

Pb Free Plating Product

MCR310-6G thru MCR310-10G



SENSITIVE & STANDARD(10A SCRs)

Description

Glass passivated, sensitive gate thyristors in a plastic envelope, intended for use in general purpose switching and phase control applications. These devices are intended to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.

Symbol	Simplified outline
	 TO-220C
Pin	Description
1	Cathode
2	Anode
3	Gate

Applications:

- ◆ Motor control
- ◆ Industrial and domestic lighting
- ◆ Heating
- ◆ Static switching

Features

- ◆ Blocking voltage to 800 V
- ◆ On-state RMS current to 10 A
- ◆ Ultra low gate trigger current

SYMBOL	PARAMETER		Value	UNIT
V <sub>DRM</sub>	Repetitive peak off-state voltages (T <sub>j</sub> =-40 to 110°C 1/2Sine Wave, RGK=1KΩ )	MCR310-6G	400	V
		MCR310-8G	600	
		MCR310-10G	800	V
I <sub>T (RMS)</sub>	On-state rms current		10	A
I <sub>TSM</sub>	Peak non-repetitive surge current		100	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
R <sub>th j-c</sub>	Thermal resistance Junction to Case		-	-	2.2	°C/W
R <sub>th j-a</sub>	Thermal resistance Junction to ambient		-	-	60	°C/W

Limiting values in accordance with the Maximum system(IEC 134)

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state Voltages	$T_j = -40$ to $110$ , 1/2 Sine Wave, $R_{GK} = 1k\Omega$ ) MCR310-6G MCR310-8G MCR310-10G	-	400 600 800	V
$I_{T(RMS)}$	RMS on-state current	$180^\circ$ Conduction angles; $TC = 75^\circ C$	-	10	A
$I_{TSM}$	Non-repetitive peak On-state current	1/2 Cycle, 60 Hz, $T_j = -40$ to $110^\circ C$	-	100	A
$I^2t$	$I^2t$ for fusing	$T = 8.3ms$	-	40	$A^2S$
$I_{GM}$	Forward peak gate current	$T \leq 10\mu s$ , $TC = 83^\circ C$	-	1.0	A
$V_{GM}$	Peak gate voltage	$T \leq 10\mu s$ , $TC = 83^\circ C$	-	$\pm 5$	V
$P_{GM}$	Peak gate power	$T \leq 10\mu s$ , $TC = 83^\circ C$	-	5	W
$P_{G(AV)}$	Average gate power	$T \leq 10\mu s$ , $TC = 83^\circ C$	-	0.75	W
$T_{stg}$	Storage temperature		-40	+150	$^\circ C$
$T_j$	Operating junction Temperature Range		-40	+110	$^\circ C$

$T_j = 25^\circ C$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
$I_{GT}$	Gate trigger current	$V_D = 12V$ ; $RL = 100\Omega$	-	30	200	$\mu A$
$I_{DRM}$	Peak Forward Blocking current $T_j = 110^\circ C$ , $V_D = \text{Rated } V_{DRM}$	$TC = 110^\circ C$ $TC = 25^\circ C$	-	-	500 10	$\mu A$
$I_{RRM}$	Peak Reverse Blocking current $T_j = 110^\circ C$ , $V_R = \text{Rated } V_{RRM}$	$TC = 110^\circ C$ $TC = 25^\circ C$	-	-	500 10	$\mu A$
$I_H$	Holding current	$V_D = 12V$ ; $I_{TM} = 100mA$	-	-	6	mA
$V_{TM}$	Peak forward on-state voltage	$I_{TM} = 20A$ peak, pulse width $\leq 1ms$	-	1.7	2.2	V
$V_{GT}$	Gate trigger voltage	$V_D = 12V$ ; $RL = 100\Omega$	-	0.5	1.5	V
$V_{GD}$	Gate non-trigger voltage	$V_D = \text{Rated } V_{DRM}$ ; $R_L = 10K\Omega$ $T_j = 110^\circ C$	0.1	-	-	V

### Dynamic Characteristics

$D_v/dt$	Critical rate of rise of Off-state voltage	$V_D = \text{Rated } V_{DRM}$ , $R_{GK} = 1K$ ; $T_j = 110^\circ C$ ; Exponential waveform;	-	10	-	V/ $\mu s$
$t_{gt}$	Gate controlled turn-on time	$I_{TM} = 16A$ ; $V_D = \text{Rated } V_{DRM}$ , $I_G = 2mA$	-	1	-	$\mu s$
$t_g$	Crcuit commutated tum-off time		-	-	-	$\mu s$

Description

