

Small Signal Product

Thyristors

FEATURES

- Epitaxial planar die construction
- Moisture sensitivity level 1
- Matte Tin (Sn) lead finish with Nickel (Ni) underplate
- Packing code with suffix "G" means Green compound (Halogen free)



TO-92



MECHANICAL DATA

- Case : TO-92 plastic package
- Terminal : Matte tin plated, lead free, solderable per MIL-STD-202, method 208 guaranteed
- High temperature soldering guaranteed : 260°C/10s
- Weight : 0.19 gram (approximately)



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T _A =25°C unless otherwise noted) | | | |
|--|---------------------|------------|------------------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Forward Current RMS (All Conduction Angles) | I _{T(RMS)} | 0.8 | A |
| Peak Repetitive Forward and Reverse Blocking Voltage (T _J =25°C to 125°C, R _{GK} =1KΩ) | MCR100-3 | 100 | V |
| | MCR100-4 | 200 | |
| | MCR100-5 | 300 | |
| | MCR100-6 | 400 | |
| | MCR100-7 | 500 | |
| MCR100-8 | 600 | | |
| Peak Forward Surge Current, T _A =25°C (1/2 Cycle, Sine Wave, 60Hz) | I _{TSM} | 10 | A |
| Circuit Fusing Considerations (t = 8.3 ms) | I ² t | 0.415 | A ² s |
| Forward Peak Gate Power (T _A =25°C, PW ≤ 1 μs) | P _{GM} | 0.1 | W |
| Forward Average Gate Power (T _A =25°C) | P _{GF(AV)} | 0.01 | W |
| Forward Peak Gate Current (T _A =25°C, PW ≤ 1 μs) | I _{GFM} | 1 | A |
| Reverse Peak Gate Current (T _A =25°C, PW ≤ 1 μs) | V _{GRM} | 5 | V |
| Operating junction temperature range | T _J | -40 ~ +125 | °C |
| Storage temperature range | T _{STG} | -40 ~ +150 | °C |

Notes: 1. Valid provided that electrodes are kept at ambient temperature

| PARAMETER | SYMBOL | MIN | MAX | UNIT |
|--|--------------------------------------|-----|-----|------|
| Peak Forward or Reverse Blocking Current at V _{AK} = Rated V _{DRM} or V _{RPM} | I _{DRM} I _{RPM} | - | 10 | μA |
| Peak Forward On-State Voltage at I _{TM} =1A Peak, T _A =25°C | V _{TM} | - | 1.7 | V |
| Gate Trigger Current (Continuous dc) at Anode Voltage = 7 Vdc., R _L =100Ω | I _{GT} | - | 200 | μA |
| Gate Trigger Current (Continuous dc) at Anode Voltage = 7 Vdc., R _L =100Ω at Anode Voltage = Rated V _{DRM} , R _L =100Ω) | V _{GT} | - | 0.8 | V |
| Holding Current at Anode Voltage =7 Vdc, Initiating Current=20mA | I _H | - | 5 | mA |

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RATINGS AND CHARACTERISTICS CURVES

($T_A=25^\circ\text{C}$ unless otherwise noted)

