

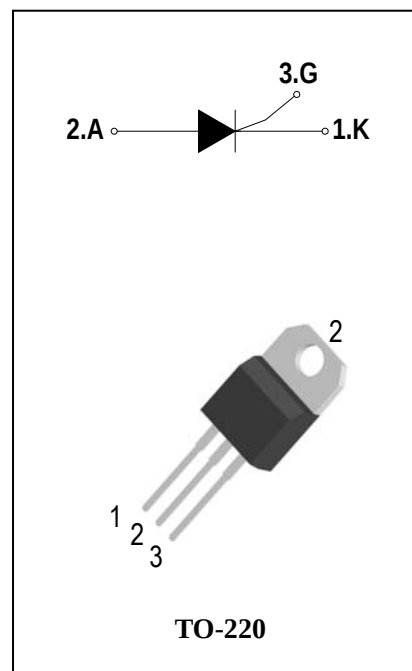
SCRs

General Description

The 40A SCR series of silicon controlled rectifiers, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.

Features

- ◆ Repetitive Peak Off-State Voltage : 600V and 800V
- ◆ R.M.S On-State Current ($I_{T(RMS)}$) = 40 A)
- ◆ These are Pb-Free Devices



Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	$T_j = 25^\circ\text{C}$	ADS40A60	600	V
V_{RRM}	Repetitive peak reverse voltage		ADS40A80	800	V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , $T_c = 95^\circ\text{C}$		25	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , $T_c = 95^\circ\text{C}$		40	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, $t_p = 10\text{ms}(50\text{Hz}) T_j = 25^\circ\text{C}$		460	A
I^2t	I^2t for Fusing	$T_j = 25^\circ\text{C}, t_p = 10\text{ms}$		1060	A^2S
P_{GM}	Forward Peak Gate Power Dissipation	$T_j = 125^\circ\text{C}$, Pulse Width $\leq 20\mu\text{s}$		5	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	$T_j = 25^\circ\text{C}$, $t_p = 10\text{ms}$		1	W
I_{GM}	Peak Gate Current	$T_j = 125^\circ\text{C}$, Pulse Width $\leq 20\mu\text{s}$		4	A
T_j	Operating Junction Temperature			- 40 ~ 125	$^\circ\text{C}$
T_{STG}	Storage Temperature			- 40 ~ 150	$^\circ\text{C}$



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

Symbol	Items	Conditions		ADS40A60/80		Unit
				S	Blank	
I_{DRM} I_{RRM}	Peak Forward Reverse Blocking Current	$V_{\text{DRM}} = V_{\text{RRM}}$ $T_j = 25^\circ\text{C}$	Max.	10		μA
		$V_{\text{DRM}} = V_{\text{RRM}}$ $T_j = 125^\circ\text{C}$		4		mA
V_{TM}	Peak On-State Voltage	$I_{\text{TM}} = 80\text{A}$, $t_p = 380\ \mu\text{s}$	Max.	1.6		V
V_{GD}	Non-Trigger Gate Voltage	$V_D = V_{\text{DRM}}$ $R_L = 3.3\ \text{k}\Omega$ $T_j = 125^\circ\text{C}$	Min.	0.2		V
V_{GT}	Gate Trigger Voltage	$V_D = 12\text{V}$, $R_L = 33\Omega$	Max.	1.3		V
I_{GT}	Gate Trigger Current		Max.	15	30	mA
I_{H}	Holding Current	$I_T = 0.5\text{A}$	Max.	30	40	mA
I_{L}	Latching Current	$I_G = 1.2\ I_{\text{GT}}$	Max.	50	50	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	$V_D = 2/3V_{\text{DRM}}$ gate open $T_j = 125^\circ\text{C}$	Min.	1000	1500	V/ μs
$R_{\text{th(j-c)}}$	Junction to case (AC)		Max.	0.8		$^\circ\text{C/W}$
$R_{\text{th(j-a)}}$	Junction to ambient		Max.	60		$^\circ\text{C/W}$

