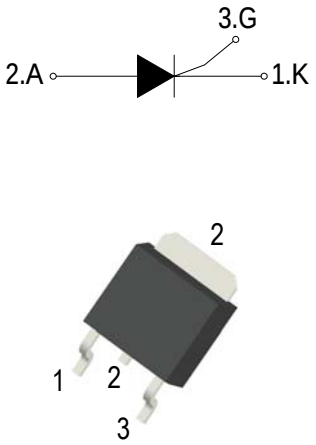
SCRs

General Description

Available either in sensitive or standard gate triggering levels, the 12A SCR series is suitable to fit all modes of control found inapplications such as overvoltage crowbar protection, motor control circuits in power tools and kitchen aids, in-rush current limiting circuits,capacitive discharge ignition, voltage regulation circuits...



TO-252-2

Features

- Repetitive Peak Off-State Voltage : 600V and 800V
- R.M.S On-State Current ($I_{T(RMS)}$= 12 A)
- These are Pb-Free Devices

Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	Tj=25°C	ADT12A60E	600	V
V_{RRM}	Repetitive peak reverse voltage		ADT12A80E	800	V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , Tc = 105°C		10	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , Tc = 105°C		12	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, tp=10ms(50Hz)Tj =25°C		190	A
I^2t	I^2t for Fusing	Tj =25°C,tp =10ms		98	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		ADT12A60E/80E			Unit
				T	S	Blank	
I_{DRM} I_{RRM}	Peak Forward Reverse Blocking Current	$V_{DRM} = V_{RRM}$, R_{GK} = 1KΩ Tj = 25°C	Max.	5			uA
		$V_{DRM} = V_{RRM}$, R_{GK} = 1KΩ Tj = 125°C		2			mA
V_{TM}	Peak On-State Voltage	I_{TM} = 24A, t_p = 380 μs	Max.	1.55			V
V_{GD}	Non-Trigger Gate Voltage	$V_D = V_{DRM}$ R_L = 3.3 kΩ R_{GK} = 1KΩ Tj = 125°C	Min.	0.2			V
V_{GT}	Gate Trigger Voltage	V_D = 12V , R_L = 33Ω	Max.	1.5			V
I_{GT}	Gate Trigger Current		Max.	0.2	15	30	mA
I_H	Holding Current	I_T = 0.5A R_{GK} = 1KΩ	Max.	5	30	40	mA
I_L	Latching Current	I_G = 1.2 I_{GT} R_{GK} = 1KΩ	Max.	7	50	60	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	V_D = 2/3V_{DRM} gate open R_{GK} = 1KΩ Tj = 125°C	Min.	200	500	600	V/μs
$R_{th(j-c)}$	Junction to case (AC)		Max.	1.8			°C/W
$R_{th(j-a)}$	Junction to ambient(Copper surface under tab:S=0.5cm^2)		Max.	70			°C/W

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

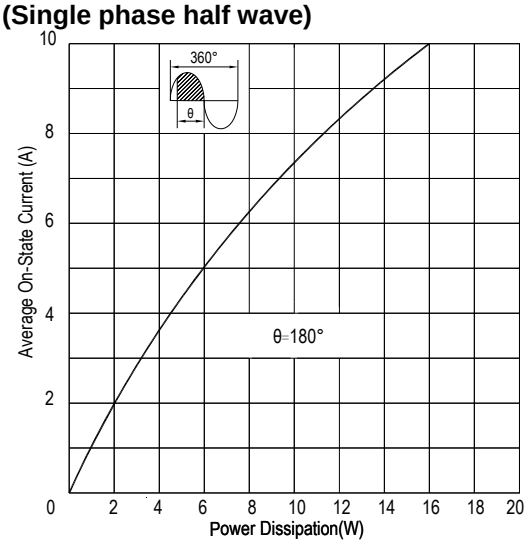


FIG.2: Average on-state current VS Allowable case Temperature(Single phase half wave)

