

HUTSON INDUSTRIES

TRIAC's



3 AMPERE SENSITIVE GATE TRIACS

3mA DC Gate-Trigger Current
4mA DC Gate-Trigger Current
5mA DC Gate-Trigger Current
10mA DC Gate-Trigger Current
25mA DC Gate-Trigger Current
ALL QUADRANT GATING

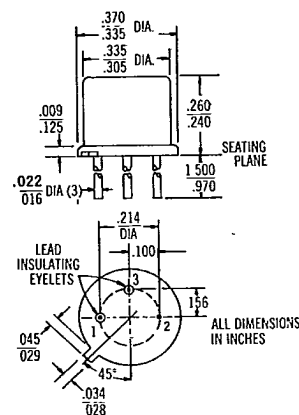
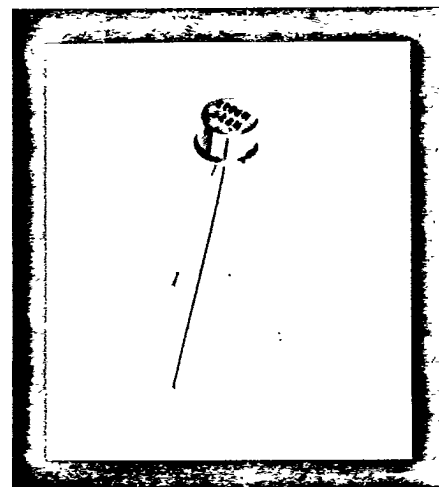
The Hutson line of sensitive gate triacs are designed to be driven directly with IC and MOS devices. These triacs feature proprietary, void-free glass passivated chips and are hermetically sealed in TO-5 outline cans.

These 3 Ampere triacs are available in voltage ratings from 50 to 600 Volts (V_{DROM}) and in 3mA, 5mA, 10mA and 25mA (I_{GT}) ratings. All devices are tested at their upper operating limits before shipment.

The economical and highly reliable triacs are the result of Hutson's advanced engineering and manufacturing technology, state-of-the-art passivation materials and techniques and experience in switching device applications.

Hutson triacs are bi-directional triode thyristors and may be switched from off-state to conduction for either polarity of applied voltage with positive or negative gate-trigger current. They are designed for control applications in lighting, heating, cooling and static switching relays.

In addition to standard package configurations, all Hutson triacs are also available in chip form. Please consult Hutson Industries for additional information.



INTERNAL CONNECTIONS.
TRIAC: 1. MAIN TERM 1
2. MAIN TERM 2
(CONNECTED TO CASE)
3. GATE

TO-5
(MODIFIED)

NOTE: Main Term 2 and case
are electrically common.