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

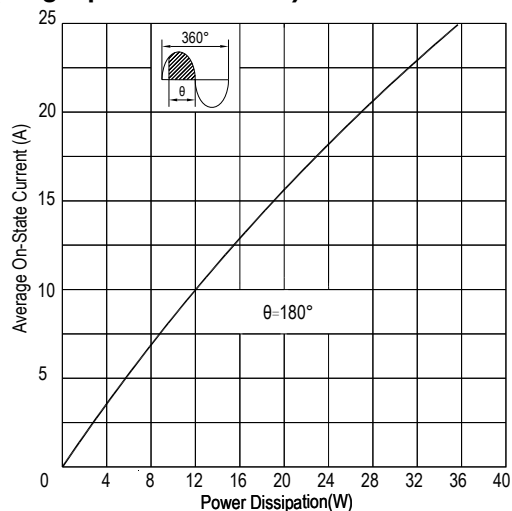


FIG.2: Average on-state current VS Allowable case Temperature (Single phase half wave)

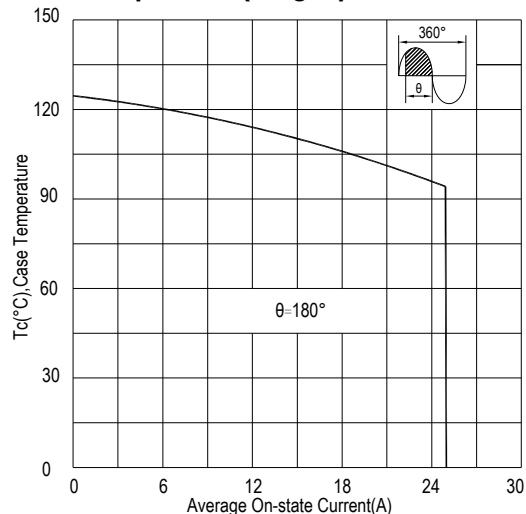


FIG.3: Gate trigger current VS Junction temperature

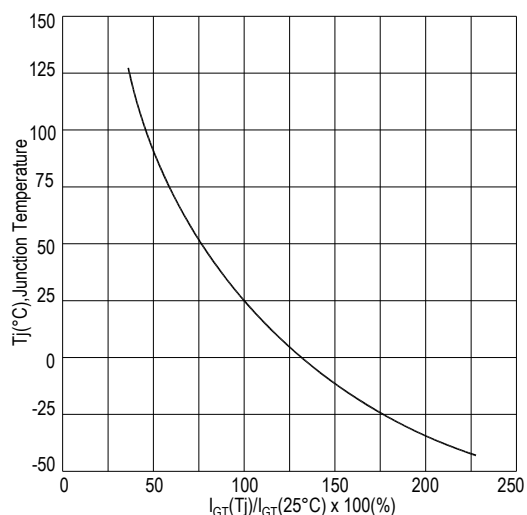


FIG.4: Rated surge on-state current (Non-Repetitive)

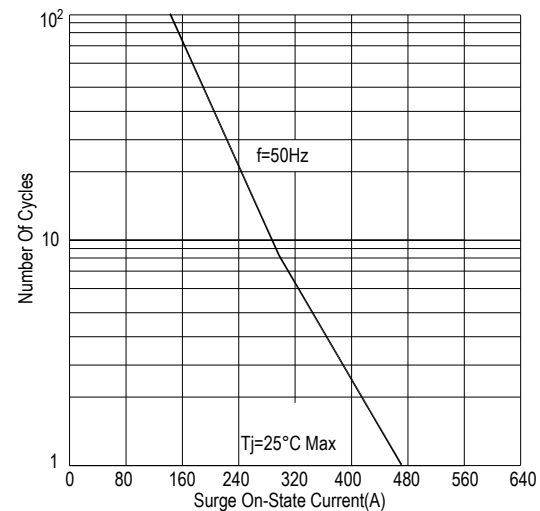


FIG.5: On-state characteristics(Max)

