DIGITRON SEMICONDUCTORS

MCR65 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 voltage(1) (T_J = 25 to +125°C, gate open)			
MCR65-1	V_{RRM}, V_{DRM}	25	Volts
MCR65-2		50	
MCR65-3		100	
MCR65-4		200	
MCR65-5		300	
MCR65-6		400	
MCR65-7		500	
MCR65-8		600	
MCR65-9		700	
MCR65-10		800	
Non-repetitive peak reverse blocking voltage (t ≤ 5ms)(1)			
MCR65-1	V_{RSM}	35	Volts
MCR65-2		75	
MCR65-3		150	
MCR65-4		300	
MCR65-5		400	
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^2t	1255	A^2s
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	V_{GFM}	10	Volts
Reverse peak gate voltage	V_{GRM}		
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.

THERMAL CHARACTERISTICS

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

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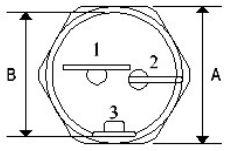
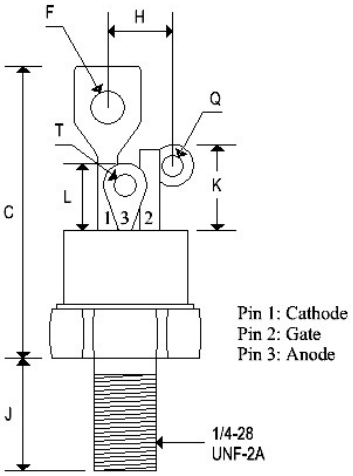
ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

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

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

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D I G I T R O N S E M I C O N D U C T O R S

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FIGURE 1 – AVERAGE CURRENT DERATING

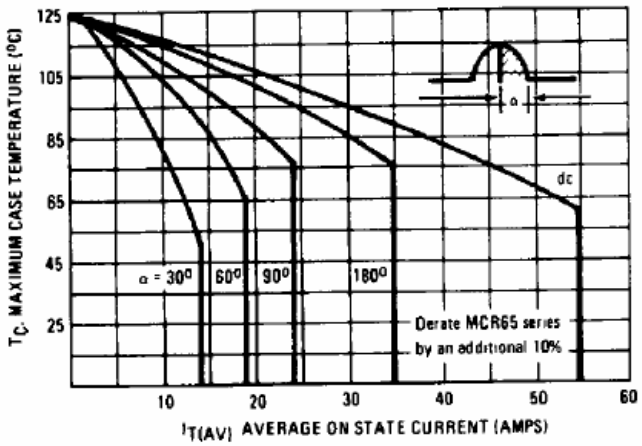
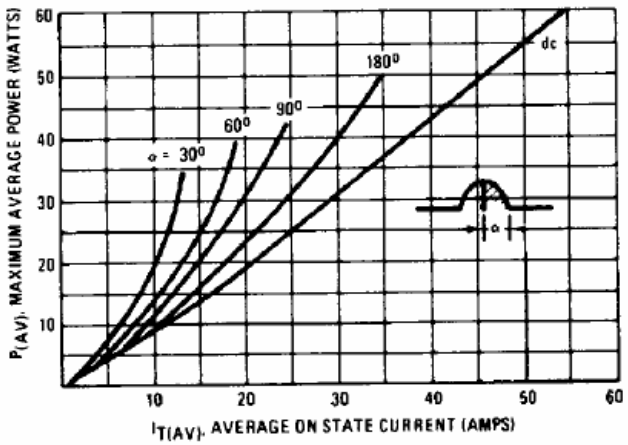


FIGURE 2 – POWER DISSIPATION



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