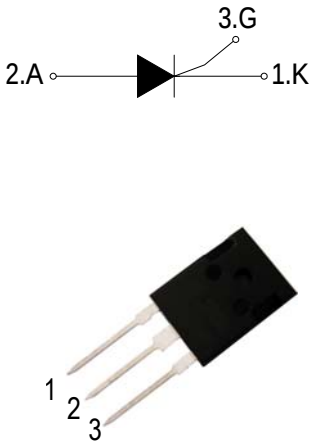
SCRs

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.



TO-247

Features

- Repetitive Peak Off-State Voltage : 1000V and 1200V
- 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	Tj=25°C	ADS40A100K	1000	V
V_{RRM}	Repetitive peak reverse voltage		ADS40A120K	1200	V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , Tc = 95°C		25	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , Tc = 95°C		40	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, tp=10ms(50Hz)Tj =25°C		460	A
I^2t	I^2t for Fusing	Tj =25°C,tp =10ms		1060	A^2S
P_{GM}	Forward Peak Gate Power Dissipation	Tj =125°C, Pulse Width ≤ 20μs		5	W
$P_{G(AV)}$	Forward Average Gate Power Dissipation	Tj =25°C, tp =10ms		1	W
I_{GM}	Peak Gate Current	Tj =125°C, Pulse Width ≤ 20μs		4	A
Tj	Operating Junction Temperature			- 40 ~ 125	°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		ADS40A100K/120K		Unit
				S	Blank	
I_{DRM} I_{RRM}	Peak Forward Reverse Blocking Current	$V_{DRM} = V_{RRM}$ Tj = 25°C	Max.	10		uA
		$V_{DRM} = V_{RRM}$ Tj = 125°C		4		mA
V_{TM}	Peak On-State Voltage	I_{TM} = 80A, t_p = 380 μs	Max.	1.6		V
V_{GD}	Non-Trigger Gate Voltage	$V_D = V_{DRM}$ R_L = 3.3 kΩ Tj = 125°C	Min.	0.2		V
V_{GT}	Gate Trigger Voltage	V_D = 12V , R_L = 33Ω	Max.	1.3		V
I_{GT}	Gate Trigger Current		Max.	15	30	mA
I_H	Holding Current	I_T = 0.5A	Max.	30	40	mA
I_L	Latching Current	I_G = 1.2 I_{GT}	Max.	50	50	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	V_D = 2/3V_{DRM} gate open Tj = 125°C	Min.	1000	1500	V/μs
$R_{th(j-c)}$	Junction to case (AC)		Max.	0.95		°C/W
$R_{th(j-a)}$	Junction to ambient		Max.	50		°C/W

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

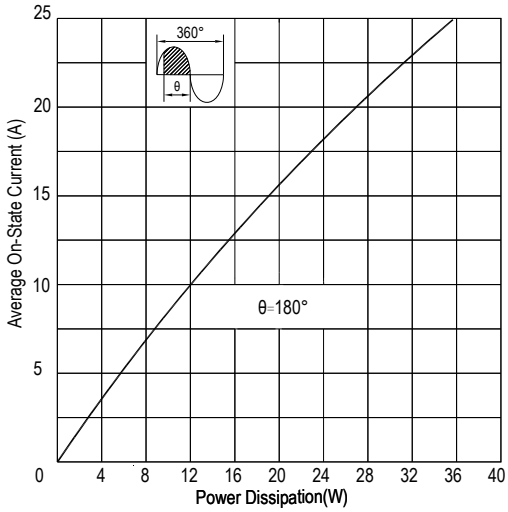


FIG.2: Average on-state current VS Allowable case Temperature(Single phase half wave)

