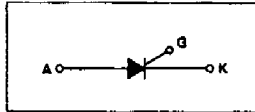


Silicon Controlled Rectifiers Reverse Blocking Triode Thyristors

... 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

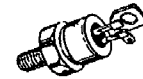
Rating	Suffix	Symbol	Value	Unit
Peak Repetitive Off-State Voltage, Note 1 ($T_C = -40$ to $+100^\circ\text{C}$) All Types	F	V_{DRM}	50	Volts
	A	V_{DRM} and V_{RRM}	100	
	B		200	
	D		400	
	M		600	
Non-Repetitive Reverse Voltage ($T_C = -40$ to 100°C) All Types	F	V_{RSM}	75	Volts
	A		150	
	B		300	
	D		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		$P_{G(AV)}$	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



(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



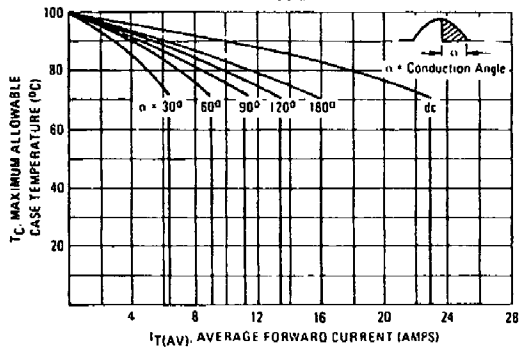
NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

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

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

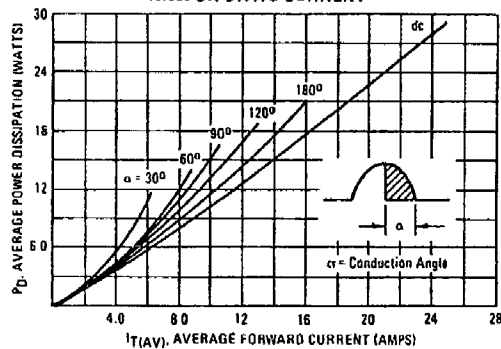
Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (Rated V _{DRM} or V _{RRM} , gate open) T _C = 25°C T _C = 100°C	I _{DRM} , I _{RRM}	—	—	10 1	μA mA
Forward "On" Voltage (I _{TM} = 100 A Peak, Pulse Width ≤ 1 ms, Duty Cycle ≤ 2%)	V _{TM}	—	—	1.9	Volts
Gate Trigger Current, 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, 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 mAdc, 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

FIGURE 1 - CURRENT DERATING FOR PRESSFIT AND NON-ISOLATED STUD



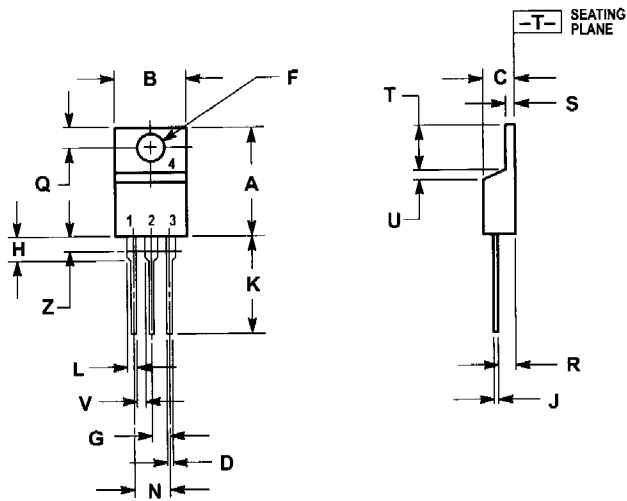
NOTE Derating is for Pressfit and Stud Devices. Isolated stud devices must be derated an additional 15%. For example, the max T_C @ 16 A (180° conduction angle) is 70°C, a derating of 30% Isolated stud devices must be derated 34.5%, therefore the maximum T_C is 65.5°C.

FIGURE 2 - ON-STATE POWER DISSIPATION versus ON-STATE CURRENT



MCR265-2 thru MCR265-10

PACKAGE DIMENSIONS



STYLE 3:
 PIN 1. CATHODE
 2. ANODE
 3. GATE
 4. ANODE

- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.022	0.36	0.55
K	0.500	0.562	12.70	14.27
L	0.045	0.055	1.15	1.39
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

(TO-220AB)