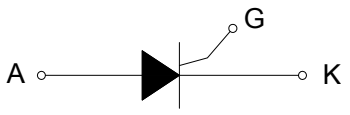
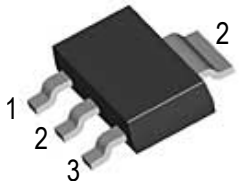
SCRs





SOT-223

General Description

Sensitive triggering SCR is suitable for the application where gate current limited such as small motor control， Earth leakage circuit breakers or Ground Fault Circuit Interrupters (GFCI) ， Solid state relays，General purpose switching，Small engine ignition。

Features

- Repetitive Peak Off-State Voltage :400V/ 600V
- R.M.S On-State Current ($I_{T(RMS)}$= 0.8 A)
- These are Pb-Free Devices

Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	Tj=25°C	MCR100-6W	400	V
V_{RRM}	Repetitive peak reverse voltage		MCR100-8W	600	
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , Tc = 75°C		0.5	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , Tc = 75°C		0.8	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, tp=10ms(50Hz)		8	A
dI/dt	Critical rate of rise of on-state current	Tj =110°C, tr≤ 100ns		50	A/μs
I^2t	I^2t for Fusing	Tj =25°C,tp =10ms		0.32	A^2S
P_{GM}	Forward Peak Gate Power Dissipation	Tj =110°C, Pulse Width ≤ 1.0μs		0.5	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	Tj =25°C, tp =10ms		0.1	W
I_{GM}	Peak Gate Current	Tj =110°C, Pulse Width ≤ 1.0μs		0.2	A
Tj	Operating Junction Temperature			- 40 ~ 110	°C
T_{STG}	Storage Temperature			- 40 ~ 150	°C

ADV
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Electrical Characteristics (T_j = 25°C unless otherwise specified)

Symbol	Items	Conditions		MCR100-6W/8W	Unit
I_{DRM} I_{RRM}	Peak Forward Reverse Blocking Current	V_{DRM} = V_{RRM}, R_{GK} = 1KΩ Tj = 25°C	Max.	5	uA
		V_{DRM} = V_{RRM}, R_{GK} = 1KΩ Tj = 110°C		0.1	mA
V_{TM}	Peak On-State Voltage	I_{TM} = 1。1A, t_p = 380 μs	Max.	1.7	V
V_{GD}	Non-Trigger Gate Voltage	V_D = V_{DRM} R_L = 3.3 kΩ R_{GK} = 1KΩ Tj = 110°C	Min.	0.2	V
V_{GT}	Gate Trigger Voltage	V_D = 6V ， R_L = 100Ω	Max.	0.8	V
I_{GT}	Gate Trigger Current		Max.	200	uA
I_H	Holding Current	I_T = 0.05A R_{GK} = 1KΩ	Max.	5	mA
I_L	Latching Current	I_G = 1mA R_{GK} = 1KΩ	Max.	6	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	V_D = 2/3V_{DRM} gate open R_{GK} = 1KΩ Tj = 110°C	Min.	20	V/μs
$R_{th(j-c)}$	Junction to case		Max.	40	°C/W
$R_{th(j-a)}$	Junction to ambient		Max.	60	°C/W

FIG.1: Maximum average power dissipation (Single phase half wave)

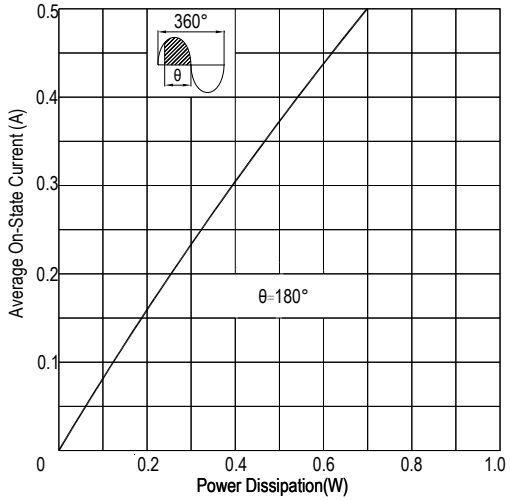


FIG.2: Average on-state current VS Allowable case Temperature(Single phase half wave)