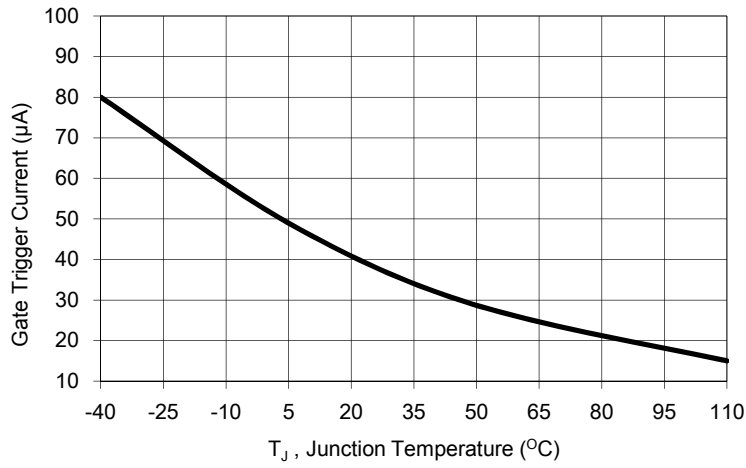


Fig. 1 Typical Gate Trigger Current VS. Junction Temperature

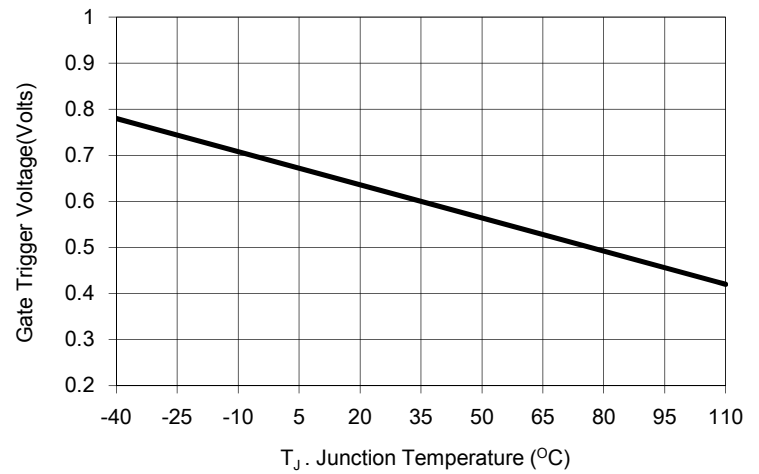


Fig. 2 Typical Gate Trigger Voltage VS. Junction Temperature

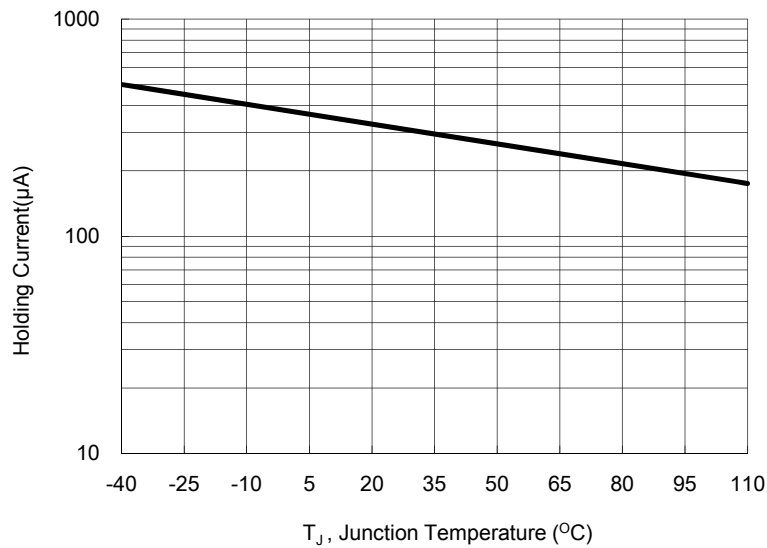


