

DIGITRON SEMICONDUCTORS

MCR3835 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 repetitive forward and reverse blocking voltage⁽¹⁾ MCR3835-1 MCR3835-2 MCR3835-3 MCR3835-4 MCR3835-5 MCR3835-6 MCR3835-7 MCR3835-8 MCR3835-9 MCR3835-10	V_{RRM}, V_{DRM}	25 50 100 200 300 400 500 600 700 800	Volts
Peak non-repetitive blocking voltage⁽¹⁾ MCR3835-1 MCR3835-2 MCR3835-3 MCR3835-4 MCR3835-5 MCR3835-6 MCR3835-7 MCR3835-8 MCR3835-9 MCR3835-10	V_{RRM}, V_{DRM}	25 50 100 200 300 400 500 600 700 800	Volts
Forward on-state current RMS (all conduction angles)	$I_{T(RMS)}$	35	Amps
Peak surge current (one cycle, 60Hz, $T_J = -40$ to $+125^\circ\text{C}$)	I_{TSM}	35	Amps
Circuit fusing considerations ($T_J = -40$ to $+100^\circ\text{C}$, $t \leq 8.3\text{ms}$)	I^2t	510	A^2s
Peak gate power	P_{GM}	5	Watts
Average gate power	$P_{G(AV)}$	0.5	Watts
Peak forward gate current	I_{GM}	2	Amps
Peak gate voltage, forward or reverse	V_{GM}	10	Volts
Operating junction temperature range	T_J	-40 to +125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 to +150	$^\circ\text{C}$
Mounting torque		30	In. lb.

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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	$R_{\theta JC}$	1.2	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Peak forward or reverse blocking current (Rated V_{DRM} or V_{RRM} , gate open) $T_J = 25^\circ\text{C}$ $T_J = 100^\circ\text{C}$	I_{DRM}, I_{RRM}	- -	- 1	10 5	μA mA
Forward "on" voltage ($I_{TM} = 35\text{A}$ peak)	V_{TM}	-	1.2	1.5	Volts

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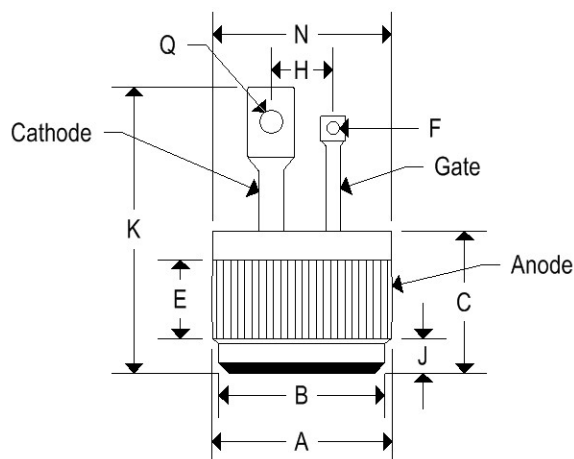
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Characteristic	Symbol	Min.	Typ.	Max.	Unit
Gate trigger current (continuous dc) ($V_D = 7V$, $R_L = 100\Omega$)	I_{GT}	-	10	40	mA
Gate trigger voltage (continuous dc) ($V_D = 7V$, $R_L = 100\Omega$) ($V_D = \text{rated } V_{DRM}$, $R_L = 100\Omega$, $T_J = 100^\circ C$)	V_{GT} V_{GD}	- 0.2	0.7 -	1.5 -	Volts
Holding current ($V_D = 7V_{dc}$, gate open)	I_H	-	10	50	mA
Turn-on time ($t_d + t_r$) ($I_{TM} = 35A$, $I_{GT} = 40mA_{dc}$)	T_{on}	-	1	-	μs
Turn-off time ($I_{TM} = 10A$, $I_R = 10A$) ($I_{TM} = 10A$, $I_R = 10A$, $T_J = 100^\circ C$)	t_q	- -	20 30	- -	μs
Forward voltage application rate ($V_D = \text{rated } V_{DRM}$, $T_J = 100^\circ C$)	dv/dt	-	50	-	V/ μs

MECHANICAL CHARACTERISTICS

Case	Digi PF2 (MCR3835 series)
Marking	Body painted, alpha-numeric



	DIGI PF2			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.501	0.505	12.730	12.830
B	0.465	0.475	11.810	12.060
C	0.330	0.380	8.390	9.650
E	0.100	-	2.540	-
F	0.035	0.085	0.890	2.160
J	0.080	0.097	2.040	2.460
K	-	0.800	-	20.320
N	-	0.510	-	12.950
Q	0.065	0.160	1.650	4.060

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FIGURE 1 – CURRENT DERATING

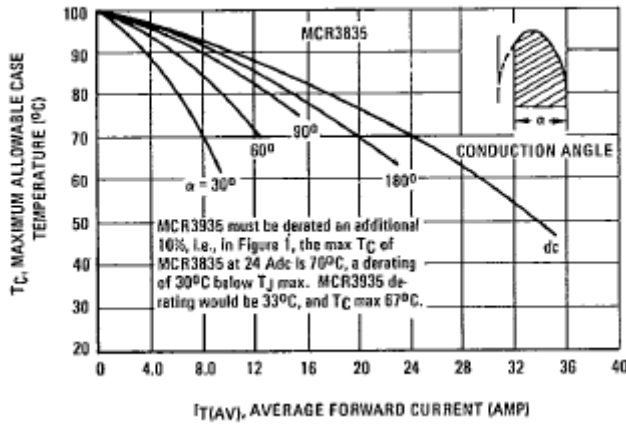


FIGURE 2 – TYPICAL POWER DISSIPATION

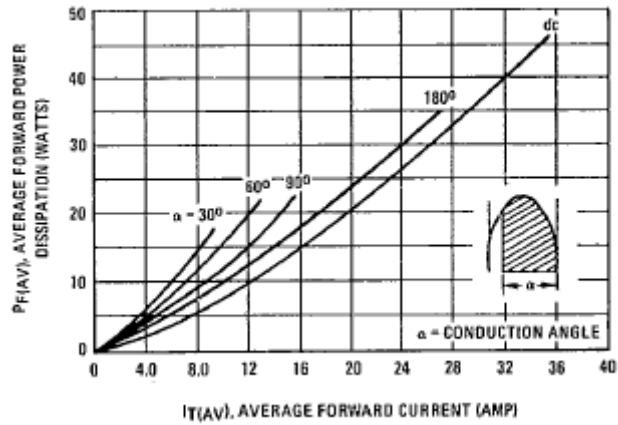


FIGURE 3 – TYPICAL GATE TRIGGER CURRENT

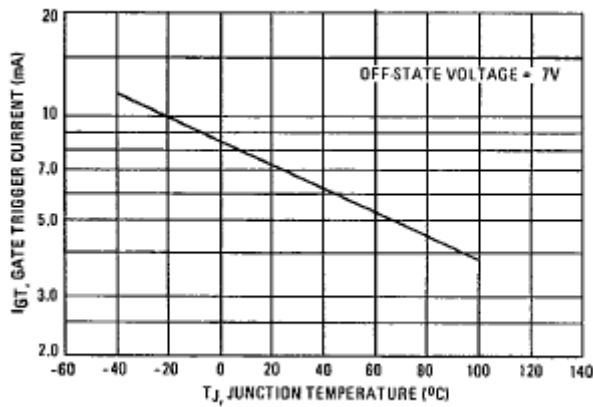


FIGURE 4 – TYPICAL GATE TRIGGER VOLTAGE

