

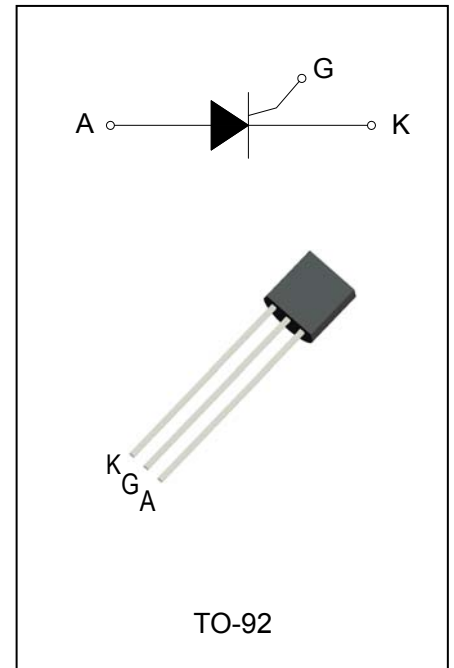
## SCRs

### 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 (  $I_{T(RMS)}$  )= 1.25 A )
- ◆ These are Pb-Free Devices



### Absolute Maximum Ratings

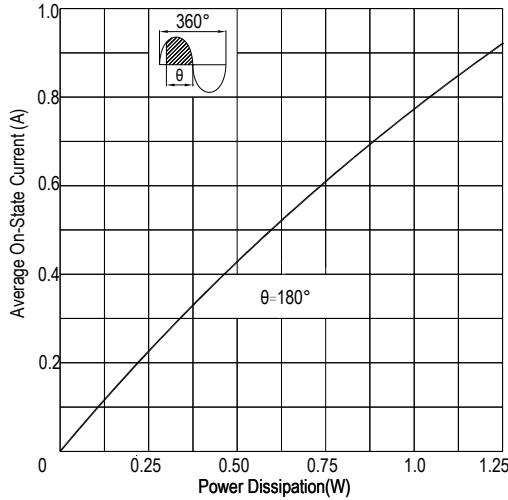
Symbol	Items	Conditions		Ratings	Unit
$V_{DRM}$	Repetitive Peak Off-State Voltage	$T_j=25^{\circ}C$	ADS1A90	900	V
$V_{RRM}$	Repetitive peak reverse voltage				V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , $T_c = 50^{\circ}C$		0.9	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , $T_c = 50^{\circ}C$		1.25	A
$I_{TSM}$	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, $t_p=10ms(50Hz)$		20	A
$di/dt$	Critical rate of rise of on-state current	$T_j = 110^{\circ}C$ , $t_r \leq 100ns$		50	A/ $\mu s$
$I^2t$	$I^2t$ for Fusing	$T_j = 25^{\circ}C$ , $t_p = 10ms$		2	A <sup>2</sup> S
$P_{GM}$	Forward Peak Gate Power Dissipation	$T_j = 110^{\circ}C$ , Pulse Width $\leq 1.0\mu s$		0.5	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	$T_j = 25^{\circ}C$ , $t_p = 10ms$		0.1	W
$I_{GM}$	Peak Gate Current	$T_j = 110^{\circ}C$ , Pulse Width $\leq 1.0\mu s$		0.2	A
$T_j$	Operating Junction Temperature			- 40 ~ 110	$^{\circ}C$
$T_{STG}$	Storage Temperature			- 40 ~ 150	$^{\circ}C$



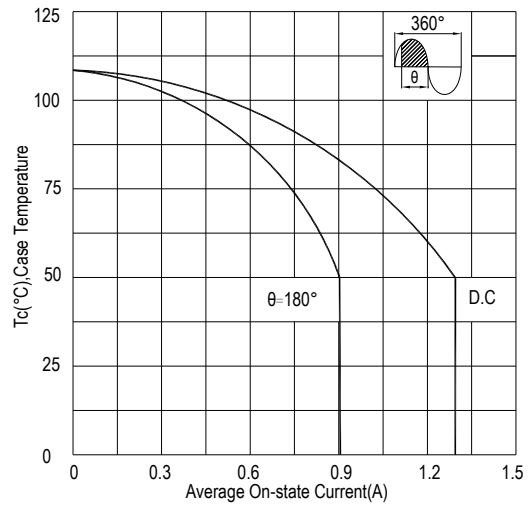
## Electrical Characteristics ( $T_j = 25^\circ\text{C}$ unless otherwise specified )

