

MOTOROLA SC {DIODES/OPTO}

01 DE

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T-2515

Thyristors

Silicon Controlled Rectifiers

... designed for industrial and consumer applications such as power supplies, battery chargers, temperature, motor, light and welder controls.

- Economical for a Wide Range of Uses
- High Surge Current — $I_{TSM} = 200$ Amps
- Low Forward "On" Voltage — 1.2 V (Typ) @ $I_{TM} = 20$ Amps
- Practical Level Triggering and Holding Characteristics — 10 mA (Typ) @ $T_C = 25^\circ\text{C}$
- Rugged Construction in Either Pressfit, Stud or Isolated Stud Package
- Glass Passivated Junctions for Maximum Reliability

S6200
S6210
S6220
Series

SCRs
20 AMPERES RMS
100 thru 600 VOLTS



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive Peak Off-State Voltage, Note 1	V_{DROM}		Volts
Repetitive Peak Reverse Voltage, Note 1	V_{RROM}		
S6200, S6210, S6220 A		100	
S6200, S6210, S6220 B		200	
S6200, S6210, S6220 D		400	
S6200, S6210, S6220 M		600	
Non-Repetitive Peak Off-State Voltage, Note 1	V_{DSOM}		Volts
Non-Repetitive Peak Reverse Voltage, Note 1	V_{DRROM}		
S6200, S6210, S6220 A		150	
S6200, S6210, S6220 B		250	
S6200, S6210, S6220 D		500	
S6200, S6210, S6220 M		700	
RMS On-State Current ($T_C = 75^\circ\text{C}$)	$I_{T(RMS)}$	20	Amps
Peak Non-Repetitive Surge Current (One Full Cycle of surge current at 60 Hz, preceded and followed by rated current, $T_C = 75^\circ\text{C}$)	I_{TSM}	200	Amps
Circuit Fusing Considerations ($T_J = -65$ to $+100^\circ\text{C}$, $t = 1$ to 8.3 ms)	I^2t	170	A^2s
Peak Gate Power (10 μs Max)	P_{GM}	40	Watts
Average Gate Power	$P_{G(AV)}$	0.5	Watt
Operating Junction Temperature Range	T_J	-65 to $+100$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to $+150$	$^\circ\text{C}$
Stud Torque	—	30	in. lb.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case S6200	$R_{\theta JC}$	1.2	$^\circ\text{C/W}$
S6210, S6220		1.4	

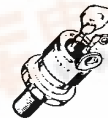
Note 1. Ratings apply for open gate conditions. Thyristor devices shall not be tested with a constant current source for blocking capability such that the voltage applied exceeds the rated blocking voltage.



CASE 174-04
(TO-203)
STYLE 1
S6200 SERIES



CASE 263-04
STYLE 1
S6210 SERIES



CASE 311-02
STYLE 1
S6220 SERIES

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MOTOROLA THYRISTOR DEVICE DATA

3-307

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6367255 MOTOROLA SC (DIODES/OPTO)

01E 79233 D 7-25-15

S6200 • S6210 • S6220 Series**ELECTRICAL CHARACTERISTICS** ($T_C = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Instantaneous Forward Breakover Voltage (Gate Open, $T_C = 100^\circ\text{C}$)	$V_{(BO)O}$				Volts
S6200, S6210, S6220 A		100	—	—	
S6200, S6210, S6220 B		200	—	—	
S6200, S6210, S6220 D		400	—	—	
S6200, S6210, S6220 M		600	—	—	
Peak Blocking Current (Rated V_{DROM} @ $T_C = 100^\circ\text{C}$)	I_{DOM} I_{RROM}	— —	— —	10 2	μA mA
Peak On-State Voltage ($I_T = 100$ A Peak)	V_T	—	—	2.4	Volts
Gate Trigger Current (Continuous dc) (Main Terminal Voltage = 12 Vdc, $R_L = 30$ Ohms)	I_{GT}	—	—	15	mA
Gate Trigger Voltage (Continuous dc) (Main Terminal Voltage = 12 Vdc, $R_L = 30$ Ohms)	V_{GT}	—	—	2	Volts
Holding Current (Either Direction) (Main Terminal Voltage = 12 Vdc, Gate Open)	I_{HO}	—	—	20	mA
Gate Controlled Turn-On Time ($V_D = V_{(BO)O}$, $I_T = 30$ A Peak, $I_{GT} = 200$ mA, Rise Time = $0.1 \mu\text{s}$)	t_{gt}	—	2	—	μs
Critical Rate-of-Rise of Off-State Voltage ($V_D = V_{(BO)O}$, Exponential Voltage Rise, Gate Open, $T_C = 100^\circ\text{C}$)	dv/dt				V/ μs
S6200, S6210, S6220 A,D		10	100	—	
S6200, S6210, S6220 B		10	150	—	
S6200, S6210, S6220 M		10	75	—	