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SGTT-00003-1X

MARCH, 1977/HDT 100A

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| MAXIMUM RATINGS | | SYMBOL | V _{DRM} | DEVICE NO. | DEVICE NOS. |
|--|--|---------------------|------------------|--------------|--------------|
| | Repetitive Peak Off-State Voltage, ⁽¹⁾ Gate Open, and T _J = 100°C ⁽¹⁾ | V _{DRM} | 50 | HI03SS | HI03SC |
| | | | 100 | HI13SS | HI13SC |
| | | | 200 | HI23SS | HI23SC |
| | | | 300 | HI33SS | HI33SC |
| | | | 400 | HI43SS | HI43SC |
| | | | 500 | HI53SS | HI53SC |
| | | | 600 | HI63SS | HI63SC |
| | RMS On-State Current at T _c = 75°C and Conduction Angle of 360° | I _{H(RMS)} | | 3 | 3 |
| | Peak Surge (Non-Repetitive) On-State Current, One-Cycle, at 50Hz or 60Hz | I _{TSM} | | 30 | 30 |
| ELECTRICAL CHARACTERISTICS At Maximum Ratings and Specified Case Temperatures | Peak Gate-Trigger Current for 3μsec, Max. | I _{GT} | | 1 | 1 |
| | Peak Gate-Power Dissipation at I _{GT} ≤ I _{GT} for 3μsec, Max. | P _{GM} | | 20 | 20 |
| | Average Gate-Power Dissipation | P _{G(AV)} | | 0.2 | 0.2 |
| | Storage Temperature Range | T _{stg} | | -40 to +150 | -40 to +150 |
| | Operating Temperature Range, T _c | T _{oper} | | -40 to +90 | -40 to +90 |
| | Peak Off-State Current, ⁽¹⁾ Gate Open T _J = 100°C ⁽¹⁾ V _{DRM} = Max. Rating | I _{DRM} | | 0.75 Max. | 0.75 Max. |
| | Maximum On-State Voltage ⁽¹⁾ at T _c = 25°C and I _T = 5 Amp (Peak) | V _{TM} | | 1.85 Max. | 1.85 Max. |
| | DC Holding Current, Gate Open and T _c = 25°C | I _{HO} | | 5 Max. | 15 Max. |
| | Critical Rate-of-Rise of Off-State Voltage ⁽¹⁾ for V _D = V _{DRM} , Gate Open, T _c = 100°C ⁽²⁾ | Critical dv/dt | | 3 Typ. | 3 Typ. |
| | DC Gate-Trigger Current for V _D = 6VDC, R _L = 39Ω and at T _c = 25°C (T ₂ +Gate+, T ₂ -Gate-) Quads I and III (T ₂ +Gate-, T ₂ -Gate+) Quads II and IV | I _{GT} | | 3 Max. | 4 Max. |
| | DC Gate-Trigger Voltage for V _D = 6VDC, R _L = 39Ω and at T _c = 25°C | V _{GT} | | 2.2 Max. | 2.2 Max. |
| | Gate-Controlled Turn-on Time for V _D = V _{DRM} , I _{GT} = 80mA, t _r = 0.1μsec., I _T = 10A (Peak) and T _c = 25°C | t _{gt} | | 2.2 Typ. | 2.2 Typ. |
| | Thermal Resistance, Junction-to-Case | θ _{J-C} | | 4 Typ. | 4 Typ. |
| | Fusing Current (For Triac Protection) T = 1.25 to 10ms | I ² t | | 3 | 3 |

ADDITIONAL GATE TRIGGER CURRENTS AVAILABLE

| GATE TRIGGER CURRENTS (MAX.) | | | | | |
|------------------------------|-----------|-----|-----|-----|-------|
| SUFFIX | QUADRANTS | | | | UNITS |
| | I | II | III | IV | |
| SA | 3 | N/S | 3 | N/S | mA |
| CA | 4 | N/S | 4 | N/S | mA |
| DA | 5 | N/S | 5 | N/S | mA |
| GA | 10 | N/S | 10 | N/S | mA |
| HA | 25 | N/S | 25 | N/S | mA |

N/S —
Not Specified

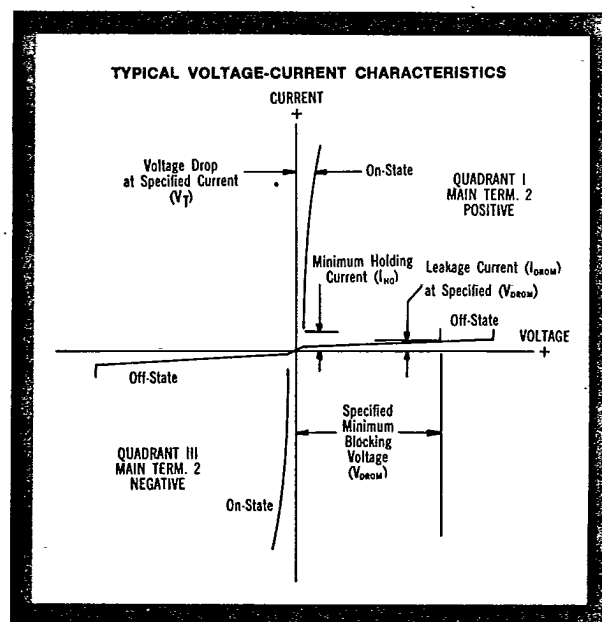
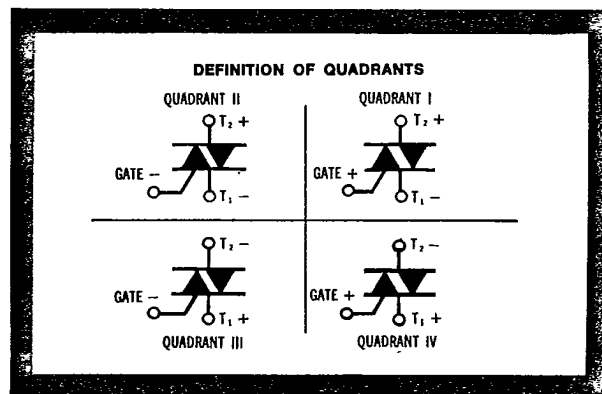
SGTT-00003-2X

