DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

MCR2150(A) SERIES

SILICON CONTROLLED RECTIFIERS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS.

Rating	Symbol	Value	Unit
Repetitive peak off-state voltage(1) **Peak repetitive reverse voltage** MCR2150(A)-4 MCR2150(A)-5 MCR2150(A)-6 MCR2150(A)-7 MCR2150(A)-8 MCR2150(A)-9 MCR2150(A)-10	V_{RRM} V_{DRM}	 200 300 400 500 600 700 800	Volts
Forward current RMS (all conduction angles)	$I_{T(RMS)}$	15	Amps
Peak forward surge current (1/2 cycle, sine wave, 60 Hz)	I_{TSM}	160	Amps
Circuit fusing considerations (t = 8.3ms)	I^2t	100	A^2s
Forward peak gate power	P_{GM}	5.0	Watts
Forward average gate power	$P_{G(AV)}$	0.5	Watts
Forward peak gate current	I_{GM}	2.0	Amps
Operating junction temperature range	T_J	-40 to +125	°C
Storage temperature range	T_{stg}	-40 to +150	°C

Note 1: V_{RRM} for all types can be applied on a continuous dc basis without incurring damage. Ratings apply for zero or negative gate voltage. Devices should not be tested for blocking capability in a manner such that the voltage supplied exceeds the rated blocking voltage.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	$R_{\Theta JC}$	1.5	°C/W

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ.	Max	Unit
Peak forward blocking current (Rated V_{DRM} @ T_J = 125°C)	I_{DRM}	-	-	3.0	mA
Peak reverse blocking current (Rated V_{RRM} @ T_J = 125°C)	I_{RRM}	-	-	3.0	mA
Peak on-state voltage(2) (I_{TM} = 10A peak) (I_{TM} = 30A peak)	V_{TM}	- -	- -	3.0 3.75	Volts
Gate trigger current (continuous dc) (V_D = 7.0V, R_L = 100Ω)	I_{GT}	-	-	50	mA
Gate trigger voltage (continuous dc) (V_D = 7.0V, R_L = 100Ω)	V_{GT}	-	-	2.5	Volts
Holding current (V_D = 7.0V, R_L = 100Ω)	I_H	-	-	100	mA

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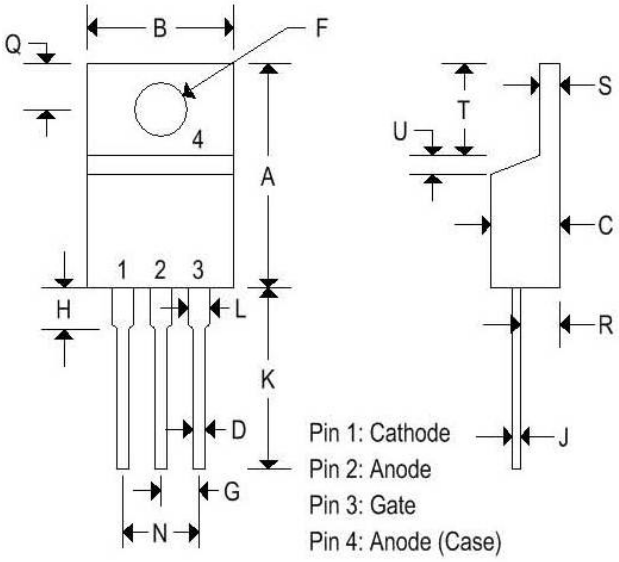
Turn-off time (V_{DRM} = rated voltage) (I_{TM} = 10, di/dt = 5.0A/µs, reapplied dv/dt = 50V/µs) MCR2150 MCR2150A	t_q	 - -	 3.0 -	 10 4.0	µs
Forward voltage application rate	dv/dt	100	150	-	V/µs

Note 2: Pulse test: pulse width = 1.0ms, duty cycle ≤ 2%.

MECHANICAL CHARACTERISTICS

Case:	TO-220AB
Marking:	Body painted, alpha-numeric
Pin out:	See below



	TO-220AB			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.575	0.620	14.600	15.750
B	0.380	0.405	9.650	10.290
C	0.160	0.190	4.060	4.820
D	0.025	0.035	0.640	0.890
F	0.142	0.147	3.610	3.730
G	0.095	0.105	2.410	2.670
H	0.110	0.155	2.790	3.930
J	0.014	0.022	0.360	0.560
K	0.500	0.562	12.700	14.270
L	0.045	0.055	1.140	1.390
N	0.190	0.210	4.830	5.330
Q	0.100	0.120	2.540	3.040
R	0.080	0.110	2.040	2.790
S	0.045	0.055	1.140	1.390
T	0.235	0.255	5.970	6.480
U	-	0.050	-	1.270
V	0.045	-	1.140	-
Z	-	0.080	-	2.030

