

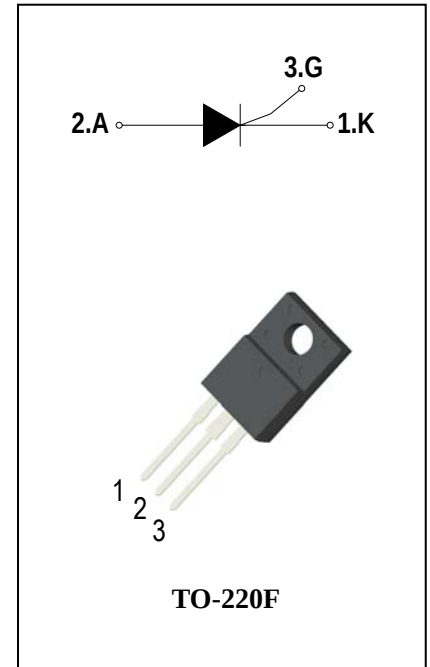
SCRs

General Description

The 20A 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 ($I_{T(RMS)} = 20\text{ A}$)
- ◆ These are Pb-Free Devices



Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	$T_j = 25^\circ\text{C}$	ADT20A60F	600	V
V_{RRM}	Repetitive peak reverse voltage		ADT20A80F	800	V
$I_{T(AV)}$	Average On-State Current	Half Sine Wave , $T_c = 90^\circ\text{C}$		16	A
$I_{T(RMS)}$	R.M.S On-State Current	Half Sine Wave , $T_c = 90^\circ\text{C}$		20	A
I_{TSM}	Surge On-State Current	1/2 Cycle, Sine Wave Non-Repetitive, $t_p = 10\text{ms}(50\text{Hz}) T_j = 25^\circ\text{C}$		300	A
I^2t	I^2t for Fusing	$T_j = 25^\circ\text{C}, t_p = 10\text{ms}$		312.5	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		ADT20A60F/80F		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.	5		μA
		$V_{\text{DRM}} = V_{\text{RRM}}$ $T_j = 125^\circ\text{C}$		4		mA
V_{TM}	Peak On-State Voltage	$I_{\text{TM}} = 40\text{A}$, $t_p = 380\ \mu\text{s}$	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	$\text{V}/\mu\text{s}$
$R_{\text{th(j-c)}}$	Junction to case (AC)		Max.	2.05		$^\circ\text{C}/\text{W}$
$R_{\text{th(j-a)}}$	Junction to ambient		Max.	60		$^\circ\text{C}/\text{W}$

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

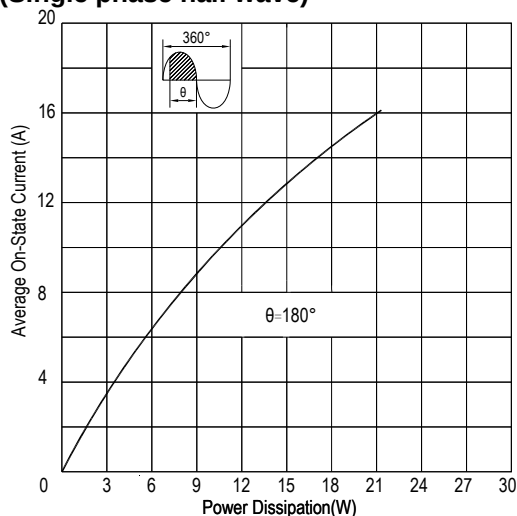


FIG.2: Average on-state current VS Allowable case Temperature (Single phase half wave)

