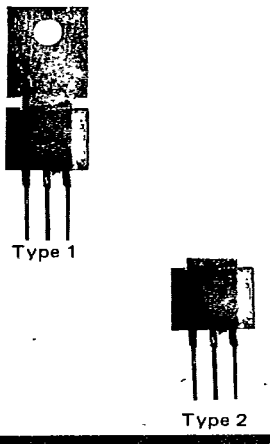
HUTSON INDUSTRIES

SCR's

4 AMPERE SENSITIVE GATE SCR's TO-202

200μA DC Gate-Trigger Current
500μA DC Gate-Trigger Current



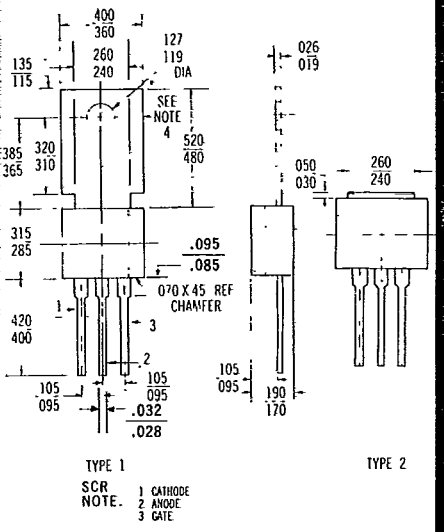
The Hutson line of senstive gate SCR's is designed to be driven directly with IC and MOS devices. These SCR's feature proprietary, void-free glass passivated chips.

These 4 Ampere SCR's are available in voltage ratings from 30 to 600 Volts (V_{DROM}) and in 200μA and 500μA (I_{GT}) ratings. All devices are tested at their upper operating limits before shipment.

The economical and highly reliable SCR's 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 SCR's are reverse-blocking triode thyristors and may be switched from off-state to conduction by a current pulse applied to the gate terminal. They are designed for control applications in lighting, heating, cooling and static switching relays.

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



NON-ISOLATED TO-202

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SGS--00004-1X

		SYMBOL	V_{DRXM} and V_{RRM}	V_{DROM} and V_{RRM}	DEVICE NOS.		UNITS
MAXIMUM RATINGS.	Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage at T_C = 100°C	V_{DRXM} and V_{RRM}	30 50 100 200 300 400 500 600		S 106 Y * S 106 F * S 106 A * S 106 B * S 106 C * S 106 D * S 106 E * S 106 M *		VOLT
		V_{DROM} and V_{RRM}		30 50 100 200 300 400 500 600		S 107 Y * S 107 F * S 107 A * S 107 B * S 107 C * S 107 D * S 107 E * S 107 M *	VOLT
	RMS On-State Current	$I_{T(RMS)}$			4	4	AMP
	Peak Surge (Non-Repetitive) On-State current, One Cycle at 50 or 60 Hz	I_{TSM}			20	15	AMP
	Peak Gate-Trigger Current for 3 μsec. Max.	I_{GTM}			1	1	AMP
	Peak Gate-Power Dissipation at $I_{GT} \leq I_{GTM}$ for 3, μsec. Max.	P_{GM}			20	20	WATT
	Average Gate Power Dissipation	$P_{G(AV)}$			0.2	0.2	WATT
	Storage Temperature Range	T_{stg}			−40 to +150	−40 to +150	°C
	Operating Temperature Range	$T_{oper.}$			−40 to +100	−40 to +100	°C
ELECTRICAL CHARACTERISTICS At Specified Case Temperatures.	Peak-Off State Current at T_C=100°C, (R_{G-K}=1KΩ) and V_{DRXM} and V_{RRM}=Max Rating	I_{DRXM} and I_{RRM}			100 Max.		μA
	Peak-Off State Current, at T_C=100°C and V_{DROM} and V_{RRM}=Max Rating	I_{DROM} and I_{RRM}				100 Max.	μA
	Maximum On-State Voltage at T_C=25°C and I_T=4 A (Peak)	V_{TM}			2.20 Max.	2.50 Max.	VOLT
	DC Holding Current at T_C=25°C	I_{HO}			3 Max.	3 Max.	mA
	DC Gate-Trigger Current for V_D=6 VDC; R_L=100Ω and at T_C=25°C	I_{GT}			50 Typ. | 200 Max. | — Min.		μA
						220 Typ. | 500 Max. | — Min.	μA
	DC Gate-Trigger Voltage for V_D=6 VDC; R_L=100Ω and at T_C=25°C	V_{GT}			0.8 Max.	0.8 Max.	VOLT
	Gate Controlled Turn-On Time (TOTAL) at T_C=25°C	t_{gt}			1.2 Typ.	1.2 Typ.	μsec.
	I^2t for Fusing Reference (>1.5 msoc)	I^2t			0.5 Max.	0.5 Max.	A^2sec.
	Critical Rate of Applied Forward Voltage (R_{G-K}=1KΩ) and T_C=100°C	critical dv/dt			8 Typ.		V/μsec.
	Critical Rate of Applied Forward Voltage at T_C=100°C					8 Typ.	V/μsec.
	Thermal Resistance, Junction to Case	θ_{J-C}			5 Typ.	5 Typ.	°C/WATT

