

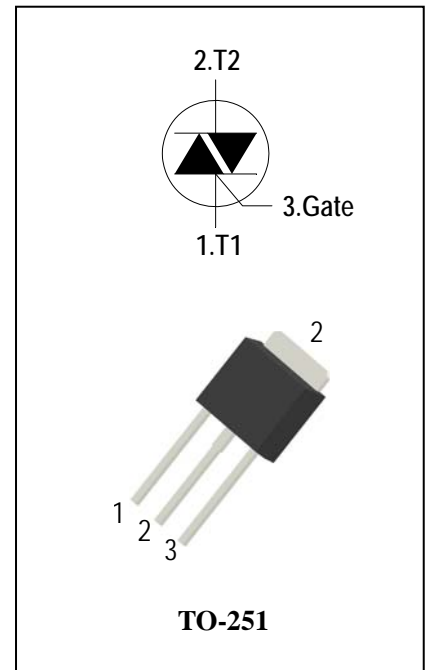
3 Quadrants Triacs

General Description

High current density due to mesa technology .the ADT6C 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 ($I_{T(RMS)} = 6A$)
- ◆ 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	$T_j = 25^\circ C$	ADT6C60D ADT6C80D	600 800 V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 110^\circ C$	6	A
I_{TSM}	Surge On-State Current	$t_p = 20ms(50Hz) / t_p = 16.7ms(60Hz)$	70/74	A
I^2t	I^2t for fusing	$t_p = 10ms$	36	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($t_p = 20\mu s, T_j = 125^\circ C$)		5	W
T_j	Operating Junction Temperature		- 40 ~ 125	$^\circ C$
T_{STG}	Storage Temperature		- 40 ~ 150	$^\circ C$



Electrical Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Items		Conditions		ADT6C60D/80D				Unit
					T	S	Blank	B	
I_{DRM} I_{RRM}	Peak Forward Reverse Blocking Current		$V_{DRM} = V_{RRM}, T_j = 25^\circ\text{C}$	Max.	5				μA
			$V_{DRM} = V_{RRM}, T_j = 125^\circ\text{C}$		1				mA
V_{TM}	Peak On-State Voltage		$I_{TM} = 8.5\text{A}, t_p = 380 \mu\text{s}$	Max.	1.55				V
V_{GD}	Q1-Q2-Q3	Non – Trigger Gate Voltage	$V_D = V_{DRM} R_L = 3.3 \text{ k}\Omega$ $T_j = 125^\circ\text{C}$	Min.	0.2				V
V_{GT}	Q1-Q2-Q3	GateTrigger Voltage	$V_D = 12\text{V}, R_L = 33\Omega$	Max.	1.3				V
I_{GT}	Q1-Q2-Q3	GateTrigger Current		Max.	5	10	35	50	mA
I_H	Q1-Q2-Q3	Holding Current	$I_T = 0.1\text{A}$	Max.	10	15	40	60	mA
I_L	Q1-Q3	Latching Current	$I_G = 1.2 I_{GT}$	Max.	10	25	50	70	mA
	Q2				15	30	70	80	
dV/dt	Critical Rate of Rise of Off-State Voltage		$V_D = 2/3V_{DRM}$ gate open $T_j = 125^\circ\text{C}$	Min.	20	40	400	1000	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	Rate of Change of Commutating Current,		$(dI/dt)_c = -2.7\text{A}/\text{ms}$ $T_j = 125^\circ\text{C}$	Min.	0.5	1	10	25	$\text{V}/\mu\text{s}$
$R_{th(j-c)}$	Junction to case (AC)			Max.	1.8				$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient			Max.	100				$^\circ\text{C}/\text{W}$