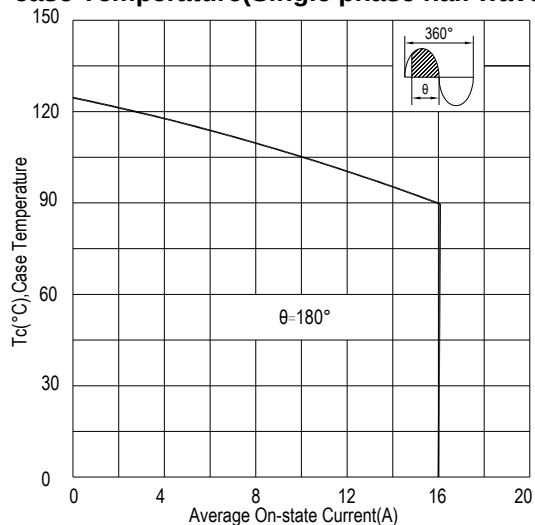


FIG.3: Gate trigger current VS Junction temperature

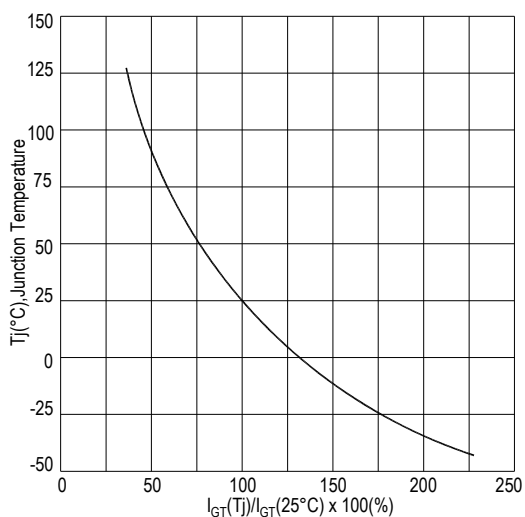


FIG.4: Rated surge on-state current (Non-Repetitive)

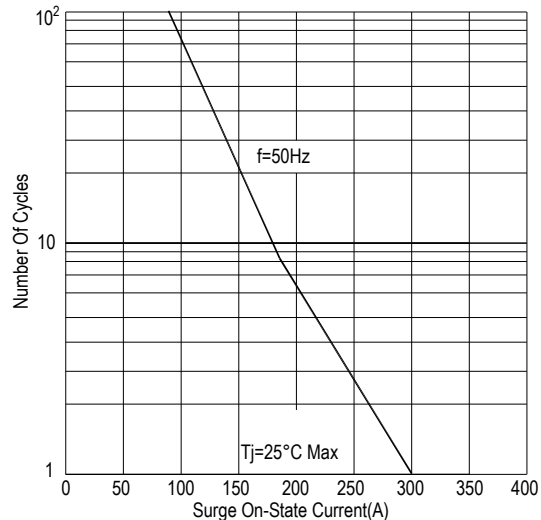


FIG.5: On-state characteristics(Max)

