

MCR65 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 voltage⁽¹⁾ (T _j = 25 to +125°C, gate open)	V _{RRM} , V _{DRM}		
MCR65-1		25	
MCR65-2		50	
MCR65-3		100	
MCR65-4		200	
MCR65-5		300	Volts
MCR65-6		400	
MCR65-7		500	
MCR65-8		600	
MCR65-9		700	
MCR65-10		800	
Non-repetitive peak reverse blocking voltage (t ≤ 5ms) ⁽¹⁾	V _{RSM}		
MCR65-1		35	
MCR65-2		75	
MCR65-3		150	
MCR65-4		300	
MCR65-5		400	Volts
MCR65-6		500	
MCR65-7		600	
MCR65-8		700	
MCR65-9		800	
MCR65-10		900	
Forward current RMS	I _{T(RMS)}	55	Amps
Peak surge current (one cycle, 60Hz, T _c = -40 to +125°C)	I _{TSM}	550	Amps
Circuit fusing considerations (t = 8.3ms)	I ² t	1255	A ² s
Peak gate power	P _{GM}	20	Watts
Average gate power (Pulse width ≤ 2μs)	P _{G(AV)}	0.5	Watts
Peak forward gate current	I _{GM}	2	Amps
Forward peak gate voltage Reverse peak gate voltage	V _{GFM} V _{GRM}	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 without incurring damage. Ratings apply for zero or negative gate voltage. Devices shall not have a positive bias applied to the gate concurrently with a negative potential on the anode.

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case Isolated stud	$R_{\theta JC}$	1.1	°C/W

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise specified)

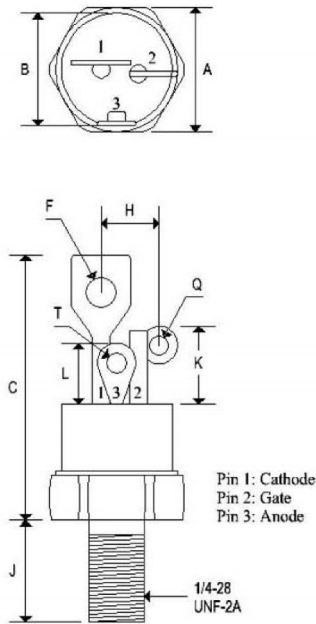
Characteristic	Symbol	Min.	Max.	Unit
Peak forward or reverse blocking current ($V_{AK} = \text{Rated } V_{DRM} \text{ or } V_{RRM}, \text{ gate open}$) $T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$	I_{DRM}, I_{RRM}	- -	10 2	μA mA
Forward "on" voltage ($I_{TM} = 175\text{A peak}$)	V_{TM}	-	2	Volts
Gate trigger current (continuous dc) ($V_D = 12\text{V}, R_L = 50\Omega$) $T_C = 25^\circ\text{C}$ $T_C = -40^\circ\text{C}$	I_{GT}	- -	40 75	mA
Gate trigger voltage (continuous dc) ($V_D = 12\text{V}, R_L = 50\Omega$) $T_C = 25^\circ\text{C}$ $T_C = -40^\circ\text{C}$ ($V_D = \text{Rated } V_{DRM}, R_L = 1000\Omega, T_J = 125^\circ\text{C}$)	V_{GT}	- - 0.2	3 3.5 -	Volts
Holding current ($V_D = 12\text{V}, R_L = 50\Omega, \text{ gate open}$)	I_H	-	60	mA
Forward voltage application rate ($V_D = \text{rated } V_{DRM}, T_J = 125^\circ\text{C}$)	dv/dt	50	-	V/ μs

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MECHANICAL CHARACTERISTICS

Case:	TO-48 ISO
Marking:	Body painted, alpha-numeric
Polarity:	Cathode is stud



	TO-48 ISO			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.551	0.559	14.000	14.200
B	0.501	0.505	12.730	12.830
C	-	1.280	-	32.510
F	-	0.160	-	4.060
H	-	0.265	-	6.730
J	0.420	0.455	10.670	11.560
K	0.300	0.350	7.620	8.890
L	0.255	0.275	6.480	6.990
Q	0.055	0.085	1.400	2.160
T	0.135	0.150	3.430	3.810

FIGURE 1 – AVERAGE CURRENT DERATING

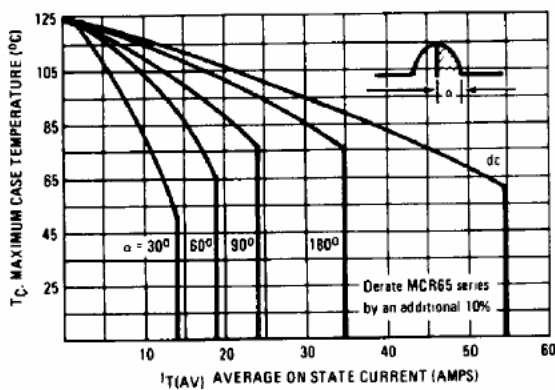


FIGURE 2 – POWER DISSIPATION

