

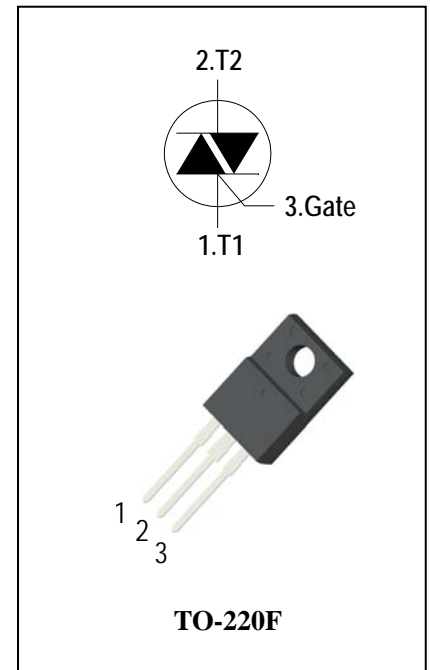
3 Quadrants Triacs

General Description

High current density due to mesa technology .the ADT20C triac series is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, High power motor controls e.g. washing machines and vacuum cleaners, Rectifier-fed DC inductive loads e.g. DC motors and solenoids , motor speed controllers.

Features

- ◆ Repetitive Peak Off-State Voltage: 600V and 800V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 20A$)
- ◆ High Commutation dv/dt
- ◆ These Devices are Pb-Free and are RoHS Compliant



Absolute Maximum Ratings

Symbol	Items	Conditions	Ratings	Unit
V_{DRM} V_{RRM}	Repetitive Peak Off-State Voltage	$T_j = 25^\circ C$	ADT20C60F ADT20C80F	600 800 V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 70^\circ C$		25 A
I_{TSM}	Surge On-State Current	$t_p = 20ms(50Hz) / t_p = 16.7ms(60Hz)$		210/220 A
I^2t	I^2t for fusing	$t_p = 10ms$		205 A^2s
di/dt	Critical rate of rise of on-state current	$F = 120 Hz$ $T_j = 125^\circ C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100 ns$		50 $A/\mu s$
I_{GM}	Peak Gate Current	$t_p = 20 \mu s$ $T_j = 125^\circ C$		4 A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j = 125^\circ C$)			1 W
P_{GM}	Peak Gate Power Dissipation($t_p = 20\mu s, T_j = 125^\circ C$)			10 W
T_j	Operating Junction Temperature			- 40 ~ 125 $^\circ C$
T_{STG}	Storage Temperature			- 40 ~ 150 $^\circ C$



Electrical Characteristics (T_j = 25°C unless otherwise specified)

Symbol	Items		Conditions		ADT20C60F/80F			Unit
					S	Blank	B	
I _{DRM} I _{RRM}	Peak Forward Reverse Blocking Current		V _{DRM} = V _{RRM} , T _j = 25°C	Max.	5			uA
			V _{DRM} = V _{RRM} , T _j = 125°C		2.5			mA
V _{TM}	Peak On-State Voltage		I _{TM} = 28A, t _p = 380 μs	Max.	1.55			V
V _{GD}	Q1-Q2-Q3	Non-Trigger Gate Voltage	V _D = V _{DRM} R _L = 3.3 kΩ T _j = 125°C	0.2	0.2			V
V _{GT}	Q1-Q2-Q3	Gate Trigger Voltage	V _D = 12V , R _L = 33Ω	1.5	1.5			V
I _{GT}	Q1-Q2-Q3	Gate Trigger Current		Max.	10	35	50	mA
I _H	Q1-Q2-Q3	Holding Current	I _T = 0.1A	Max.	20	50	75	mA
I _L	Q1-Q3	Latching Current	I _G = 1.2 I _{GT}	Max.	20	80	90	mA
	Q2				35	90	110	
dV/dt	Critical Rate of Rise of Off-State Voltage		V _D = 2/3V _{DRM} gate open T _j = 125°C	Min.	500	1000	1500	V/μs
(dV/dt) _c	Critical Rate of Change of Commutating Voltage		(dI/dt) _c = -8.8A/s T _j = 125°C	Min.	1	15	20	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	1.9			°C/W
R _{th(j-a)}	Junction to ambient			Max.	60			°C/W

