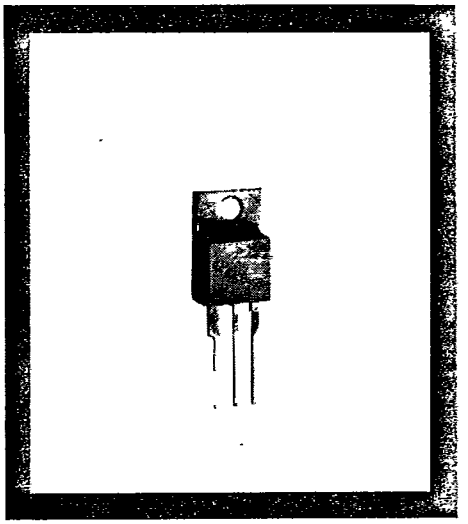
# HUTSON INDUSTRIES

## TRIAC's

## ISOTAB* TRIACS
## ELECTRICALLY ISOLATED

**TO-220**

**8 AMPERE**
**10 AMPERE**
**15 AMPERE**

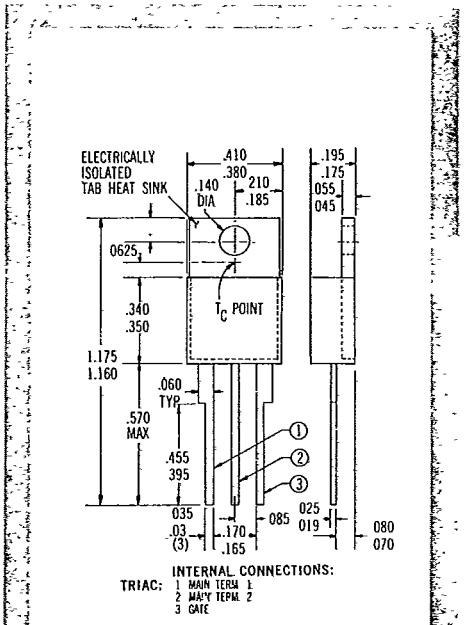


Hutson ISOTAB*-packaged triacs featuring an improved electrical isolation technique, will withstand a minimum of 1600 VAC from leads to tab for one minute at 80°C case temperature. Hermetically sealed within this package is a dense, void-free-glass passivated, hermetically-sealed chip. ISOTAB triacs have a low thermal impedance and are available in wide range of current and voltage ratings, from 8 to 15 Amperes and 50 to 600 Volts. The 15 Amp versions feature Beryllium Oxide isolation for further improved thermal characteristics.

These economical, highly reliable triacs are the result of Hutson's advanced engineering and manufacturing technology, and experience in switching-device applications.

These 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 triggering. They are designed for control of AC loads in applications such as lighting, heating, and motor speed controls, and static switching relays.

In addition to these plastic packaged triacs, Hutson offers other package configurations in current ratings to 60 Amperes and Voltage ($V_{DRM}$) ratings to 1000V. All Hutson triacs are available in chip form. For additional information, please consult Hutson Industries.




**TO-220**
**ELECTRICALLY ISOLATED**
**ISOTAB**

REGISTERED TRADEMARK OF HUTSON INDUSTRIES

ALL DIMENSIONS IN INCHES

* Trademark of Hutson Industries.

