

High-reliability discrete products and engineering services since 1977

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

Peak repetitive forward and reverse voltage [™] 25 Case of 125°C, gate open) 25 50 Case of 30 Case of 30<	Rating	Symbol	Value	Unit
MCR65-1 MCR65-2 MCR65-3 MCR65-5 MCR65-5 MCR65-6 MCR65-6 MCR65-9 MCR65-9 MCR65-9 MCR65-10 200 400 400 500 600 600 600 600 600 600 600 600 6	Peak repetitive forward and reverse voltage(1)			
MCR65-2 MCR65-3 MCR65-4 MCR65-6 MCR65-6 MCR65-6 MCR65-7 MCR65-7 MCR65-9 MCR65-10 VNMM, VORM 400 MCR65-9 MCR65-10 VOIS 400 MCR65-10 MCR65-10 VOIS 400 MCR65-10 MCR65-10 VOIS 800 MCR65-10 MCR65-10 TO 800 TO 800 VOIS 800 MCR65-10 MCR65-10 TO 800 TO 800 VOIS 800 MCR65-10 MCR65-10 TO 900 TO 900 VOIS 900 TO 900	(T _J = 25 to +125°C, gate open)			
MCR65-3 MCR65-6 MCR65-6 MCR65-7 MCR65-9 MCR65-9 MCR65-9 MCR65-10 Validation of the policy of the pol	MCR65-1		25	Volts
MCR65-4 MCR65-6 MCR65-7 MCR65-8 MCR65-9 MCR65-9 MCR65-10 200 300 500 600 600 700 8800 Volts Non-repetitive peak reverse blocking voltage (t ≤ Sm3) ¹⁰ MCR65-1 MCR65-2 MCR65-2 MCR65-3 MCR65-3 MCR65-3 MCR65-4 MCR65-6 MCR65-6 MCR65-6 MCR65-6 MCR65-7 MCR65-6 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-10 150 300 300 400 300 400 400 400 400 400 40	MCR65-2		50	
MCR65-5 NCR65-6 400 <	MCR65-3		100	
MCR65-5 300 MCR65-6 400 MCR65-8 600 MCR65-9 700 MCR65-10 800 Non-repetitive peak reverse blocking voltage (t ≤ 5ms) ⁽¹⁾ MCR65-1 MCR65-1 MCR65-2 MCR65-3 35 MCR65-1 MCR65-3 MCR65-3 150 MCR65-3 MCR65-6 MCR65-6 500 MCR65-7 MCR65-8 MCR65-9 MCR65-9 800 MCR65-9 800 MCR65-10 900 Forward current RMS 1 _{15M} 55 Amps Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) 1 _{15M} 550 Amps Circuit fusing considerations (t = 3.ms) Pt 1255 A²s Peak gate power (Pulse width ≤ 2µs) PGM 20 Watts Average gate power (Pulse width ≤ 2µs) PGM 0.5 Watts Peak forward gate current IcM 2 Amps Forward peak gate voltage V _{GRM} 10 Volts Reverse peak gate voltage V _{GRM} 10 Volts Operating junction temperature range T ₁ -40 to +125 °C Storage temperature range T ₁ <td>MCR65-4</td> <td>V V</td> <td>200</td>	MCR65-4	V V	200	
MCR65-7 500 600 MCR65-9 700 600 MCR65-10 800 800 Non-repetitive peak reverse blocking voltage (t ≤ 5ms) ⁽¹⁾ 380 800 NCR65-1 35 75 MCR65-2 75 150 MCR65-3 150 400 MCR65-4 400 400 MCR65-6 500 600 MCR65-7 600 800 MCR65-8 700 800 MCR65-9 800 900 Forward current RMS I _{15MS} 55 Amps Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) I _{15M} 550 Amps Circuit fusing considerations (t = 8.3ms) 1²t 1255 A²s Circuit fusing considerations (t = 8.3ms) 1²t 1255 A²s Peak gate power (Pulse width ≤ 2µs) P _{60M} 20 Watts Peak forward gate current I ₆₀ 2 Amps Forward peak gate voltage V _{65M} 10 Volts Poward peak gate voltage V _{65M} 10 Volts<	MCR65-5	VRRM, VDRM	300	
MCR65-8 600 770 MCR65-10 800 700 MCR65-10 800 800 MCR65-10 800 800 MCR65-10 800 800 MCR65-1 35 75 MCR65-1 35 150 MCR65-2 300 400 MCR65-3 400 500 MCR65-4 400 500 MCR65-6 500 600 MCR65-7 600 700 MCR65-8 800 900 MCR65-9 800 900 MCR65-10 900 70 Forward current RMS Ingress 55 Amps Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) 550 Amps Circuit fusing considerations (t = 8.3ms) 1²t 1255 A²s Peak gate power Po _{0M} 20 Watts Average gate power (Pulse width ≤ 2μs) Po _{0M} 20 Watts Peak forward gate current Iom 2 Amps Forward peak gate voltage Voins Voits	MCR65-6		400	
MCR65-9 MCR65-10 700 800 Non-repetitive peak reverse blocking voltage (t ≤ 5ms) ⁽¹⁾ MCR65-1 35 35 75 150 MCR65-2 MCR65-3 MCR65-3 MCR65-6 MCR65-6 MCR65-6 MCR65-7 MCR65-7 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-10 150 800 900 Forward current RMS Iτ _(EMS) 55 Amps Peak surge current (one cycle, 60Hz, Tc = 40 to +125°C) 1/5M 550 Amps Circuit fusing considerations (t = 8.3ms) I²t 1255 A²s Peak gate power (Pulse width ≤ 2μs) Pe _{Q(AV)} 0.5 Watts Peak forward gate current Ism 2 Amps Forward peak gate voltage V _{GPM} V _{GRM} 10 Volts Forward peak gate voltage T ₁ -40 to +125 °C Storage temperature range T ₁ -40 to +125 °C	MCR65-7		500	
