DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

MCR3935 SERIES

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 repetitive forward and reverse blocking voltage(1)			
MCR3935-1		25	
MCR3935-2		50	
MCR3935-3		100	
MCR3935-4		200	
MCR3935-5	V_{RRM}, V_{DRM}	300	Volts
MCR3935-6		400	
MCR3935-7		500	
MCR3935-8		600	
MCR3935-9		700	
MCR3935-10		800	
Peak non-repetitive reverse blocking voltage (t ≤ 5ms)			
MCR3935-1		25	
MCR3935-2		50	
MCR3935-3		100	
MCR3935-4		200	
MCR3935-5	V_{RSM}	300	Volts
MCR3935-6		400	
MCR3935-7		500	
MCR3935-8		600	
MCR3935-9		700	
MCR3935-10		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}	350	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_C = 25°C unless otherwise noted)

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

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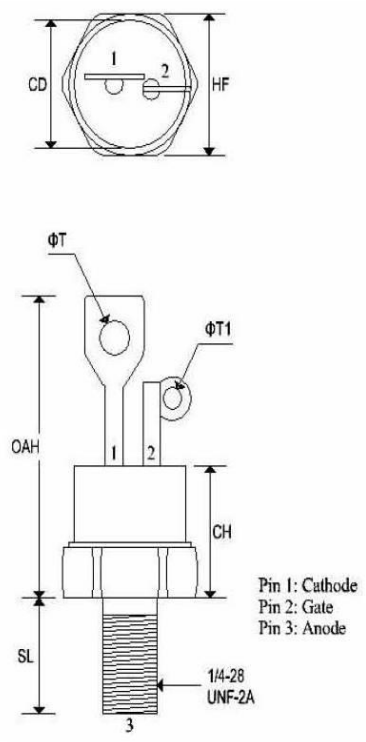
MECHANICAL CHARACTERISTICS

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

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FIGURE 1 – CURRENT DERATING

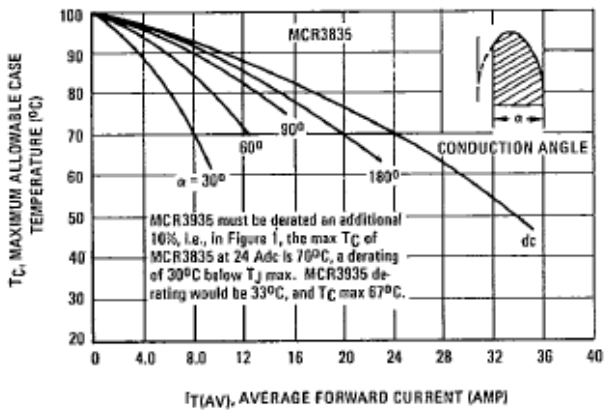

FIGURE 2 – TYPICAL POWER DISSIPATION

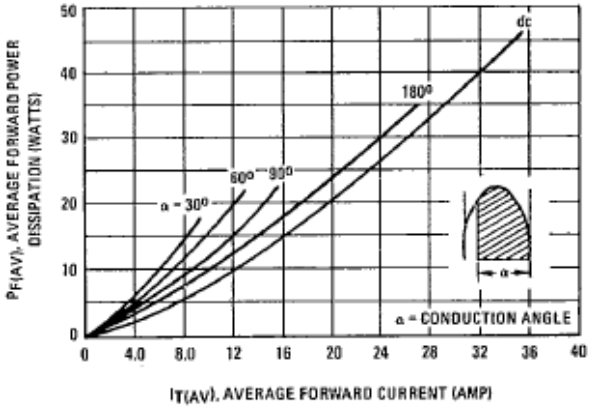

FIGURE 3 – TYPICAL GATE TRIGGER CURRENT

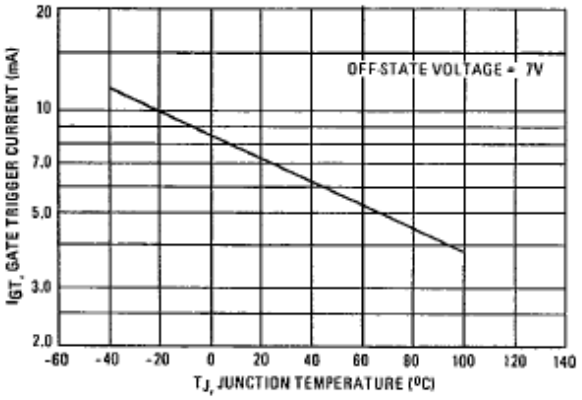

FIGURE 4 – TYPICAL GATE TRIGGER VOLTAGE