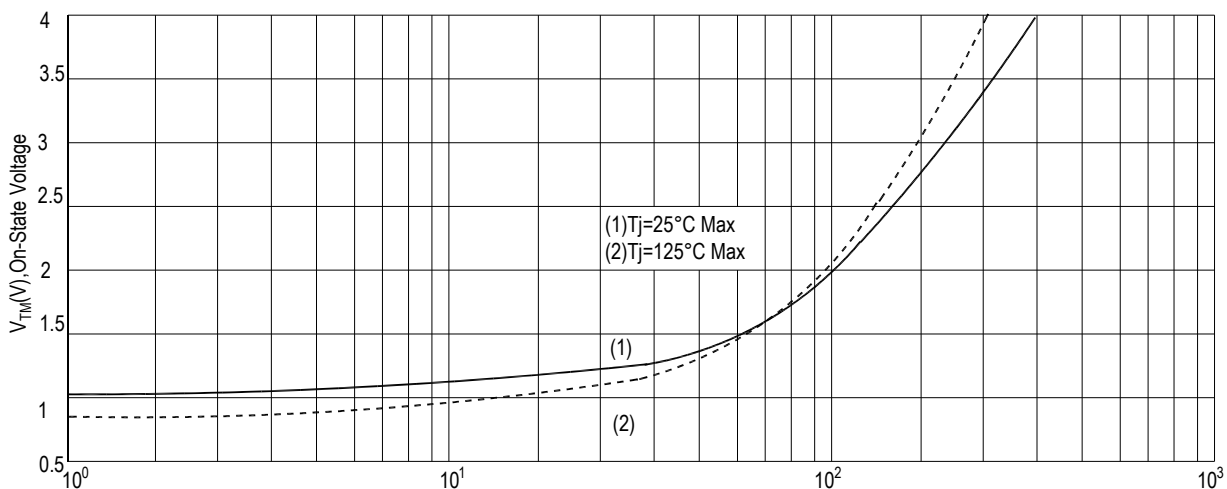


FIG.6:Holding current and Latching current VS Junction temperature

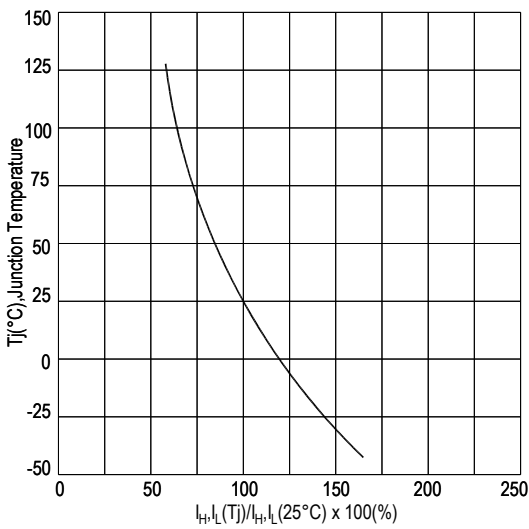
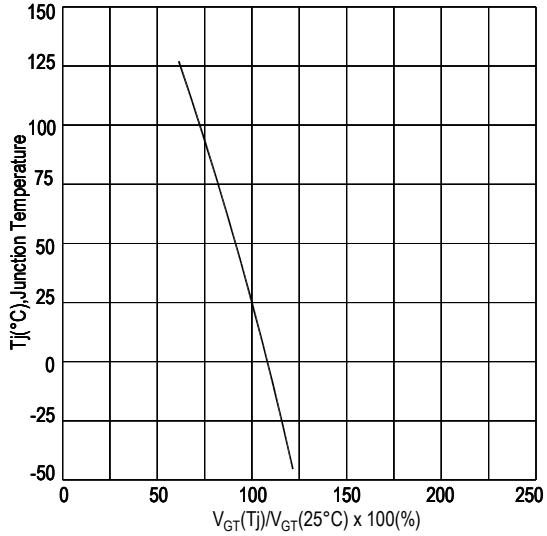
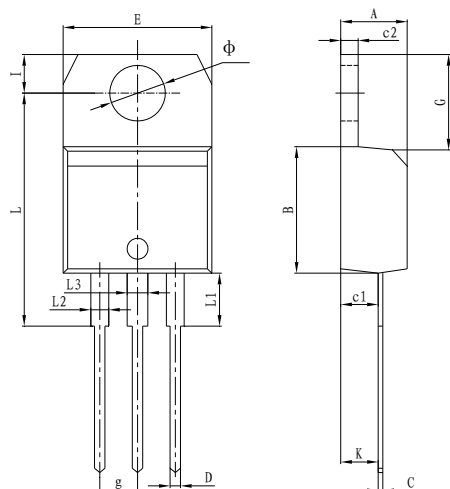