*PART NUMBER REQUIRES A 1 FOR TYPE 1 OR A 2 FOR TYPE 2

2

SCR--00004-2X

4 AMPERE SENSITIVE GATE SCR's

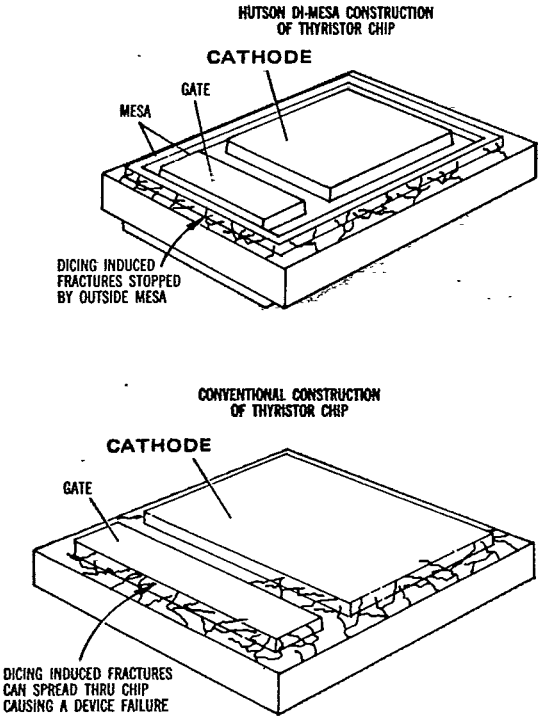
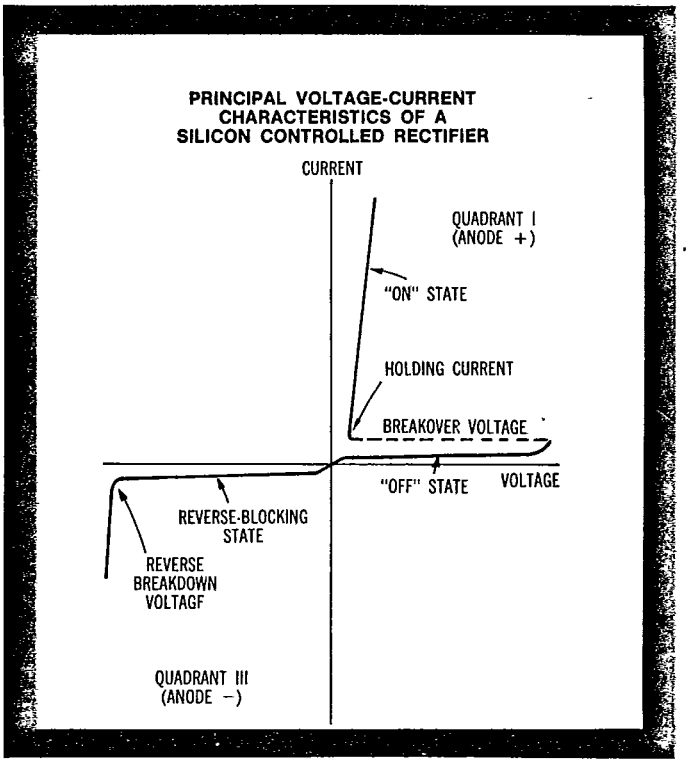


FIG. 2: HUTSON DI-MESA CHIP CONSTRUCTION and CONVENTIONAL CHIP CONSTRUCTION.



