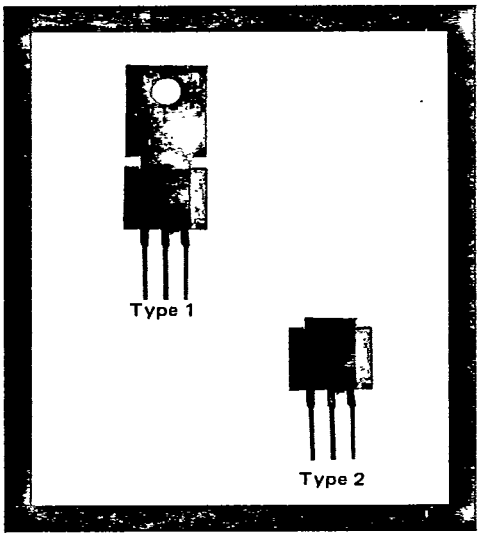
HUTSON INDUSTRIES

TRIAC's

3 AMPERE SENSITIVE GATE TRIACS TO-202

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



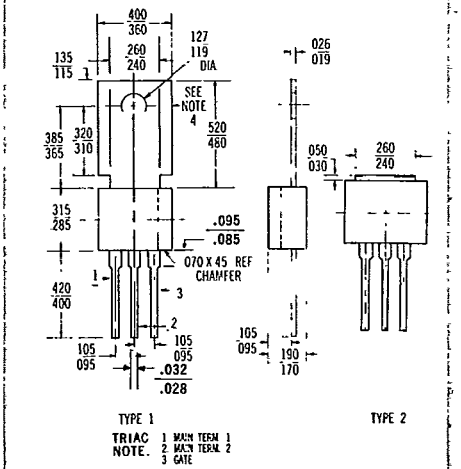
The Hutson line of sensitive gate triacs are designed to be driven directly with IC and MOS devices. These triacs feature proprietary, void-free glass passivated chips.

These 3 Ampere triacs are available in voltage ratings from 50 to 600 volts (V_{DROM}) and in 3mA, 4mA, 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.



NON-ISOLATED TO-202

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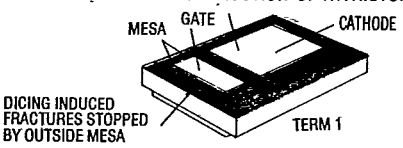
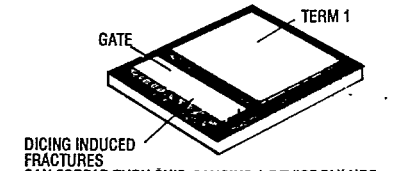
		SYMBOL	VDROM	DEVICE NOS.	DEVICE NOS.
MAXIMUM RATINGS	Repetitive Peak Off-State Voltage,[2] Gate Open, and TJ = 100° C	VDROM	50 100 200 300 400 500 600	T106F*SS T106A*SS T106B*SS T106C*SS T106D*SS T106E*SS T106M*SS	T106F*SC T106A*SC T106B*SC T106C*SC T106D*SC T106E*SC T106M*SC
	RMS On-State Current at TC = 75° C and Conduction Angle of 360°	IT(RMS)		3	3
	Peak Surge (Non-Repetitive) On-State Current, One-Cycle, at 50Hz or 60Hz	ITSM		30	30
	Peak Gate-Trigger Current for 3μsec, Max.	IGTM		1	1
	Peak Gate-Power Dissipation at IGT ≤ IGTM for 3 μsec. Max.	PGM		20	20
	Average Gate-Power Dissipation	PG(AV)		0.2	0.2
	Storage Temperature Range	Tstg		−40 to +150	−40 to +150
	Operating Temperature Range, TJ	Toper		−40 to + 90	−40 to + 90
ELECTRICAL CHARACTERISTICS At Maximum Ratings and at Specified Case Temperatures	Peak Off-State Current, Gate Open,[2] TJ = 100° C VDROM = Max. Rating	IDROM		0.75 Max.	0.75 Max.
	Maximum On-State Voltage at TC = 25° C and iT = 4 Amp (Peak)	VTM		1.30 Max.	1.30 Max.
	DC Holding Current, Gate Open and TC = 25° C	IHO		5 Max.	15 Max.
	Critical Rate-of-Rise of Off-State Voltage [3] for vD = VDROM, Gate Open, TC = 100° C	Critical dv/dt		5 Typ.	6 Typ.
	DC Gate-Trigger Current for vD = 6VDC, RL = 100Ω and at TC = 25° C (T2+Gate+, T2−Gate−) Quads I and III (T2+Gate−, T2−Gate+) Quads II and IV (Note 1)	IGT		3 Max.	4 Max.
	DC Gate-Trigger Voltage for vD = 6VDC, RL = 100Ω and at TC = 25° C	VGT		2.2 Max.	2.2 Max.
	Gate-Controlled Turn-on Time for vD = VDROM, IGT = 80 mA, tr = 0.1 μsec., iT = 10A (Peak) and TC = 25° C	tgt		2.2 Typ.	2.2 Typ.
	Thermal Resistance, Junction-to-Case	θJ-C		6 Typ.	6 Typ.