3 AMPERE SENSITIVE GATE TRIACS

| DEVICE NOS. | | | UNITS |
|-------------|-------------|-------------|---------|
| HI03SD | HI03SG | HI03SH | VOLT |
| HI13SD | HI13SG | HI13SH | |
| HI23SD | HI23SG | HI23SH | |
| HI33SD | HI33SG | HI33SH | |
| HI43SD | HI43SG | HI43SH | |
| HI53SD | HI53SG | HI53SH | |
| HI63SD | HI63SG | HI63SH | |
| 3 | 3 | 3 | AMP |
| 30 | 30 | 30 | AMP |
| 1 | 1 | 1 | AMP |
| 20 | 20 | 20 | WATT |
| 0.2 | 0.2 | 0.2 | WATT |
| -40 to +150 | -40 to +150 | -40 to +150 | °C |
| -40 to +100 | -40 to +100 | -40 to +100 | °C |
| 0.75 Max. | 0.75 Max. | 0.75 Max. | mA |
| 2.20 Max. | 2.20 Max. | 2.20 Max. | VOLT |
| 15 Max. | 15 Max. | 15 Max. | mA |
| 4 Typ. | 5 Typ. | 7 Typ. | V/μsec |
| 5 Max. | 10 Max. | 25 Max. | mA |
| 2.2 Max. | 2.2 Max. | 2.2 Max. | VOLT |
| 2.2 Typ. | 2.2 Typ. | 2.2 Typ. | μsec |
| 4 Typ. | 4 Typ. | 4 Typ. | °C/WATT |
| 3 | 3 | 3 | A°S |

NOTES:

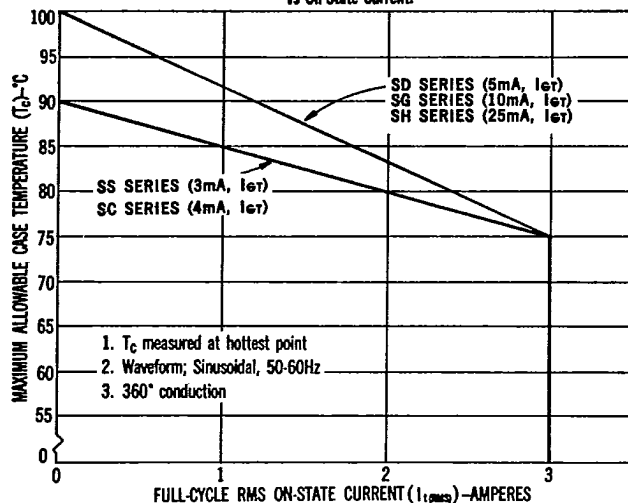
1. SS and SC devices are at $T_J = 90^\circ\text{C}$
2. SS and SC devices are at $T_C = 90^\circ\text{C}$
3. All values apply in either direction.

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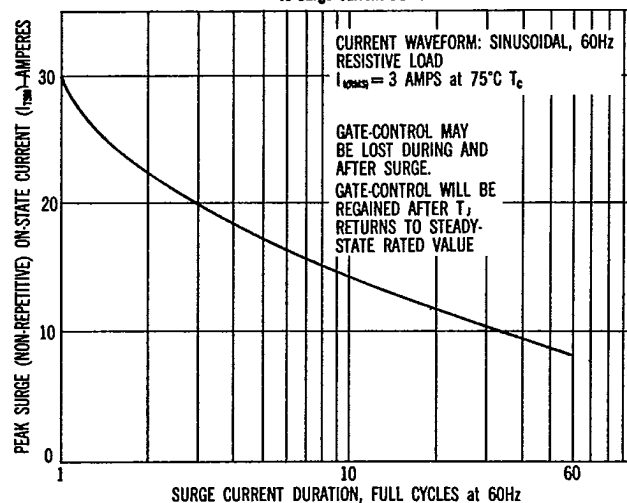
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3 AMPERE SENSITIVE GATE TRIACS