MCR65-10 800 Non-repetitive peak reverse blocking voltage (t ≤ Sms)¹¹¹ MCR65-1 MCR65-2 MCR65-3 MCR65-3 MCR65-3 MCR65-4 MCR65-6 MCR65-6 MCR65-6 MCR65-7 MCR65-7 MCR65-7 MCR65-10 35 MCR65-7 MCR65-9 MCR65-9 MCR65-9 MCR65-10 300 MCR65-10 MCR65-10 VRSM 400 MCR65-10 MCR65-10 YRSM Amps Forward current RMS Intensor 550 Mmps Amps Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) Pc 1255 McR65-10 Args Peak page power (Pulse width ≤ 2µs) Pc 1255 McR65-10 Args Peak gate power (Pulse width ≤ 2µs) Pc(µ) 0.5 Watts Peak gate power (Pulse width ≤ 2µs) Pc(µ) 0.5 Watts Peak forward gate current Is down 2 Amps Forward peak gate voltage VGFM VGRM 10 Volts Forward peak gate voltage VGRM VGRM 10 Volts Operating junction temperature range T₁ -40 to +125 °C Storage temperature range T₁ -40 to +125 °C	MCR65-8		600	
Non-repetitive peak reverse blocking voltage (t ≤ 5ms) ¹¹³ MCR65-1 MCR65-1 MCR65-2 MCR65-3 MCR65-3 MCR65-4 MCR65-4 MCR65-6 MCR65-6 MCR65-6 MCR65-7 MCR65-7 MCR65-9 MCR65-9 MCR65-9 MCR65-9 MCR65-10 Forward current RMS Ittems) S5 Amps Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) Its M 25 Args Circuit fusing considerations (t = 8.3ms) P GM 20 Watts Peak gate power (Pulse width ≤ 2μs) P GM 20 Watts Peak forward gate current I I _{MM} 2 Amps Forward peak gate voltage V _{GFM} V _{GEM} 10 Volts Peak forward peak gate voltage V _{GFM} V _{GEM} 10 Volts Forward peak gate voltage T ₁ -40 to +125 °C Storage temperature range T ₁ -40 to +150 °C	MCR65-9		700	
(t ≤ 5ms) ⁽¹⁾ 35 35 35 75 MCR65-1 75 MCR65-2 75 MCR65-3 150 MCR65-4 300 Yolts Yolts MCR65-4 400 Yolts MCR65-5 600 MCR65-6 500 MCR65-7 600 MCR65-7 MCR65-9 800 MCR65-9 800 MCR65-9 800 MCR65-9 900 MCR65-9 900 MCR65-10 Forward current RMS Ingents 55 Amps Amps Amps MCR65-9 Amps MCR65-9 MCR65-9 MCR65-9 MCR65-10 900 MCR65-10	MCR65-10		800	
MCR65-1 35 75 75 150 75 150 MCR65-3 MCR65-3 150 MCR65-4 300 Volts 400 Volts MCR65-6 500 MCR65-6 500 MCR65-6 500 MCR65-7 600 MCR65-9 800 MCR65-9 800 MCR65-9 800 MCR65-10 900 MCR65-10 Forward current RMS IntRMS 55 Amps Amps Amps Tolt (one cycle, 60Hz, Tc = -40 to +125°C) Tolt (one cycle, 60Hz, Tc = -40 to +125°C) Amps Tolt (t = 8.3ms) End (one cycle, 60Hz, Tc = -40 to +125°C) Ac's Tolt (one cycle, 60Hz, Tc = -40 to +125°C) Ac's	Non-repetitive peak reverse blocking voltage			
MCR65-2 MCR65-3 MCR65-3 MCR65-4 MCR65-4 MCR65-5 MCR65-6 MCR65-6 MCR65-6 MCR65-6 MCR65-7 MCR65-7 MCR65-7 MCR65-7 MCR65-9 MCR65-9 MCR65-10 VRSM 400 MCR65-8 MCR65-9 MCR65-9 MCR65-10 M	$(t \le 5ms)^{(1)}$			
MCR65-3 150 300 Volts MCR65-5 400 400 Volts MCR65-6 500 500 MCR65-7 600 MCR65-8 700 MCR65-9 800 MCR65-9 800 MCR65-10 800 MCR65-10 Forward current RMS It _{IRMS}) 55 Amps Feak surge current (one cycle, 60Hz, Tc = -40 to +125°C) Is 1sM 550 Amps Circuit fusing considerations (t = 8.3ms) 1²t 1255 A²s Peak gate power (Pulse width ≤ 2μs) Pc(μAV) 0.5 Watts Average gate power (Pulse width ≤ 2μs) Pc(μAV) 0.5 Watts Peak gate voltage current Igm 2 Amps Forward paek gate voltage VofFM 10 Volts Reverse peak gate voltage VofFM 10 Volts Operating junction temperature range T, -40 to +125 °C Storage temperature range T, -40 to +125 °C	MCR65-1		35	Volts
MCR65-4 VRSM 300 Volts MCR65-5 400 400 Volts MCR65-6 500 600 400 MCR65-7 600 400 400 MCR65-8 700 400	MCR65-2		75	
MCR65-5 VBSM 400 Volts MCR65-6 500 500 MCR65-7 600 MCR65-8 700 MCR65-8 700 MCR65-9 800 MCR65-10 900 MCR65-10 900 MCR65-10 MCR65-10 MCR65-10 MCR65-10 MCR65-10 MCR65-10 MCR65-10 MCR65-10 MCR65-10 MS	MCR65-3		150	
