

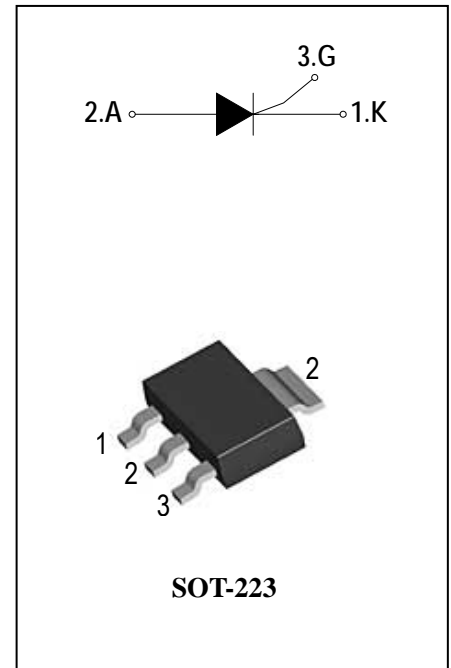
SCRs

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 :900V
- ◆ R.M.S On-State Current ($I_{T(RMS)}$)= 1.25A)
- ◆ These are Pb-Free Devices



Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	$T_j=25^\circ\text{C}$	ADS1A90W	900	V
V_{RRM}	Repetitive peak reverse voltage				V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , $T_c = 75^\circ\text{C}$		0.9	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , $T_c = 75^\circ\text{C}$		1.25	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, $t_p=10\text{ms}(50\text{Hz})$		20	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	$T_j = 25^\circ\text{C}$, $t_p = 10\text{ms}$		2	A ² S
P_{GM}	Forward Peak Gate Power Dissipation	$T_j = 110^\circ\text{C}$, Pulse Width $\leq 1.0\mu\text{s}$		0.5	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 $\leq 1.0\mu\text{s}$		0.2	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		ADS1A90W	Unit
I_{DRM} I_{RRM}	Peak Forward Reverse	$V_{DRM} = V_{RRM}$, $R_{GK} = 1K\Omega$ $T_j = 25^\circ\text{C}$	Max.	5	μA
	Blocking Current	$V_{DRM} = V_{RRM}$, $R_{GK} = 1K\Omega$ $T_j = 110^\circ\text{C}$		0.1	mA
V_{TM}	Peak On-State Voltage	$I_{TM} = 4\text{A}$, $t_p = 380 \mu\text{s}$	Max.	1.5	V
V_{GD}	Non-Trigger Gate Voltage	$V_D = V_{DRM}$ $R_L = 3.3 k\Omega$ $R_{GK} = 1K\Omega$ $T_j = 110^\circ\text{C}$	Min.	0.2	V
V_{GT}	Gate Trigger Voltage	$V_D = 6\text{V}$, $R_L = 100\Omega$	Max.	0.8	V
I_{GT}	Gate Trigger Current		Max.	200	μA
I_H	Holding Current	$I_T = 0.05\text{A}$ $R_{GK} = 1K\Omega$	Max.	4	mA
I_L	Latching Current	$I_G = 1\text{mA}$ $R_{GK} = 1K\Omega$	Max.	5	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	$V_D = 2/3V_{DRM}$ gate open $R_{GK} = 1K\Omega$ $T_j = 110^\circ\text{C}$	Min.	50	V/ μs
$R_{th(j-c)}$	Junction to case		Max.	30	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient(Copper surface under tab:S=5cm ²)		Max.	60	$^\circ\text{C}/\text{W}$

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

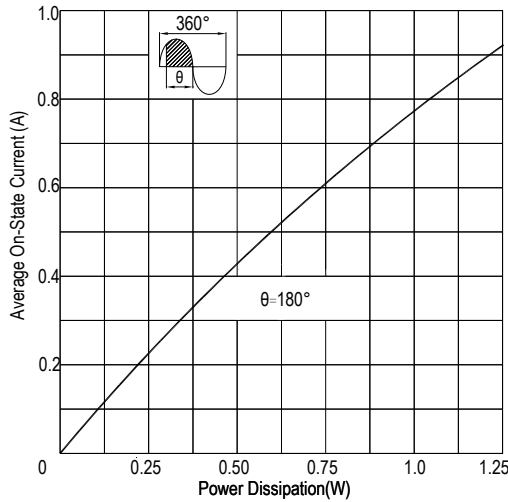


FIG.2: Average on-state current VS Allowable case Temperature (Single phase half wave)

