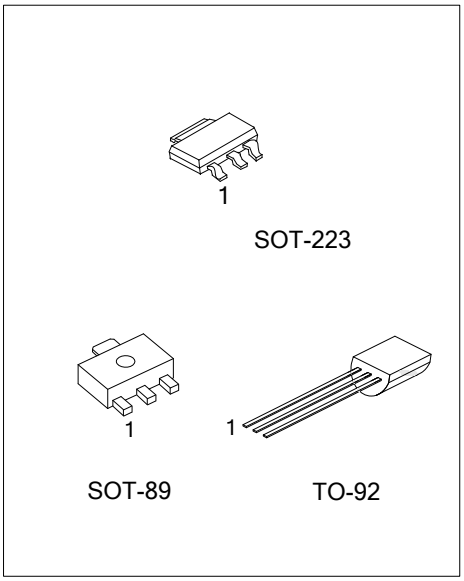
SENSITIVE GATE SILICON CONTROLLED RECTIFIER



■ 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

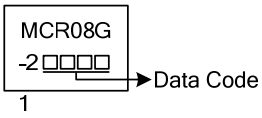
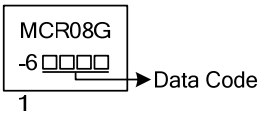
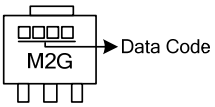
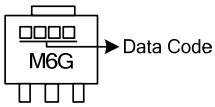
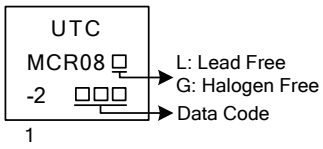
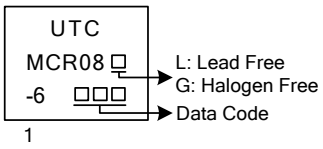
Ordering Number		Package	Pin assignment			Packing
Lead Free	Halogen Free		1	2	3	
-	MCR08G-2-x-AA3-R	SOT-223	K	A	G	Tape Reel
-	MCR08G-2-x-AB3-R	SOT-89	G	A	K	Tape Reel
MCR08L-2-x-T92-B	MCR08G-2-x-T92-B	TO-92	K	G	A	Tape Box
MCR08L-2-x-T92-K	MCR08G-2-x-T92-K	TO-92	K	G	A	Bulk
-	MCR08G-6-x-AA3-R	SOT-223	K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

MCR08G-2-x-AA3-R

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

■ MARKING

Package	MCR100-2	MCR100-6
SOT-223		
SOT-89		
TO-92		

■ ABSOLUTE MAXIMUM RATINGS (T_J=25°C unless otherwise noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Peak Repetitive Off-State Voltage (Note 1)	MCR08-2	V_{DRM},	200	V
(Sine Wave, R_{GK}=1kΩ T_J=25~110°C)	MCR08-6	V_{RRM}	600	V
On-State Current RMS (All Conduction Angles, T_C=80°C)		$I_{T(RMS)}$	0.8	A
Peak Non-repetitive Surge Current (1/2 Cycle Sine Wave, 60Hz, T_C=25°C)		I_{TSM}	8.0	A
Circuit Fusing Considerations (t =8.3ms)		I^2t	0.4	A^2s
Forward Peak Gate Power (T_C=80°C, t =1.0μs)		P_{GM}	0.1	W
Average Gate Power (T_C=80°C, t=8.3ms)		$P_{G(AV)}$	0.01	W
Operating Junction Temperature		T_J	-40~+110	°C
Storage Temperature		T_{STG}	-40~+150	°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	θ_{JA}	180	°C/W
	SOT-89		400	°C/W
	TO-92		200	°C/W

■ ELECTRICAL CHARACTERISTICS (T_C=25°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}=Rated V_{DRM} or V_{RRM}, R_{GK}=1kΩ	T_J=25°C			10	μA
			T_J=110°C			200	μA
ON CHARACTERISTICS							
Peak Forward On-State Voltage (Note 2)	V_{TM}	I_T=1.0A Peak				1.7	V
Gate Trigger Current (Continuous dc) (Note 4)	I_{GT}	V_{AK}=12Vdc, R_L=100Ω				200	μA
Holding Current (Note 3)	I_H	V_{AK}=12Vdc, Initiating Current=20mA				5.0	mA
Gate Trigger Voltage (Continuous dc) (Note 4)	V_{GT}	V_{AK}=12Vdc, R_L=100Ω				0.8	V
Turn-On Time	t_{gt}	V_{AK}=12Vdc, I_{TM}=5Adc, I_{GT}=5mA			1.25		μs
DYNAMIC CHARACTERISTICS							
Critical Rate-of-Rise of Off State Voltage	dv/dt	V_{pk}=Rated V_{DRM}, T_C=110°C, R_{GK}=1kΩ, 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≤300μs, Duty cycle≤2%.
3. R_{GK}=1000Ω 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