**HUTSON INDUSTRIES**

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ISOTT 00008-1X

| | SYMBOL | $V_{DROM}$ | DEVICE NOS. (NOTE 1) | | | UNITS |
|---|---|---|---|---|---|---|
| **MAXIMUM RATINGS** | | | | | | |
| Repetitive Peak Off-State Voltage, Gate Open, and $T_J = 100°C$ | $V_{DROM}$ | 50<br>100<br>200<br>300<br>400<br>500<br>600 | 08<br>18<br>28<br>38<br>48<br>58<br>68 | 010<br>110<br>210<br>310<br>410<br>510<br>610 | 015<br>115<br>215<br>315<br>415<br>515<br>615 | VOLT |
| RMS On-State Current at $T_C = 75°C$ and Conduction Angle of 180° | $I_{T(RMS)}$ | | 8 | 10 | 15 | AMP |
| Peak Surge (Non-Repetitive) On-State Current, One-Cycle, at 50Hz or 60Hz | $I_{TSM}$ | | 100 | 100 | 150 | AMP |
| Peak Gate-Trigger Current for 3μsec, Max. | $I_{GTM}$ | | 3 | 4 | 4 | AMP |
| Peak Gate-Power Dissipation at $I_{GT} \leq I_{GTM}$ for 3μsec. Max. | $P_{GM}$ | | 20 | 40 | 40 | WATT |
| Average Gate-Power Dissipation | $P_{G(AV)}$ | | 0.2 | 0.5 | 0.8 | WATT |
| Storage Temperature Range | $T_{stg}$ | | ←——— −40 to +150 ———→ | | | °C |
| Operating Temperature Range, $T_C$ | $T_{oper.}$ | | ←——— −40 to +100 ———→ | | | °C |
| **ELECTRICAL CHARACTERISTICS** At Maximum Ratings and at Specified Case Temperatures | | | | | | |
| Peak Off-State Current, Gate Open, $T_J = 100°C$ $V_{DROM}$ = Max. Rating | $I_{DROM}$ | | 2.0 MAX | 2.0 MAX | 2.0 MAX | mA |
| Maximum On-State Voltage at $T_C = 25°C$ (Peak) | $V_F$ | | 2.2 MAX | 2.2 MAX | 2.2 MAX | VOLTS |
| Peak On-State Current | | | 11 | 14 | 21 | AMP |
| DC Holding Current, Gate Open and $T_C = 25°C$ | $I_{HO}$ | | 50 MAX | 50 MAX | 50 MAX | mA |
| Critical Rate-of-Rise of Off-State Voltage for $V_D = V_{DROM}$, Gate Open, $T_C = 100°C$ | Critical dv/dt | | 5 TYP | 5 TYP | 5 TYP | V/μsec |
| DC Gate-Trigger Current for $V_D$ = 12VDC, $R_L = 30\Omega$ and at $T_C = 25°C$<br>($T_2$+Gate+, $T_2$−Gate−) Quads I and III<br>($T_2$+Gate−, $T_2$−Gate+) Quads II and IV (Note 2) | $I_{GT}$ | | 50 MAX<br>80 MAX | 50 MAX<br>80 MAX | 50 MAX<br>80 MAX | mA<br>mA |
| DC Gate-Trigger Voltage for $V_D$ = 12VDC, $R_L = 30\Omega$ and at $T_C = 25°C$ | $V_{GT}$ | | 2.5 MAX | 2.5 MAX | 2.5 MAX | VOLTS |
| Gate-Controlled Turn-on Time for $V_D = V_{DROM}$, $I_{GT}$ = 80mA, $t_r$ = 0.1μsec., $I_T$ = 10A (Peak) and $T_C = 25°C$ | $t_{gt}$ | | 2.5 TYP | 2.5 TYP | 2.5 TYP | μsec |
| Thermal Resistance, Junction-to-Case | $R\theta_{JC}$ | | 2.5 TYP | 2.5 TYP | *1.5 TYP | °C/W |

