

TO-126K Plastic-Encapsulate Thyristors

CT404E 4Q TRIACs

MAIN CHARACTERISTICS

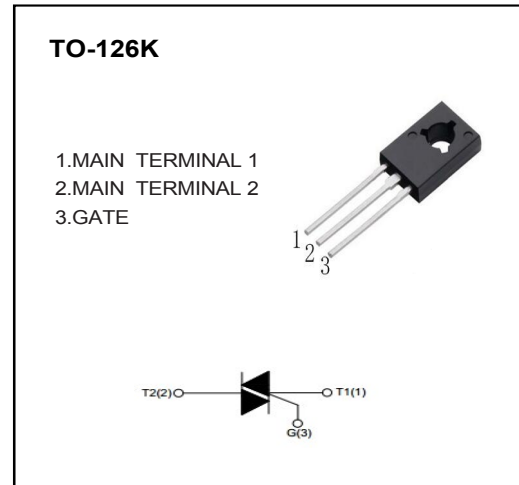
| | | |
|-------------------|---------------|--------------|
| $I_{T(RMS)}$ | | 4A |
| V_{DRM}/V_{RRM} | CT404E-600S/C | 600V |
| | CT404E-800S/C | 800V |
| V_{TM} | | 1.55V |

FEATURES

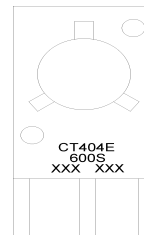
- NPNPN 5-layer Structure TRIACs
- Mesa Glass Passivated Technology
- Multi Layers Metal Electrodes
- High Junction Temperature
- Good Commutation Performance

APPLICATIONS

- Heater Control
- Motor Speed Controller
- Mixer



MARKING



CT404E:Series Code
600S:Depends on V_{DRM}
and I_{GT}
XXX:Internal Code

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

| Symbol | Parameter | Test condition | Value | Unit | |
|-------------------|--|---|---------------|-------------|-----------|
| V_{DRM}/V_{RRM} | Repetitive peak off-state voltage | $T_j=25^{\circ}C$ | CT404E-600S/C | 600 | V |
| | | | CT404E-800S/C | 800 | V |
| $I_{T(RMS)}$ | RMS on-state current | TO-126K($T_c \leq 107^{\circ}C$), Fig. 1,2 | 4 | A | |
| I_{TSM} | Non repetitive surge peak on-state current | Full sine wave , $T_j(\text{init})=25^{\circ}C$, $t_p=20\text{ms}$; Fig. 3,5 | 25 | A | |
| I^2t | I^2t value | $t_p=10\text{ms}$ | 3.1 | A^2s | |
| di_T/dt | Critical rate of rise of on-state current | $I_G=2 \cdot I_{GT}$, $t_r \leq 10\text{ns}$, $F=120\text{Hz}$, $T_j=125^{\circ}C$ | I - II - III | 50 | $A/\mu s$ |
| | | | IV | 10 | |
| I_{GM} | Peak gate current | $t_p=20\mu s$, $T_j=125^{\circ}C$ | 2 | A | |
| $P_{G(AV)}$ | Average gate power | $T_j=125^{\circ}C$ | 0.5 | W | |
| T_{STG} | Storage temperature | | -40~+150 | $^{\circ}C$ | |
| T_j | Operating junction temperature | | -40~+125 | | |

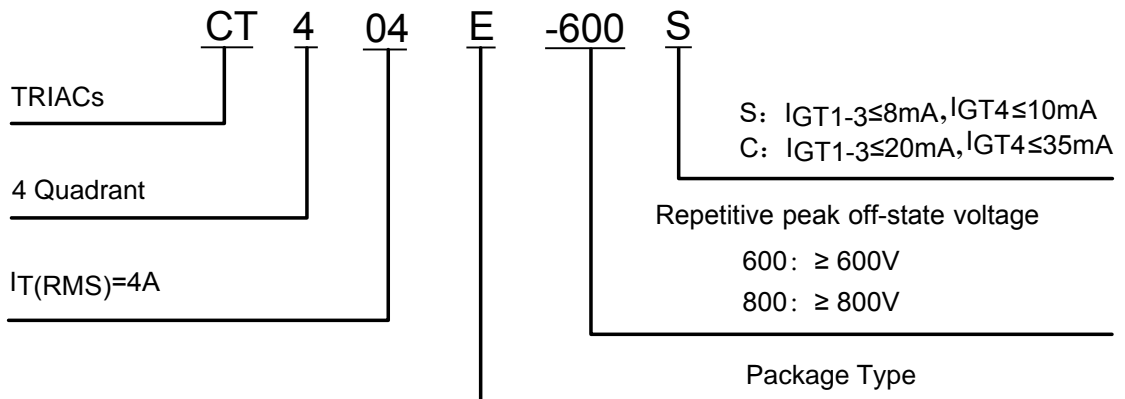
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

