



MCR08

Preliminary

SCR

SENSITIVE GATE SILICON CONTROLLED RECTIFIER

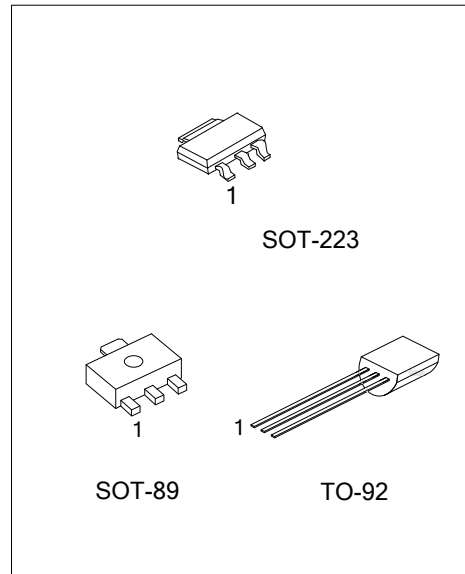
■ DESCRIPTION

The UTC **MCR08** is a 0.8A SCR, it uses UTC's advanced technology to provide customers with sensitive gate trigger current, etc.

The UTC **MCR08** is suitable for line powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits.

■ FEATURES

- * Blocking voltage to 600V
- * Sensitive gate trigger current
- * Glass passivated surface for reliability and uniformity



■ ORDERING INFORMATION

Ordering Number		Package	Pin assignment			Packing
Lead Free	Halogen Free		1	2	3	
-	MCR08G-2-x-AA3-R	SOT-223	K	A	G	Tape Reel
-	MCR08G-2-x-AB3-R	SOT-89	G	A	K	Tape Reel
MCR08L-2-x-T92-B	MCR08G-2-x-T92-B	TO-92	K	G	A	Tape Box
MCR08L-2-x-T92-K	MCR08G-2-x-T92-K	TO-92	K	G	A	Bulk
-	MCR08G-6-x-AA3-R	SOT-223	K	A	G	Tape Reel
-	MCR08G-6-x-AB3-R	SOT-89	G	A	K	Tape Reel
MCR08L-6-x-T92-B	MCR08G-6-x-T92-B	TO-92	K	G	A	Tape Box
MCR08L-6-x-T92-K	MCR08G-6-x-T92-K	TO-92	K	G	A	Bulk

Note: Pin assignment: G: Gate K: Cathode A: Anode

<p>MCR08G-2-x-AA3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel (2) AA3: SOT-223, AB3: SOT-89, T92: TO-92 (3) x: Refer to CLASSIFICATION OF I_{GT} (4) G: Halogen Free and Lead Free, L: Lead Free</p>
---	--

■ ABSOLUTE MAXIMUM RATINGS ($T_J=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Peak Repetitive Off-State Voltage (Note 1) (Sine Wave, $R_{GK}=1\text{k}\Omega$, $T_J=25\sim 110^\circ\text{C}$)	MCR08-2	200	V
	MCR08-6	600	V
On-State Current RMS (All Conduction Angles, $T_C=80^\circ\text{C}$)	$I_{T(RMS)}$	0.8	A
Peak Non-repetitive Surge Current (1/2 Cycle Sine Wave, 60Hz, $T_C=25^\circ\text{C}$)	I_{TSM}	8.0	A
Circuit Fusing Considerations ($t=8.3\text{ms}$)	I^2t	0.4	A^2s
Forward Peak Gate Power ($T_C=80^\circ\text{C}$, $t=1.0\mu\text{s}$)	P_{GM}	0.1	W
Average Gate Power ($T_C=80^\circ\text{C}$, $t=8.3\text{ms}$)	$P_{G(AV)}$	0.01	W
Operating Junction Temperature	T_J	-40~+110	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40~+150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	MAX	UNIT
Junction to Ambient	SOT-223	180	$^\circ\text{C/W}$
	SOT-89	400	$^\circ\text{C/W}$
	TO-92	200	$^\circ\text{C/W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Peak Repetitive Forward or Reverse Blocking Current (Note 3)	I_{DRM} , I_{RRM}	$V_{AK}=\text{Rated } V_{DRM}$ OR	$T_J=25^\circ\text{C}$		10	μA
		V_{RRM} , $R_{GK}=1\text{k}\Omega$	$T_J=110^\circ\text{C}$		200	μA
ON CHARACTERISTICS						
Peak Forward On-State Voltage (Note 2)	V_{TM}	$I_T=1.0\text{A}$ Peak			1.7	V
Gate Trigger Current (Continuous dc) (Note 4)	I_{GT}	$V_{AK}=12\text{Vdc}$, $R_L=100\Omega$			200	μA
Holding Current (Note 3)	I_H	$V_{AK}=12\text{Vdc}$, Initiating Current=20mA			5.0	mA
Gate Trigger Voltage (Continuous dc) (Note 4)	V_{GT}	$V_{AK}=12\text{Vdc}$, $R_L=100\Omega$			0.8	V
Turn-On Time	t_{gt}	$V_{AK}=12\text{Vdc}$, $I_{TM}=5\text{Adc}$, $I_{GT}=5\text{mA}$		1.25		μs
DYNAMIC CHARACTERISTICS						
Critical Rate-of-Rise of Off State Voltage	dv/dt	$V_{pk}=\text{Rated } V_{DRM}$, $T_C=110^\circ\text{C}$, $R_{GK}=1\text{k}\Omega$, Exponential Method	10			V/ μs

Notes: 1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant source such that the voltage ratings of the devices are exceeded.

2. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

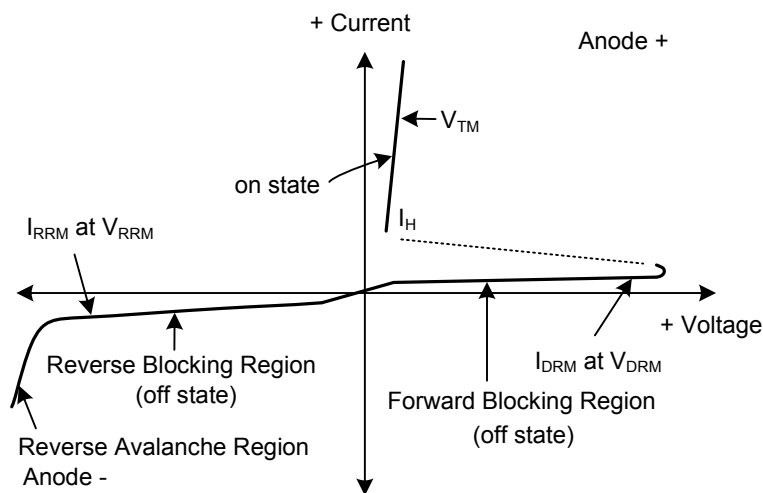
3. $R_{GK}=1000\Omega$ is included in measurement.

4. R_{GK} is not included in measurement.

■ VOLTAGE CURRENT CHARACTERISTIC OF SCR

PARAMETER	SYMBOL
Peak Repetitive Off Stat Forward Voltage	V_{DRM}
Peak Forward Blocking Current	I_{DRM}
Peak Repetitive Off State Reverse Voltage	V_{RRM}
Peak Reverse Blocking Current	I_{RRM}
Peak On State Voltage	V_{TM}
Holding Current	I_H

Voltage Current Characteristic of SCR



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.