

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	V_{RRM}, V_{DRM}	25	Volts
MCR3935-2		50	
MCR3935-3		100	
MCR3935-4		200	
MCR3935-5		300	
MCR3935-6		400	
MCR3935-7		500	
MCR3935-8		600	
MCR3935-9		700	
MCR3935-10		800	
Peak non-repetitive reverse blocking voltage ($t \leq 5\text{ms}$)			
MCR3935-1	V_{RSM}	25	Volts
MCR3935-2		50	
MCR3935-3		100	
MCR3935-4		200	
MCR3935-5		300	
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 $+125^\circ\text{C}$)	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	$^\circ\text{C/W}$

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ELECTRICAL CHARACTERISTICS (T_c = 25°C unless otherwise noted)

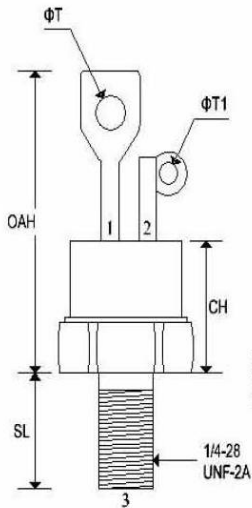
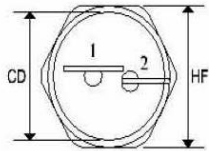
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Peak forward or reverse blocking current (Rated V _{DRM} or V _{RRM} , gate open) T _J = 25°C T _J = 100°C	I _{DRM} , I _{RRM}	- -	- 1	10 5	μA mA
Forward "on" voltage (I _{TM} = 35A peak)	V _{TM}	-	1.2	1.5	Volts
Gate trigger current (continuous dc) (V _D = 7V, R _L = 100Ω)	I _{GT}	-	10	40	mA
Gate trigger voltage (continuous dc) (V _D = 7V, R _L = 100Ω) (V _D = rated V _{DRM} , R _L = 100Ω, T _J = 100°C)	V _{GT} V _{GD}	- 0.2	0.7 -	1.5 -	Volts
Holding current (V _D = 7Vdc, 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°C)	t _q	- -	20 30	- -	μs
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



Pin 1: Cathode
Pin 2: Gate
Pin 3: Anode

	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
ΦT1	0.060	0.075	1.524	1.905

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FIGURE 1 – CURRENT DERATING

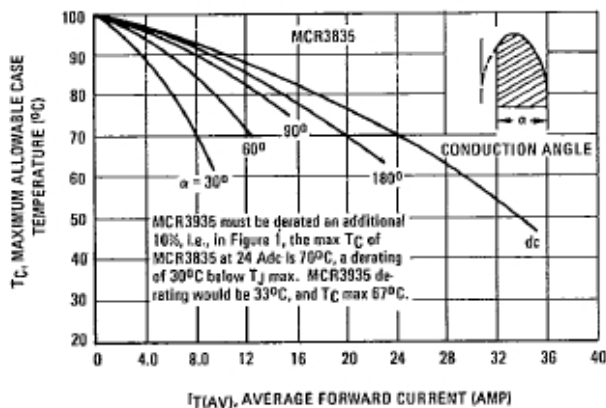


FIGURE 2 – TYPICAL POWER DISSIPATION

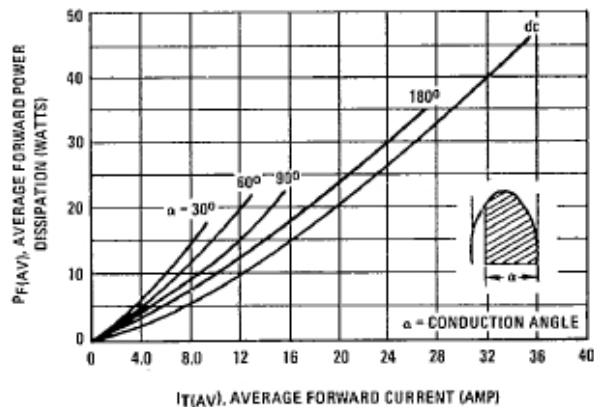


FIGURE 3 – TYPICAL GATE TRIGGER CURRENT

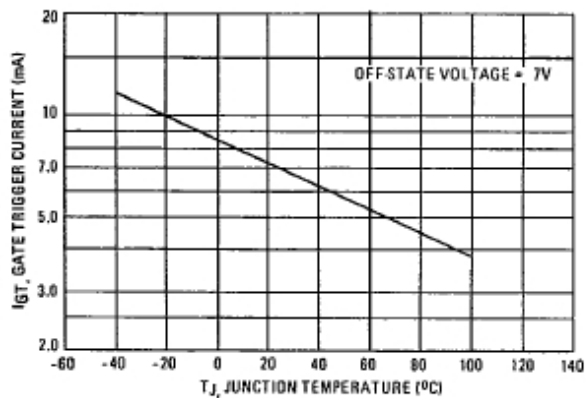


FIGURE 4 – TYPICAL GATE TRIGGER VOLTAGE

