

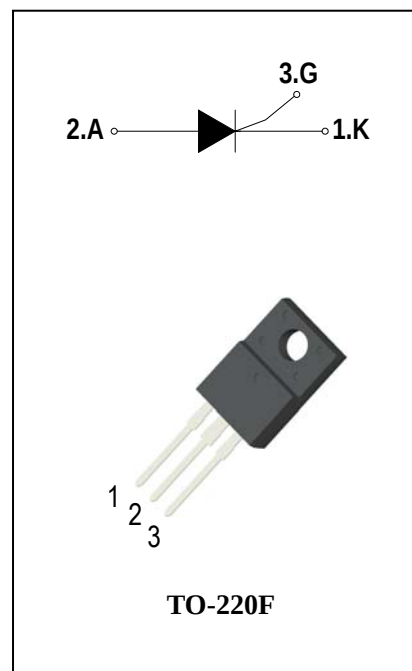
SCRs

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	$T_j = 25^\circ\text{C}$	ADT12A60F	600	V
V_{RRM}	Repetitive peak reverse voltage		ADT12A80F	800	V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , $T_c = 90^\circ\text{C}$		10	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , $T_c = 90^\circ\text{C}$		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		ADT12A60F/80F			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	$V_D = 2/3 V_{\text{DRM}}$ 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.	3.5			$^\circ\text{C}/\text{W}$
$R_{\text{th(j-a)}}$	Junction to ambient		Max.	60			$^\circ\text{C}/\text{W}$

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

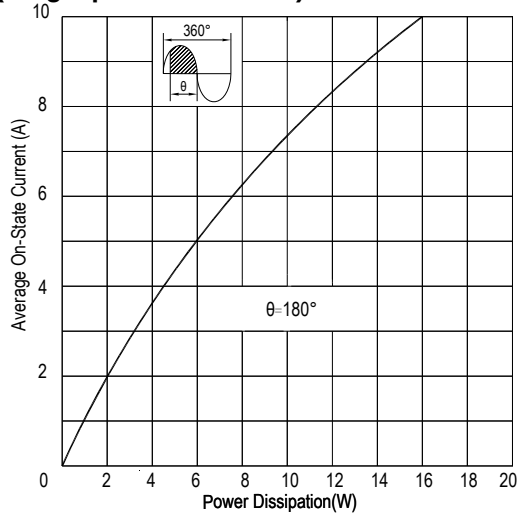


FIG.2: Average on-state current VS Allowable case Temperature (Single phase half wave)

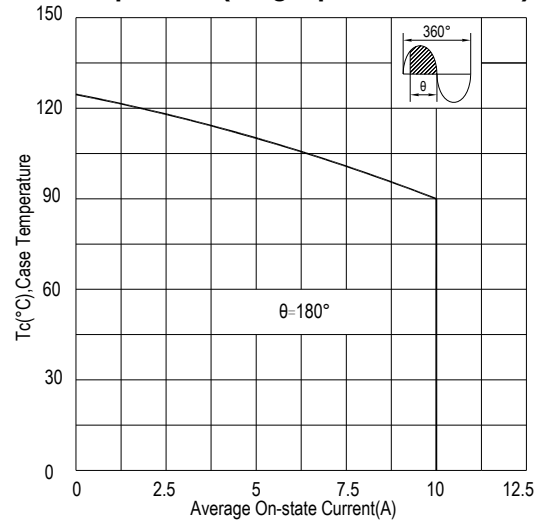


FIG.3: Gate trigger current VS Junction temperature

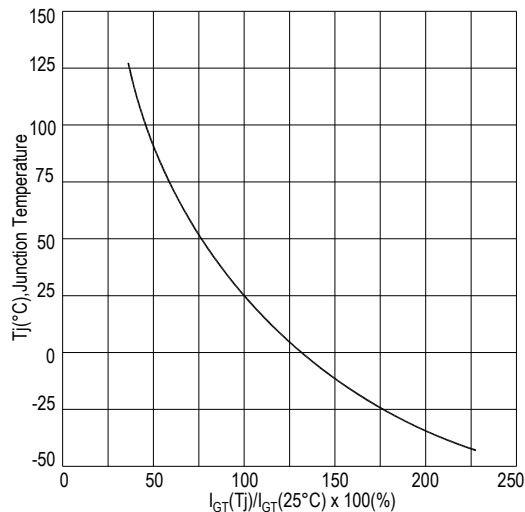


FIG.4: Rated surge on-state current (Non-Repetitive)