HUTSON DI-MESA CONSTRUCTION OF THYRISTOR CHIP



CONVENTIONAL CONSTRUCTION OF THYRISTOR CHIP



HUTSON DI-MESA* CONSTRUCTION PROTECTS PASSIVATION AGAINST FIELD FAILURE

This unique construction technique, patented by Hutson, provides the proven advantages of inorganic (glass) passivation while eliminating field breakdown of the passivated device.

In the dicing operation, *using Laser, scribe, saw or other methods,* minute edge fractures, representing incipient failures, frequently occur in any glass passivation. These fractures usually escape detection during ordinary testing; however, during repeated operational cycling, these fractures spread to the device junction and result in a device failure.

This failure mode is eliminated by Hutson's Di-Mesa construction, which provides a physical barrier to the spread of any fracture which may occur.

The Di-Mesa construction technique also allows, for the first time, unpackaged thyristor chips to be easily and safely handled by chip users for mounting on their substrates.

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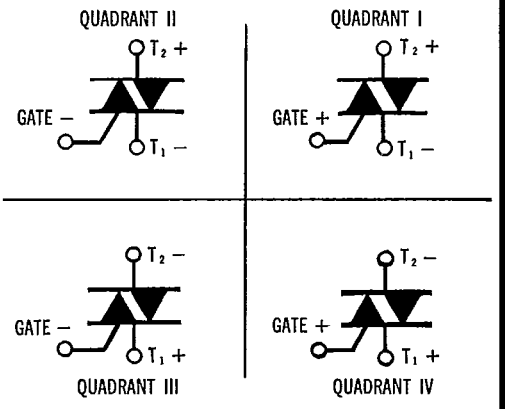
*Di-Mesa is a Trademark of Hutson Industries.

3 AMPERE SENSITIVE GATE TRIACS

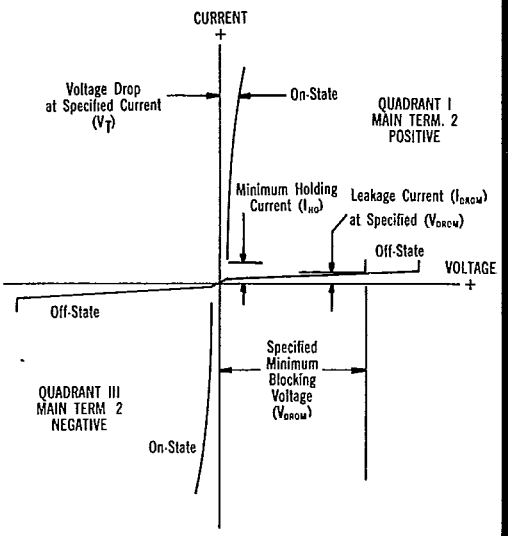
DEVICE NOS.			UNITS
T106F*SD T106A*SD T106B*SD T106C*SD T106D*SD T106E*SD T106M*SD	T106F*SG T106A*SG T106B*SG T106C*SG T106D*SG T106E*SG T106M*SG	T106F*SH T106A*SH T106B*SH T106C*SH T106D*SH T106E*SH T106M*SH	VOLT
3	3	3	AMP
30	30	30	AMP
1	1	1	AMP
20	20	20	WATT
0.2	0.2	0.2	WATT
−40 to +150	−40 to +150	−40 to +150	°C
−40 to +100	−40 to +100	−40 to +100	°C
0.75 Max.	0.75 Max.	0.75 Max.	mA
1.90 Max.	1.90 Max.	1.90 Max.	VOLT
15 Max.	15 Max.	15 Max.	mA
10 Typ.	10 Typ.	10 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
6 Typ.	6 Typ.	6 Typ.	°C/WATT

