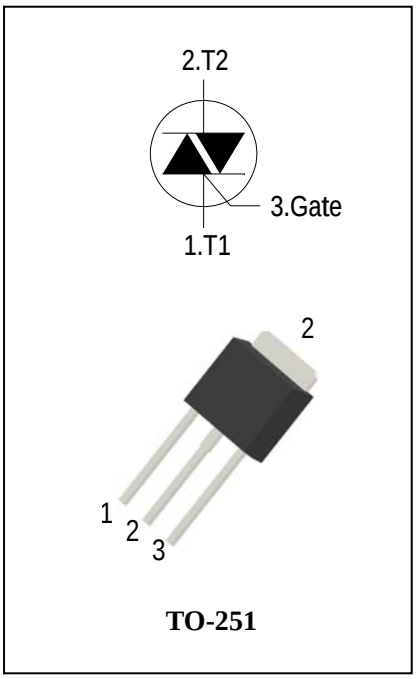
4 Quadrants Triacs

General Description

High current density due to mesa technology .the ADT4D 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, Rectifier-fed DC inductive loads e.g.DC motors and solenoids , motor speed controllers.



TO-251

Features

- Repetitive Peak Off-State Voltage: 600Vand800V
- R.M.S On-State Current ($I_{T(RMS)}$= 4A)
- These Devices are Pb-Free and are RoHS Compliant

Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	Tj = 25°C	ADT4D60D	600	V
V_{RRM}			ADT4D80D	800	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C = 110°C		4	A
I_{TSM}	Surge On-State Current	tp=20ms(50Hz)/tp=16.7ms(60Hz)		30/32	A
I^2t	I^2t for fusing	tp=10ms		5.1	A^2s
dI/dt	Critical rate of rise of on-state current	F = 120 Hz Tj = 125°C	Q1-Q2-Q3	50	A/μs
		I_G = 2 x I_{GT} , tr ≤ 100 ns	Q4	10	
I_{GM}	Peak Gate Current	tp = 20 μs Tj = 125°C		4	A
$P_{G(AV)}$	Average Gate Power Dissipation(Tj=125°C)			1	W
P_{GM}	Peak Gate Power Dissipation(tp=20us,Tj=125°C)			5	W
T_j	Operating Junction Temperature			- 40 ~ 125	°C
T_{STG}	Storage Temperature			- 40 ~ 150	°C

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

Symbol	Items		Conditions		ADT4D60D/80D				Unit
					T	S	Blank	B	
I_{DRM}	Peak Forward Reverse Blocking Current		V_{DRM} = V_{RRM}, Tj = 25°C	Max.	5				uA
I_{RRM}			V_{DRM} = V_{RRM}, Tj = 125°C		1				mA
V_{TM}	Peak On-State Voltage		I_{TM} = 5.5A, t_p = 380 μs	Max.	1.6				V
V_{GD}	Q1-Q2-Q3-Q4	Non – Trigger Gate Voltage	V_D = V_{DRM} R_L = 3.3 kΩ Tj = 125°C	Min.	0.2				V
V_{GT}	Q1-Q2-Q3-Q4	GateTrigger Voltage	V_D = 12V , R_L = 33Ω	Max.	1.3				V
I_{GT}	Q1-Q2-Q3	GateTrigger Current		Max.	5	10	35	50	mA
	Q4				10	25	70	100	
I_H	Q1-Q2-Q3-Q4	Holding Current	I_T = 0.1A	Max.	10	25	35	60	mA
I_L	Q1-Q3-Q4	Latching Current	I_G = 1.2 I_{GT}	Max.	15	30	40	60	mA
	Q2				20	40	60	90	
dV/dt	Critical Rate of Rise of Off-State Voltage		V_D = 2/3V_{DRM} gate open Tj = 125°C	Min.	5	10	50	200	V/μs
(dV/dt)c	Rate of Change of Commutating Current,		(dI/dt)c=-1.8A/ms Tj = 125°C	Min.	1	2	5	10	V/μs
$R_{th(j-c)}$	Junction to case (AC)			Max.	3.0				°C/W
$R_{th(j-a)}$	Junction to ambient(Copper surface under tab:S=0.5cm^2)			Max.	100				°C/W

