

# DIGITRON SEMICONDUCTORS

## MCR64 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
<b>Peak repetitive forward and reverse blocking voltage<sup>(1)</sup></b> ( $T_J = 25$ to $+125^\circ\text{C}$ , gate open)	$V_{RRM}, V_{DRM}$		Volts
MCR64-1		25	
MCR64-2		50	
MCR64-3		100	
MCR64-4		200	
MCR64-5		300	
MCR64-6		400	
MCR64-7		500	
MCR64-8		600	
MCR64-9		700	
MCR64-10	800		
<b>Non-repetitive peak reverse blocking voltage</b> ( $t \leq 5\text{ms}$ ) <sup>(1)</sup>	$V_{RSM}$		Volts
MCR64-1		35	
MCR64-2		75	
MCR64-3		150	
MCR64-4		300	
MCR64-5		400	
MCR64-6		500	
MCR64-7		600	
MCR64-8		700	
MCR64-9		800	
MCR64-10	900		
<b>Forward current RMS</b>	$I_{T(RMS)}$	55	Amps
<b>Peak surge current</b> (one cycle, 60Hz, $T_C = -40$ to $+125^\circ\text{C}$ )	$I_{TSM}$	550	Amps
<b>Circuit fusing considerations</b> ( $t = 8.3\text{ms}$ )	$I^2t$	1255	$\text{A}^2\text{s}$
<b>Peak gate power</b>	$P_{GM}$	20	Watts
<b>Average gate power</b> (Pulse width $\leq 2\mu\text{s}$ )	$P_{G(AV)}$	0.5	Watts
<b>Peak forward gate current</b>	$I_{GM}$	2	Amps
<b>Forward peak gate voltage</b> <b>Reverse peak gate voltage</b>	$V_{GFM}$ $V_{GRM}$	10	Volts
<b>Operating junction temperature range</b>	$T_J$	-40 to +125	$^\circ\text{C}$
<b>Storage temperature range</b>	$T_{stg}$	-40 to +150	$^\circ\text{C}$
<b>Mounting torque</b>		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
<b>Thermal resistance, junction to case</b> Pressfit	$R_{\theta JC}$	1	$^\circ\text{C}/\text{W}$

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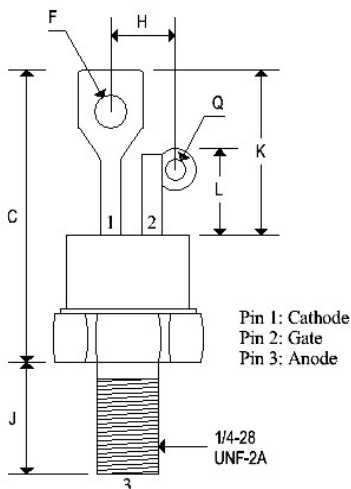
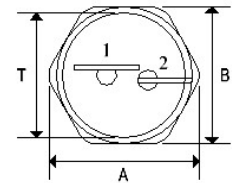
## SILICON CONTROLLED RECTIFIER

### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min.	Max.	Unit
<b>Peak forward or reverse blocking current</b> (V <sub>AK</sub> = Rated V <sub>DRM</sub> or V <sub>RRM</sub> , gate open) T <sub>C</sub> = 25°C T <sub>C</sub> = 125°C	I <sub>DRM</sub> , I <sub>RRM</sub>	- -	10 2	μA mA
<b>Forward "on" voltage</b> (I <sub>TM</sub> = 175A peak)	V <sub>TM</sub>	-	2	Volts
<b>Gate trigger current</b> (continuous dc) (V <sub>D</sub> = 12V, R <sub>L</sub> = 50Ω) T <sub>C</sub> = 25°C T <sub>C</sub> = -40°C	I <sub>GT</sub>	- -	40 75	mA
<b>Gate trigger voltage</b> (continuous dc) (V <sub>D</sub> = 12V, R <sub>L</sub> = 50Ω) T <sub>C</sub> = 25°C T <sub>C</sub> = -40°C (V <sub>D</sub> = Rated V <sub>DRM</sub> , R <sub>L</sub> = 1000Ω, T <sub>J</sub> = 125°C)	V <sub>GT</sub>	- - 0.2	3 3.5 -	Volts
<b>Holding current</b> (V <sub>D</sub> = 12V, R <sub>L</sub> = 50Ω, gate open)	I <sub>H</sub>	-	60	mA
<b>Forward voltage application rate</b> (V <sub>D</sub> = rated V <sub>DRM</sub> , T <sub>J</sub> = 125°C)	dv/dt	50	-	V/μs

### MECHANICAL CHARACTERISTICS

<b>Case</b>	TO-48
<b>Marking</b>	Body painted, alpha-numeric
<b>Polarity</b>	Cathode is stud

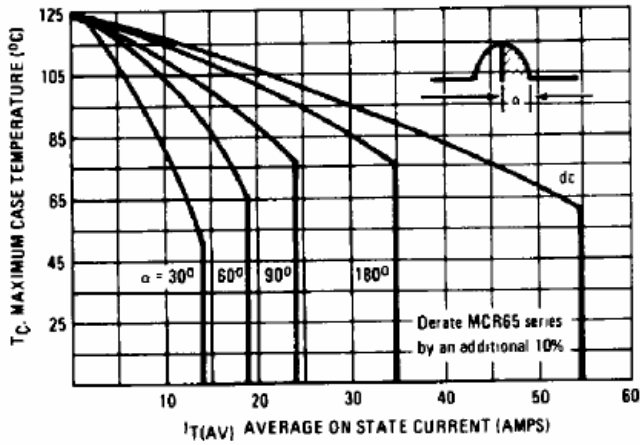


	TO-48			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.604	0.614	15.340	15.600
B	0.551	0.559	14.000	14.200
C	1.050	1.190	2.670	30.230
F	0.135	0.160	3.430	4.060
H	-	0.265	-	6.730
J	0.420	0.455	10.670	11.560
K	0.620	0.670	15.750	17.020
L	0.300	0.350	7.620	8.890
Q	0.055	0.085	1.400	2.160
T	0.501	0.505	12.730	12.830

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**FIGURE 1 – AVERAGE CURRENT DERATING**



**FIGURE 2 – POWER DISSIPATION**