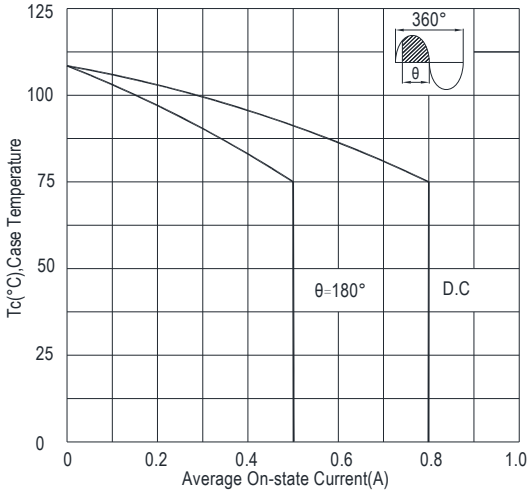


FIG.3: Gate trigger current VS Junction temperature

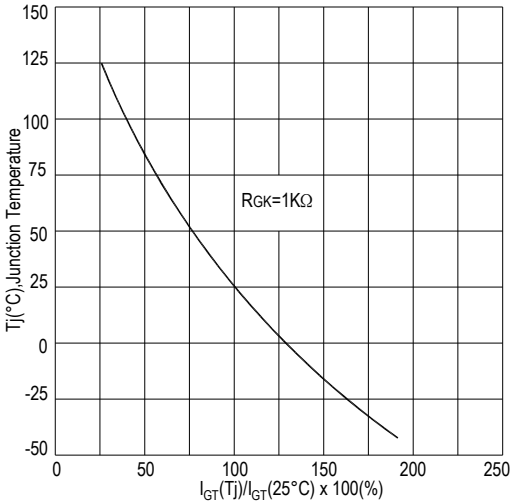


FIG.4: Rated surge on-state current (Non-Repetitive)

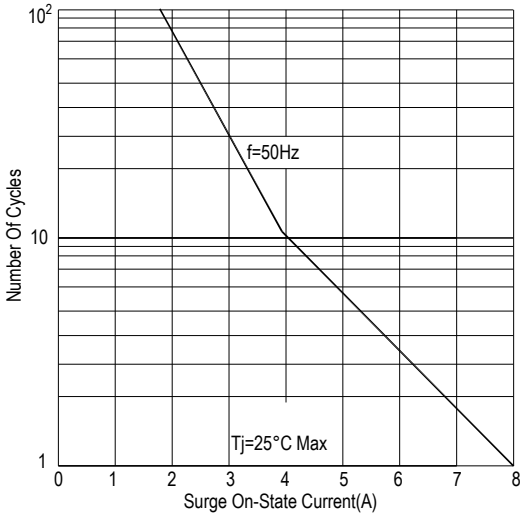


FIG.5: On-state characteristics(Max)

