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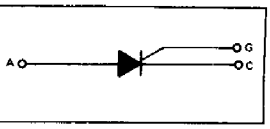
MCR72-1 thru MCR72-8

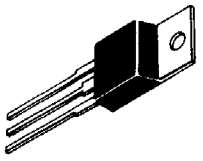
Silicon Controlled Rectifier
Reverse Blocking Triode Thyristor

SCRs
8 AMPERES RMS
25 thru 600 VOLTS

... designed for industrial and consumer applications such as temperature, light and speed control; process and remote controls; warning systems; capacitive discharge circuits and MPU interface.

- Center Gate Geometry for Uniform Current Density
- All Diffused and Glass-Passivated Junctions for Parameter Uniformity and Stability
- Small, Rugged Thermowatt Construction for Low Thermal Resistance, High Heat Dissipation and Durability
- Low Trigger Currents, 200 μA Maximum for Direct Driving from Integrated Circuits





TO-220AB

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage (Note 1) (T_J = −40 to 110°C) (1/2 Sine Wave, R_{GK} = 1 kΩ)	V_{DRM} or V_{RRM}		Volts
MCR72 -1		25	
MCR72 -2		50	
MCR72 -3		100	
MCR72 -4		200	
MCR72 -5		300	
MCR72 -6		400	
MCR72 -7		500	
MCR72 -8		600	
On-State RMS Current (T_C = 83°C)	$I_{T(RMS)}$	8	Amps
Peak Non-Repetitive Surge Current (1/2 Cycle, 60 Hz, T_J = −40 to 110°C)	I_{TSM}	100	Amps
Circuit Fusing (t = 1 to 8.3 ms)	I^2t	40	A^2s
Peak Gate Voltage (t ≤ 10 μs)	V_{GM}	±5	Volts
Peak Gate Current (t ≤ 10 μs)	I_{GM}	1	Amp
Peak Gate Power (t ≤ 10 μs)	P_{GM}	5	Watts
Average Gate Power	$P_{G(AV)}$	0.75	Watts
Operating Junction Temperature Range	T_J	−40 to +110	°C

Note 1: Ratings apply for negative gate voltage or R_{GK} = 1 kΩ. Devices shall not have a positive gate voltage concurrently with a negative voltage on the anode. Devices should not be tested with a constant current source for forward and reverse blocking capability such that the voltage applied exceeds the rated blocking voltage.

(cont.)

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (Note 1) (Rated V_{DRM} or V_{RRM}) T_J = 25°C T_J = 125°C		I_{DRM}, I_{RRM}	 —	 —	10 2	μA mA
On-State Voltage (Note 2) (I_{TM} = 70 A) (I_{TM} = 175 A) (I_{TM} = 850 A, t_W = 1 ms) Note 3 (I_{TM} = 1700 A, t_W = 1 ms) Note 3	 MCR70 series MCR71 series MCR70 series MCR71 series	V_{TM}	 — — — —	 1.5 1.7 6 7	 1.85 2.1 — —	Volts
Gate Trigger Current (V_D = 12 V, R_L = 100 Ω)		I_{GT}	2	10	30	mA
Gate Trigger Voltage (V_D = 12 Volts, R_L = 100 Ω) (V_D = Rated V_{DRM}, R_L = 1 kΩ, T_J = 125°C)		V_{GT}	 — 0.2	 1 —	 1.5 —	volts
Holding Current (I_{TM} = 0.5 A, Gate-Open)		I_H	3	15	50	mA
Latching Current (V_D = 12 Vdc, I_G = 150 mA, t_r ≤ 50 μs)		I_L	—	30	60	mA
Critical Rate-of-Rise of Off-State Voltage (V_D = Rated V_{DRM}, Gate Open, Exponential Waveform, T_C = 125°C)		dv/dt	10	—	—	V/μs
Turn-On Time (Note 3) (V_D = Rated V_{DRM}, I_G = 150 mA) (I_{TM} = 70 Amps, peak) (I_{TM} = 110 Amps, peak)	 MCR70 series MCR71 series	t_{on}	 — —	 1 1.2	 — —	μs

Notes: 1. The rated voltages can be applied over the rated operating junction temperatures without incurring damage. Ratings apply for shorted-open or shorted-gate conditions or negative voltage on the gate. Devices should not be tested for blocking capability in a manner such that the voltage supplied exceeds the rated blocking voltages.

2. Duty Cycle ≤ 1%, Pulse Width ≤ 300 μs.
3. Characteristic applies for t_W = 1 ms. t_W is defined as 5 time constants of an exponentially decaying current pulse.
4. The gate controlled turn-on time in a crowbar circuit will be influenced by the circuit inductance.