

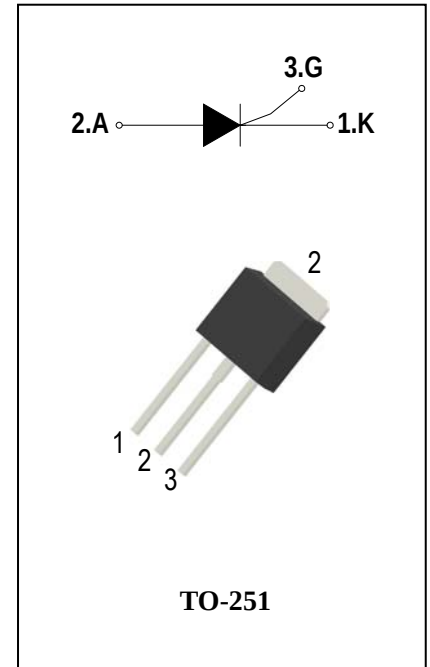
SCRs

General Description

Available either in sensitive or standard gate triggering levels, the 12A SCR series is suitable to fit all modes of control found in applications 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...

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	$T_j = 25^\circ\text{C}$	ADT12A60D	600	V
V_{RRM}	Repetitive peak reverse voltage		ADT12A80D	800	V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , $T_c = 105^\circ\text{C}$		10	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , $T_c = 105^\circ\text{C}$		12	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, $t_p = 10\text{ms}(50\text{Hz}) T_j = 25^\circ\text{C}$		190	A
I^2t	I^2t for Fusing	$T_j = 25^\circ\text{C}, t_p = 10\text{ms}$		98	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		ADT12A60D/80D			Unit
				T	S	Blank	
I_{DRM}	Peak Forward Reverse	$V_{\text{DRM}} = V_{\text{RRM}}, R_{\text{GK}} = 1\text{K}\Omega$ $T_j = 25^\circ\text{C}$	Max.	5			μA
I_{RRM}	Blocking Current	$V_{\text{DRM}} = V_{\text{RRM}}, R_{\text{GK}} = 1\text{K}\Omega$ $T_j = 125^\circ\text{C}$		2			mA
V_{TM}	Peak On-State Voltage	$I_{\text{TM}} = 24\text{A}, t_p = 380\ \mu\text{s}$	Max.	1.55			V
V_{GD}	Non-Trigger Gate Voltage	$V_D = V_{\text{DRM}}, R_L = 3.3\ \text{k}\Omega$ $R_{\text{GK}} = 1\text{K}\Omega, T_j = 125^\circ\text{C}$	Min.	0.2			V
V_{GT}	Gate Trigger Voltage	$V_D = 12\text{V}, R_L = 33\Omega$	Max.	1.5			V
I_{GT}	Gate Trigger Current		Max.	0.2	15	30	mA
I_{H}	Holding Current	$I_T = 0.5\text{A}, R_{\text{GK}} = 1\text{K}\Omega$	Max.	5	30	40	mA
I_{L}	Latching Current	$I_G = 1.2 I_{\text{GT}}, R_{\text{GK}} = 1\text{K}\Omega$	Max.	7	50	60	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	$V_D = 2/3 V_{\text{DRM}}, \text{gate open}$ $R_{\text{GK}} = 1\text{K}\Omega, T_j = 125^\circ\text{C}$	Min.	200	500	600	$\text{V}/\mu\text{s}$
$R_{\text{th(j-c)}}$	Junction to case (AC)		Max.	1.8			$^\circ\text{C}/\text{W}$
$R_{\text{th(j-a)}}$	Junction to ambient		Max.	100			$^\circ\text{C}/\text{W}$