ALL VALUES APPLY IN EITHER DIRECTION

*BeO Substrate

IS0TT 00008-2X

# ISOTAB (ELECTRICALLY ISOLATED) TRIACS

## DEVICE NO. DESIGNATION

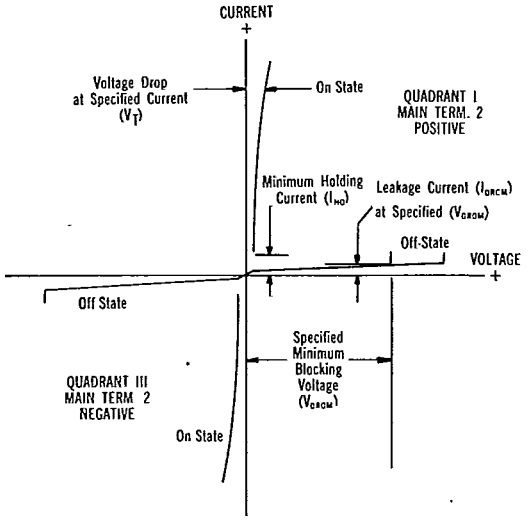
EXAMPLE: I T 4 8 A

NOTE 1:
- I = ELECTRICALLY ISOLATED
- T = TRIAC
- 0 to 6 = 50 to 600 V ($V_{DROM}$) RATING
- 8, 10, 15 = 8A, 10A & 15A $I_{T(RMS)}$

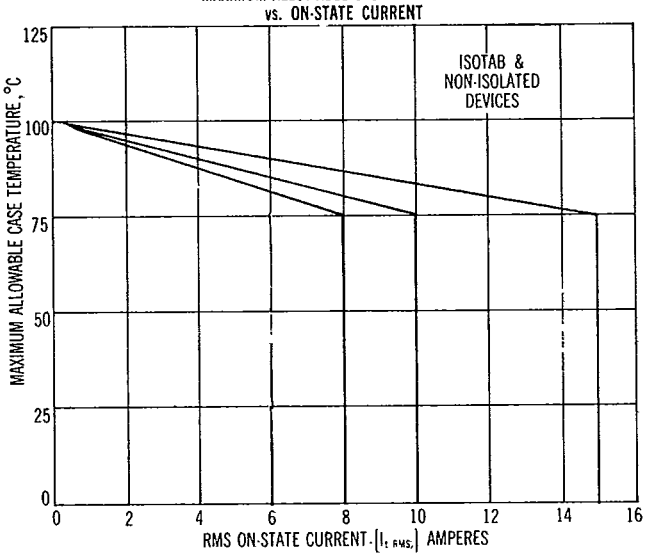
NOTE 2: $I_{GT}$ CHARACTERISTICS:
- NO SUFFIX = 50 mA, I &III QUADS; 80 mA, II & IV QUADS;
- A = 50 mA I & III QUADS ONLY
- B = 100 mA I & III QUADS ONLY
- HA = 25 mA I & III QUADS ONLY
- HX = 25 mA I & III QUADS 40 mA, QUADS II & IV

Example Device No. would be: an Electrically isolated Triac, 400 V ($V_{DROM}$), 8A $I_{T(RMS)}$ with 50 mA ($I_{GT}$) Quads I & III

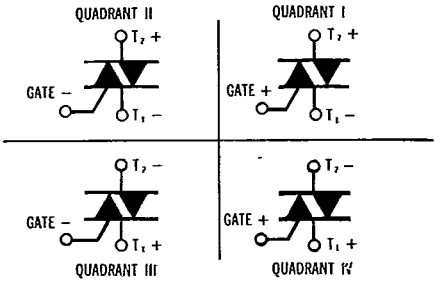
### TYPICAL VOLTAGE-CURRENT CHARACTERISTICS



