

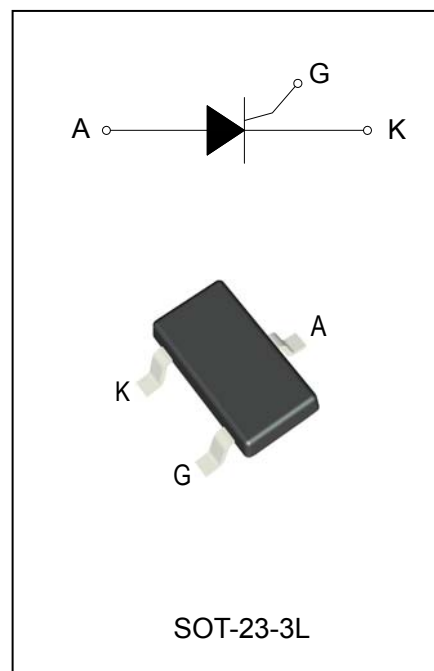
SCRs

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 and 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	$T_j = 25^\circ\text{C}$	MCR100-6NL	400	V
V_{RRM}	Repetitive peak reverse voltage		MCR100-8NL	600	V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , $T_c = 60^\circ\text{C}$		0.5	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , $T_c = 60^\circ\text{C}$		0.8	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, $t_p = 10\text{ms}(50\text{Hz})$		8	A
di/dt	Critical rate of rise of on-state current	$T_j = 110^\circ\text{C}$, $t_r \leq 100\text{ns}$		50	A/ μs
I^2t	I^2t for Fusing	$T_j = 25^\circ\text{C}$, $t_p = 10\text{ms}$		0.415	A ² S
P_{GM}	Forward Peak Gate Power Dissipation	$T_j = 110^\circ\text{C}$, Pulse Width $\leq 1.0\mu\text{s}$		0.2	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	$T_j = 25^\circ\text{C}$, $t_p = 10\text{ms}$		0.1	W
I_{GM}	Peak Gate Current	$T_j = 110^\circ\text{C}$, Pulse Width $\leq 1.0\mu\text{s}$		1	A
T_j	Operating Junction Temperature			- 40 ~ 110	$^\circ\text{C}$
T_{STG}	Storage Temperature			- 40 ~ 150	$^\circ\text{C}$



Electrical Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Items	Conditions		MCR100-6NL/8NL	Unit
I_{DRM} I_{RRM}	Peak Forward Reverse Blocking Current	$V_{\text{DRM}} = V_{\text{RRM}}, R_{\text{GK}} = 1\text{K}\Omega$ $T_j = 25^\circ\text{C}$	Max.	5	μA
		$V_{\text{DRM}} = V_{\text{RRM}}, R_{\text{GK}} = 1\text{K}\Omega$ $T_j = 110^\circ\text{C}$		0.1	mA
V_{TM}	Peak On-State Voltage	$I_{\text{TM}} = 1\text{A}, t_p = 380 \mu\text{s}$	Max.	1.7	V
V_{GD}	Non-Trigger Gate Voltage	$V_{\text{D}} = V_{\text{DRM}}, R_{\text{L}} = 3.3 \text{ k}\Omega$ $R_{\text{GK}} = 1\text{K}\Omega, T_j = 110^\circ\text{C}$	Min.	0.2	V
V_{GT}	Gate Trigger Voltage	$V_{\text{D}} = 6\text{V}, R_{\text{L}} = 100\Omega$	Max.	0.8	V
I_{GT}	Gate Trigger Current		Max.	200	μA
I_{H}	Holding Current	$I_{\text{T}} = 0.05\text{A}, R_{\text{GK}} = 1\text{K}\Omega$	Max.	5	mA
I_{L}	Latching Current	$I_{\text{G}} = 1\text{mA}, R_{\text{GK}} = 1\text{K}\Omega$	Max.	6	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	$V_{\text{D}} = 2/3 V_{\text{DRM}}$ gate open $R_{\text{GK}} = 1\text{K}\Omega, T_j = 110^\circ\text{C}$	Min.	20	V/ μs
$R_{\text{th(j-c)}}$	Junction to case		Max.	72	$^\circ\text{C/W}$
$R_{\text{th(j-a)}}$	Junction to ambient		Max.	385	$^\circ\text{C/W}$