Fig. 3 Typical Holding Current VS. Junction Temperature

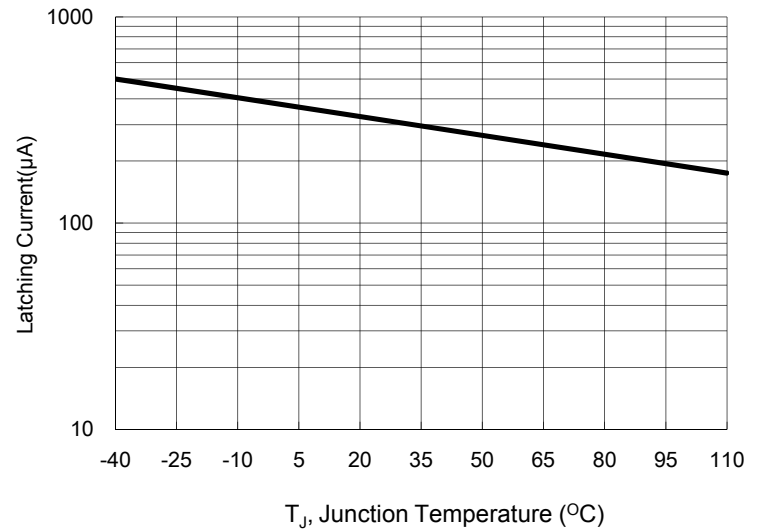


Fig. 4 Typical Latching Current VS. Junction Temperature

Fig. 5 Typical RMS Current Derating

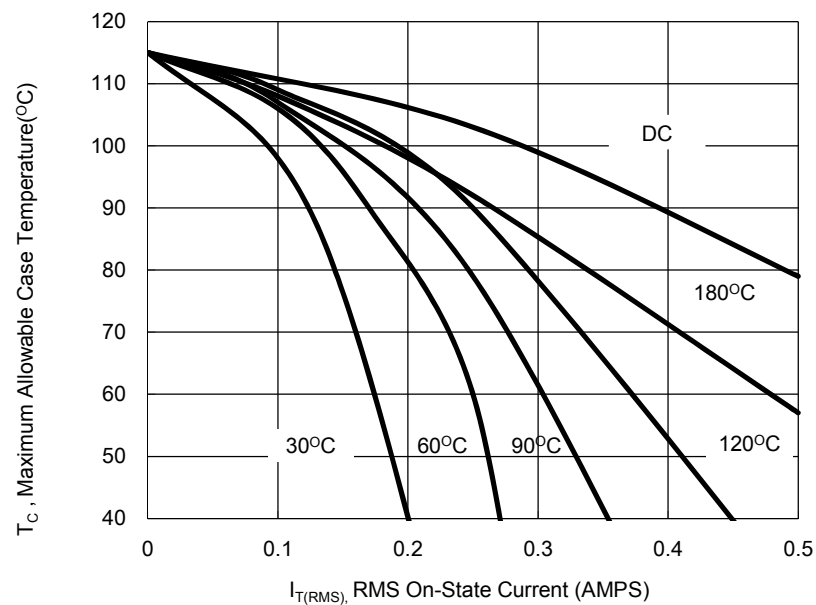
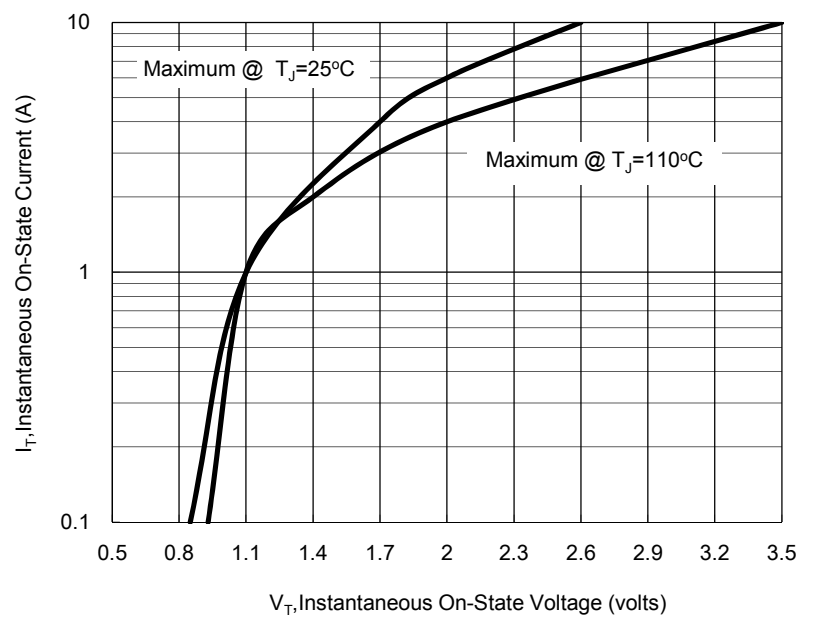