Symbol	Items	Conditions		ADS1A90	Unit
$I_{DRM}$ $I_{RRM}$	Peak Forward Reverse	$V_{DRM} = V_{RRM}$ , $R_{GK} = 1K\Omega$ $T_j = 25^\circ\text{C}$	Max.	5	$\mu\text{A}$
	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	$\mu\text{A}$
$I_H$	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/ $\mu\text{s}$
$R_{th(j-c)}$	Junction to case		Max.	70	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient		Max.	150	$^\circ\text{C/W}$

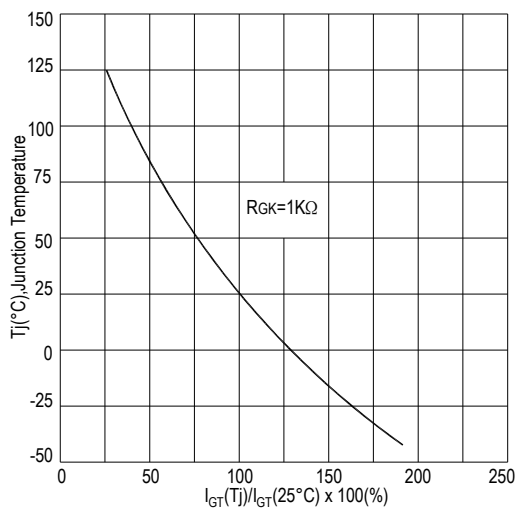
**FIG.1: Maximum average power dissipation (Single phase half wave)**



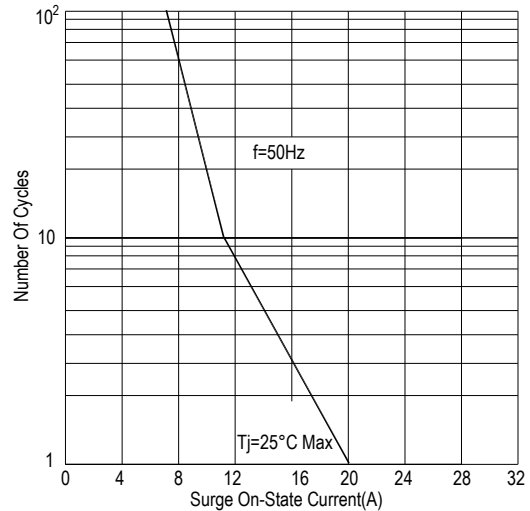
**FIG.2: Average on-state current VS Allowable case Temperature (Single phase half wave)**



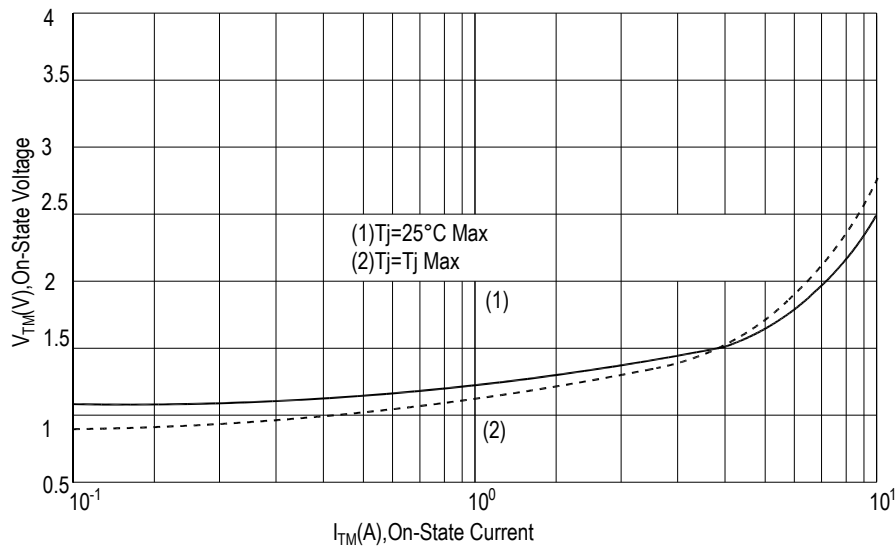
**FIG.3: Gate trigger current VS Junction temperature**



