

HUTSON INDUSTRIES

SCRs



PRESS FIT SERIES

SCR's

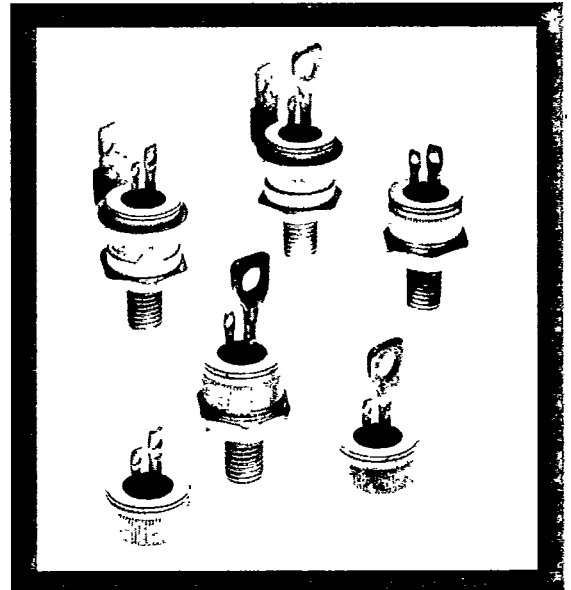
8 AMPERE CENTER GATE

10 AMPERE CENTER GATE

20 AMPERE CENTER GATE

25 AMPERE CENTER GATE

35 AMPERE CENTER GATE



Hutson's SCR's feature proprietary, void-free glass passivated chips and are hermetically sealed to eliminate "punch through" and "burn through" which are associated with organic passivation materials.

SCR's are available in current ratings to 40 amperes and voltage (VDRM) ratings to 800 volts. These economical and highly reliable SCR's are the result of Hutson's advanced engineering and manufacturing technology, state-of-the-art glass passivation materials and techniques and experience in switching devices application.

-- WARNING --

Isolated stud products should be handled with care. The ceramic used in these thyristors contains BERYLLIUM OXIDE as a major ingredient.

DO NOT crush, grind, or abrade these portions of the thyristors because the dust resulting from such action may be HAZARDOUS if INHALED.

ALL DIMENSIONS IN INCHES

1/2" ISOLATED STUD MOUNT

**1/2" PRESS FIT (1)
TO-203**

**1/2" PRESS FIT (1)
TO-203 (MOD)**

**1/2" STUD MOUNT (2)
MOD. TO-48**

**1/2" STUD MOUNT (2)
MOD. TO-48**

ALL DIMENSIONS IN INCHES

1/2" ISOLATED STUD MOUNT



	SYMBOL	V _{DRM} AND V _{RRM}	DEVICE NUMBERS		
MAXIMUM RATINGS	Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage at T _J = 100°C	V _{DRM} AND V _{RRM}	50 100 200 300 400 500 600	S08 S18 S28 S38 S48 S58 S68	S010 S110 S210 S310 S410 S510 S610
	★ Note: 800 Volts Available in Some Series				
	RMS On-State Current at T _C = 75°C	I _(RMS)		8	10
	Peak Surge (Non-Repetitive) On-State Current, One Cycle at 50 Hz or 60 Hz	I _{TSM}		80	100
	Peak Gate-Trigger Current for 3 μsec. Max.	I _{GTM}		20	20
	Peak Gate-Power Dissipation at I _{GT} ≤ I _{GTM} for 3 μsec. Max.	P _{GM}		20	20
	Average Gate-Power Dissipation	P _{G(AV)}		0.5	0.5
	Storage Temperature Range	T _{STG}		-40 to +150	
Operating Temperature Range	T _{OPER}		-40 to +100		
ELECTRICAL CHARACTERISTICS At Maximum Ratings and Specified Case Temperatures	Peak-Off State Current at T _J = 100°C, Gate Open and V _{DRM} and V _{RRM} = Max. Rating	I _{DRM} and I _{RRM}		2.0 Max.	2.0 Max.
	Maximum On-State Voltage (Peak) T _C = 25°C	V _{TM}		2.5 Max.	2.0 Max.
	Peak on State Current			16	20
	DC Holding Current at T _C = 25°C (Gate Open)	I _{HO}		50 Max.	50 Max.
	DC Gate-Trigger Current for Anode Voltage = 12 VDC; R _L = 30 Ω and at T _C = 25°C	I _{GT}		25 Max.	25 Max.
	DC Gate-Trigger Voltage for Anode Voltage = 12 VDC; R _L = 30 Ω and at T _C = 25°C	V _{GT}		2.0 Max.	2.0 Max.
	Gate Controlled Turn-On Time t _b + t _r I _{GT} = 150 mA	T _{GT}		2.5 (Typ.)	2.5 (Typ.)
	Critical Rate-of-Rise of Off-State Voltage (Gate Open) and T _C = 100°C	Critical dv/dt		100 (Typ.)	100 (Typ.)
Thermal Resistance, Junction to Case	R _{ΘJC}	Pressfit Stud Isolated Stud	2.5 (Typ.) 3.0 (Typ.) 3.2 (Typ.)	2.5 (Typ.) 3.0 (Typ.) 3.2 (Typ.)	

