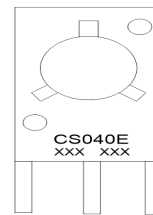
- PNP 4-layer Structure SCRs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- Sensitive gate trigger

APPLICATIONS

- Pulse Igniter
- LED Controller
- Coffee Machine



MARKING



CS040E:Part Number
XXX:Internal Code

ABSOLUTE RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter | Test condition | Value | Unit |
|-------------------|--|--|----------|------------------------|
| V_{DRM}/V_{RRM} | Repetitive peak off-state voltage | $T_j=25^\circ\text{C}$ | 600 | V |
| $I_{T(AV)}$ | Average on-state current | TO-126K($T_c \leq 75^\circ\text{C}$) | 2.5 | A |
| $I_{T(RMS)}$ | RMS on-state current | TO-126K($T_c \leq 75^\circ\text{C}$), Fig. 1,2 | 4 | A |
| I_{TSM} | Non repetitive surge peak on-state current | Full sine wave , $T_j(\text{init})=25^\circ\text{C}$, $t_p=20\text{ms}$; Fig. 3,5 | 30 | A |
| I^2t | I^2t value | $t_p=10\text{ms}$ | 4.5 | A^2s |
| di_T/dt | Critical rate of rise of on-state current | $I_G=2 \cdot I_{GT}$, $t_r \leq 10\text{ns}$, $F=120\text{Hz}$, $T_j=110^\circ\text{C}$ | 50 | $\text{A}/\mu\text{s}$ |
| I_{GM} | Peak gate current | $t_p=20\mu\text{s}$, $T_j=110^\circ\text{C}$ | 1.2 | A |
| $P_{G(AV)}$ | Average gate power | $T_j=110^\circ\text{C}$ | 0.2 | W |
| T_{STG} | Storage temperature | | -40~+150 | °C |
| T_j | Operating junction temperature | | -40~+110 | |

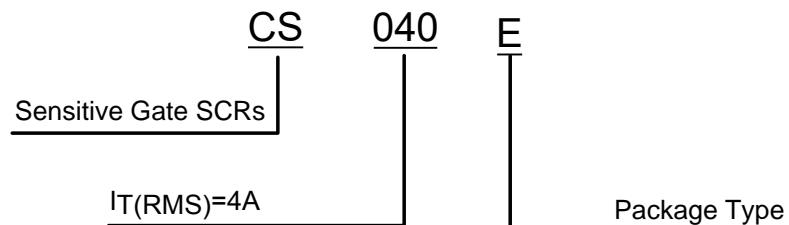
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

| Symbol | Parameter | Test condition | Value | | | Unit |
|-------------------------------------|------------------------------------|--|-------|-----|------|------|
| | | | Min | Nom | Max | |
| I _{GT} | Gate trigger current | V _D =12V, R _L =140Ω, Fig. 6 | 10 | - | 200 | μA |
| V _{GT} | Gate trigger voltage | V _D =12V, R _L =140Ω, T _j =110°C | - | - | 0.8 | V |
| V _{GD} | Non-triggering gate voltage | V _D =V _{DRM} , R _{GK} =1kΩ, R _L =3.3kΩ, T _j =110°C | 0.2 | - | - | V |
| I _H | Holding current | I _{TM} =50mA, R _{GK} =1kΩ, T _j =25°C, Fig. 6 | - | - | 5 | mA |
| I _L | Latching current | I _G =1mA, R _{GK} =1kΩ, T _j =25°C, Fig. 6 | - | - | 6 | mA |
| dV _D /dt | Critical rate of rise of off-state | V _D =67%V _{DRM} , R _{GK} =1kΩ, T _j =110°C | 10 | - | - | V/μs |
| V _{TM} | On-state Voltage | I _{TM} =8A, Fig. 4 | - | - | 1.55 | V |
| I _{DRM} / I _{RRM} | Repetitive peak off-state current | V _D =V _{DRM} /V _R RM, T _j =25°C | - | - | 5 | μA |
| | | V _D =V _{DRM} /V _R RM, T _j =110°C | - | - | 150 | μA |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|-----------------------|-----------------------|---------|----------|
| R _{th} (j-c) | Junction to case (AC) | TO-126K | 7.2 °C/W |
| R _{th} (j-a) | Junction to ambient | TO-126K | 100 °C/W |