| Symbol | Parameter | Test condition | Value | | Unit | |
|-------------------------------------|------------------------------------|---|-------------------|-------|------|------|
| | | | S | C | | |
| I _{GT} | Gate trigger current | V _D =12V, I _T =0.1A, T _j =25°C, Fig. 6 | I - II - III | ≤8 | ≤20 | mA |
| | | | IV | ≤10 | ≤35 | |
| V _{GT} | Gate trigger voltage | T _j =25°C, Fig. 6 | I - II - III - IV | ≤1.3 | | V |
| V _{GD} | Non-triggering gate voltage | V _D =V _{DRM} , T _j =125°C | | ≥0.2 | | V |
| I _H | Holding current | V _D =12V, I _{GT} =0.1A, T _j =25°C, Fig. 6 | I - II - III - IV | ≤10 | ≤15 | mA |
| I _L | Latching current | | I - III - IV | ≤10 | ≤15 | mA |
| | | | II | ≤15 | ≤20 | mA |
| dV _D /dt | Critical rate of rise of off-state | V _D =67%V _{DRM} , Gate Open T _j =125°C | | ≥10 | ≥20 | V/μs |
| V _{TM} | On-state Voltage | I _{TM} =6A, t _p =380μs, Fig. 4 | | ≤1.55 | | V |
| I _{DRM} / I _{RRM} | Repetitive peak off-state current | V _D =V _{DRM} /V _{RRM} , T _j =25°C | | ≤5 | ≤5 | μA |
| | | V _D =V _{DRM} /V _{RRM} , T _j =125°C | | ≤0.5 | ≤0.5 | mA |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|-----------------------|-----------------------|---------|----------|
| R _{th} (j-c) | Junction to case (AC) | TO-126K | 3 °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)

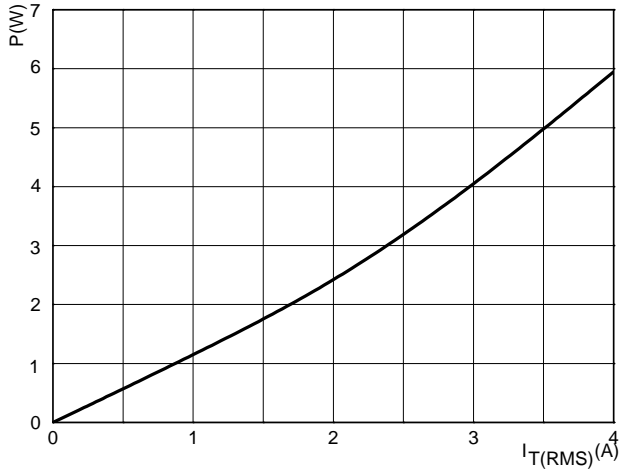


FIG.2: RMS on-state current versus case temperature (full cycle)

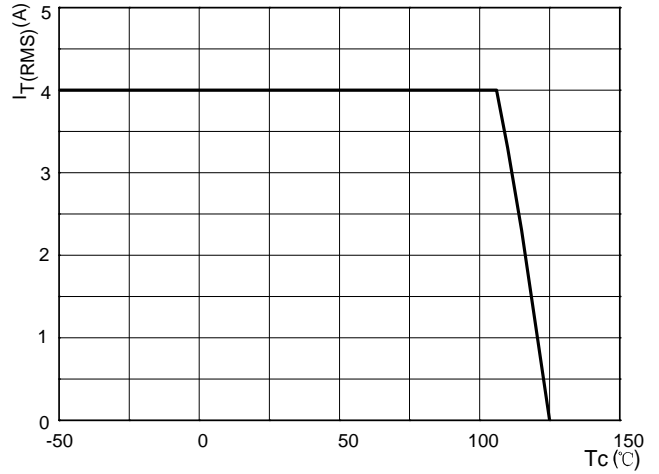


FIG.3: Surge peak on-state current versus number of cycles

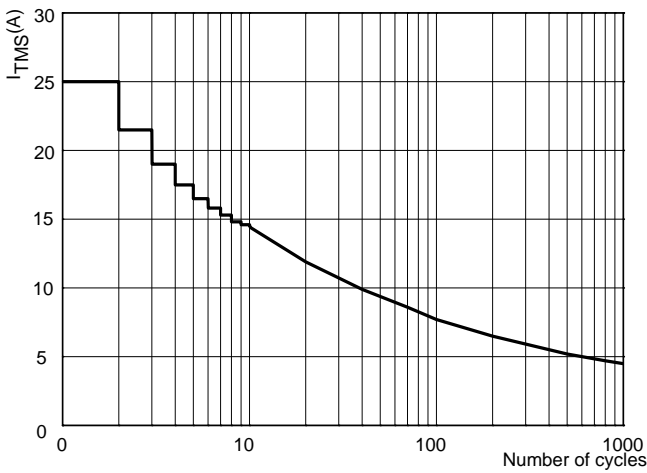


FIG.4: On-state characteristics (maximum values)

