

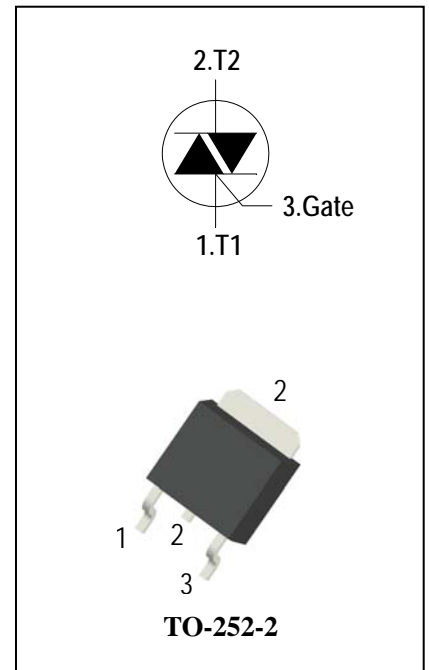
4 Quadrants Triacs

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.

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} V_{RRM}	Repetitive Peak Off-State Voltage	$T_j = 25^\circ C$	ADT4D60E ADT4D80E	600 800 V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 110^\circ C$		4 A
I_{TSM}	Surge On-State Current	$t_p=20ms(50Hz)/t_p=16.7ms(60Hz)$		30/32 A
I^2t	I^2t for fusing	$t_p=10ms$		5.1 A^2s
di/dt	Critical rate of rise of on-state current	$F = 120 Hz$ $T_j = 125^\circ C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100 ns$	Q1-Q2-Q3 Q4	50 10 $A/\mu s$
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		ADT4D60E/80E				Unit
				T	S	Blank	B	
I_{DRM}	Peak Forward Reverse Blocking Current	$V_{DRM} = V_{RRM}, T_j = 25^\circ\text{C}$	Max.	5				μA
I_{RRM}		$V_{DRM} = V_{RRM}, T_j = 125^\circ\text{C}$		1				mA
V_{TM}	Peak On-State Voltage	$I_{TM} = 5.5\text{A}, t_p = 380 \mu\text{s}$	Max.	1.6				V
V_{GD}	Q1-Q2-Q3-Q4 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-Q4 Gate Trigger Voltage	$V_D = 12\text{V}, R_L = 33\Omega$	Max.	1.3				V
I_{GT}	Q1-Q2-Q3 Q4 Gate Trigger Current		Max.	5 10	10 25	35 70	50 100	mA
I_H	Q1-Q2-Q3-Q4 Holding Current	$I_T = 0.1\text{A}$	Max.	10	25	35	60	mA
I_L	Q1-Q3-Q4 Q2 Latching Current	$I_G = 1.2 I_{GT}$	Max.	15 20	30 40	40 60	60 90	mA
dV/dt	Critical Rate of Rise of Off-State Voltage	$V_D = 2/3V_{DRM}$ gate open $T_j = 125^\circ\text{C}$	Min.	5	10	50	200	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	Rate of Change of Commutating Current,	$(dI/dt)_c = -1.8\text{A/ms}$ $T_j = 125^\circ\text{C}$	Min.	1	2	5	10	$\text{V}/\mu\text{s}$
$R_{th(j-c)}$	Junction to case (AC)		Max.	3.0				$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient(Copper surface under tab:S=0.5cm ²)		Max.	70				$^\circ\text{C}/\text{W}$