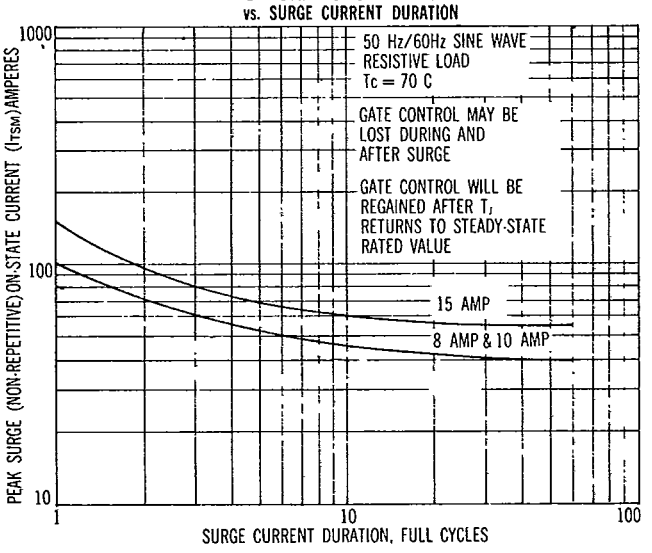

### MAXIMUM ALLOWABLE CASE TEMPERATURE vs. ON-STATE CURRENT




### DEFINITION OF QUADRANTS




### PEAK SURGE ON-STATE CURRENT vs. SURGE CURRENT DURATION

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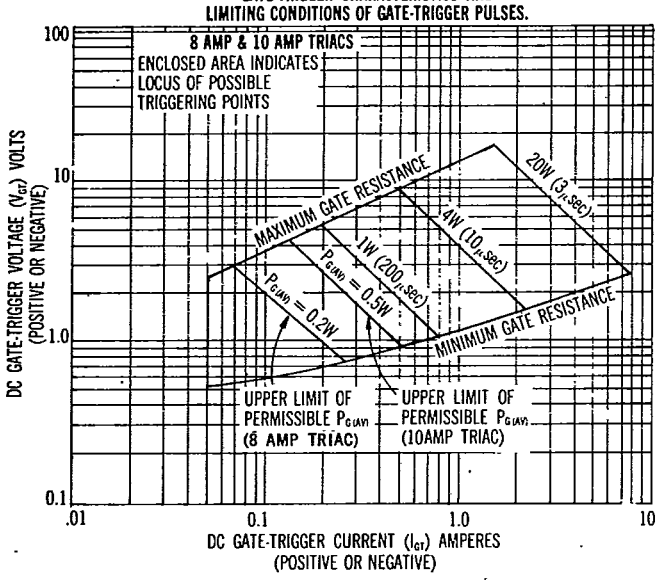
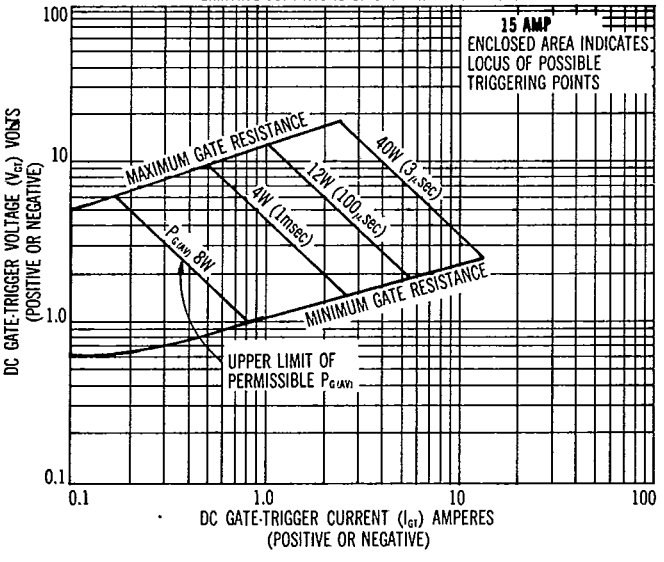
# HUTSON INDUSTRIES 8A, 10A, 15A
## ISOTAB (ELECTRICALLY ISOLATED) TRIACS