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

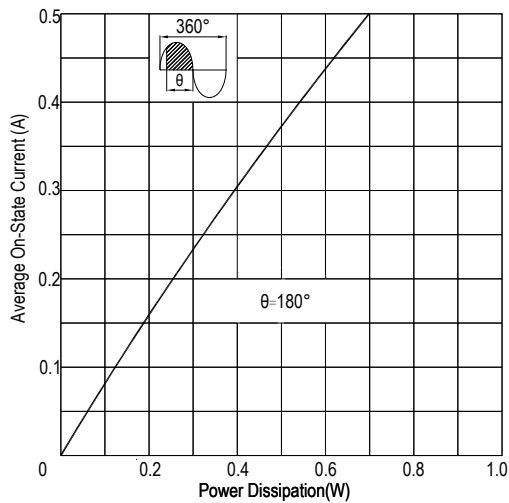


FIG.2: Average on-state current VS Allowable case Temperature (Single phase half wave)

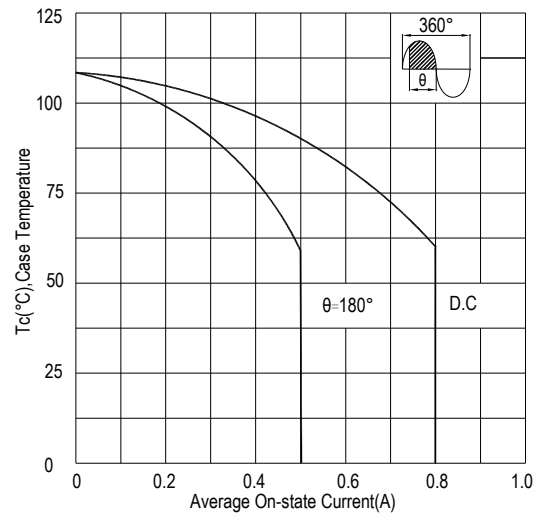


FIG.3: Gate trigger current VS Junction temperature

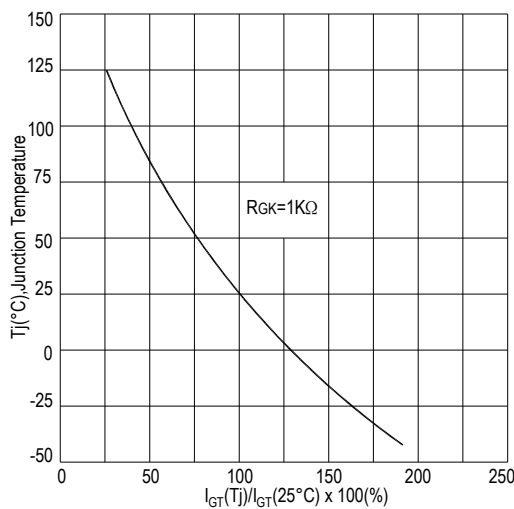


FIG.4: Rated surge on-state current (Non-Repetitive)

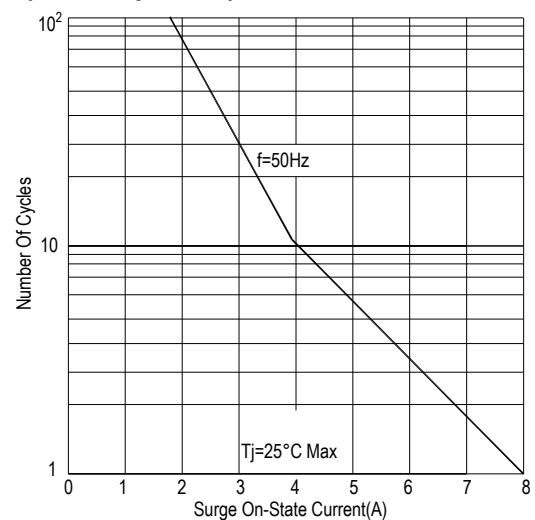


FIG.5: On-state characteristics(Max)