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

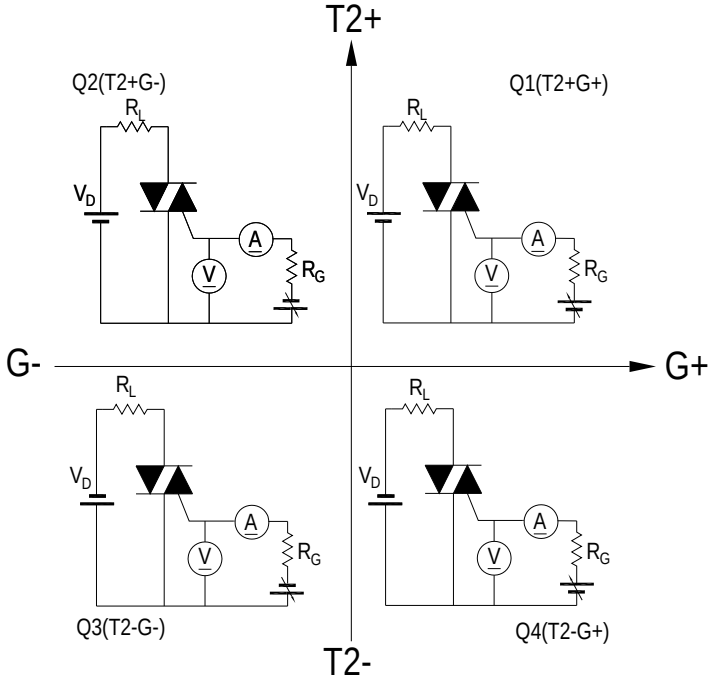


FIG.2: Maximum on-state power dissipation

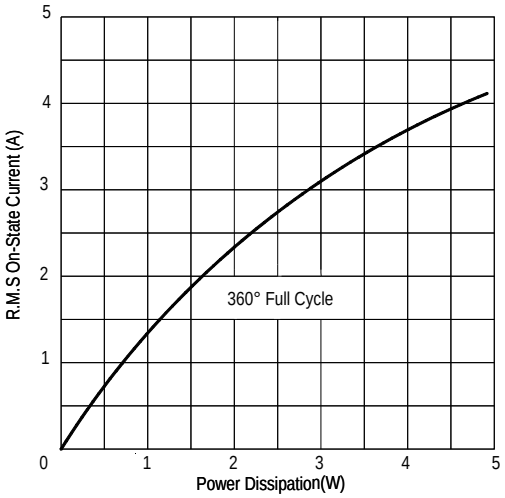


FIG.3: Typical RMS on-state current VS Allowable case Temperature

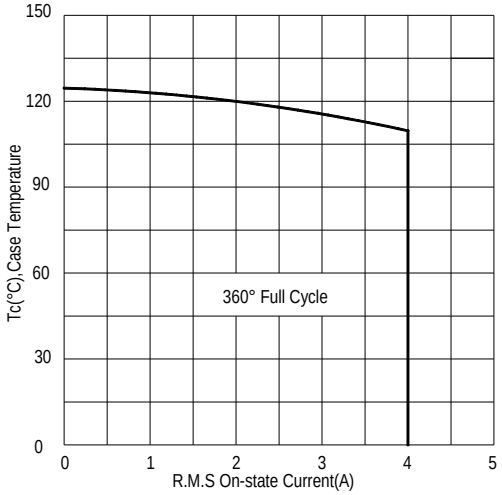


FIG.4: Maximum transient thermal impedance

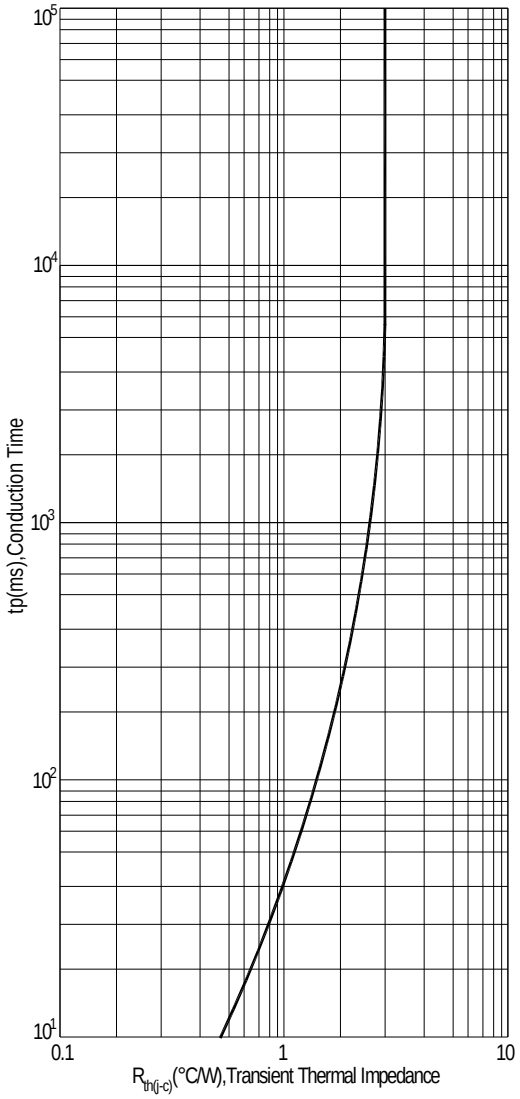


FIG.5: Rated surge on-state current (Non-Repetitive)

