

DIGITRON SEMICONDUCTORS

MCR63 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 blocking voltage⁽¹⁾ (T _J = 25 to +125°C, gate open)	V _{RRM} , V _{DRM}	25 50 100 200 300 400 500 600 700 800	Volts
MCR63-1			
MCR63-2			
MCR63-3			
MCR63-4			
MCR63-5			
MCR63-6			
MCR63-7			
MCR63-8			
MCR63-9			
MCR63-10			
Non-repetitive peak reverse blocking voltage (t ≤ 5ms) ⁽¹⁾	V _{RSM}	35 75 150 300 400 500 600 700 800 900	Volts
MCR63-1			
MCR63-2			
MCR63-3			
MCR63-4			
MCR63-5			
MCR63-6			
MCR63-7			
MCR63-8			
MCR63-9			
MCR63-10			
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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case Pressfit	R _{θJC}	1	°C/W

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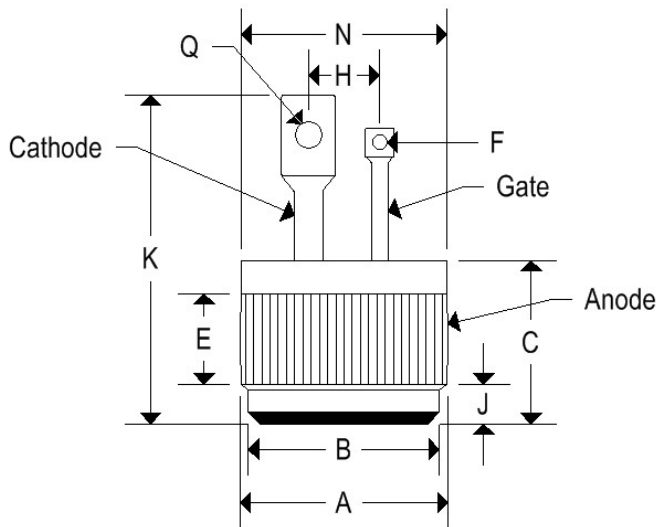
SILICON CONTROLLED RECTIFIER

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

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

MECHANICAL CHARACTERISTICS

Case	Digi PF1
Marking	Body painted, alpha-numeric



	DIGI PF1			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.501	0.505	12.730	12.830
F	-	0.160	-	4.060
G	0.085	0.095	2.160	2.410
H	0.060	0.070	1.520	1.780
J	0.300	0.350	7.620	8.890
K	-	1.050	-	26.670
L	-	0.670	-	17.020
Q	0.055	0.085	1.400	2.160

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FIGURE 1 – AVERAGE CURRENT DERATING

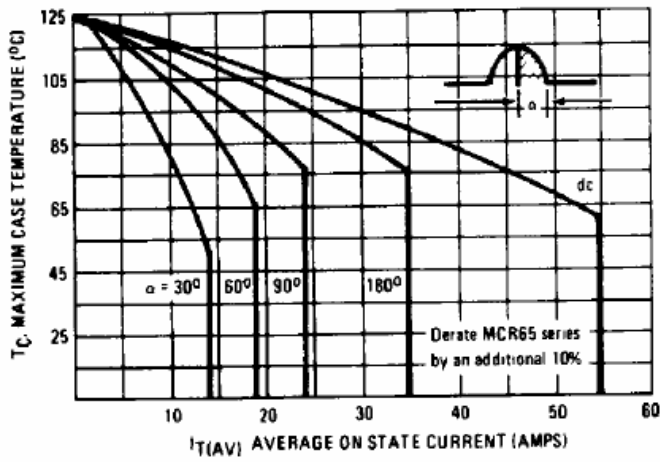


FIGURE 2 – POWER DISSIPATION