MCR65-5 400 MCR65-6 500 MCR65-7 600 MCR65-8 700 MCR65-9 800 MCR65-10 900 Forward current RMS I_{TRMS} 55 Amps Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) I_{TSM} 550 Amps Circuit fusing considerations (t = 8.3ms) I^2 t 1255 A²s Peak gate power PGM 20 Watts Average gate power (Pulse width ≤ 2μs) PGM 20 Watts Peak forward gate current IgM 2 Amps Forward peak gate voltage VGFM 10 Volts Reverse peak gate voltage VGFM 10 Volts Operating junction temperature range TJ -40 to +125 °C Storage temperature range Tstg -40 to +150 °C	MCR65-4	Vocas	300	
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, Tc = -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 Reverse 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 _{Jsg} -40 to +150 °C	MCR65-5	V RSM	400	
MCR65-8 700 800 MCR65-9 800 900 Forward current RMS $I_{T(RMS)}$ 55 Amps Peak surge current (one cycle, 60Hz, Tc = -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 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	MCR65-6		500	
MCR65-9 800 900 Forward current RMS $I_{T(RMS)}$ 55 Amps Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) I_{TSM} 550 Amps Circuit fusing considerations (t = 8.3ms) I^2 t 1255 A²s 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} 10 Volts Operating junction temperature range T _J -40 to +125 °C Storage temperature range T _{Stg} -40 to +150 °C	MCR65-7		600	
MCR65-10900Forward current RMS $I_{T(RMS)}$ 55AmpsPeak surge current (one cycle, 60Hz, Tc = -40 to +125°C) I_{TSM} I_{TSM} 55AmpsCircuit fusing considerations (t = 8.3ms) I^2t I_{255} A^2s Peak gate power P_{GM} 20WattsAverage gate power (Pulse width ≤ 2μs) $P_{G(AV)}$ 0.5WattsPeak forward gate current I_{GM} 2AmpsForward peak gate voltage Reverse peak gate voltage V_{GFM} V_{GRM} 10VoltsOperating junction temperature range T_J -40 to +125°CStorage temperature range T_{stg} -40 to +150°C	MCR65-8		700	
Forward current RMS I _{T(RMS)} 55 Amps Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) I _{TSM} 550 Amps Circuit fusing considerations (t = 8.3 ms) I²t 1255 A²s 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 Operating junction temperature range T _J -40 to +125 °C Storage temperature range T _{Stg} -40 to +150 °C	MCR65-9		800	
Peak surge current (one cycle, 60Hz, Tc = -40 to +125°C) I_{TSM} I_{TSM} 550 Amps Circuit fusing considerations (t = 8.3ms) I^2t I_{255} $I_{$	MCR65-10		900	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Forward current RMS	I _{T(RMS)}	55	Amps
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Peak surge current			Amns
	(one cycle, 60Hz, $T_C = -40 \text{ to } +125^{\circ}\text{C}$)	ITSM	550	Allips
	Circuit fusing considerations	124		A2-
Average gate power (Pulse width $\leq 2\mu s$) Peak forward gate current Igm VGFM Powerse peak gate voltage Reverse peak gate voltage Operating junction temperature range To $-40 \text{ to } +125$ Co Storage temperature range PG(AV) 0.5 Watts PG(AV) 0.5 Watts PG(AV) 10 Volts To $-40 \text{ to } +125$ °C **C	(t = 8.3ms)	1-1	1255	A-S
Peak forward gate current I _{GM} 2 Amps Forward peak gate voltage V _{GFM} V _{GRM} 10 Volts Reverse peak gate voltage T _J -40 to +125 °C Storage temperature range T _{stg} -40 to +150 °C	Peak gate power	P _{GM}	20	Watts
Forward peak gate voltage Reverse peak gate voltage Operating junction temperature range T _J -40 to +125 °C Storage temperature range T _{stg} -40 to +150 °C	Average gate power (Pulse width ≤ 2µs)	$P_{G(AV)}$	0.5	Watts
Reverse peak gate voltage V_{GRM} 10VoltsOperating junction temperature range T_J $-40 \text{ to } +125$ $^{\circ}$ CStorage temperature range T_{stg} $-40 \text{ to } +150$ $^{\circ}$ C	Peak forward gate current	I _{GM}	2	Amps
Reverse peak gate voltage V_{GRM} 10VoltsOperating junction temperature range T_J $-40 \text{ to } +125$ $^{\circ}$ CStorage temperature range T_{stg} $-40 \text{ to } +150$ $^{\circ}$ C	Forward peak gate voltage	V_{GFM}		
Storage temperature range T _{stg} -40 to +150 °C		V_{GRM}	10	Volts
	Operating junction temperature range	Tı	-40 to +125	°C
Mounting torque 30 In. lb.	Storage temperature range	T _{stg}	-40 to +150	°C
	Mounting torque		30	In. lb.

