DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

MCR1718

SILICON CONTROLLED RECTIFIER

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
Peak Reverse Blocking Voltage (1) MCR1718-5 MCR1718-6 MCR1718-7 MCR1718-8	V_{RRM}	 300 400 500 600	Volts
Non-Repetitive Peak Reverse Voltage (Transient, Non-recurrent 5 ms(max) MCR1718-5 MCR1718-6 MCR1718-7 MCR1718-8	V_{RSM}	 400 500 600 700	Volts
Forward Current RMS	$I_{T(RMS)}$	25	Amp
Peak Forward Surge Current (1-10 µs Pulse Width)	I_{TSM}	1000	Amp
Current Application Rate (up to 1000 Adc peak)	di/dt	1000	A/µs
Circuit Fusing Considerations (T_J = -65 to +125°C; t ≤ 1.0 ms)	I^2t	250	A^2s
Dynamic Average Power (T_C = 65°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	°C
Storage Temperature Range	T_{stg}	-65 to +150	°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	°C/W

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

Characteristic	Symbol	Min.	Typ.	Max.	Units
Peak Forward Blocking Voltage (2)					
(T_J = 125°C)					
MCR1718-5	V_{DRM}	300	-	-	Volts
MCR1718-6		400	-	-	
MCR1718-7		500	-	-	
MCR1718-8		600	-	-	
Peak Forward Blocking Current (Rated V_{DRM} with gate open, T_J = 125°C)	I_{DRM}	-	-	8.0	mA
Peak Reverse Blocking Current (Rated V_{RRM} with gate open, T_J = 125°C)	I_{RRM}	-	-	8.0	mA
Forward "on" Voltage					
(I_F = 25 Adc)		-	1.1	1.3	
(I_{GT} = 500 mA, I_{pulse} = 500 Amps)	V_{TM}				Volts
(1µs after start (10% pt.) of I_{pulse})		-	0.30	-	
(5.0µs after start (10% pt.) of I_{pulse})		-	5.0	-	
Gate Trigger Current (Continuous dc) (Anode Voltage = 7.0 Vdc, R_L = 50 Ohms)	I_{GT}	-	10	50	mA
Gate Trigger Voltage (Continuous dc)					Volts
(Anode Voltage = 7.0 Vdc, R_L = 50 Ohms)	V_{GT}	-	0.8	1.5	
(Anode Voltage = Rated V_{DRM}, R_L = 500 Ohms, T_J = 125°C)	V_{GD}	0.25	-	-	
Holding Current	I_H				mA
(Anode Voltage = 7.0 Vdc, Gate Open)		5.0	15	-	
(Anode Voltage = 7.0 Vdc, Gate Open, T_J = 125°C)		-	6.0	-	
Circuit Commutated Turn-Off Time (I_F = 500 A, I_R = 10A, dv/dt = 20 V/µs) (Conductive Charging Circuit – Circuit dependent)	t_q	-	20	-	µs
Critical Exponential Rate of Rise (Gate Open, T_J = 125°C)	dv/dt	-	100	-	V/µs

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.

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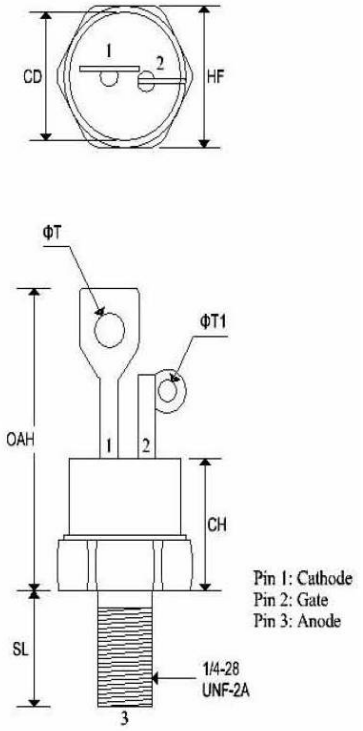
MECHANICAL CHARACTERISTICS

Case	TO-48
Marking	Body painted, alpha-numeric
Polarity	Cathode is stud



	TO-48			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.543	-	13.793
CH	-	0.550	-	13.970
HF	0.544	0.563	13.817	14.301
OAH	-	1.193	-	30.303
SL	0.422	0.453	10.718	11.507
ΦT	0.125	0.165	3.175	4.191
ΦT_1	0.060	0.075	1.524	1.905