

### 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
<b>Peak Reverse Blocking Voltage</b> <sup>(1)</sup> MCR1718-5 MCR1718-6 MCR1718-7 MCR1718-8	$V_{RRM}$	300 400 500 600	Volts
<b>Non-Repetitive Peak Reverse Voltage</b> (Transient, Non-recurrent 5 ms(max)) MCR1718-5 MCR1718-6 MCR1718-7 MCR1718-8	$V_{RSM}$	400 500 600 700	Volts
<b>Forward Current RMS</b>	$I_{T(RMS)}$	25	Amp
<b>Peak Forward Surge Current</b> (1-10 $\mu$ s Pulse Width)	$I_{TSM}$	1000	Amp
<b>Current Application Rate</b> (up to 1000 Adc peak)	di/dt	1000	A/ $\mu$ s
<b>Circuit Fusing Considerations</b> ( $T_j = -65$ to $+125^\circ\text{C}$ ; $t \leq 1.0$ ms)	$I^2t$	250	A <sup>2</sup> s
<b>Dynamic Average Power</b> ( $T_c = 65^\circ\text{C}$ )	$P_{F(AV)}$	30	Watts
<b>Peak Gate Power – Forward</b>	$P_{GM}$	20	Watts
<b>Average Gate Power – Forward</b>	$P_{G(AV)}$	1.0	Watt
<b>Peak Gate Current – Forward</b>	$I_{GM}$	5.0	Amp
<b>Peak Gate Voltage</b>	$V_{GM}$	10	Volts
<b>Operating Junction Temperature Range</b>	$T_j$	-65 to +125	$^\circ\text{C}$
<b>Storage Temperature Range</b>	$T_{stg}$	-65 to +150	$^\circ\text{C}$
<b>Stud Torque</b>	-	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
<b>Thermal Resistance, Junction to Case</b>	$R_{\theta JC}$	2.0	$^\circ\text{C}/\text{W}$

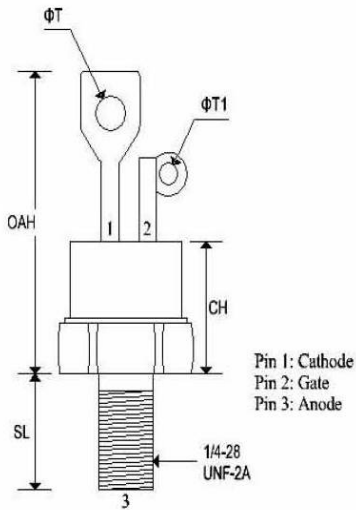
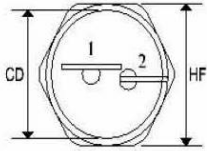
**ELECTRICAL CHARACTERISTICS** ( $T_C = 25^\circ\text{C}$  unless otherwise noted)

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

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

<b>Case</b>	TO-48
<b>Marking</b>	Body painted, alpha-numeric
<b>Polarity</b>	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 <sub>1</sub>	0.060	0.075	1.524	1.905