* Part Number requires a "1" for Type 1 or a "2" for Type 2

DEFINITION OF QUADRANTS



TYPICAL VOLTAGE-CURRENT CHARACTERISTICS



NOTES:
1. Quadrant II & IV gating may be deleted from any Hutson sensitive gate triac as many applications do not require this capability. To order those devices suffix part number with "A".
2. SS and SC devices are at $T_J = 90°C$
3. SS and SC devices are at $T_C = 90°C$
4. All values apply in either direction.

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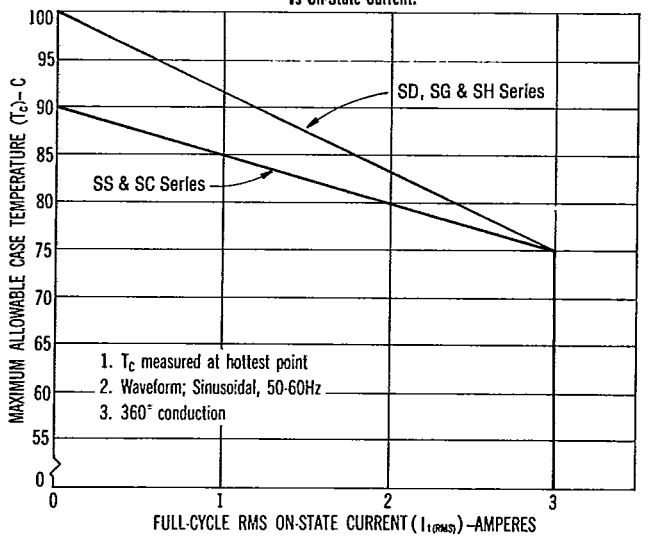
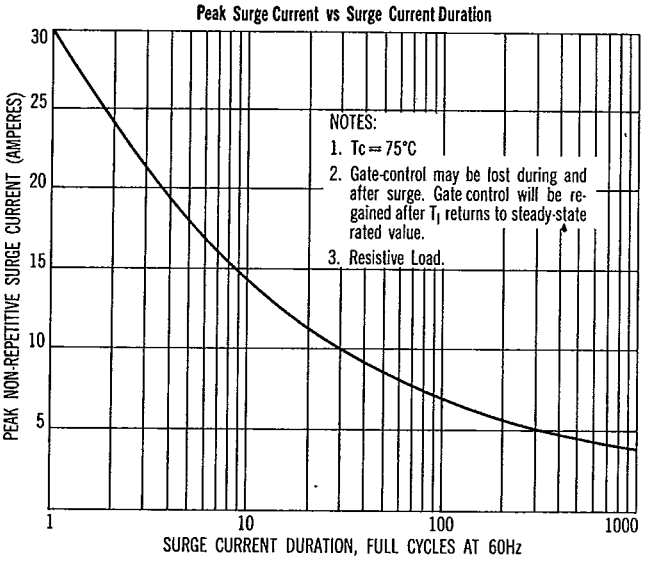
3 AMPERE SENSITIVE GATE TRIACS