PART NUMBER



CHARACTERISTICS CURVES

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

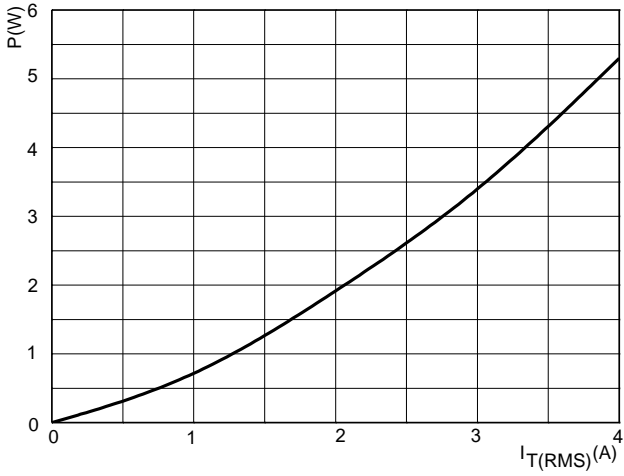


FIG.2: RMS on-state current versus case temperature (full cycle)

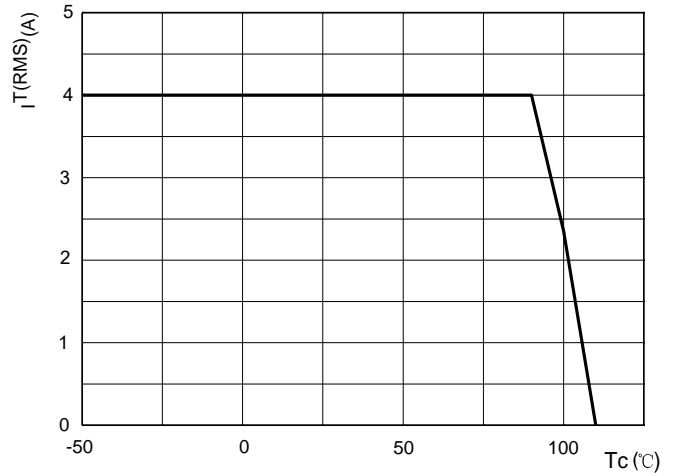


FIG.3: Surge peak on-state current versus number of cycles

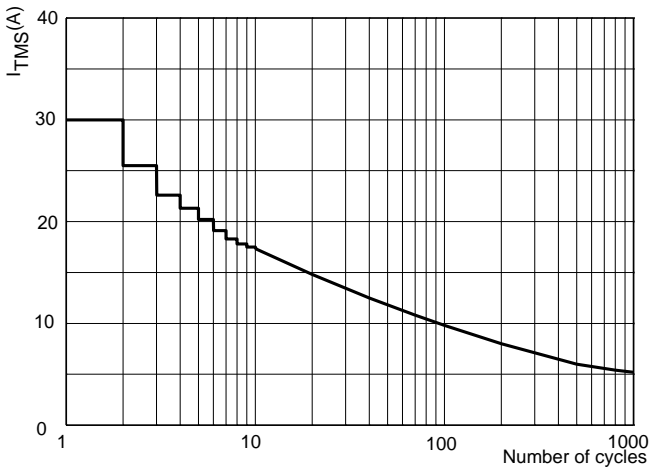


FIG.4: On-state characteristics (maximum values)