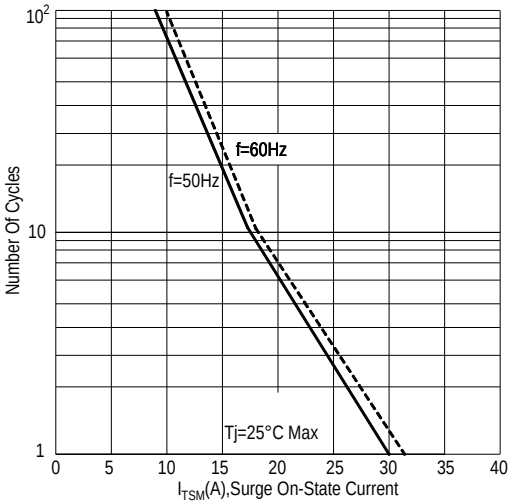


FIG.6: Gate trigger current VS Junction temperature

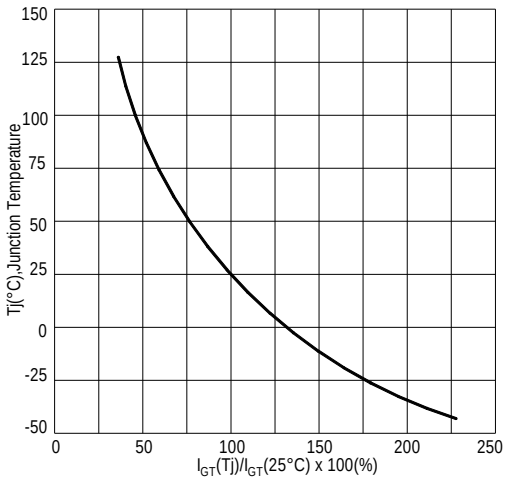


FIG.7:Holding current and Latching current VS Junction temperature

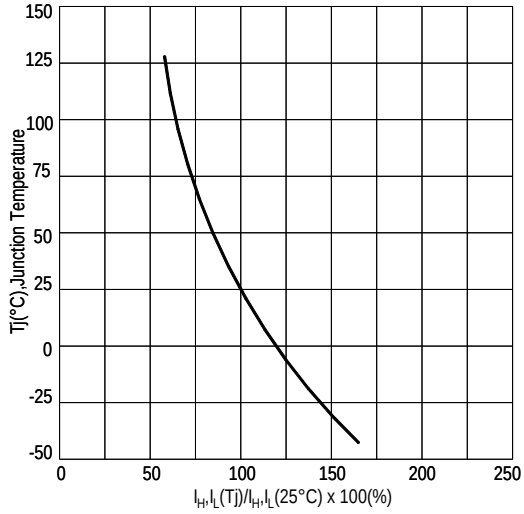


FIG.8: Gate trigger voltage VS Junction temperature

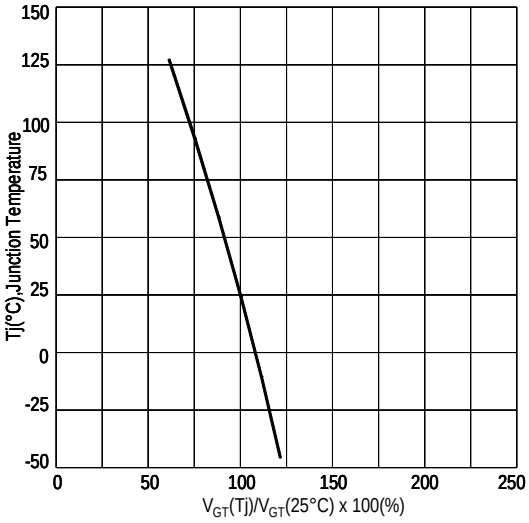
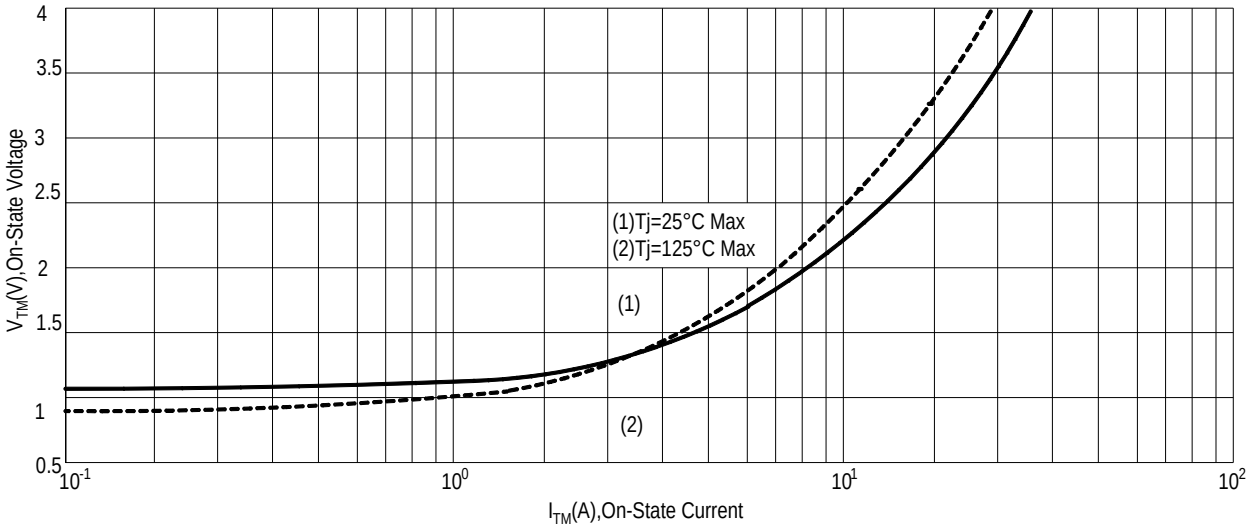
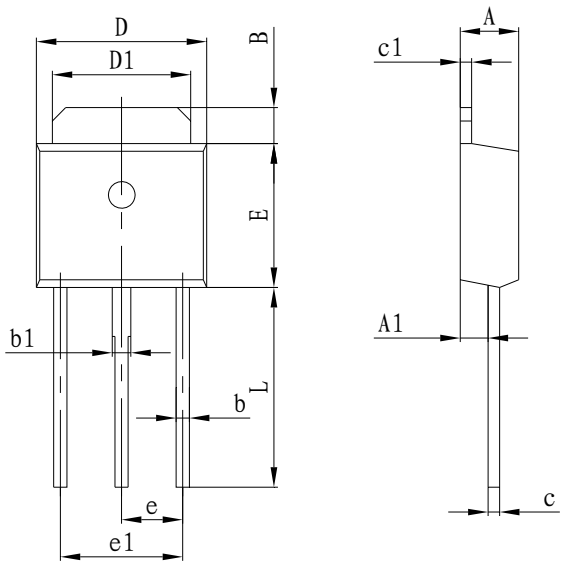


FIG.9: On-state characteristics(Max)



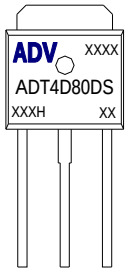
PACKAGE MECHANICAL DATA

TO-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
ADT4D80DS:Part number
X:Internal control code
H:Halogen Free

AD T 4 D 80 D T(S)(B)

- AD: ADVANCED
- T: Internal control code
- 4: Current:4=4A
- D: Quadrant:D=4Q
- 80: Voltage:60=600V 80=800V
- D: Package explain:D=TO-251
- T(S)(B): Sensitivity and type: T=5mA, S=10mA, Blank=35mA, B=50mA

Ordering information

Part number	Package	Marking	Packing	Quantity
ADT4D60D#	TO-251	ADT4D60D#	Tube	80pcs
ADT4D80D#	TO-251	ADT4D80D#	Tube	80pcs
Note:# = Gate Trigger Current Sensitivity and type				

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