



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.

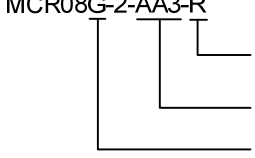
FEATURES

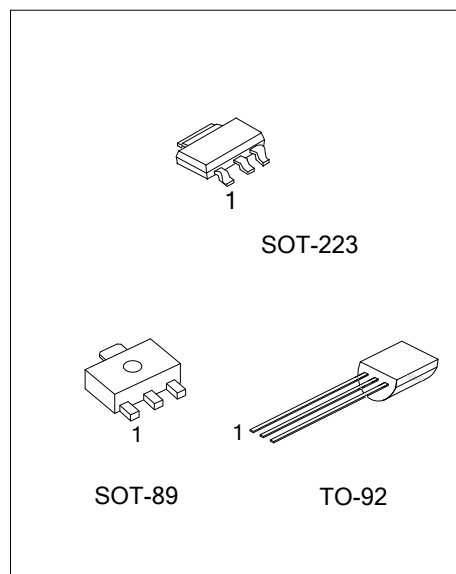
- * Blocking voltage to 600V
- * Sensitive gate trigger current
- * Glass passivated surface for reliability and uniformity

ORDERING INFORMATION

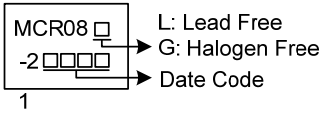
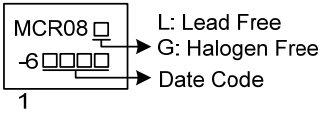
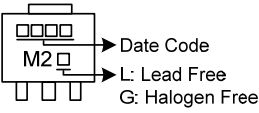
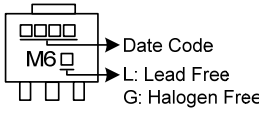
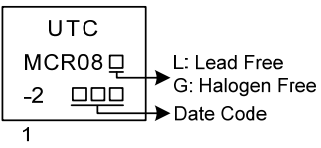
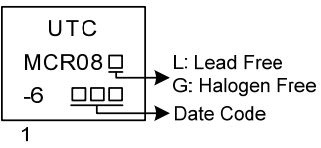
Ordering Number		Package	Pin assignment			Packing
Lead Free	Halogen Free		1	2	3	
MCR08L-2-AA3-R	MCR08G-2-AA3-R	SOT-223	K	A	G	Tape Reel
MCR08L-2-AB3-R	MCR08G-2-AB3-R	SOT-89	G	A	K	Tape Reel
MCR08L-2-T92-B	MCR08G-2-T92-B	TO-92	K	G	A	Tape Box
MCR08L-2-T92-K	MCR08G-2-T92-K	TO-92	K	G	A	Bulk
MCR08L-6-AA3-R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

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

<p>MCR08G-2-AA3-R</p>  <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel (2) AA3: SOT-223, AB3: SOT-89, T92: TO-92 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

Package	MCR100-2	MCR100-6
SOT-223	 <p>L: Lead Free G: Halogen Free Date Code</p>	 <p>L: Lead Free G: Halogen Free Date Code</p>
SOT-89	 <p>Date Code L: Lead Free G: Halogen Free</p>	 <p>Date Code L: Lead Free G: Halogen Free</p>
TO-92	 <p>L: Lead Free G: Halogen Free Date Code</p>	 <p>L: Lead Free G: Halogen Free Date Code</p>

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

PARAMETER	SYMBOL	RATINGS	UNIT
Peak Repetitive Off-State Voltage (Note 1)	V_{DRM}	200	V
(Sine Wave, $R_{\text{GK}}=1\text{k}\Omega$, $T_J=25\sim 110^{\circ}\text{C}$)	V_{RRM}	600	V
On-State Current RMS (All Conduction Angles, $T_C=80^{\circ}\text{C}$)	$I_{\text{T(RMS)}}$	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 ($T_C=80^{\circ}\text{C}$, $t=8.3\text{ms}$)	$P_{\text{G(AV)}}$	0.01	W
Operating Junction Temperature	T_J	$-40 \sim +110$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-40 \sim +150$	$^{\circ}\text{C}$

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	θ_{JA}	180	$^{\circ}\text{C/W}$
		400	$^{\circ}\text{C/W}$
		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)	$I_{\text{DRM}}, I_{\text{RRM}}$	$V_{\text{AK}}=\text{Rated } V_{\text{DRM}}$ or $V_{\text{RRM}}, R_{\text{GK}}=1\text{k}\Omega$	$T_J=25^{\circ}\text{C}$		10	μA
			$T_J=110^{\circ}\text{C}$		200	μA
ON CHARACTERISTICS						
Peak Forward On-State Voltage (Note 2)	V_{TM}	$I_{\text{T}}=1.0\text{A Peak}$			1.7	V
Gate Trigger Current (Continuous dc) (Note 4)	I_{GT}	$V_{\text{AK}}=12\text{Vdc}, R_{\text{L}}=100\Omega$			200	μA
Holding Current (Note 3)	I_{H}	$V_{\text{AK}}=12\text{Vdc}$, Initiating Current=20mA			5.0	mA
Gate Trigger Voltage (Continuous dc) (Note 4)	V_{GT}	$V_{\text{AK}}=12\text{Vdc}, R_{\text{L}}=100\Omega$			0.8	V
Turn-On Time	t_{gt}	$V_{\text{AK}}=12\text{Vdc}, I_{\text{TM}}=5\text{Adc}$, $I_{\text{GT}}=5\text{mA}$		1.25		μs
DYNAMIC CHARACTERISTICS						
Critical Rate-of-Rise of Off State Voltage	dv/dt	$V_{\text{pk}}=\text{Rated } V_{\text{DRM}}, T_C=110^{\circ}\text{C}$, $R_{\text{GK}}=1\text{k}\Omega$, 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 cycles $\leq 2\%$.

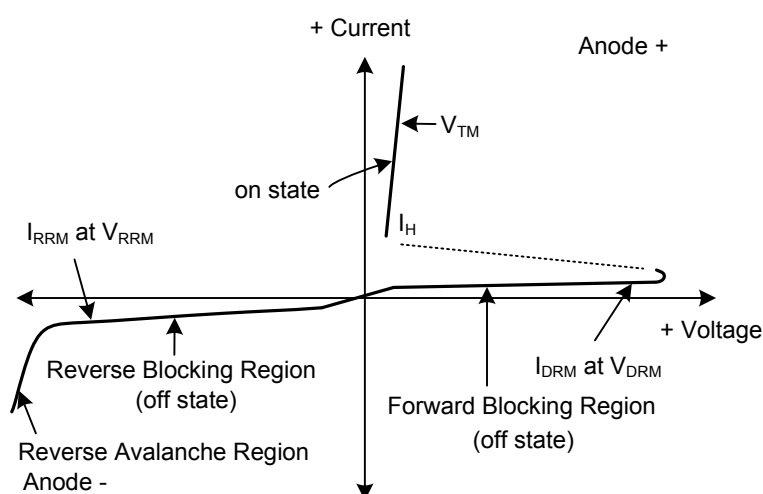
3. $R_{\text{GK}}=1000\Omega$ is included in measurement.

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



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