FIG.1: Triac quadrant are defined and the gate trigger test circuit

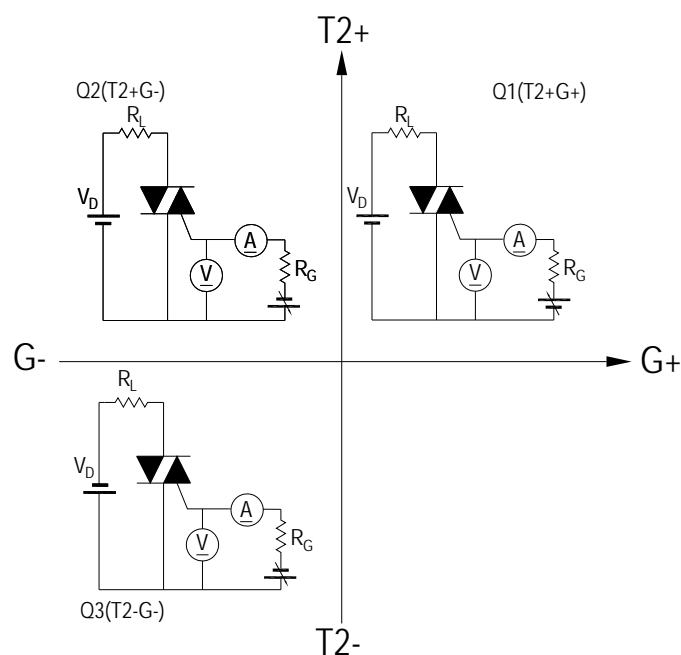


FIG.2: Maximum on-state power dissipation

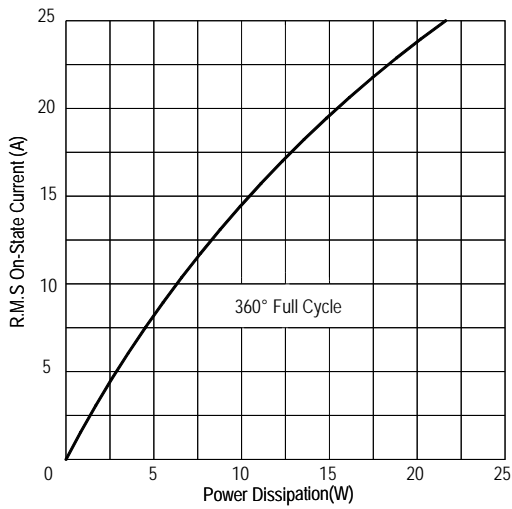


FIG.3: Typical RMS on-state current VS Allowable case Temperature

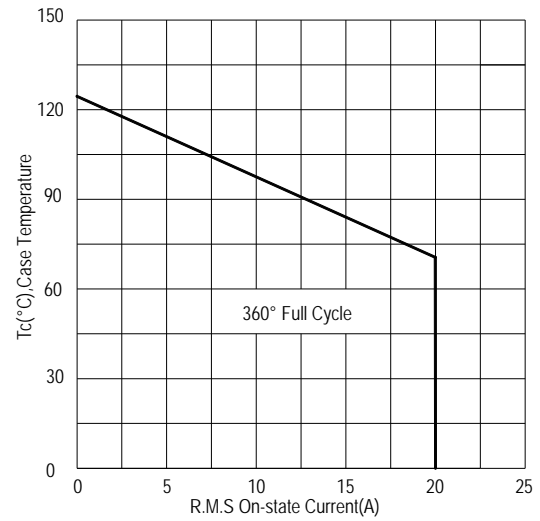


FIG.4: Maximum transient thermal impedance

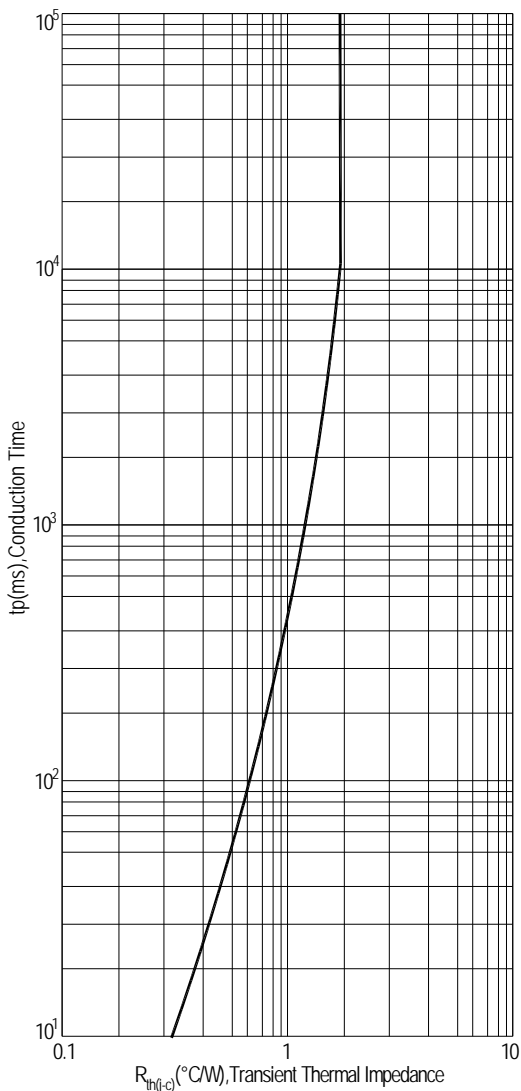


FIG.5: Rated surge on-state current (Non-Repetitive)