HUTSON DI-MESA* CONSTRUCTION PROTECTS PASSIVATION AGAINST FIELD FAILURE

These SCR's feature a unique construction technique patented by Hutson Industries which provides the proven advantages of inorganic (glass) passivation while eliminating field breakdown of the protection. An extremely dense, sodium-free, proprietary glass is used, which provides a positive hermetic seal as well as eliminating "punch-through" and "burn-through" associated with organic passivation materials.

Simple glass passivation is not sufficient to protect device junctions. Minute fractures, representing incipient failures, frequently occur in the glass as a result of laser, saw, scribe or other dicing methods. These fractures usually escape observation during testing, spread during operational cycling, and eventually result in field failures. Protection against this failure mode is provided by Hutson's Di-Mesa* construction, which provides a physical barrier to the spread of any fracture which may occur.

*Di-Mesa is a Hutson Industries Trade Mark

CROSS REFERENCE OF SIMILAR 4AMP ($I_{T(RMS)}$) SCR's

Repetitive Peak Off-State Voltage	DC Gate-Trigger Current (I_{GT})	HUTSON SCR NO.	OTHER MFG. NO.
30V	200μA	S 106 Y1	C106Y 1 to 4 MCR 406-1 TC 106 Y
50V	200μA	S 106 F1	C106F 1 to 4 TC 106 F
100V	200μA	S 106 A1	C106A 1 to 4 MCR 406-3 TC 106 A
200V	200μA	S 106 B1	C106B 1-4 MCR 407 1-4 TC 106B
300V	200μA	S 106 C1	C106C 1-4 TC 106 C
400V	200μA	S 106 D1	C106D 1-4 TC 106 D

SGS — 00004-3X

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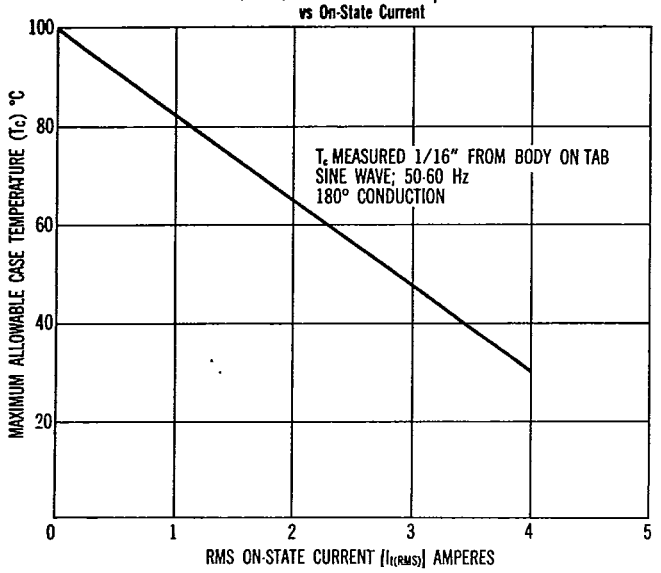
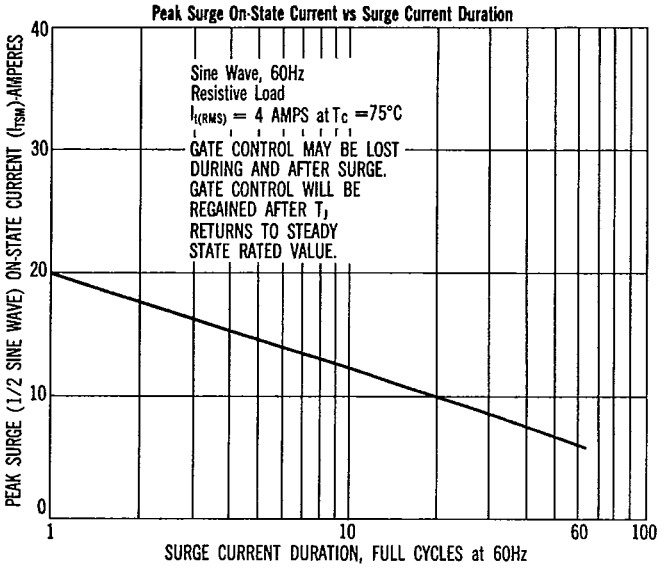
4 AMPERE SENSITIVE GATE SCR's

