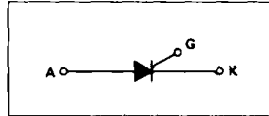


Silicon Controlled Rectifiers

Reverse Blocking Triode Thyristors

... 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 — $I_{TSM} = 300$ Amps
- Low Forward "On" Voltage — 1.2 V (Typ) @ $I_{TM} = 25$ 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
- Glass Passivated Junctions for Maximum Reliability



MAXIMUM RATINGS

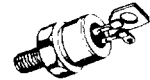
Rating	Suffix	Symbol	Value	Unit
Peak Repetitive Off-State Voltage, Note 1 ($T_C = -40$ to $+100^\circ\text{C}$) All Types	F	V_{DRM}	50	Volts
	A	and	100	
	B	V_{RRM}	200	
	D		400	
	M		600	
Non-Repetitive Reverse Voltage ($T_C = -40$ to 100°C) All Types	F	V_{RSM}	75	Volts
	A		150	
	B		300	
	D		500	
	M		720	
Forward Current RMS		$I_T(\text{RMS})$	25	Amps
Peak Surge Current (One Cycle, 60 Hz, $T_C = -40$ to 100°C)		I_{TSM}	250	Amps
Circuit Fusing ($t = 8.3$ ms)		I^2t	260	A^2s
Peak Gate Power		P_{GM}	5	Watts
Average Gate Power		$P_{G(\text{AV})}$	0.5	Watt
Peak Forward Gate Current		I_{GM}	2	Amps
Operating Junction Temperature Range		T_J	-40 to $+100$	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-40 to $+125$	$^\circ\text{C}$
Stud Torque		—	30	in. lb.

MCR230, 231
MCR230()3,
231()3
C232, 233
Series

SCRs
25 AMPERES RMS
50 thru 600 VOLTS



CASE 174-04
(TO-203AA)
STYLE 1
C232 and C233 Series



CASE 263-04
STYLE 1
MCR230 and 231 Series

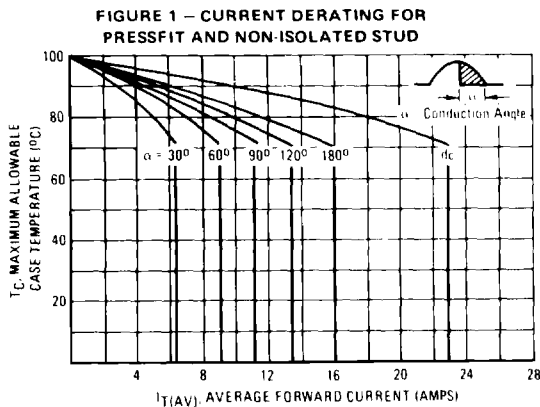


CASE 311-02
STYLE 1
MCR230()3 and
MCR231()3 Series

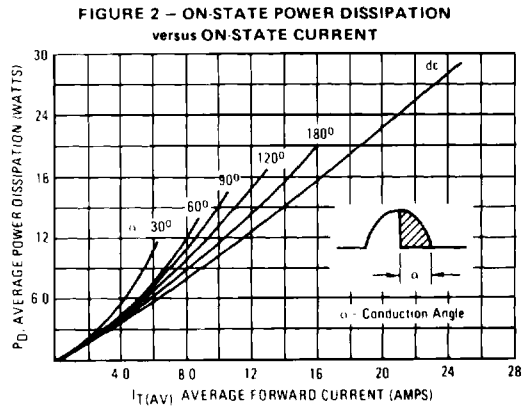
MCR230, 231 • MCR230()3, 231()3 • C232, 233 Series

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (Rated V _{DRM} or V _{RRM} , gate open) T _C = 25°C T _C = 100°C	I _{DRM} , I _{RRM}	— —	— —	10 1	μA mA
Forward "On" Voltage (I _{TM} = 100 A Peak, Pulse Width ≤ 1 ms, Duty Cycle ≤ 2%)	V _{TM}	—	—	1.9	Volts
Gate Trigger Current, MCR230, MCR230()3, C232 series (V _D = 12 Vdc, R _L = 120 Ohms) (V _D = 12 Vdc, R _L = 60 Ohms) T _C = -40°C	I _{GT}	— —	— —	25 40	mA
Gate Trigger Current, MCR231()3, C233 (Continuous dc) (V _D = 12 Vdc, R _L = 120 Ohms) (V _D = 12 Vdc, R _L = 60 Ohms) T _C = -40°C	I _{GT}	— —	— —	9 20	mA
Gate Trigger Voltage (Continuous dc) (V _D = 12 Vdc, R _L = 120 Ohms) (V _D = 12 Vdc, R _L = 60 Ohms) (V _D = Rated V _{DRM} , R _L = 1000 Ohms) T _C = -40°C T _C = +100°C	V _{GT}	— — 0.2	— — —	1.5 2 —	Volts
Holding Current (V _D = 24 V, gate open, I _T = 0.5 A) T _C = -40°C	I _H	— —	— —	50 100	mA
Turn-On Time (t _d + t _r) (I _{TM} = 25 Adc, I _{GT} = 40 mA, V _D = Rated V _{DRM})	t _{gt}	—	1	—	μs
Turn-Off Time (I _{TM} = 10 A, I _R = 10 A, Pulse Width = 50 μs, dv/dt = 20 V/μs, V _D = Rated V _{DRM}) T _C = 100°C	t _q	— —	25 35	— —	μs
Forward Voltage Application Rate (V _D = Rated V _{DRM}) T _C = 100°C	dv/dt	—	100	—	V/μs



NOTE Derating is for Pressfit and Stud Devices. Isolated stud devices must be derated an additional 15%. For example, the max T_C @ 16 A (180° conduction angle) is 70°C, a derating of 30°C. Isolated stud devices must be derated 34.5°C, therefore the maximum T_C is 65.5°C.



MCR230, 231 • MCR230()3, 231()3 • C232, 233 Series

FIGURE 3 – GATE CURRENT VARIATION WITH TEMPERATURE

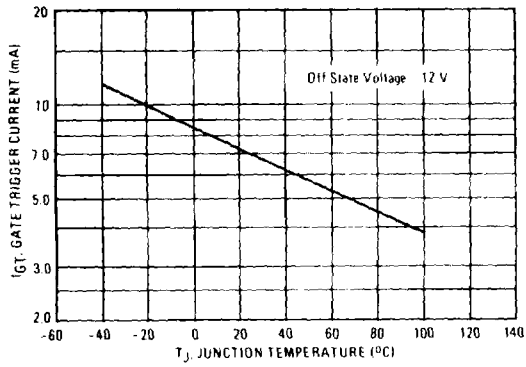
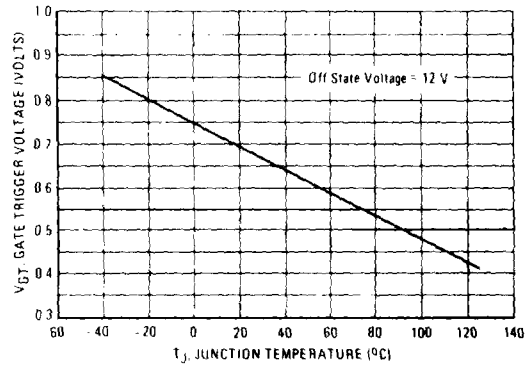


FIGURE 4 – GATE VOLTAGE VARIATION WITH TEMPERATURE



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