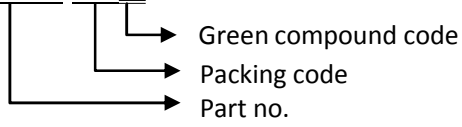
Fig. 6 Typical On-State Characteristics



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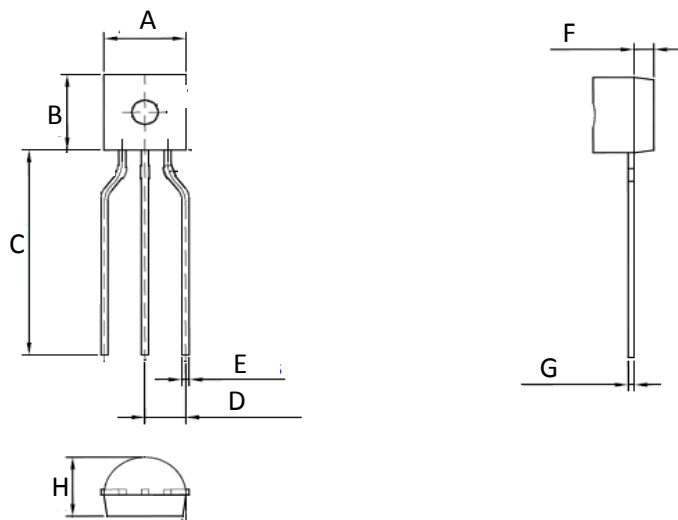
ORDER INFORMATION (EXAMPLE)

MCR100-3 A1G



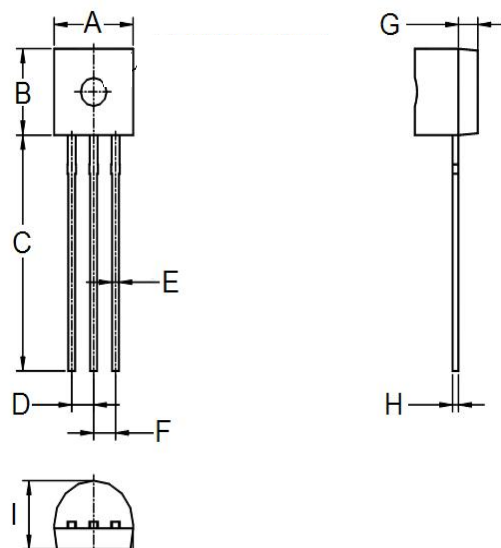
PACKAGE OUTLINE DIMENSIONS

TO-92 (Ammo)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min | Max | Min | Max |
| A | 4.30 | 5.10 | 0.169 | 0.201 |
| B | 4.30 | 4.70 | 0.169 | 0.185 |
| C | 12.50 | - | 0.492 | - |
| D | 2.20 | 2.80 | 0.087 | 0.110 |
| E | 0.35 | 0.55 | 0.014 | 0.022 |
| F | 0.59 | 1.40 | 0.023 | 0.055 |
| G | 0.29 | 0.51 | 0.011 | 0.020 |
| H | 3.30 | 4.10 | 0.130 | 0.161 |

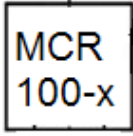
TO-92 (Bulk)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|-------|-------------|-------|
| | Min | Max | Min | Max |
| A | 4.30 | 5.10 | 0.169 | 0.201 |
| B | 4.30 | 4.70 | 0.169 | 0.185 |
| C | 12.50 | 14.50 | 0.492 | 0.571 |
| D | 1.17 | 1.37 | 0.046 | 0.054 |
| E | 0.35 | 0.55 | 0.014 | 0.022 |
| F | 1.17 | 1.37 | 0.046 | 0.054 |
| G | 0.59 | 1.40 | 0.023 | 0.055 |
| H | 0.29 | 0.51 | 0.011 | 0.020 |
| I | 3.30 | 4.10 | 0.130 | 0.161 |

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MARKING DIAGRAM



x = Device P/N from 3~8

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