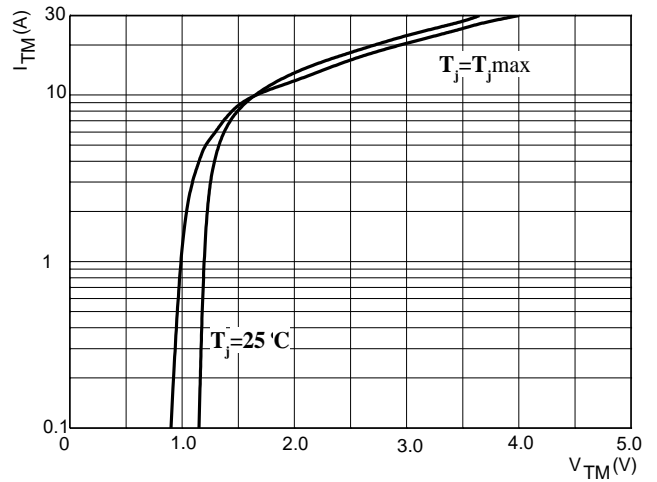


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

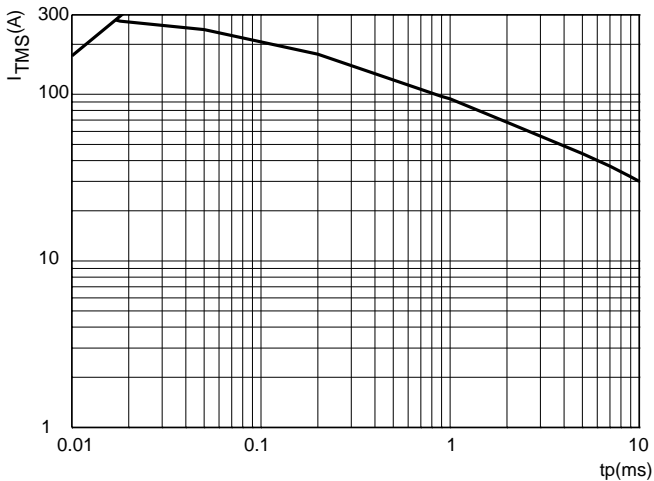
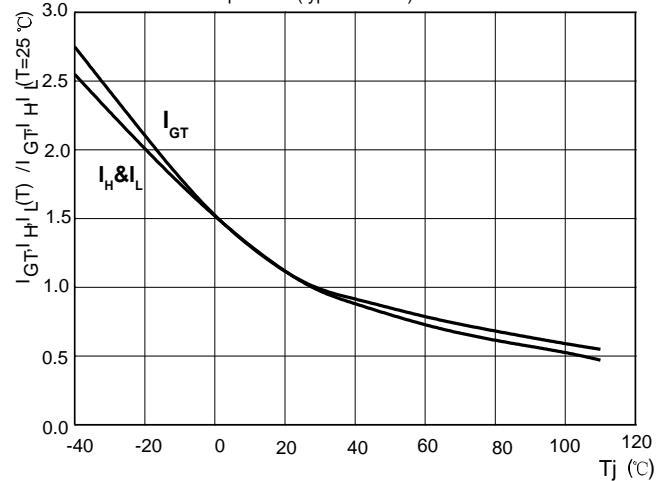
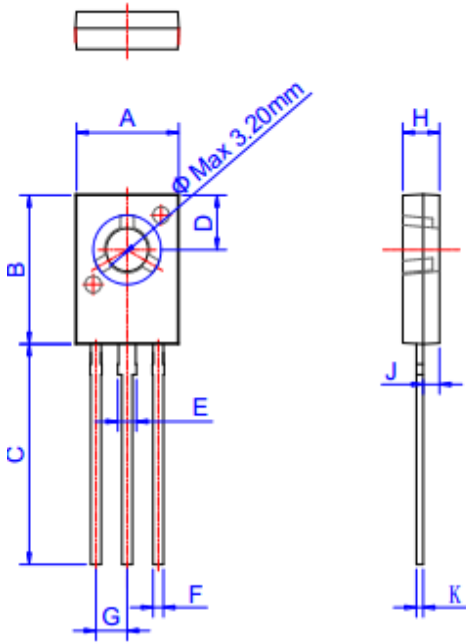


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



TO-126K PACKAGE OUTLINE DIMENSIONS



| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 7.40 | | 7.80 | 0.291 | | 0.307 |
| B | 10.6 | | 11.2 | 0.417 | | 0.441 |
| C | 15.3 | | 16.3 | 0.602 | | 0.642 |
| D | 3.90 | | 4.10 | 0.154 | | 0.161 |
| E | 1.17 | | 1.47 | 0.046 | | 0.058 |
| F | 0.66 | | 0.86 | 0.026 | | 0.034 |
| G | | 2.29 | | | 0.090 | |
| H | 2.50 | | 2.90 | 0.098 | | 0.114 |
| J | 1.10 | | 1.50 | 0.043 | | 0.059 |
| K | 0.45 | | 0.60 | 0.018 | | 0.024 |

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