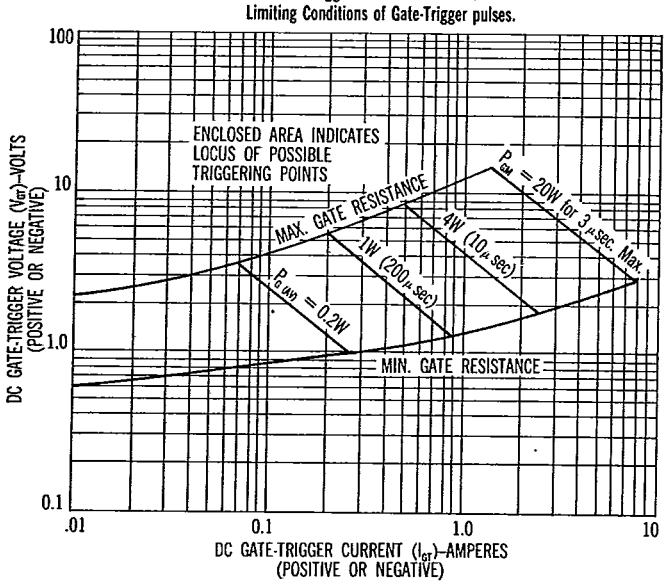
Maximum Allowable Case Temperature vs On-State Current.



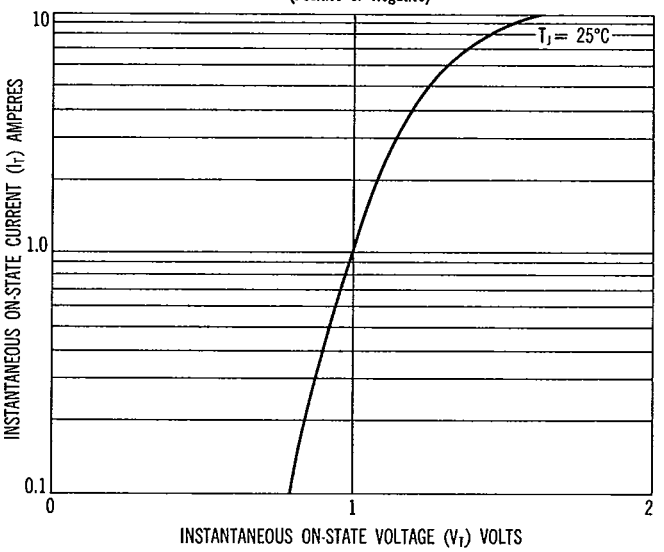
Peak Surge Current vs Surge Current Duration



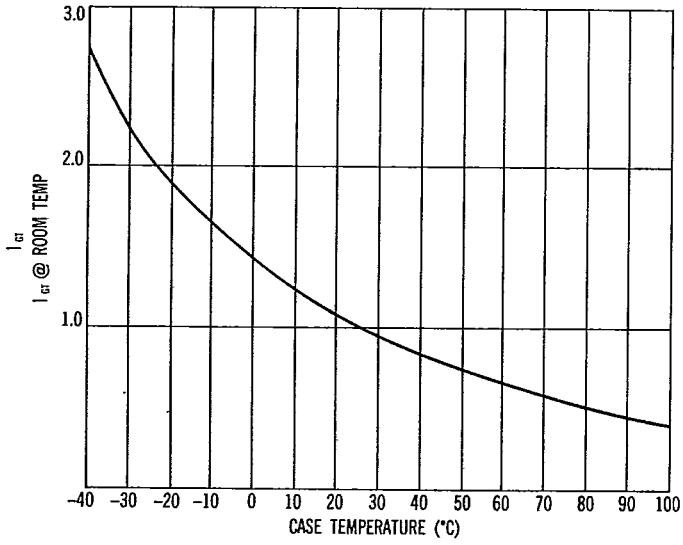
Gate-Trigger Characteristics and Limiting Conditions of Gate-Trigger pulses.



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



Typical Gate Current vs Case Temperature Sensitive Gate Triacs



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