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

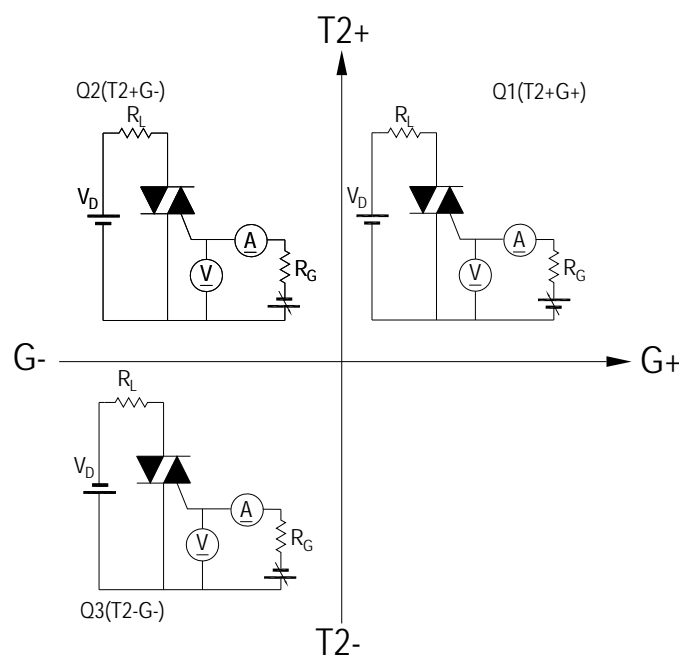


FIG.2: Maximum on-state power dissipation

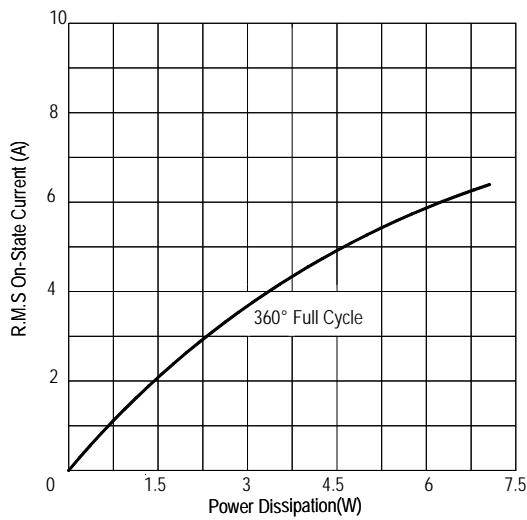


FIG.3: Typical RMS on-state current VS Allowable case Temperature

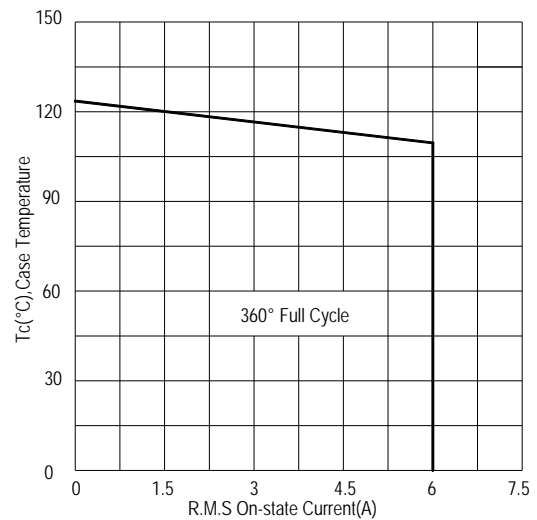


FIG.4: Maximum transient thermal impedance

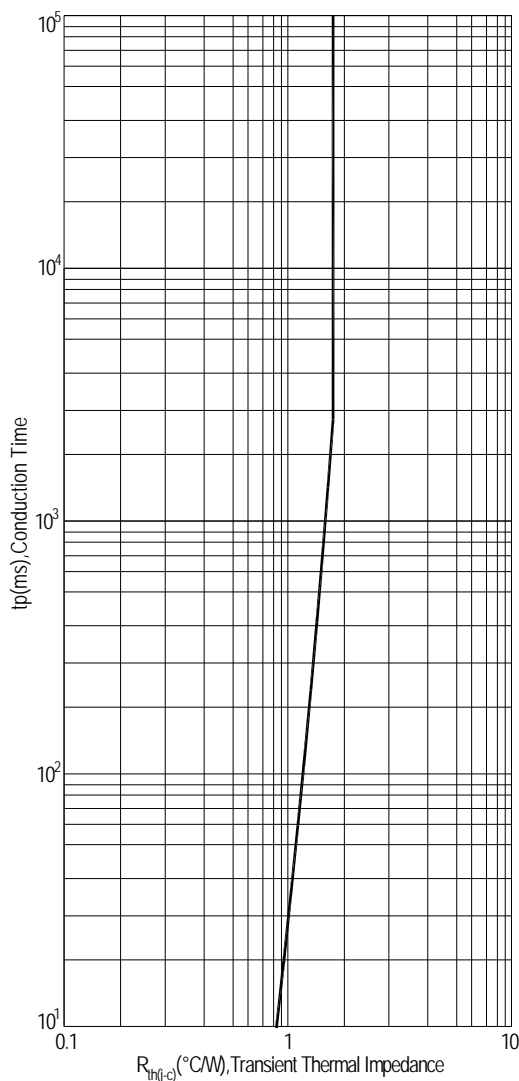


FIG.5: Rated surge on-state current (Non-Repetitive)