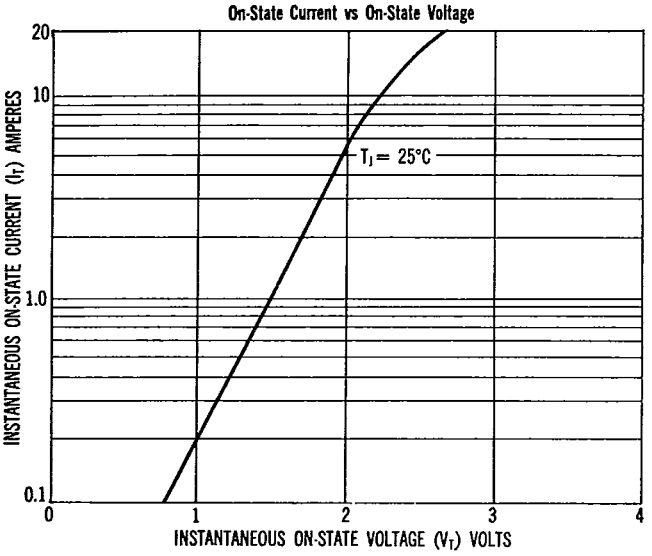
Maximum Allowable Case Temperature vs On-State Current



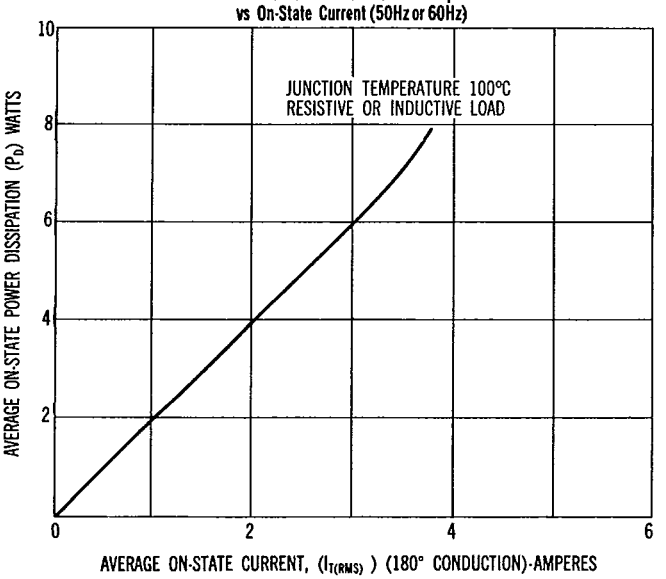
Peak Surge On-State Current vs Surge Current Duration

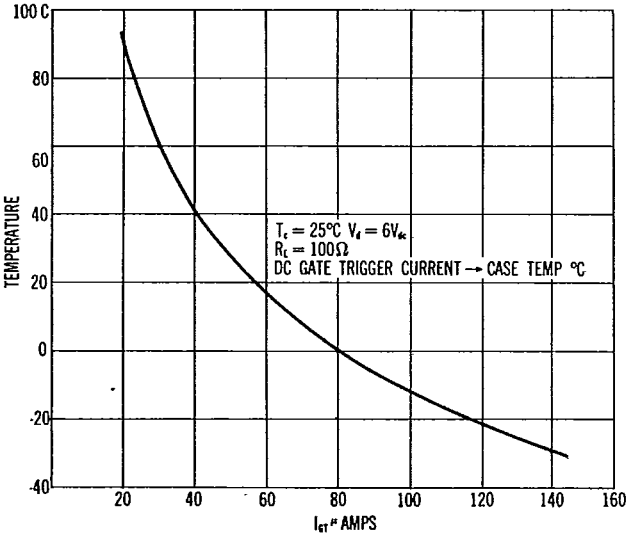


On-State Current vs On-State Voltage



Maximum Conduction Power Dissipation vs On-State Current (50Hz or 60Hz)





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