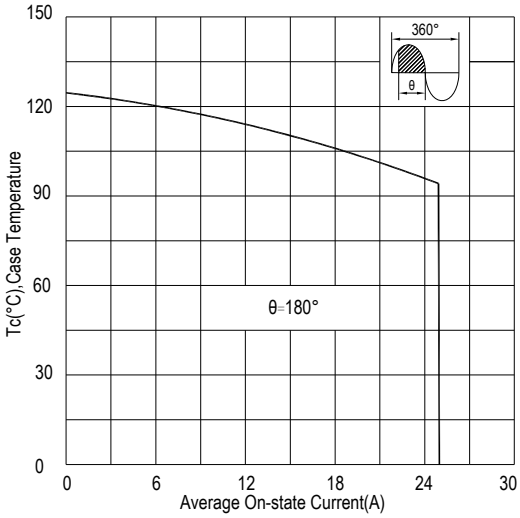


FIG.3: Gate trigger current VS Junction temperature

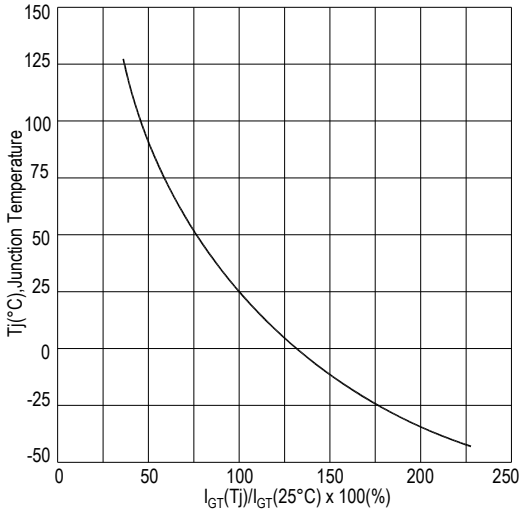


FIG.4: Rated surge on-state current (Non-Repetitive)

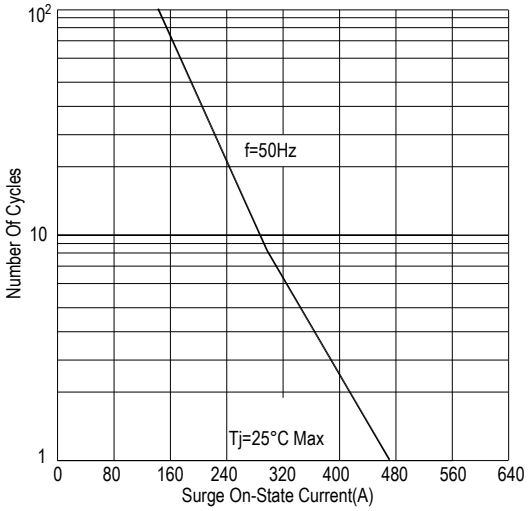


FIG.5: On-state characteristics(Max)