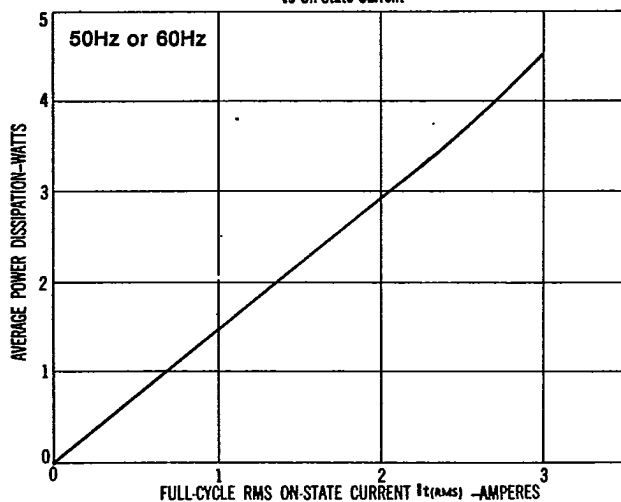
Maximum Allowable Case Temperature
vs On-State Current



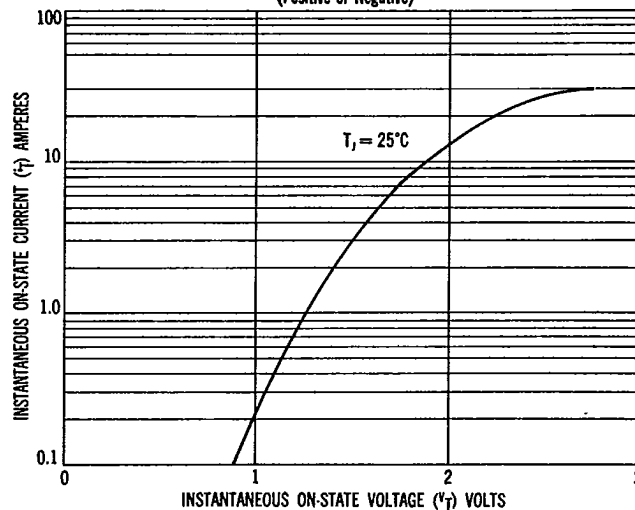
Peak Surge On-State Current
vs Surge Current Duration



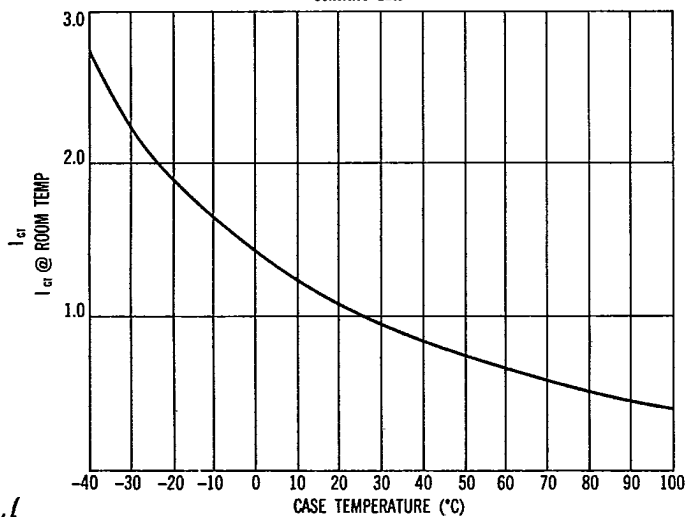
Maximum Power Dissipation
vs On-State Current



On-State Current vs On-State Voltage
(Positive or Negative)



Typical Gate Current vs Case Temperature
Sensitive Gate



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