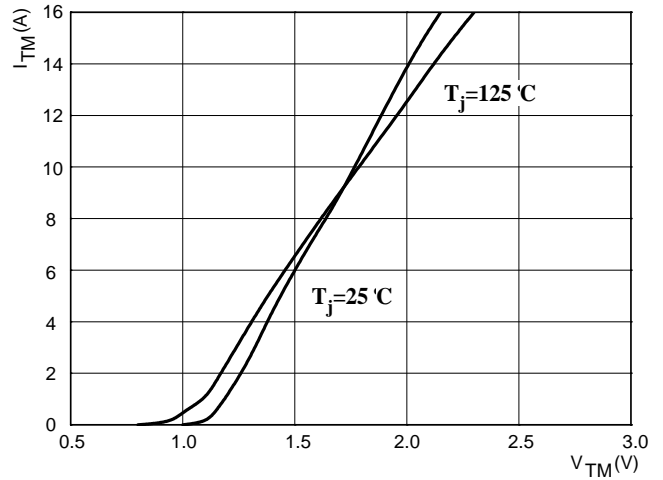


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$

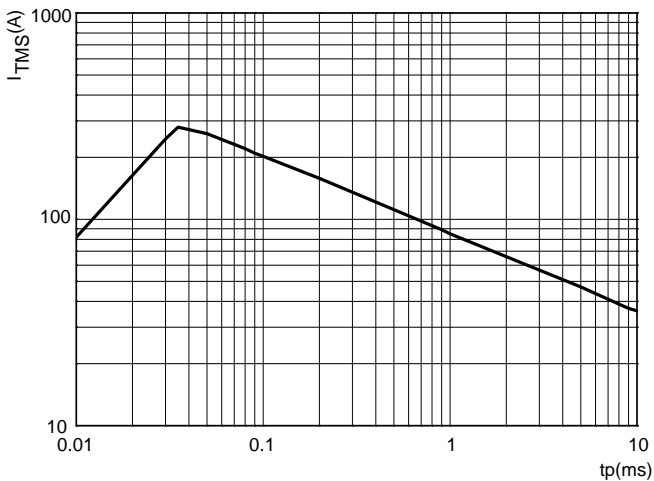
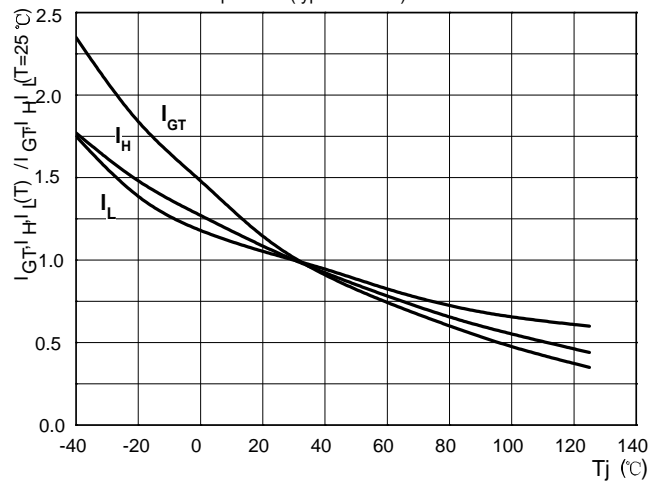
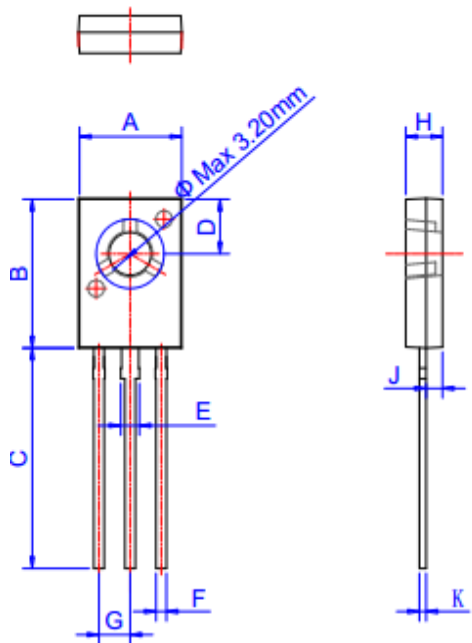


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



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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