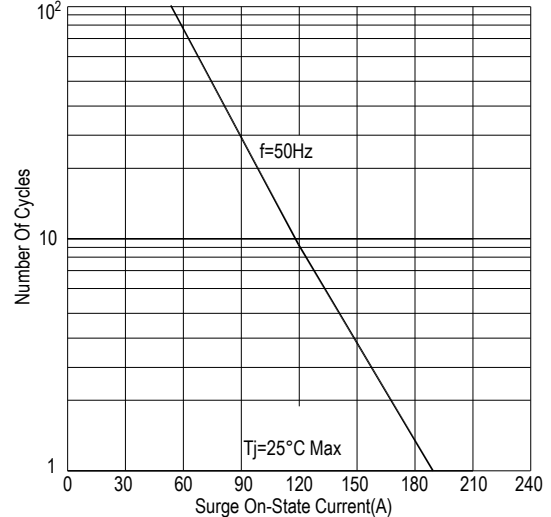


FIG.5: On-state characteristics(Max)

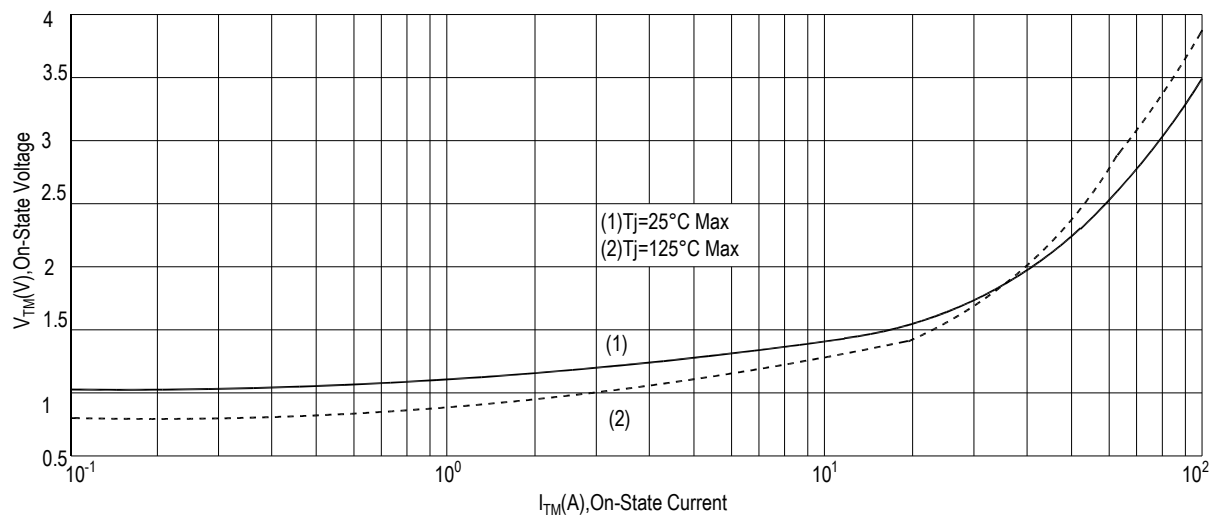


FIG.6: Holding current and Latching current VS Junction temperature

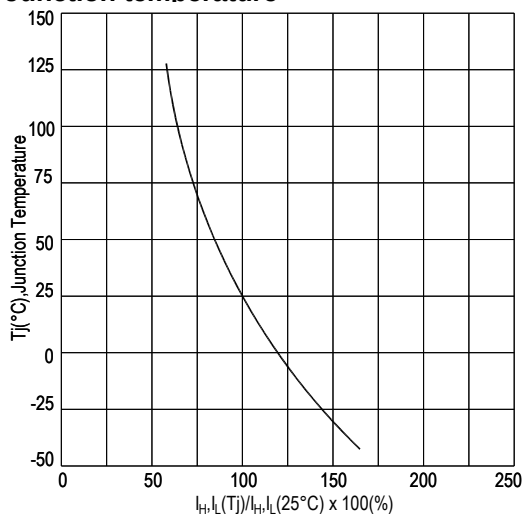


FIG.7: Gate trigger voltage VS Junction temperature