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

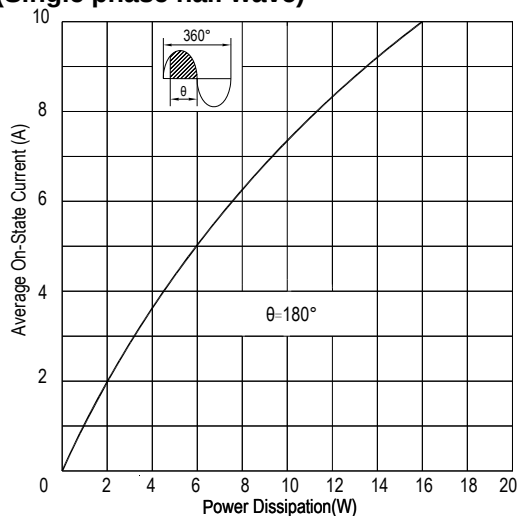


FIG.2: Average on-state current VS Allowable case Temperature(Single phase half wave)

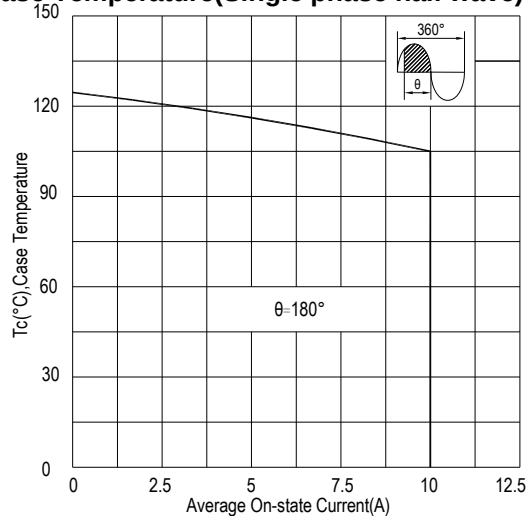
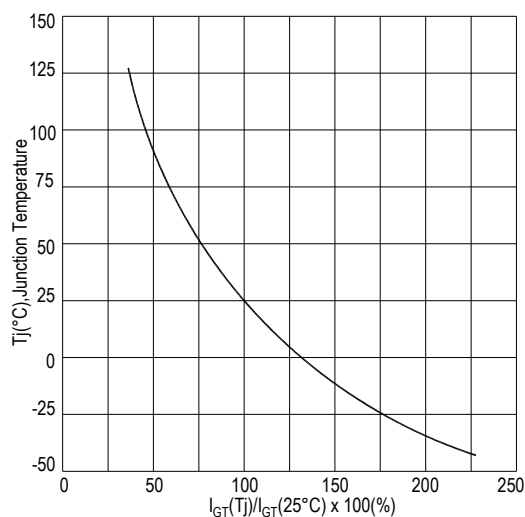


FIG.3: Gate trigger current VS Junction temperature



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

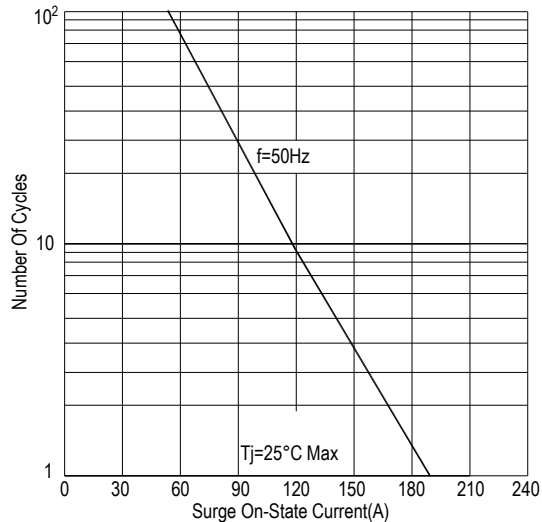


FIG.5: On-state characteristics(Max)