Note 1: V_{DBM} and V_{BBM} 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	D		°C/W
Isolated stud	K _{OJC}	1.1	C/VV

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise specified)

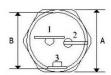
Characteristic	Symbol	Min.	Max.	Unit
Peak forward or reverse blocking current				
$(V_{AK} = Rated V_{DRM} or V_{RRM}, gate open)$				
$T_C = 25^{\circ}C$	I _{DRM} , I _{RRM}	-	10	μΑ
T _C = 125°C		-	2	mA
Forward "on" voltage	.,			Value
(I _{TM} = 175A peak)	V _{TM}	-	2	Volts
Gate trigger current (continuous dc)				
$(V_D = 12V, R_L = 50\Omega)$				A
$T_C = 25^{\circ}C$	I _{GT}	-	40	mA
$T_C = -40$ °C		-	75	
Gate trigger voltage (continuous dc)				
$(V_D = 12V, R_L = 50\Omega)$				
$T_C = 25^{\circ}C$	V _{GT}	-	3	Volts
$T_C = -40^{\circ}C$	V GT	-	3.5	
$(V_D = Rated \ V_{DRM}, \ R_L = 1000\Omega, \ T_J = 125^{\circ}C)$		0.2	-	
Holding current				1
$(V_D = 12V, R_L = 50\Omega, gate open)$	lн	-	60	mA
Forward voltage application rate	dv/dt			V/µs
$(V_D = rated V_{DRM}, T_J = 125^{\circ}C)$	uv/ut	50		ν/μ5

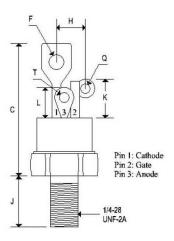


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MECHANICAL CHARACTERISTICS

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





MCR65 SERIES

SILICON CONTROLLED RECTIFIERS

	TO-48 ISO				
	Inches		Millin	neters	
	Min	Max	Min	Max	
Α	0.551	0.559	14.000	14.200	
В	0.501	0.505	12.730	12.830	
С	· ·	1.280		32.510	
F	SE.	0.160	(set)	4.060	
Н	-	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	