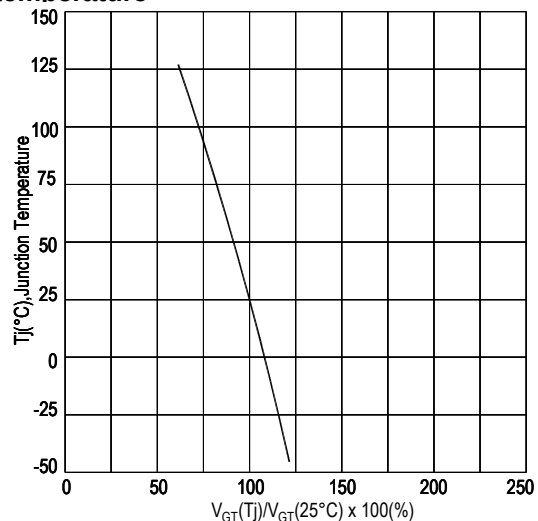


FIG.8: Gate trigger current VS Junction temperature for type T gate triggering

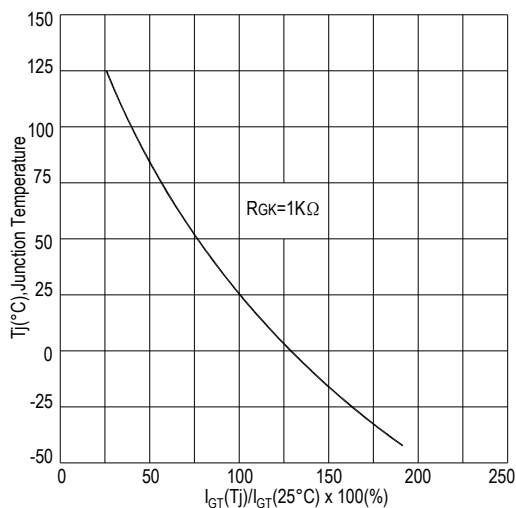
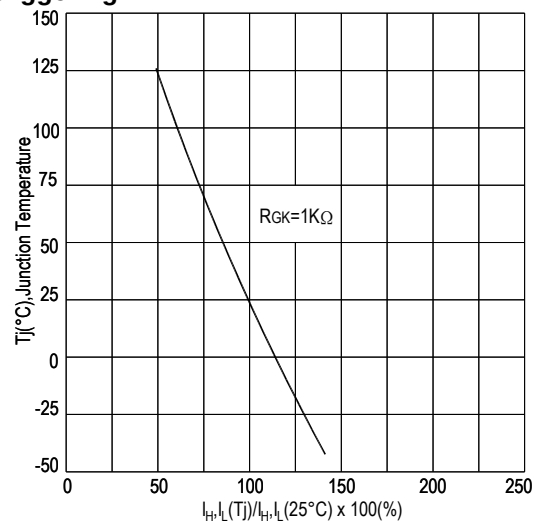
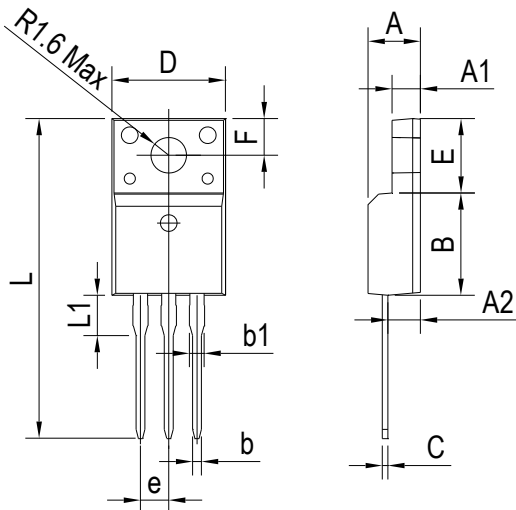


