

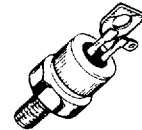
Silicon Controlled Rectifiers Reverse Blocking Triode Thyristors

... fast switching, high-voltage thyristors especially designed for pulse modulator applications.

- High-Voltage Capability from 300 to 600 Volts
- Repetitive Pulse Current to 1000 Amps
- Pulse Repetition as High as 4000 pps
- Current Application Rate as High as 1000 A/ μ s

**MCR1718-5
thru
MCR1718-8**

**SCRs
25 AMPERES RMS
300 thru 600 VOLTS**



**CASE 263-04
STYLE 1**

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MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Forward or Reverse Blocking Voltage, Note 1 ($T_J = 25$ to 125°C , Gate Open)	V_{DRM} V_{RRM}		Volts
MCR1718-5		300	
-6		400	
-7		500	
-8		600	
Peak Reverse Blocking Voltage (Transient) (Non-Recurrent 5 ms (max))	V_{RSM}		Volts
MCR1718-5		400	
-6		500	
-7		600	
-8		700	
Forward Current RMS	$I_T(\text{RMS})$	25	Amps
Peak Forward Surge Current (1–10 μ s Pulse Width)	I_{TSM}	1000	Amps
Current Application Rate (up to 1000 A peak)	di/dt	1000	A/ μ s
Circuit Fusing ($t = 8.3$ ms)	I^2t	250	A ² s
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	Watt
Peak Gate Current — Forward	I_{GM}	5	Amps

Note 1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

MCR1718-5 thru MCR1718-8

MAXIMUM RATINGS — continued

Rating	Symbol	Value	Unit
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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R _{θJC}	2	°C/W

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (V _{AK} = Rated V _{DRM} or V _{RRM} , Gate Open) T _J = 25°C T _J = 125°C	I _{DRM} , I _{RRM}	— —	— —	10 8	μA mA
Forward "On" Voltage (I _{TM} = 25 Adc)	V _{TM}	—	1.1	1.3	Volts
Dynamic Forward On Voltage (I _{GT} = 500 mA, I _{pulse} = 500 A) (1 μs after start (10% pt.) of I _{pulse}) (5 μs after start (10% pt.) of I _{pulse})	V _{TM}	— —	30 5	— —	
Gate Trigger Current (Continuous dc) (V _D = 7 Vdc, R _L = 50 Ohms)	I _{GT}	—	10	50	mA
Gate Trigger Voltage (Continuous dc) (V _D = 7 Vdc, R _L = 50 Ohms) (V _D = Rated V _{DRM} , R _L = 50 Ohms, T _J = 125°C)	V _{GT} V _{GD}	— 0.25	0.8 —	1.5 —	Volts
Holding Current (V _D = 7 Vdc, Gate Open) (V _D = 7 Vdc, Gate Open, T _J = 125°C)	I _H	5 —	15 6	— —	mA
Circuit Commutated Turn-Off Time (I _F = 500 A, I _R = 10 A, dv/dt = 20 V/μs V _D = Rated V _{DRM} , V _R = Rated V _{RRM}) (Conductive Charging Circuit — Circuit dependent)	t _q	—	20	—	μs
Critical Exponential Rate-of-Rise (Gate Open, T _J = 125°C, V _D = Rated V _{DRM} , Exponential Waveform)	dv/dt	—	100	—	V/μs

(1) V_{DRM} for all types can be supplied on a continuous dc basis without incurring damage. Ratings apply for zero or negative gate voltage.

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