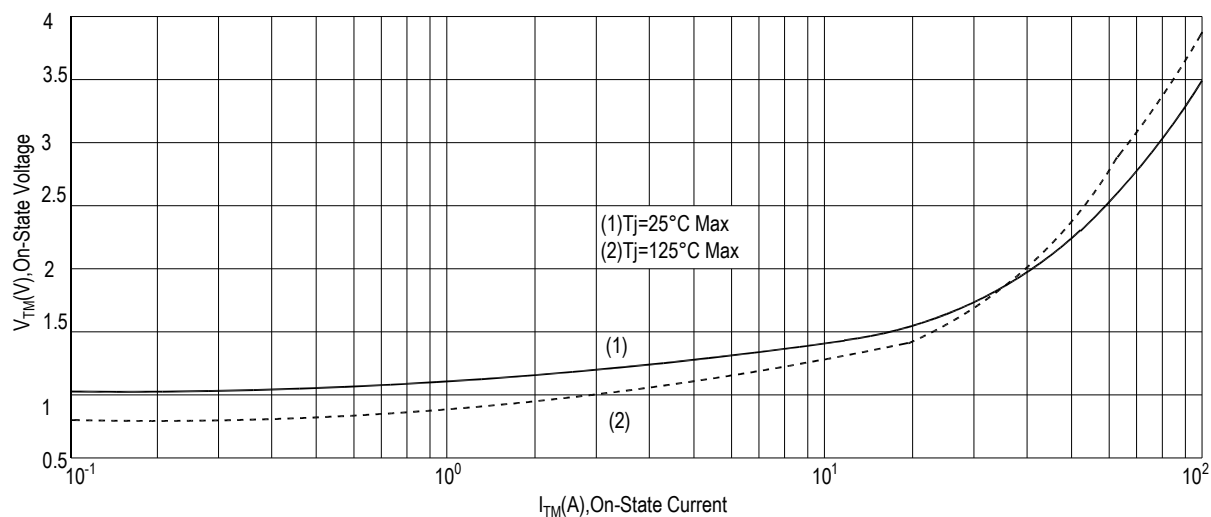


FIG.6: Holding current and Latching current VS Junction temperature

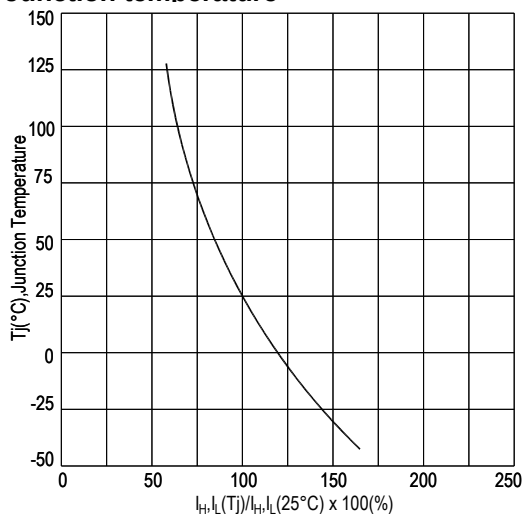


FIG.7: Gate trigger voltage VS Junction temperature

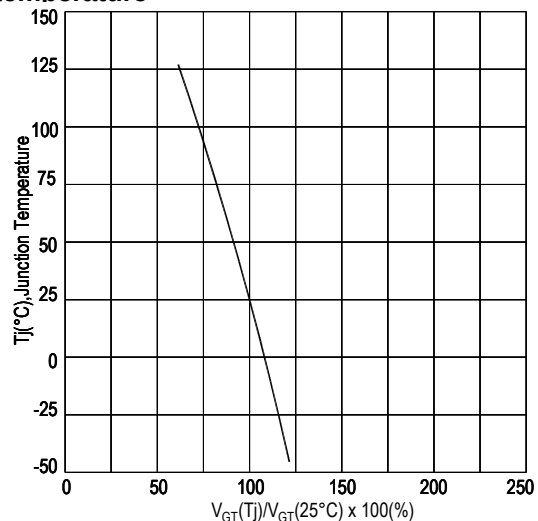


FIG.8: Gate trigger current VS Junction temperature for type T gate triggering

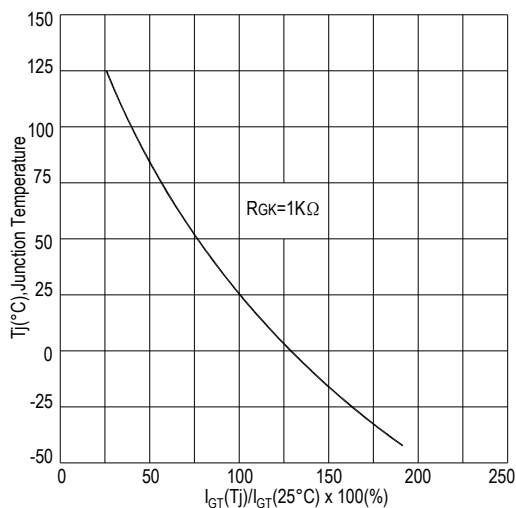
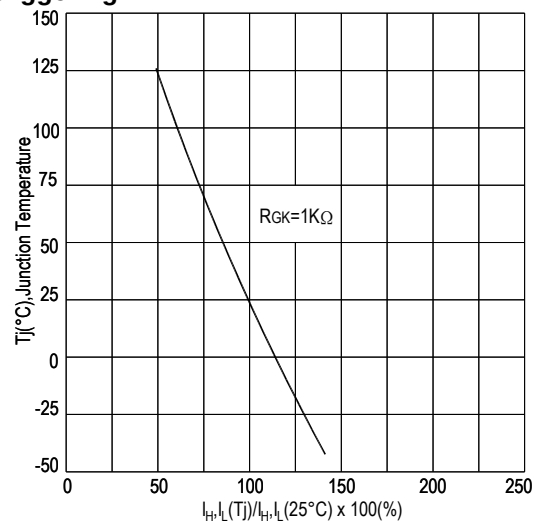
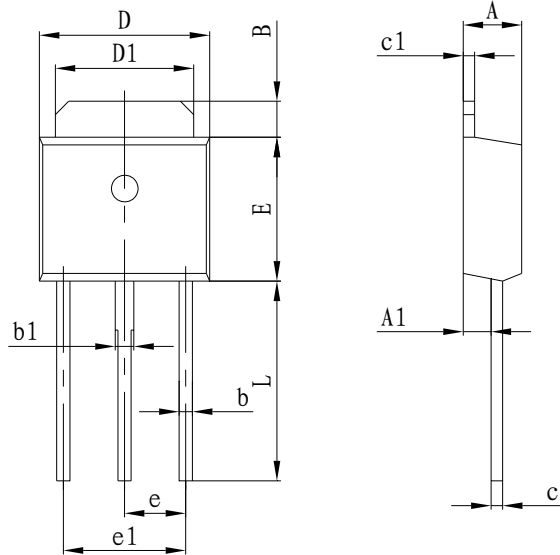


FIG.8: Holding current and Latching current VS Junction temperature for type T gate triggering



PACKAGE MECHANICAL DATA

TO-251 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.900	1.100	0.035	0.043
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	0.430	0.620	0.017	0.024
c1	0.480	0.620	0.019	0.024
D	6.350	6.700	0.252	0.264
D1	5.100	5.400	0.200	0.213
E	6.000	6.200	0.236	0.244
e	2.300TYP		0.091TYP	
e1	4.500	4.700	0.177	0.185
L	8.900	9.400	0.350	0.370

Making Diagram

ADV:Logo
ADT12A80DS:Part number
X:Internal control code
H:Halogen Free

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

ADVANCED Internal control code Current:12=12A SCR Series Voltage:60=600V 80=800V	Sensitivity and type: T=0.2mA S=15mA Blank=30mA W=80mA	Package explain:D=TO-251
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Ordering information

Part number	Package	Marking	Packing	Quantity
ADT12A60D#	TO-251	ADT12A60D#	Tube	80pcs
ADT12A80D#	TO-251	ADT12A80D#	Tube	80pcs

Note:# = Gate Trigger Current Sensitivity and type

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