INSTALLATION INSTRUCTIONS
1/2" PRESS FIT SCR's

1. Recommended Heat Sink material: Copper (recommended for maximum heat transfer and minimum corrosion problem), aluminum or steel.
2. Heat sink should be 1/8" thick minimum.
3. The hole diameter into which the SCR is pressed must be 0.4975 ± .001 inch. A slight chamfer on the hole should be used. This hole may be punched and reamed in a flat plate or extruded and sized in sheet metal.
4. The entire knurled section of the SCR should be in contact with the heat sink to insure maximum heat transfer. The SCR must not be inserted into a heat sink deeper than the knurl height.
5. The SCR insertion force must not exceed 800 pounds. If the insertion force approaches that value either the SCR is misaligned with the hole or the SCR-to-hole interference is excessive. The insertion force must be uniformly applied to the top face (terminal end) of the SCR within an annular ring which has an inside diameter not less than 0.370 inch and not larger than 0.390 inch; the outside diameter must not be less than 0.500 inch.
6. The thermal resistance between the SCR case and a copper heat sink should not exceed 0.5° C/W if the SCR is inserted in the manner described above.

PFSS - 00008-2X

DEVICE NUMBERS			UNITS
S020 S120 S220 S320 S420 S520 S620	S025 S125 S225 S325 S425 S525 S625	S035 S135 S235 S335 S435 S535 S635	VOLTS
20	25	35	AMP
200	250	350	AMP
20	20	20	AMP
20	20	20	WATT
0.5	0.5	0.5	WATT
-40 to +150			°C
-40 to +100			°C
2.0 Max.	2.0 Max.	2.0 Max.	mA
1.9 Max.	1.5 Max.	1.6 Max.	VOLTS
40	50	70	AMPS
50 Max.	50 Max.	50 Max.	mA
25 Max.	25 Max.	25 Max.	mA
2.0 Max.	2.0 Max.	2.0 Max.	VOLTS
2.5 (Typ.)	2.5 (Typ.)	2.5 (Typ.)	μSEC
100 (Typ.)	100 (Typ.)	100 (Typ.)	V/μSEC
1.3 (Typ.) 1.8 (Typ.) 2.0 (Typ.)	1.3 (Typ.) 1.8 (Typ.) 2.0 (Typ.)	0.9 (Typ.) 1.4 (Typ.) 1.6 (Typ.)	°C/WATT

SCR's

Non Repetitive Peak Reverse Voltage (Open Gate) — V_{RSPM} — The maximum instantaneous value of any non-repetitive transient reverse voltage which occurs across an SCR whose gate is open.

Repetitive Peak Reverse Voltage (Open Gate) — V_{RPM} — The maximum instantaneous value of the reverse voltage which may be applied across an SCR, including all repetitive transient voltages, but excluding all non-repetitive transient voltages, when the gate is open.

Repetitive Peak Off-State Voltage (Open Gate) — V_{DPM} — The maximum instantaneous value of the off-state voltage which may be applied across an SCR (when the gate is open), including all repetitive transient voltages, but excluding all non-repetitive transient voltages.

Average On-State Current — $I_{T(AV)}$ — The principal current, DC value with alternating component, when an SCR is in the on-state.

RMS On-State Current — $I_{T(RMS)}$ — The principal current, total RMS value, when an SCR is in the on-state.

Surge (Non-Repetitive) On-State Current — I_{TSM} — An on-state current of short-time duration and specified waveshape.

Rate of Change of On-State Current — di_T/dt — The maximum value of the rate-of-rise of on-state current which an SCR can withstand without deleterious effect.

Peak On-State or Off-State Gate Power Dissipation — P_{GIM} — The peak instantaneous power dissipated between gate and cathode, of a reverse blocking thyristor.

Average On-State or Off-State Gate Power Dissipation — $P_{G(AV)}$ — The average power dissipated between gate and cathode of a reverse blocking thyristor.

Instantaneous Forward Breakover Voltage (Open Gate) — $V_{FBO(I)}$ — The instantaneous principal voltage at the breakover point with the gate open.

Peak Off-State Current (Open Gate) — I_{DOM} — The maximum principal current when an SCR is in the off-state.

Repetitive Peak Reverse Current (Open Gate) — I_{RRM} — The peak instantaneous reverse current when the SCR is in the reverse blocking state.

Instantaneous On-State Voltage — v_T — The instantaneous principal voltage when the SCR is in the on-state.

Average Trigger Current — I_{GT} — The minimum gate current, DC value, required to switch an SCR from the off-state to the on-state.

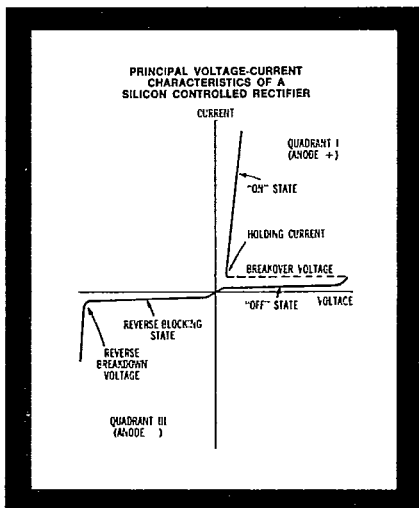
Average Trigger Voltage — V_{GT} — The minimum gate-to-cathode voltage, DC value, required to produce the gate trigger current.

Instantaneous Holding Current — i_H — The instantaneous minimum principal current required to maintain the SCR in the on-state.

Instantaneous On-State Current — I_T — The instantaneous value of the principal current for a positive anode-to-cathode voltage.

Critical Rate of Applied Forward Voltage — Critical dv/dt — The minimum value of the rate of applied forward voltage which will cause the thyristor to switch from the off-state to the on-state.

Gate Controlled Turn-On Time — t_{GT} — The time interval between a specified point at the beginning of the gate pulse and the instant when the principal voltage has dropped to a specified low value (or current has risen to a specified high value) during switching of an SCR from off-state to the on-state by a gate pulse.



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PFSS - 00008-3X

