

DIGITRON SEMICONDUCTORS

MCR1718 SERIES

SILICON CONTROLLED RECTIFIER

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).

Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Reverse Blocking Voltage ⁽¹⁾ MCR1718-5 MCR1718-6 MCR1718-7 MCR1718-8	V_{RRM}	300	Volts
		400	
		500	
		600	
Non-Repetitive Peak Reverse Voltage (Transient, Non-recurrent 5 ms(max)) MCR1718-5 MCR1718-6 MCR1718-7 MCR1718-8	V_{RSM}	400	Volts
		500	
		600	
		700	
Forward Current RMS	$I_{T(RMS)}$	25	Amp
Peak Forward Surge Current (1-10 μ s Pulse Width)	I_{TSM}	1000	Amp
Current Application Rate (up to 1000 Adc peak)	di/dt	1000	A/ μ s
Circuit Fusing Considerations ($T_J = -65$ to $+125^\circ\text{C}$; $t \leq 1.0$ ms)	I^2t	250	A^2s
Dynamic Average Power ($T_C = 65^\circ\text{C}$)	$P_{F(AV)}$	30	Watts
Peak Gate Power –Forward	P_{GM}	20	Watts
Average Gate Power – Forward	$P_{G(AV)}$	1.0	Watt
Peak Gate Current – Forward	I_{GM}	5.0	Amp
Peak Gate Voltage	V_{GM}	10	Volts
Operating Junction Temperature Range	T_J	-65 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$
Stud Torque	-	30	In.-lb

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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ$ unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Units
Peak Forward Blocking Voltage ⁽²⁾ ($T_J = 125^\circ\text{C}$) MCR1718-5 MCR1718-6 MCR1718-7 MCR1718-8	V_{DRM}	300	-	-	Volts
		400	-	-	
		500	-	-	
		600	-	-	
Peak Forward Blocking Current (Rated V_{DRM} with gate open, $T_J = 125^\circ\text{C}$)	I_{DRM}	-	-	8.0	mA
Peak Reverse Blocking Current (Rated V_{RRM} with gate open, $T_J = 125^\circ\text{C}$)	I_{RRM}	-	-	8.0	mA
Forward "on" Voltage ($I_F = 25$ Adc) ($I_{GT} = 500$ mA, $I_{pulse} = 500$ Amps) (1 μ s after start (10% pt.) of I_{pulse}) (5.0 μ s after start (10% pt.) of I_{pulse})	V_{TM}	-	1.1	1.3	Volts
		-	0.30	-	
		-	5.0	-	

DIGITRON SEMICONDUCTORS

MCR1718-5 THROUGH MCR1718-8

SILICON CONTROLLED RECTIFIER

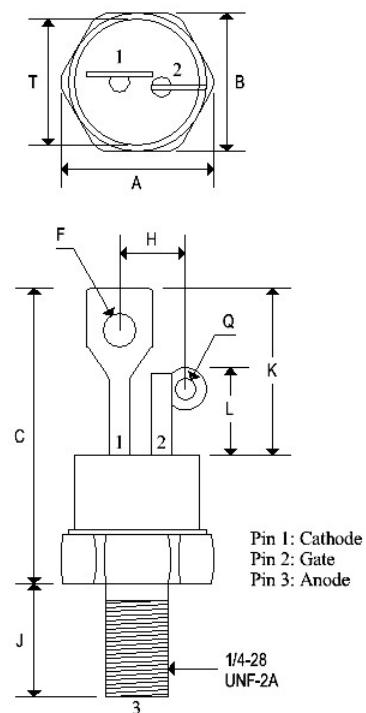
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ$ unless otherwise noted)

Characteristic	Symbol	Min.	Typ.	Max.	Units
Gate Trigger Current (Continuous dc) (Anode Voltage = 7.0 Vdc, $R_L = 50$ Ohms)	I_{GT}	-	10	50	mA
Gate Trigger Voltage (Continuous dc) (Anode Voltage = 7.0 Vdc, $R_L = 50$ Ohms) (Anode Voltage = Rated V_{DRM} , $R_L = 500$ Ohms, $T_J = 125^\circ\text{C}$)	V_{GT} V_{GD}	- 0.25	0.8 -	1.5 -	Volts
Holding Current (Anode Voltage = 7.0 Vdc, Gate Open) (Anode Voltage = 7.0 Vdc, Gate Open, $T_J = 125^\circ\text{C}$)	I_H	5.0 -	15 6.0	- -	mA
Circuit Commutated Turn-Off Time ($I_F = 500$ A, $I_R = 10$ A, $dv/dt = 20$ V/ μ s) (Conductive Charging Circuit - Circuit dependent)	t_q	-	20	-	μ s
Critical Exponential Rate of Rise (Gate Open, $T_J = 125^\circ\text{C}$)	dv/dt	-	100	-	V/ μ s

Note 2: V_{DRM} for all types can be supplied on a continuous basis without incurring damage. Ratings apply for zero or negative gate voltage.

MECHANICAL CHARACTERISTICS

Case	TO-48
Marking	Alpha-numeric
Polarity	Stud is cathode



	TO-48			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.604	0.614	15.340	15.600
B	0.551	0.559	14.000	14.200
C	1.050	1.190	2.670	30.230
F	0.135	0.160	3.430	4.060
H	-	0.265	-	6.730
J	0.420	0.455	10.670	11.560
K	0.620	0.670	15.750	17.020
L	0.300	0.350	7.620	8.890
Q	0.055	0.085	1.400	2.160
T	0.501	0.505	12.730	12.830