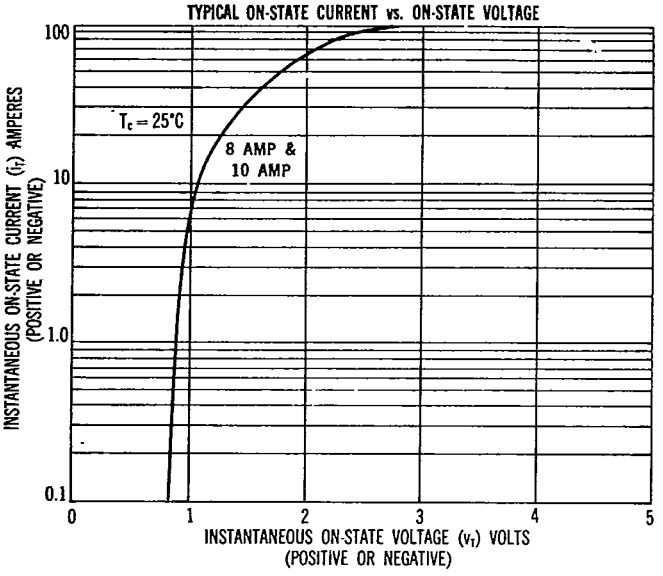
GATE-TRIGGER CHARACTERISTICS AND LIMITING CONDITIONS OF GATE-TRIGGER PULSES.



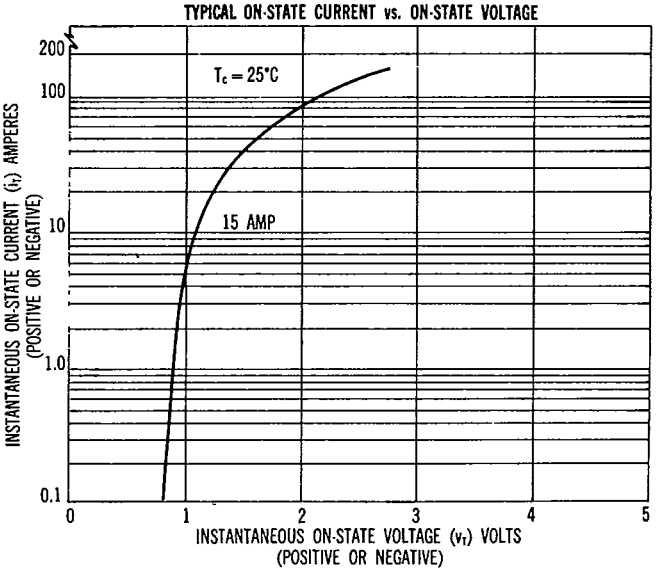

GATE-TRIGGER CHARACTERISTICS AND LIMITING CONDITIONS OF GATE-TRIGGER PULSES.



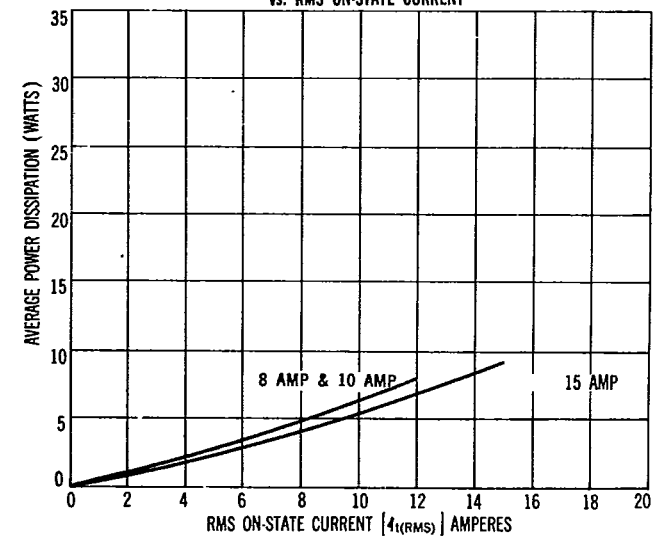

TYPICAL ON-STATE CURRENT vs. ON-STATE VOLTAGE




TYPICAL ON-STATE CURRENT vs. ON-STATE VOLTAGE




TYPICAL AVERAGE POWER DISSIPATION vs. RMS ON-STATE CURRENT

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