DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

MCR3835 SERIES

SILICON CONTROLLED RECTIFIERS

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 repetitive forward and reverse blocking voltage(1)			
MCR3835-1		25	
MCR3835-2		50	
MCR3835-3		100	
MCR3835-4		200	
MCR3835-5	V_{RRM}, V_{DRM}	300	Volts
MCR3835-6		400	
MCR3835-7		500	
MCR3835-8		600	
MCR3835-9		700	
MCR3835-10		800	
Peak non-repetitive blocking voltage(1)			
MCR3835-1		25	
MCR3835-2		50	
MCR3835-3		100	
MCR3835-4		200	
MCR3835-5	V_{RRM}, V_{DRM}	300	Volts
MCR3835-6		400	
MCR3835-7		500	
MCR3835-8		600	
MCR3835-9		700	
MCR3835-10		800	
Forward on-state current RMS (all conduction angles)	$I_{T(RMS)}$	35	Amps
Peak surge current (one cycle, 60Hz, T_J = -40 to +125°C)	I_{TSM}	35	Amps
Circuit fusing considerations (T_J = -40 to +100°C, t ≤ 8.3ms)	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	°C
Storage temperature range	T_{stg}	-40 to +150	°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	°C/W

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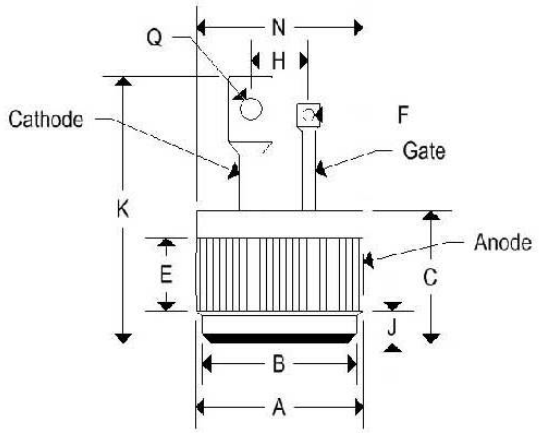
ELECTRICAL CHARACTERISTICS (T_J = 25°)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Peak forward or reverse blocking current (Rated V_{DRM} or V_{RRM}, gate open)	I_{DRM}, I_{RRM}				
T_J = 25°C		-	-	10	µA
T_J = 100°C		-	1	5	mA
Forward "on" voltage (I_{TM} = 35A peak)	V_{TM}	-	1.2	1.5	Volts
Gate trigger current (continuous dc) (V_D = 7V, R_L = 100Ω)	I_{GT}	-	10	40	mA
Gate trigger voltage (continuous dc)					Volts
(V_D = 7V, R_L = 100Ω)	V_{GT}	-	0.7	1.5	
(V_D = rated V_{DRM}, R_L = 100Ω, T_J = 100°C)	V_{GD}	0.2	-	-	
Holding current (V_D = 7Vdc, gate open)	I_H	-	10	50	mA
Turn-on time (t_d + t_r) (I_{TM} = 35A, I_{GT} = 40mAdc)	T_{on}	-	1	-	µs
Turn-off time	t_q				µs
(I_{TM} = 10A, I_R = 10A)		-	20	-	
(I_{TM} = 10A, I_R = 10A, T_J = 100°C)		-	30	-	
Forward voltage application rate (V_D = rated V_{DRM}, T_J = 100°C)	dv/dt	-	50	-	V/µs

MECHANICAL CHARACTERISTICS

Case:	Digi PF2
Marking:	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

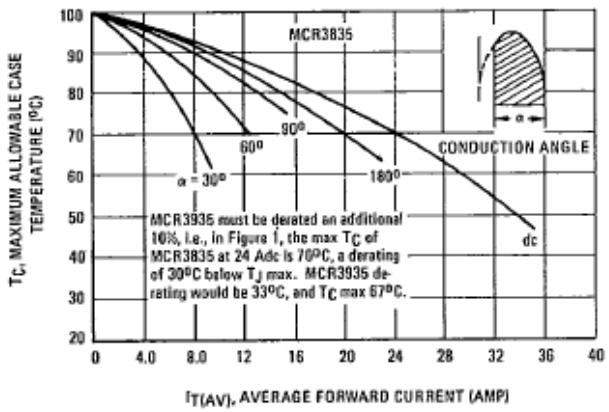

FIGURE 2 – TYPICAL POWER DISSIPATION

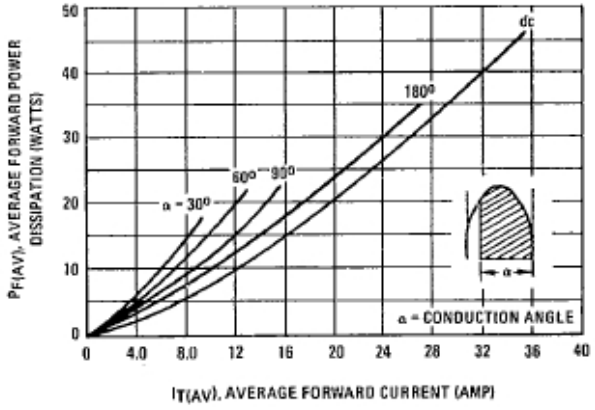

FIGURE 3 – TYPICAL GATE TRIGGER CURRENT

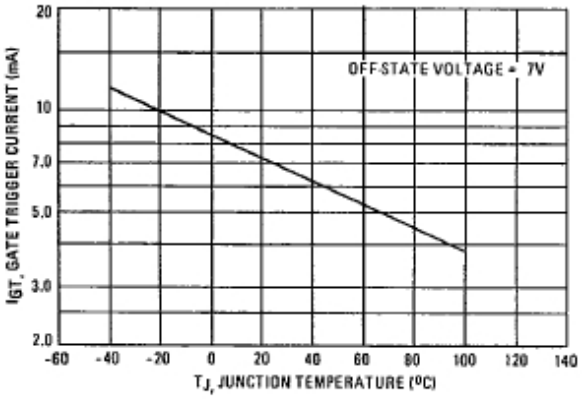

FIGURE 4 – TYPICAL GATE TRIGGER VOLTAGE