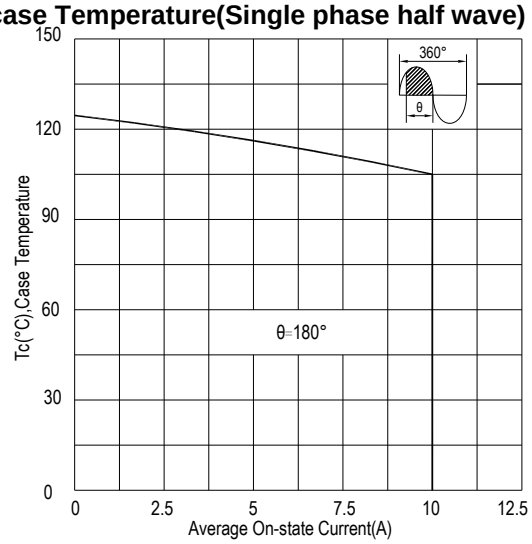


FIG.3: Gate trigger current VS Junction temperature

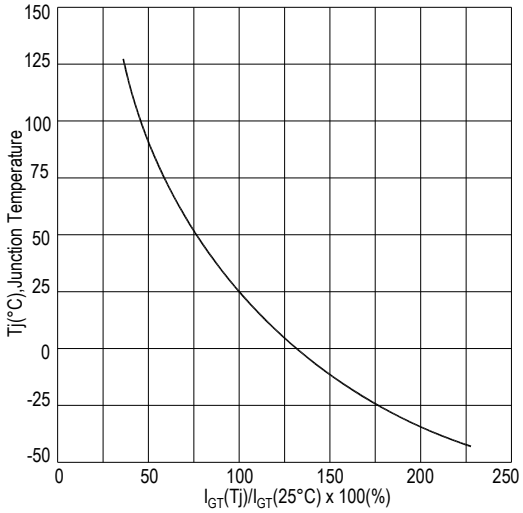


FIG.4: Rated surge on-state current (Non-Repetitive)

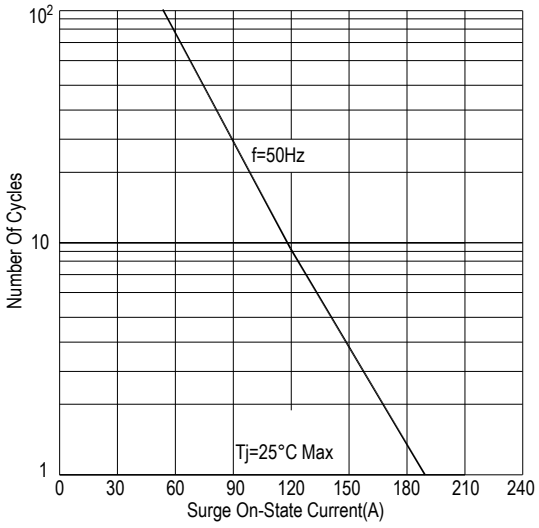


FIG.5: On-state characteristics(Max)