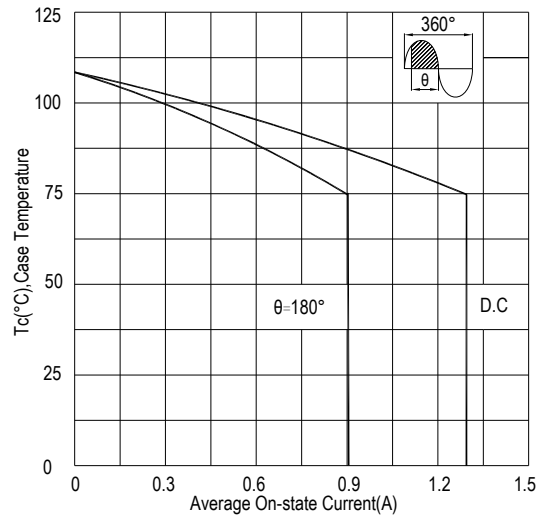


FIG.3: Gate trigger current VS Junction temperature

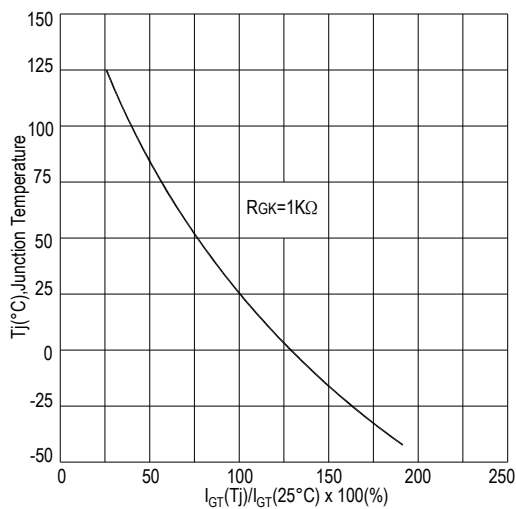


FIG.4: Rated surge on-state current (Non-Repetitive)

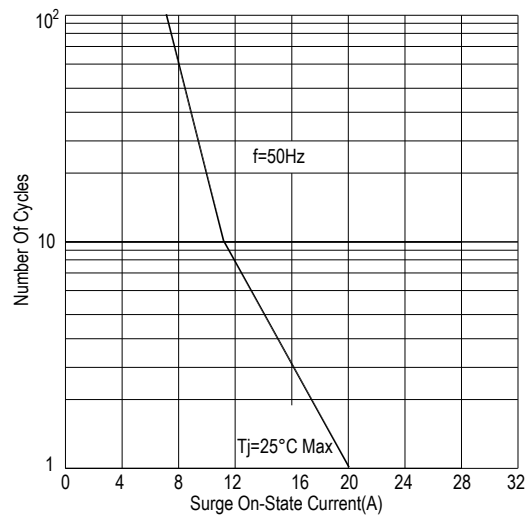


FIG.5: On-state characteristics(Max)