FIG.7: Gate trigger voltage VS Junction temperature



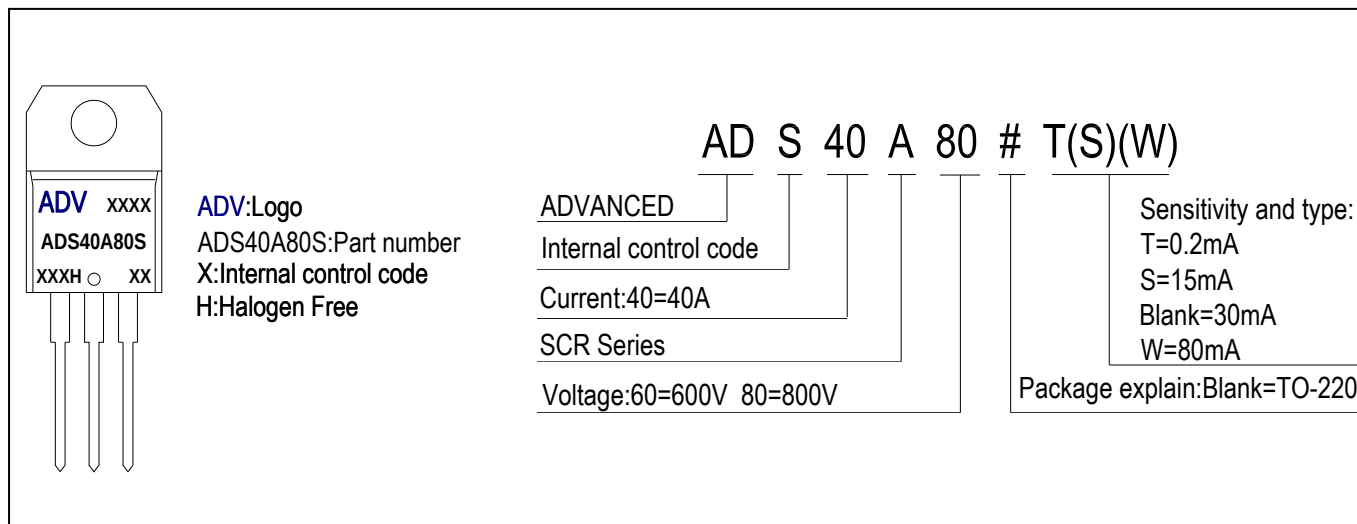
PACKAGE MECHANICAL DATA

TO-220 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.40	4.60	0.173	0.181
B	9.00	9.30	0.354	0.366
C	0.40	0.60	0.015	0.023
c1	2.00	2.60	0.078	0.102
c2	1.23	1.32	0.048	0.051
D	0.70	1.00	0.027	0.039
E	10.00	10.40	0.393	0.409
g	2.40	2.70	0.094	0.106
G	6.20	6.80	0.244	0.267
I	2.65	2.95	0.104	0.116
L	15.80	16.80	0.622	0.661
L1	3.75		0.147	
L2	1.14	1.70	0.044	0.066
L3	1.14	1.70	0.044	0.066
Φ	3.60	3.90	0.141	0.153
K	2.60TYP		0.102TYP	

Making Diagram



Ordering information

Part number	Package	Marking	Packing	Quantity
ADS40A60#	TO-220	ADS40A60#	Tube	50pcs
ADS40A80#	TO-220	ADS40A80#	Tube	50pcs

Note: # = Gate Trigger Current Sensitivity and type

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