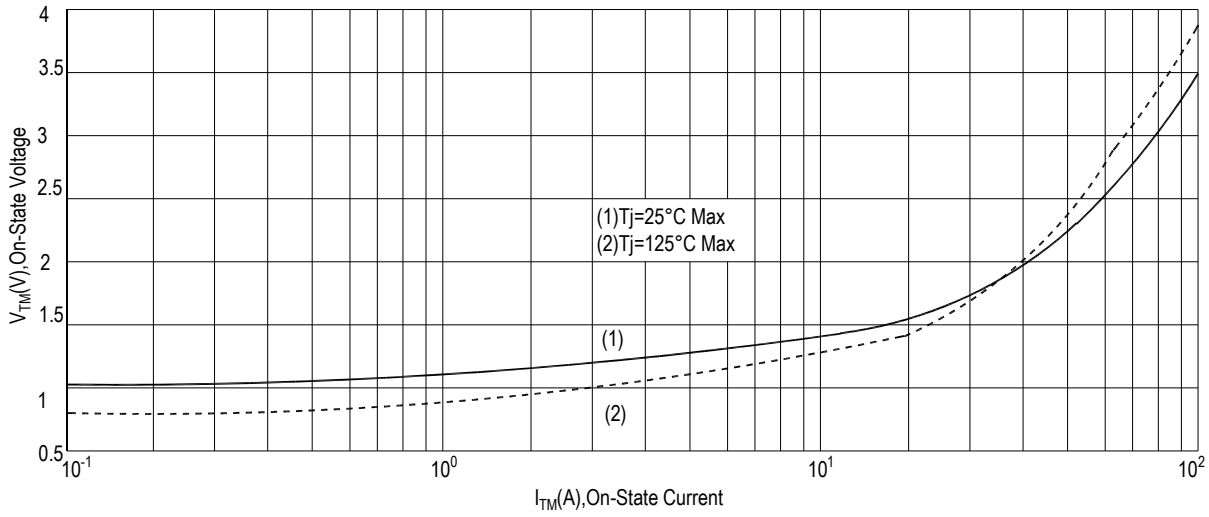


FIG.6:Holding current and Latching current VS Junction temperature

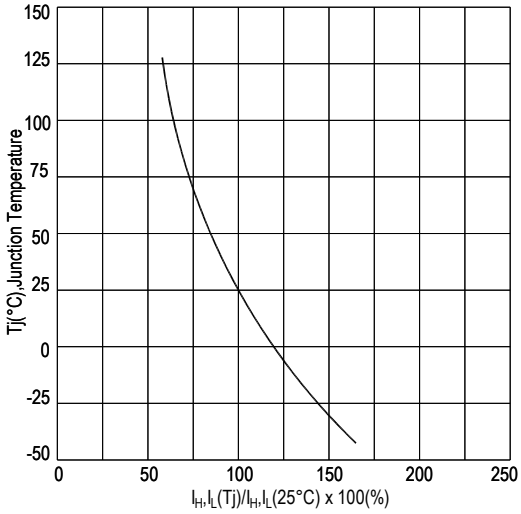


FIG.7: Gate trigger voltage VS Junction temperature

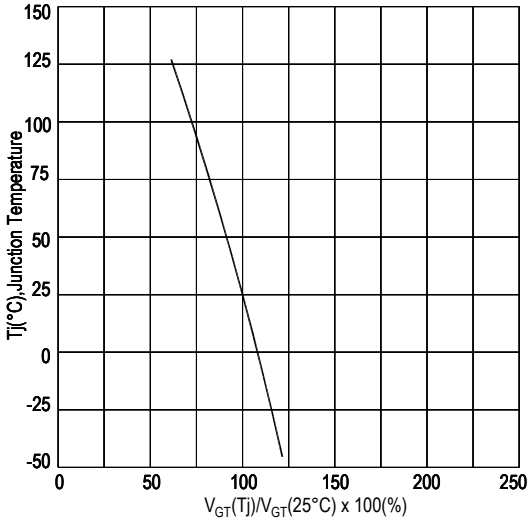


FIG.8: Gate trigger current VS Junction temperature for type T gate triggering

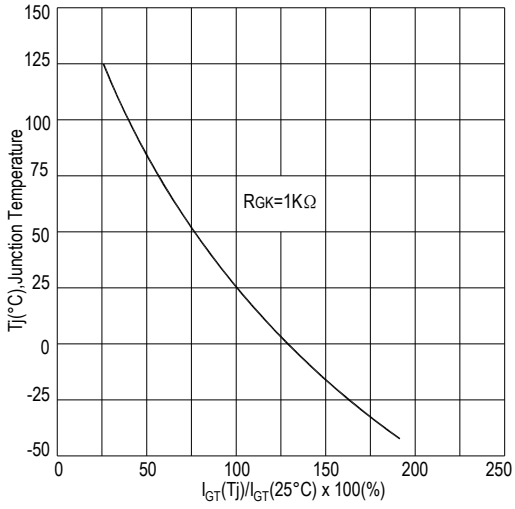
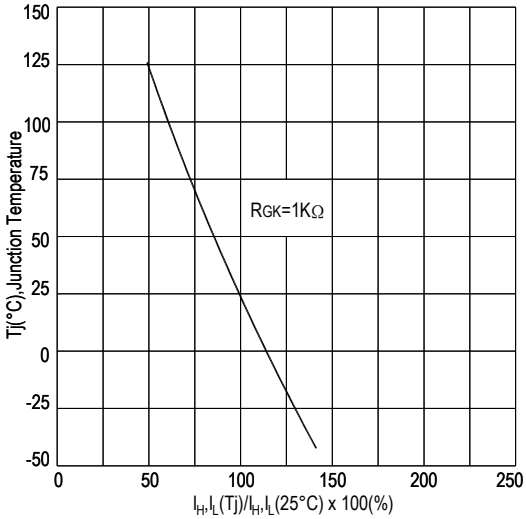
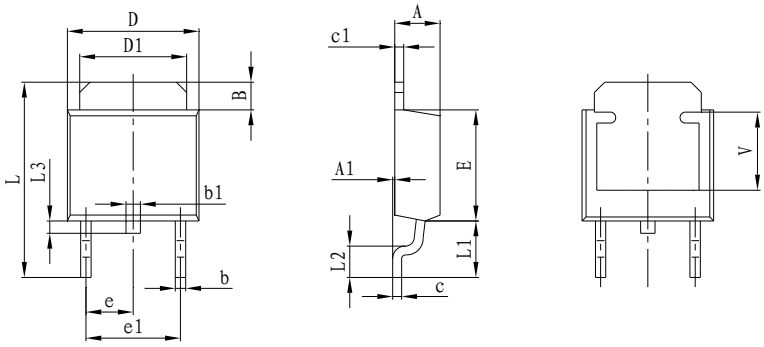


FIG.8:Holding current and Latching current VS Junction temperature for type T gate triggering



PACKAGE MECHANICAL DATA

TO-252-2 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.450	0.620	0.017	0.024
c1	0.450	0.620	0.017	0.024
D	6.350	6.650	0.250	0.262
D1	5.100	5.400	0.200	0.213
E	5.900	6.200	0.232	0.244
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	10.60	0.374	0.396
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	4.100 REF.		0.161 REF.	

Making Diagram

ADV:Logo
ADT12A80ES:Part number
X:Internal control code
H:Halogen Free

AD T 12 A 80 E T(S)(W)

- AD: ADVANCED
- T: Internal control code
- 12: Current:12=12A
- A: SCR Series
- 80: Voltage:60=600V 80=800V
- E: Package explain:E=TO252-2
- T(S)(W): Sensitivity and type: T=0.2mA, S=15mA, Blank=30mA, W=80mA

Ordering information

Part number	Package	Marking	Packing	Quantity
ADT12A60E#	TO-252-2	ADT12A60E#	Tube	80pcs
			Embossed tape	2500pcs
ADT12A80E#	TO-252-2	ADT12A80E#	Tube	80pcs
			Embossed tape	2500pcs

Note:# = Gate Trigger Current Sensitivity and type

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