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FIGURE 1 — AVERAGE CURRENT DERATING

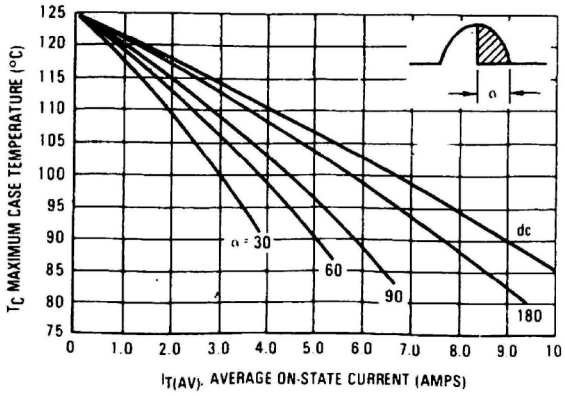

FIGURE 2 — ON-STATE POWER DISSIPATION

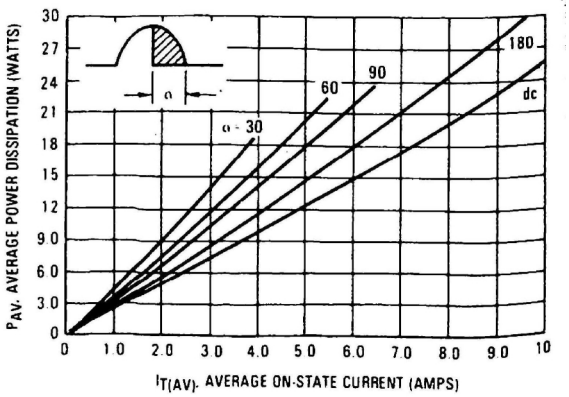

FIGURE 3 — TYPICAL GATE TRIGGER CURRENT

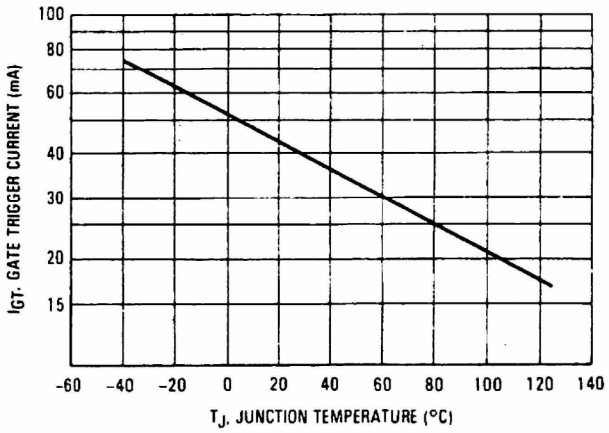

FIGURE 4 — TYPICAL GATE TRIGGER VOLTAGE

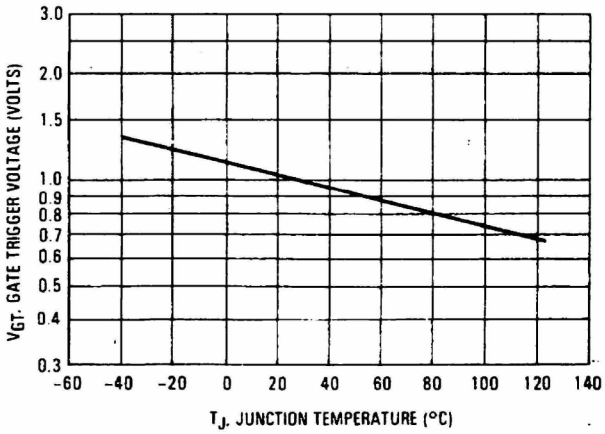

FIGURE 5 — TYPICAL HOLDING CURRENT

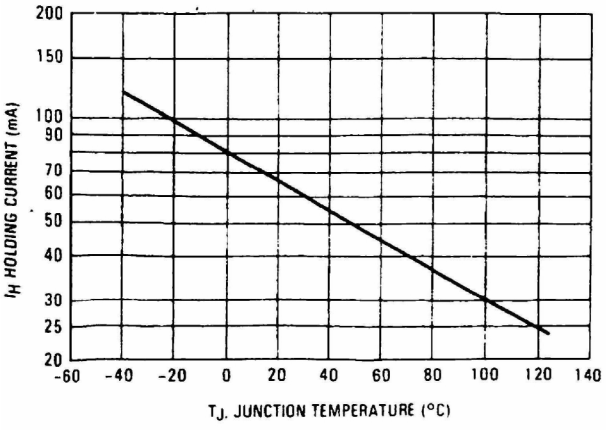

FIGURE 6 — TYPICAL TURN-OFF TIME