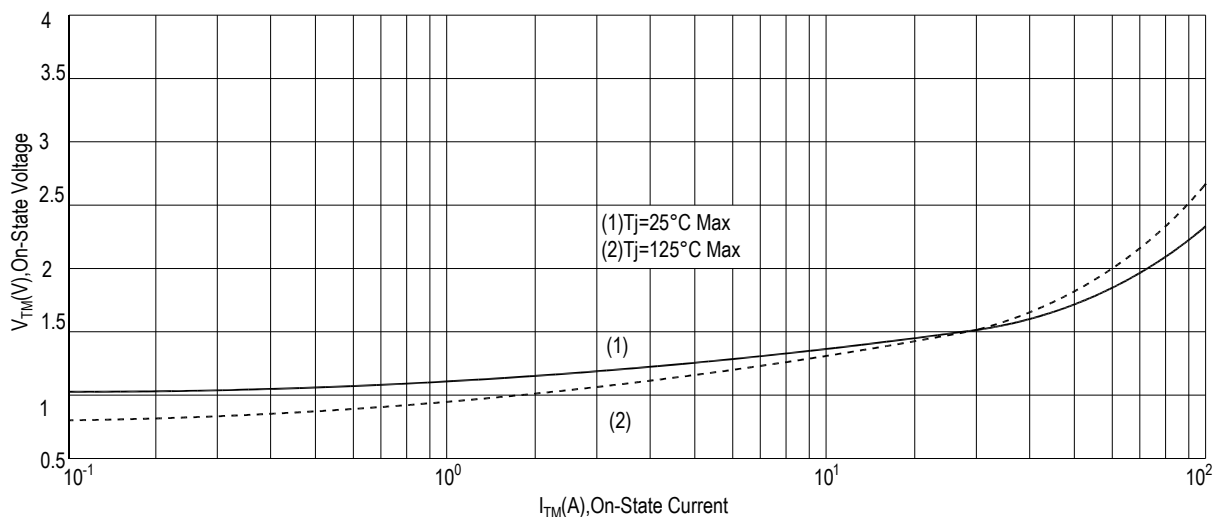


FIG.6:Holding current and Latching current VS Junction temperature

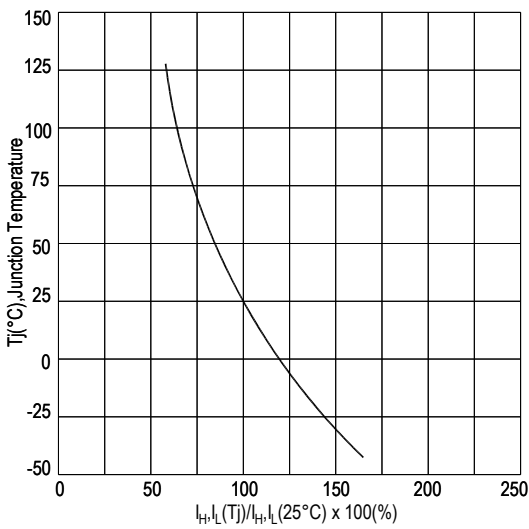
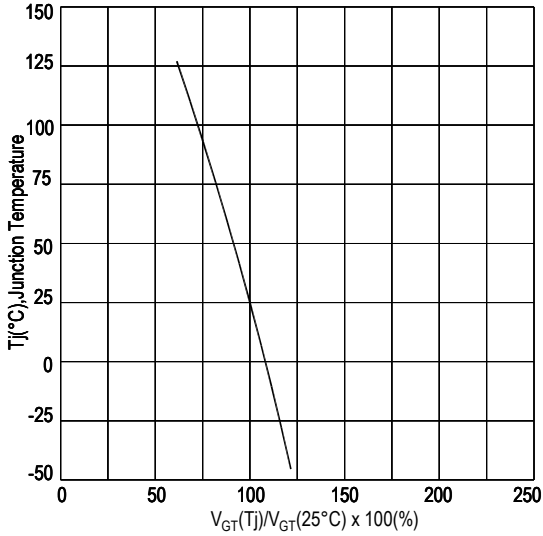
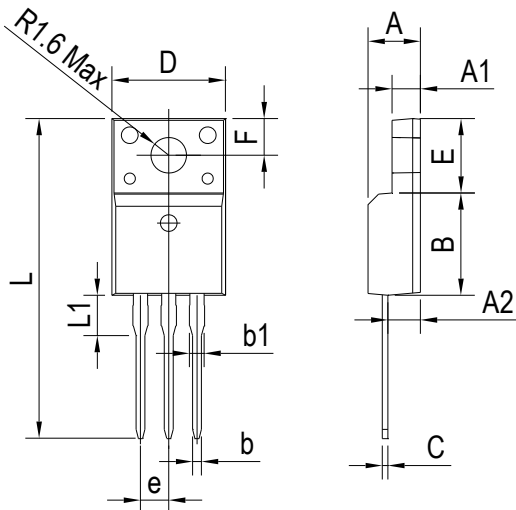


FIG.7: Gate trigger voltage VS Junction temperature



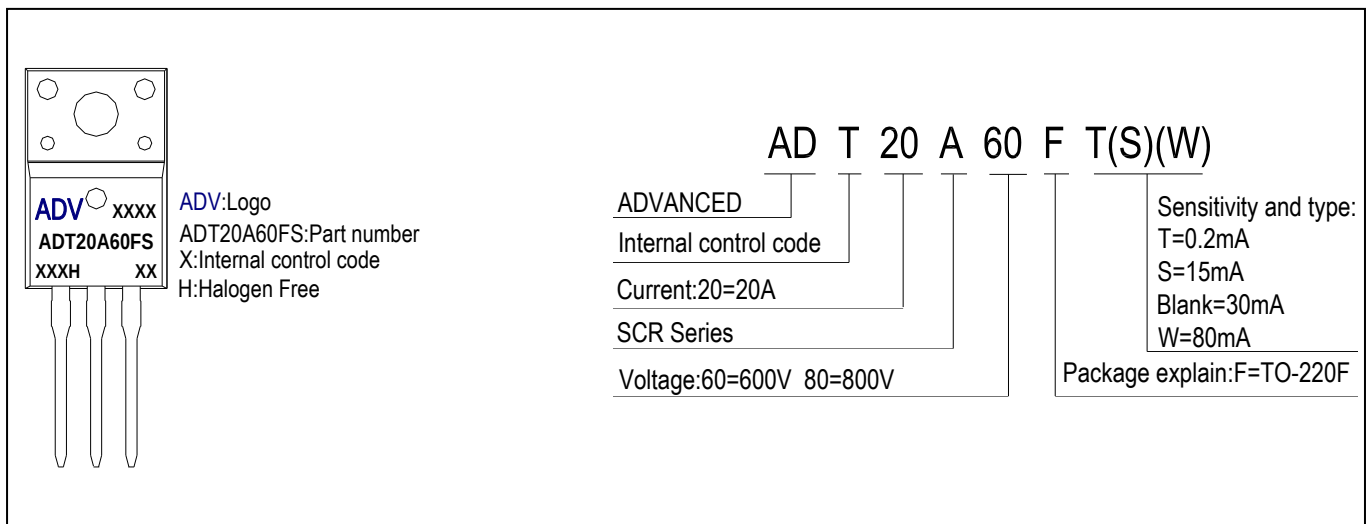
PACKAGE MECHANICAL DATA

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

Making Diagram



Ordering information

Part number	Package	Marking	Packing	Quantity
ADT20A60F#	TO-220F	ADT20A60F#	Tube	50pcs
ADT20A80F#	TO-220F	ADT20A80F#	Tube	50pcs

Note: # = Gate Trigger Current Sensitivity and type

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