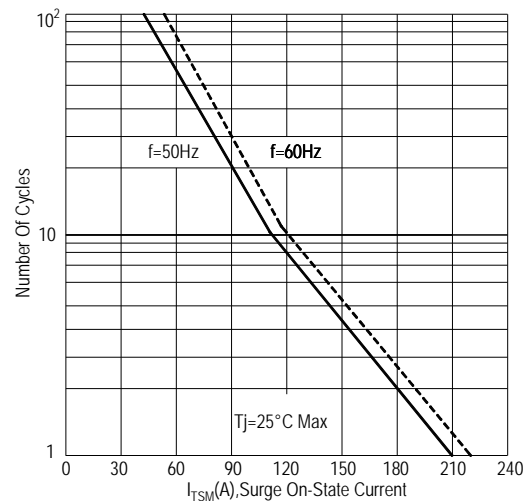


FIG.6: Gate trigger current VS Junction temperature

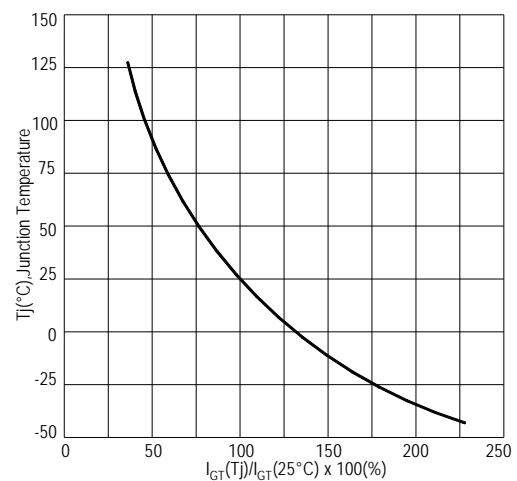


FIG.7: Holding current and Latching current VS Junction temperature

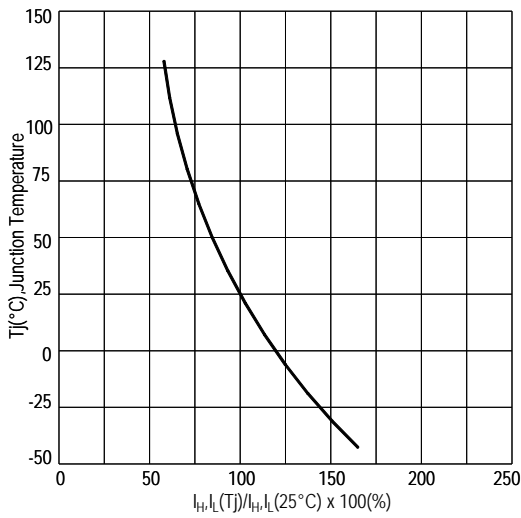


FIG.8: Gate trigger voltage VS Junction temperature

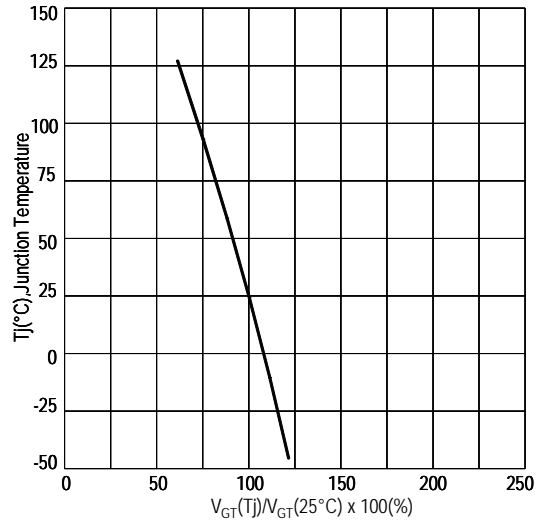
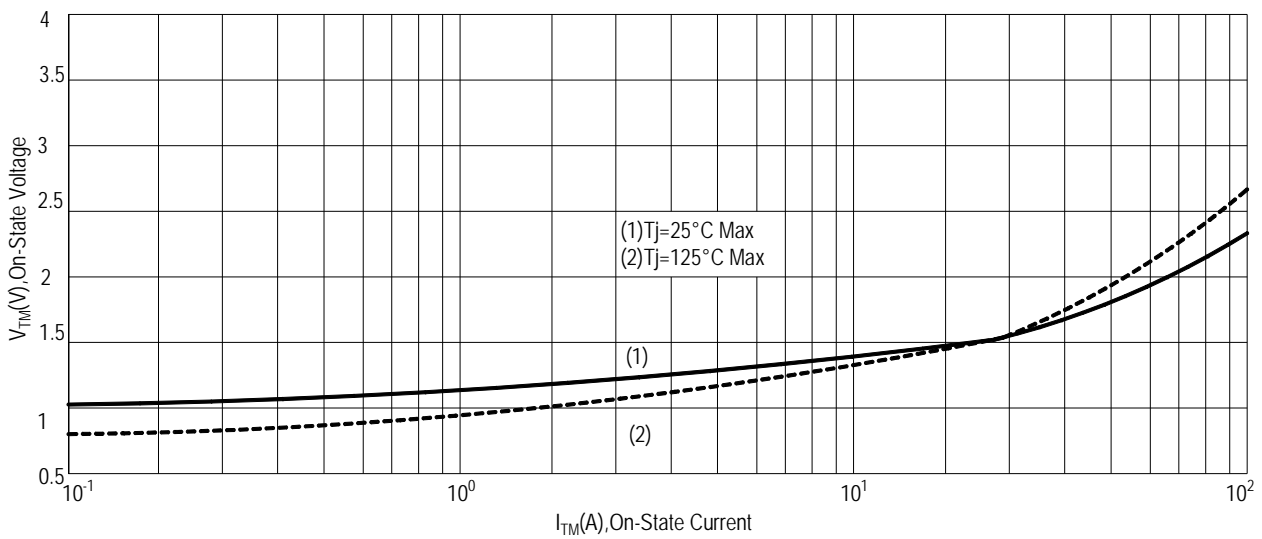
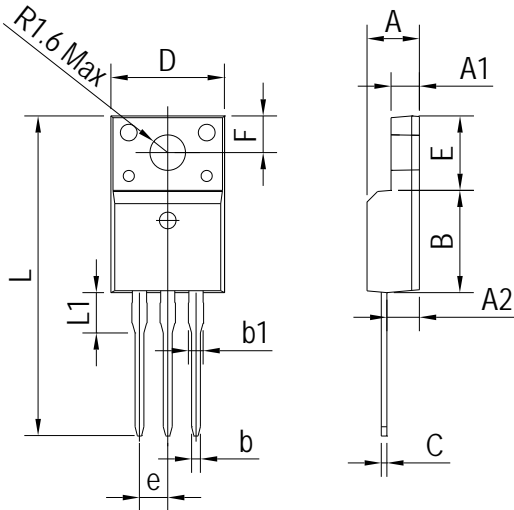


FIG.9: On-state characteristics(Max)



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

ADV:Logo
ADT20C60FB:Part number
X:Internal control code
H:Halogen Free

AD T 20 C 60 F S(B)

ADVANCED
 Internal control code
 Current:20=20A
 Quadrant:C=3Q
 Voltage:60=600V 80=800V

Sensitivity and type:
 S=10mA
 Blank=35mA
 B=50mA
 Package explain:F=TO-220F

Ordering information

Part number	Package	Marking	Packing	Quantity
ADT20C60F#	TO-220F	ADT20C60F#	Tube	50pcs
ADT20C80F#	TO-220F	ADT20C80F#	Tube	50pcs

Note:# = Gate Trigger Current Sensitivity and type

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