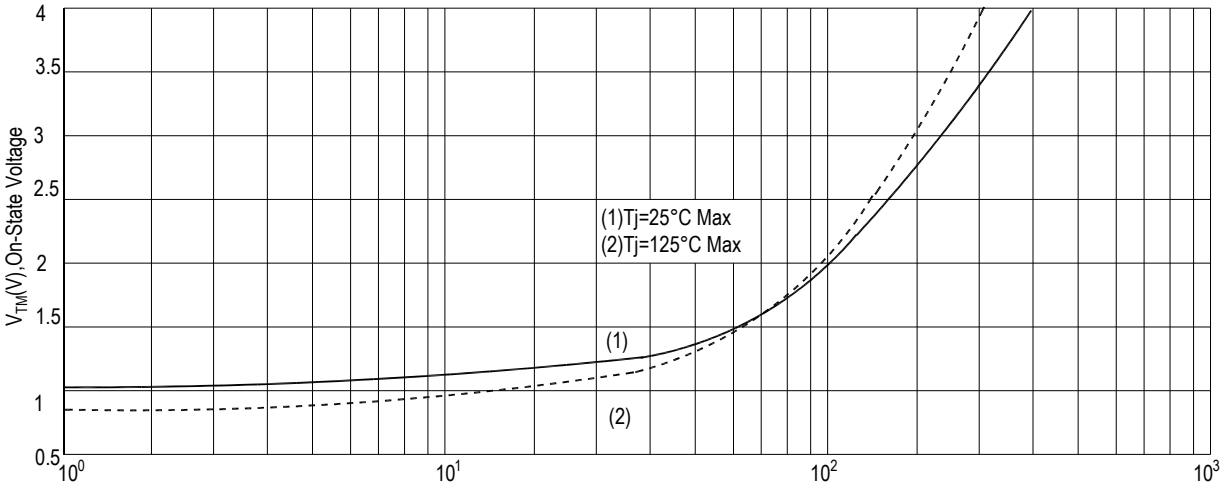


FIG.6:Holding current and Latching current VS Junction temperature

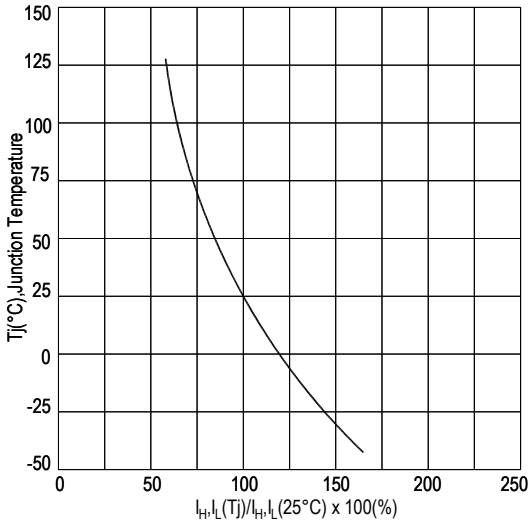
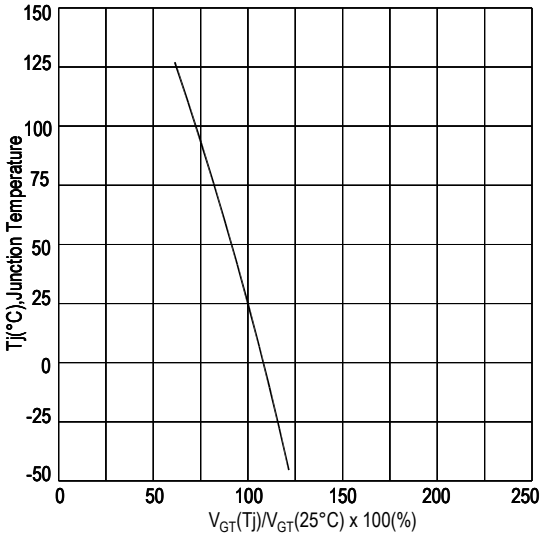
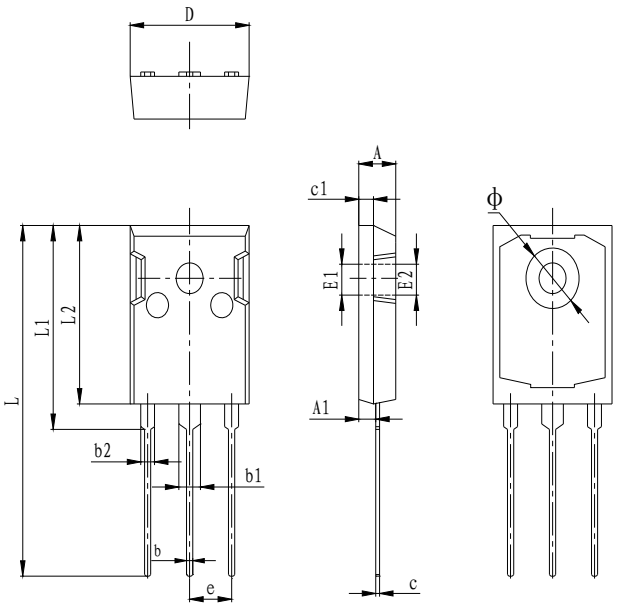


FIG.7: Gate trigger voltage VS Junction temperature



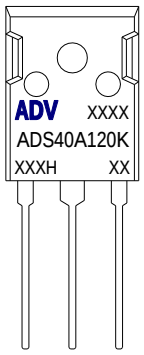
PACKAGE MECHANICAL DATA

TO-247 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF		0.138 REF	
E2	3.600 REF		0.142 REF	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
Φ	7.100	7.300	0.280	0.287
e	5.450 TYP		0.215 TYP	

Making Diagram



ADV:Logo
ADS40A120K:Part number
X:Internal control code
H:Halogen Free

AD S 40 A 120 K T(S)(W)

- AD: ADVANCED
- S: Internal control code
- 40: Current:40=40A
- A: SCR Series
- 120: Voltage:100=1000V 120=1200V
- K: Package explain:K=TO-247
- T(S)(W): Sensitivity and type:
  - T=0.2mA
  - S=15mA
  - Blank=30mA
  - W=80mA

Ordering information

Part number	Package	Marking	Packing	Quantity
ADS40A100K#	TO-247	ADS40A100K#	Tube	25pcs
ADS40A120K#	TO-247	ADS40A120K#	Tube	25pcs
Note:# = Gate Trigger Current Sensitivity and type				

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