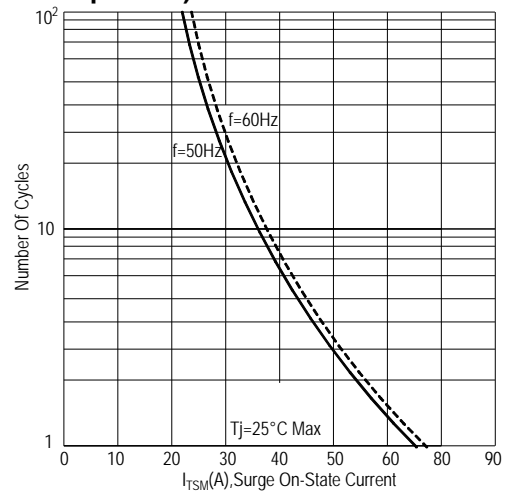


FIG.6: Gate trigger current VS Junction temperature

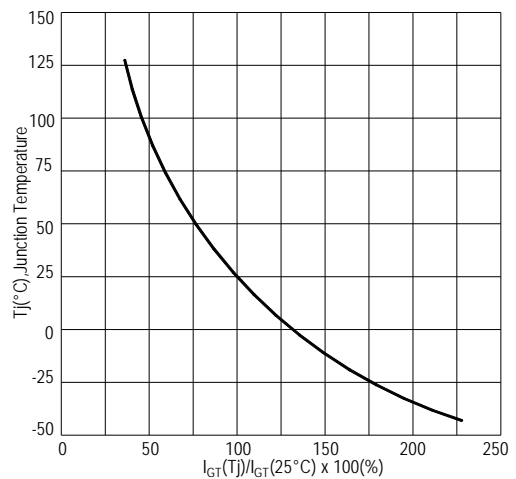


FIG.7: Holding current and Latching current VS Junction temperature

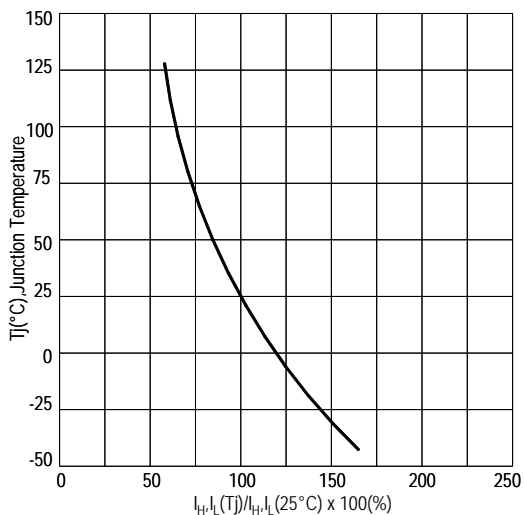


FIG.8: Gate trigger voltage VS Junction temperature

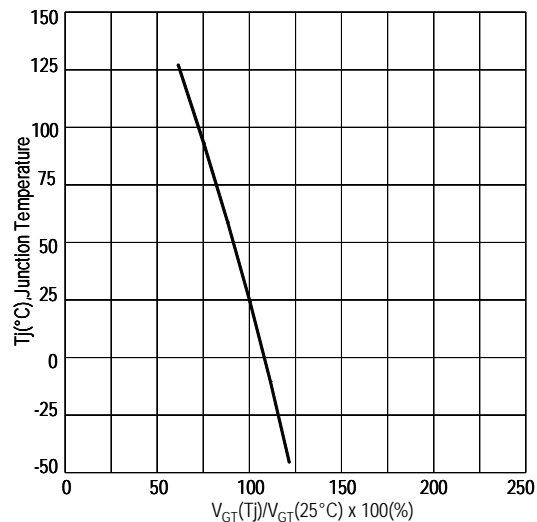
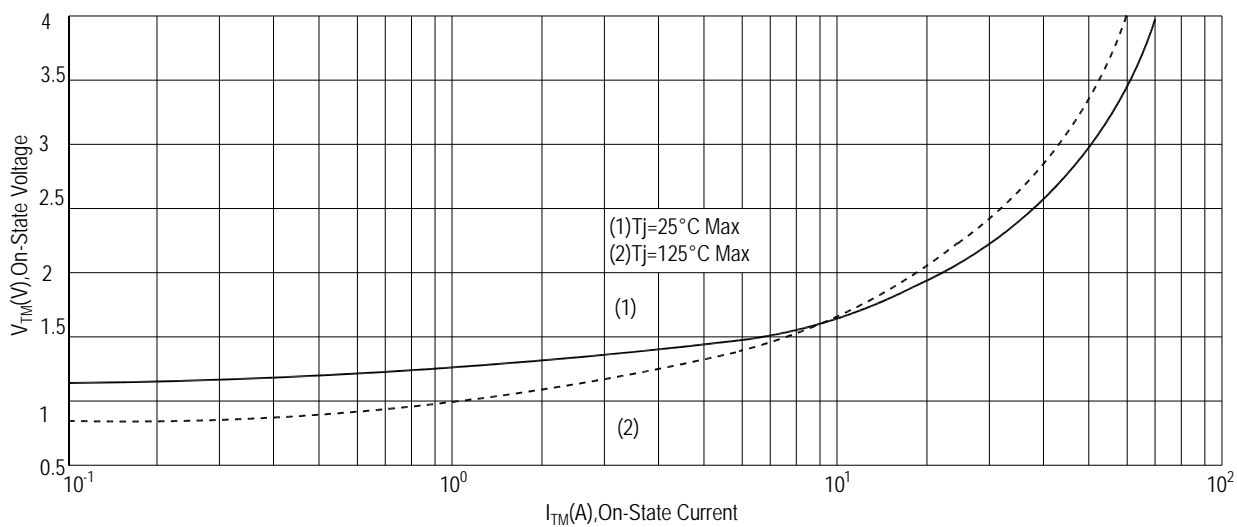
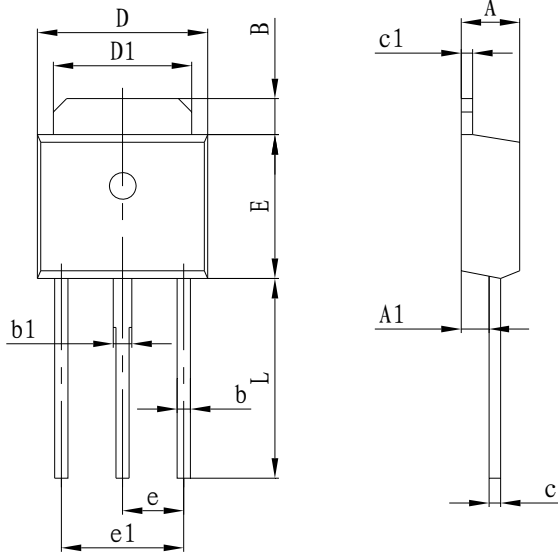


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-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
 ADT6C80DS: Part number
 X: Internal control code
 H: Halogen Free

AD T 6 C 80 D T(S)(B)

ADVANCED
 Internal control code
 Current: 6=6A
 Quadrant: C=3Q
 Voltage: 60=600V 80=800V

Sensitivity and type:
 T=5mA
 S=10mA
 Blank=35mA
 B=50mA

Package explain: D=TO-251

Ordering information

Part number	Package	Marking	Packing	Quantity
ADT6C60D#	TO-251	ADT6C60D#	Tube	80pcs
ADT6C80D#	TO-251	ADT6C80D#	Tube	80pcs

Note: # = Gate Trigger Current Sensitivity and type

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