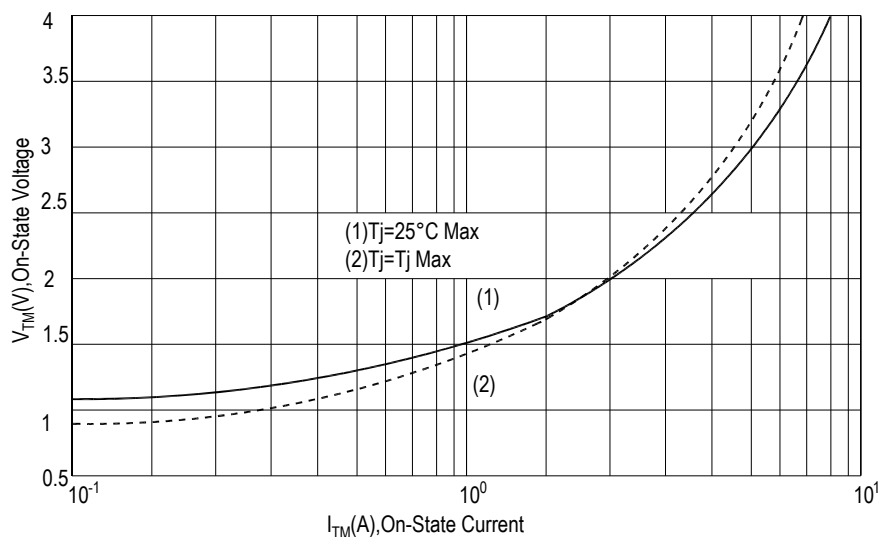


FIG.6:Holding current and Latching current VS Junction temperature

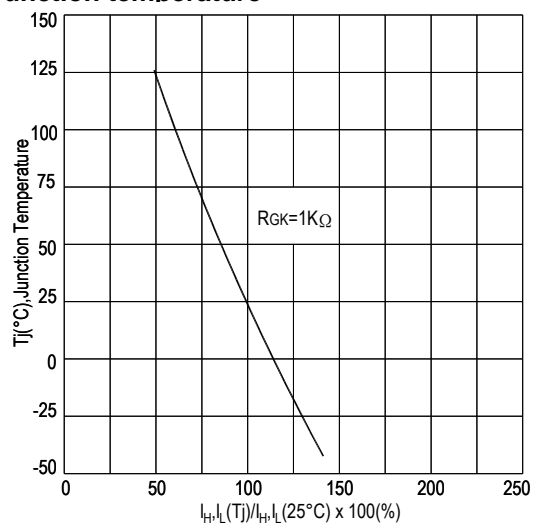
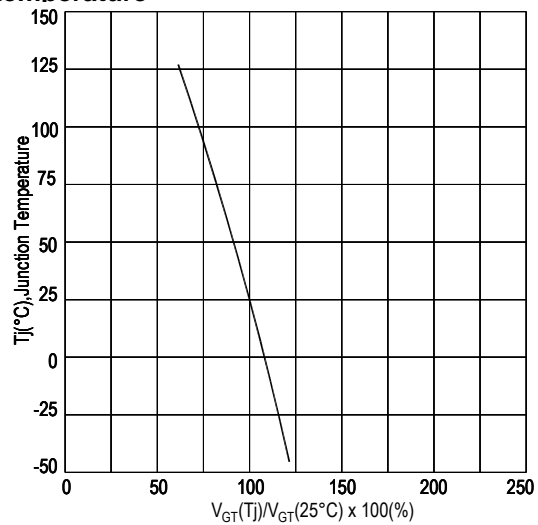
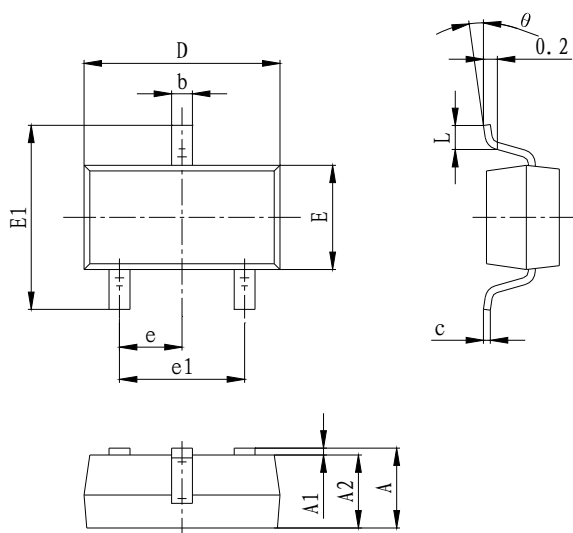


FIG.7: Gate trigger voltage VS Junction temperature



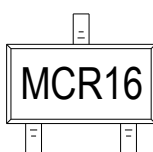
PACKAGE MECHANICAL DATA

SOT-23 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.100	1.300	0.043	0.051
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.350	0.550	0.014	0.022
c	0.110	0.170	0.004	0.007
D	2.800	3.000	0.110	0.118
E	1.600	1.640	0.063	0.065
E1	2.650	2.950	0.105	0.116
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.450 REF.		0.017 REF.	
θ	0°	9°	0°	9°

Making Diagram



MCR16:Part number
(MCR100-6)

Ordering information

Part number	Package	Marking	Packing	Quantity
MCR100-6NL	SOT-23-3L	MCR16	Tape&reel	3000pcs
MCR100-8NL	SOT-23-3L	MCR18	Tape&reel	3000pcs

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