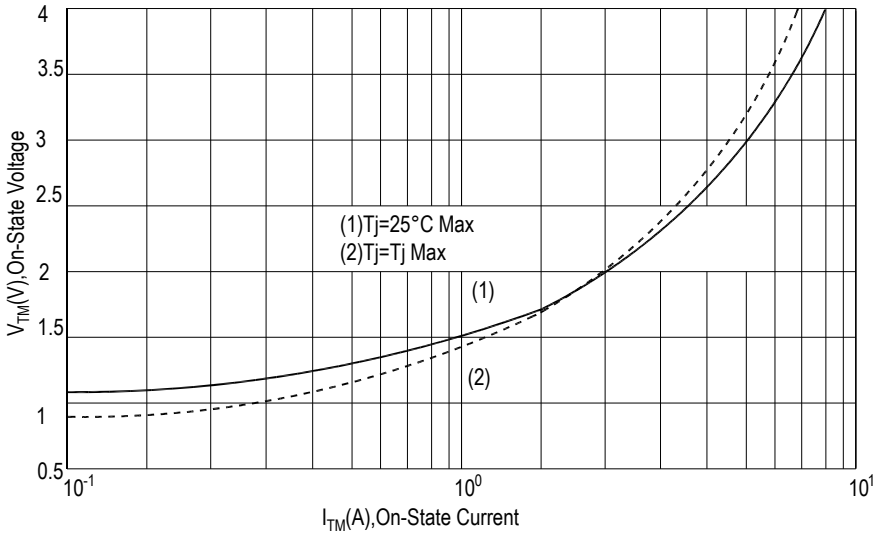


FIG.6:Holding current and Latching current VS Junction temperature

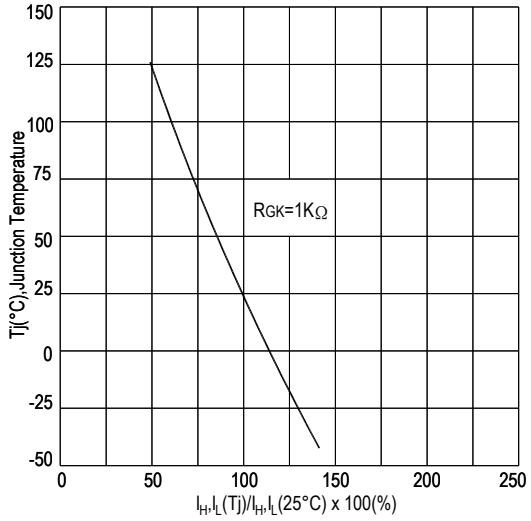
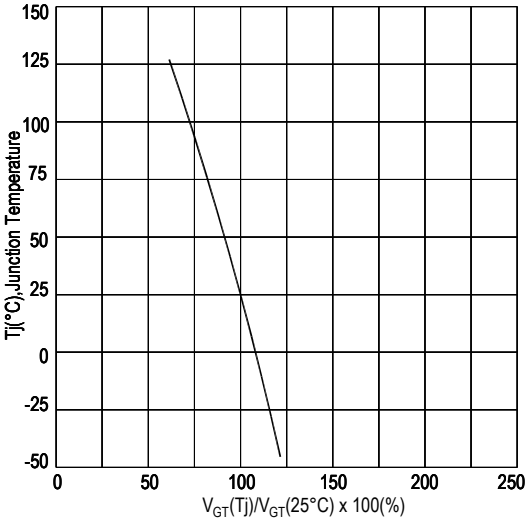
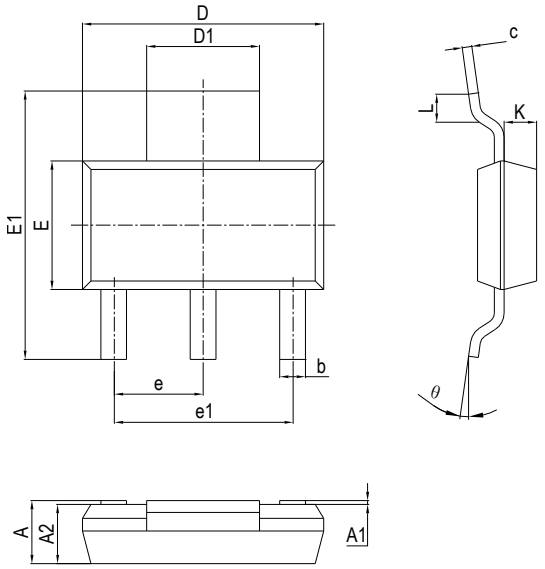


FIG.7: Gate trigger voltage VS Junction temperature



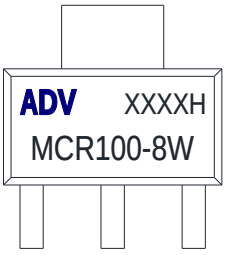
PACKAGE MECHANICAL DATA

SOT-223 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°
b	0.660	0.820	0.026	0.032
K	0.890	0.91	0.035	0.036

Making Diagram



ADV:Logo
MCR100-8W:Part number
X:Internal control code
H:Halogen Free

Ordering information

Part number	Package	Marking	Packing	Quantity
MCR100-6W	SOT-223	MCR100-6W	Embossed tape	2000pcs
MCR100-8W	SOT-223	MCR100-8W	Embossed tape	2000pcs

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