FIG.8: Holding current and Latching current VS Junction temperature for type T gate triggering



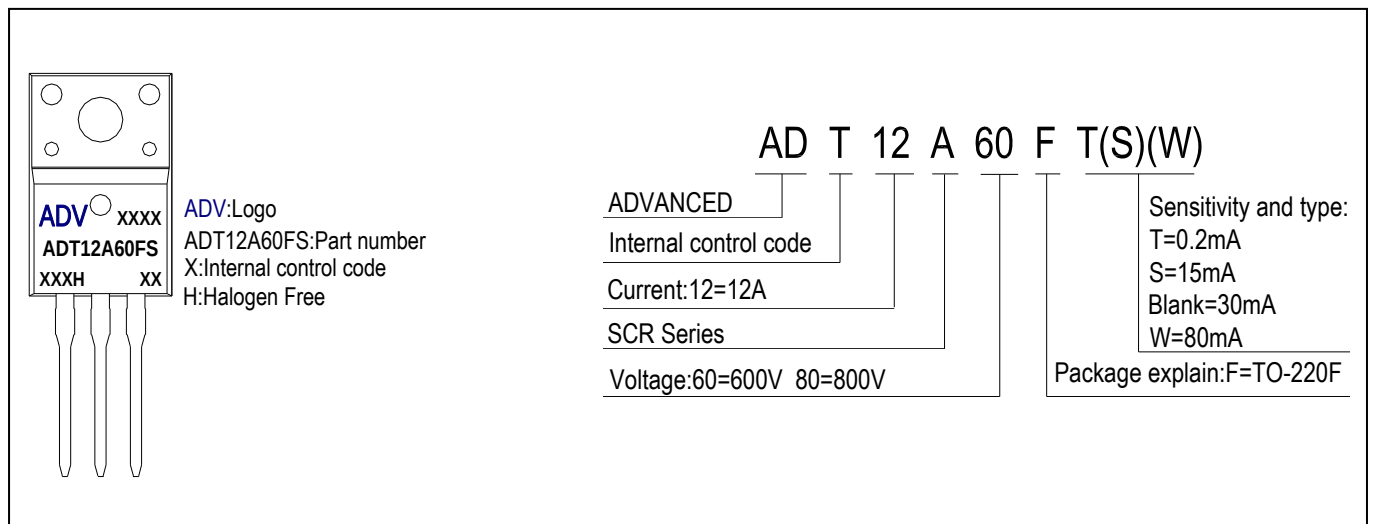
PACKAGE MECHANICAL DATA

TO-220F Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.300	4.800	0.169	0.189
A1	2.400	2.700	0.094	0.106
A2	2.500	3.000	0.098	0.118
B	8.800	9.300	0.346	0.367
b	0.600	0.950	0.023	0.037
b1	1.100	1.700	0.043	0.067
C	0.500	0.750	0.020	0.030
D	9.700	10.360	0.382	0.408
E	6.400	6.800	0.252	0.268
e	2.540 TYP		0.100 TYP	
F	3.300 REF		0.130 REF	
L	28.000	30.000	1.102	1.181
L1	2.900	3.630	0.114	0.143

Marking Diagram



Ordering information

Part number	Package	Marking	Packing	Quantity
ADT12A60F#	TO-220F	ADT12A60F#	Tube	50pcs
ADT12A80F#	TO-220F	ADT12A80F#	Tube	50pcs

Note: # = Gate Trigger Current Sensitivity and type

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