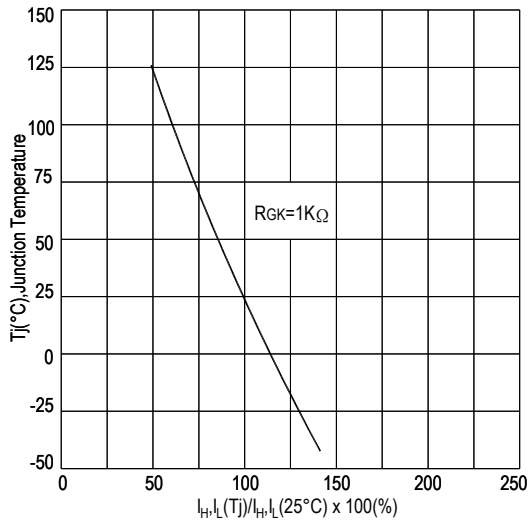
**FIG.4: Rated surge on-state current (Non-Repetitive)**



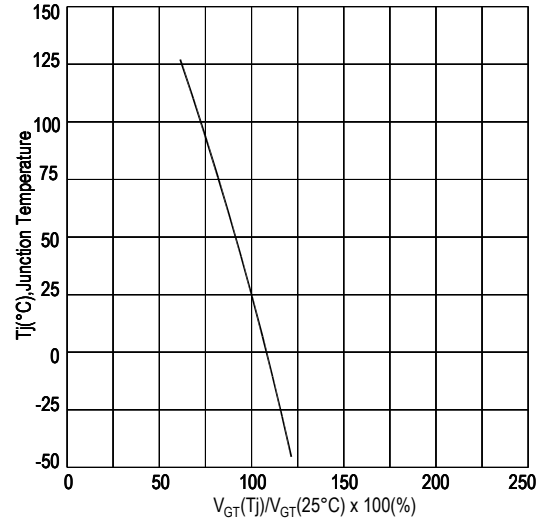
**FIG.5: On-state characteristics(Max)**



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

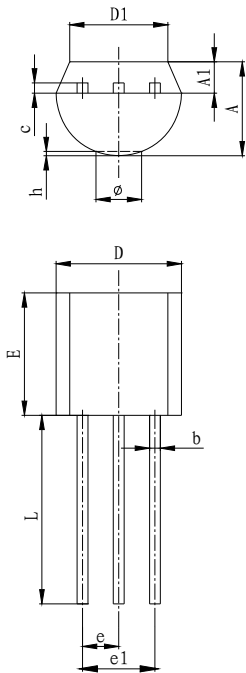


**FIG.7: Gate trigger voltage VS Junction temperature**



## PACKAGE MECHANICAL DATA

### TO-92 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.180	4.190	0.125	0.165
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	5.200	0.173	0.205
D1	3.430		0.135	
E	4.300	5.330	0.169	0.210
e	1.270 TYP		0.050 TYP	
e1	2.420	2.660	0.095	0.105
L	12.70	-	0.500	-
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

### Making Diagram

**ADV**  
1A90  
XXXXH

**ADV:Logo**  
1A90:Part number(ADS1A90)  
X:Internal control code  
H:Halogen Free

**AD S 1 A 90 #**

ADVANCED  
Internal control code  
Current:1=1A  
SCR series  
Voltage:90=900V  
Package explain:Blank=TO-92

### Ordering information

Part number	Package	Marking	Packing	Quantity
ADS1A90	TO-92	1A90	Vinyl sack	1000pcs

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