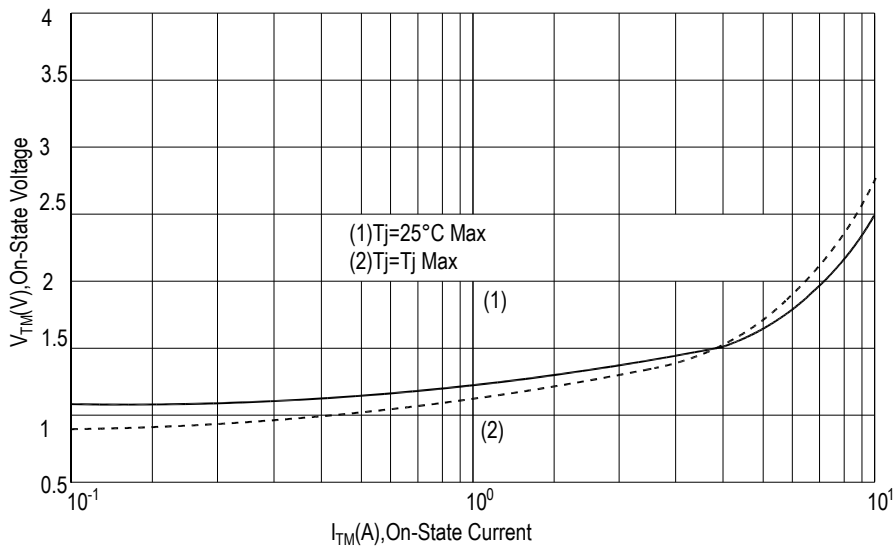


FIG.6: Holding current and Latching current VS Junction temperature

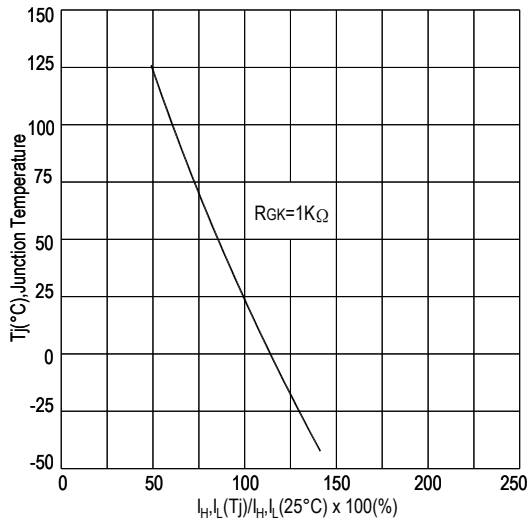
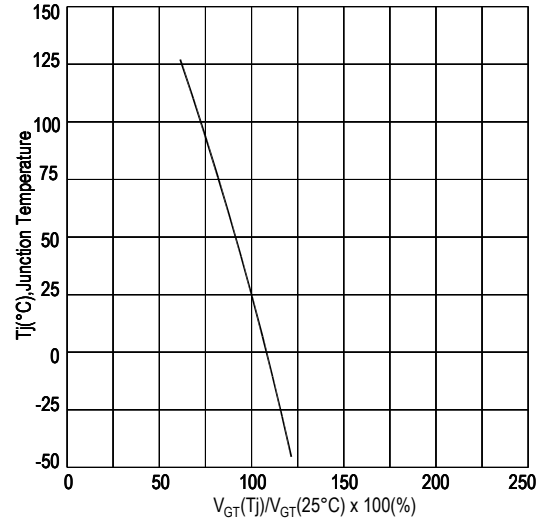
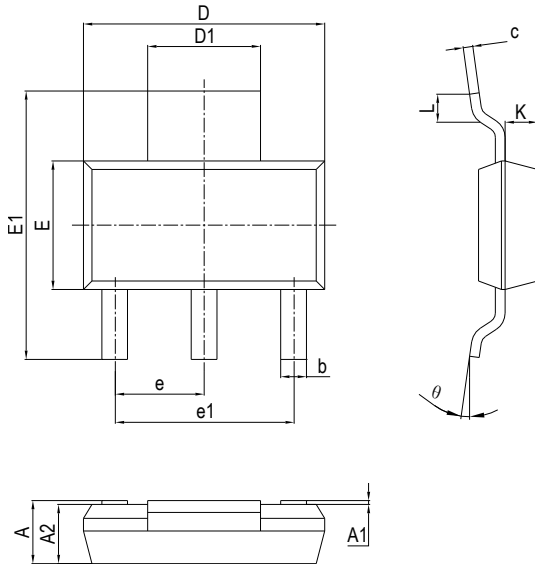


FIG.7: Gate trigger voltage VS Junction temperature



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
 ADS1A90W:Part number
 X:Internal control code
 H:Halogen Free

AD S 1 A 90 W

ADVANCED	Internal control code	Current:1=1A	SCR series
Voltage:90=900V		Package explain:W=SOT-223	

Ordering information

Part number	Package	Marking	Packing	Quantity
ADS1A90W	SOT-223	ADS1A90W	Embossed tape	2000pcs

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