T-25-17

MCR5164-67
(See 2N5168)

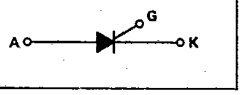
Thyristors
Silicon Controlled Rectifiers

MCR6200
S6210
S6220
Series

SCRs
20 AMPERES RMS
100 thru 600 VOLTS

. . . 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°C
- Rugged Construction in Either Pressfit, Stud or Isolated Stud Package
- Glass Passivated Junctions for Maximum Reliability



MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Repetitive Peak Off-State Voltage, Note 1 Repetitive Peak Reverse Voltage, Note 1		V_{DROM} V_{RROM}		Volts
MCR6200, S6210, S6220	A		100	
MCR6200, S6210, S6220	B		200	
MCR6200, S6210, S6220	D		400	
MCR6200, S6210, S6220	M		600	
Non-Repetitive Peak Off-State Voltage, Note 1 Non-Repetitive Peak Reverse Voltage, Note 1		V_{DSOM} V_{DROM}		Volts
MCR6200, S6210, S6220	A		150	
MCR6200, S6210, S6220	B		250	
MCR6200, S6210, S6220	D		500	
MCR6200, S6210, S6220	M		700	
RMS On-State Current (T_C = 75°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°C)		I_{TSM}	200	Amps
Circuit Fusing Considerations (t = 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	°C
Storage Temperature Range		T_{stg}	−65 to +150	°C
Stud Torque		—	30	in. lb.

CASE 174-04
(TO-203AA)
STYLE 1
MCR6200 SERIES

CASE 263-04
STYLE 1
S6210 SERIES

CASE 311-02
STYLE 1
S6220 SERIES

THERMAL CHARACTERISTICS

Characteristic		Symbol	Max	Unit
Thermal Resistance, Junction to Case	MCR6200	$R_{\theta JC}$	1.2	°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.

3

T-25-17

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

Characteristic		Symbol	Min	Typ	Max	Unit
Intantaneous Forward Breakover Voltage (Gate Open, T_C = 100°C)		$V_{(BO)O}$				Volts
MCR6200, S6210, S6220	A		100	—	—	
MCR6200, S6210, S6220	B		200	—	—	
MCR6200, S6210, S6220	D		400	—	—	
MCR6200, S6210, S6220	M		600	—	—	
Peak Blocking Current	T_C = 25°C	I_{DOM}, I_{RROM}	—	—	10	μA
(Rated V_{DROM} @ T_C = 100°C)	T_C = 100°C		—	—	2	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 μs)		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°C)		dv/dt				V/μs
MCR6200, S6210, S6220	A,D		10	100	—	
MCR6200, S6210, S6220	B		10	150	—	
MCR6200, S6210, S6220	M		10	75	—	

3