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

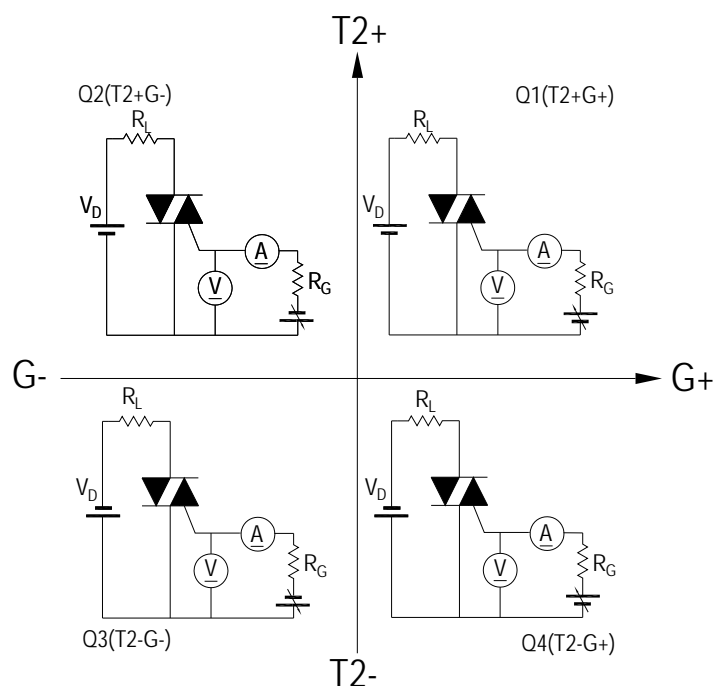


FIG.2: Maximum on-state power dissipation

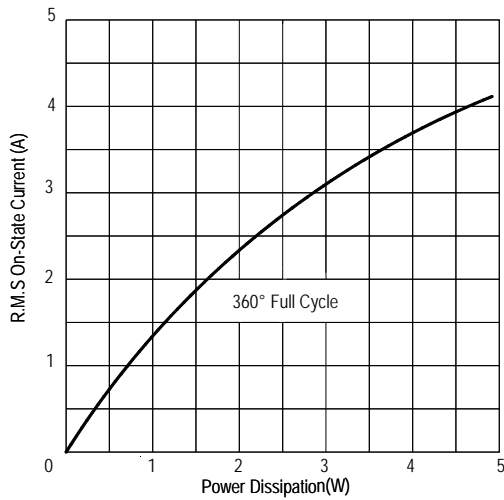


FIG.4: Maximum transient thermal impedance

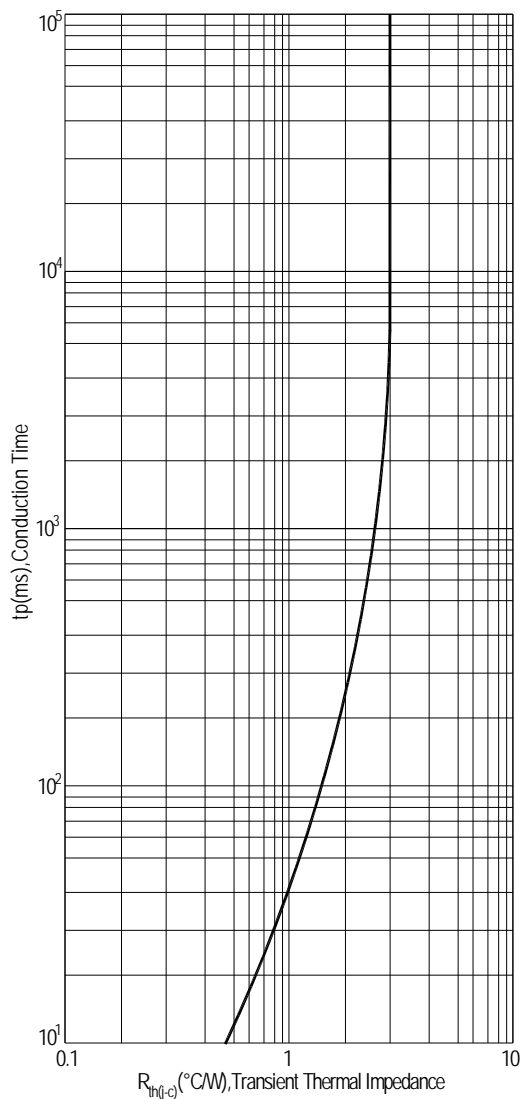


FIG.3: Typical RMS on-state current VS Allowable case Temperature

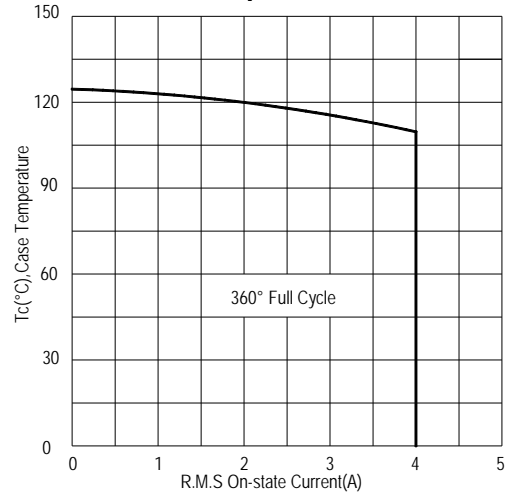


FIG.5: Rated surge on-state current (Non-Repetitive)

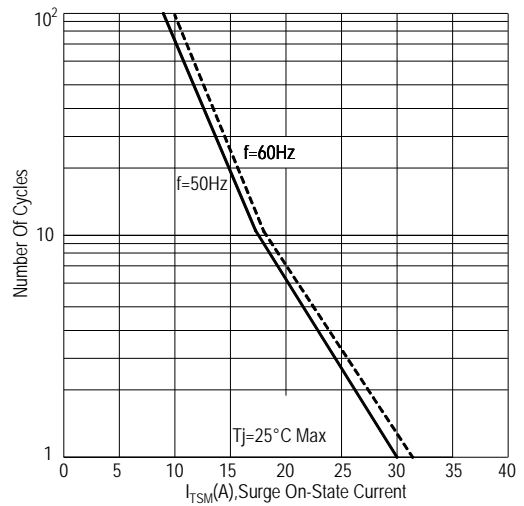


FIG.6: Gate trigger current VS Junction temperature

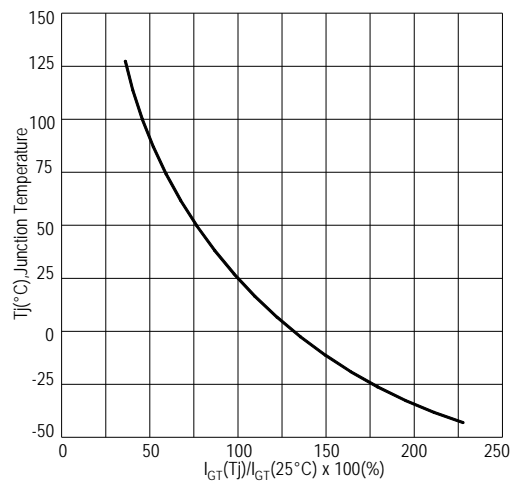


FIG.7: Holding current and Latching current VS Junction temperature

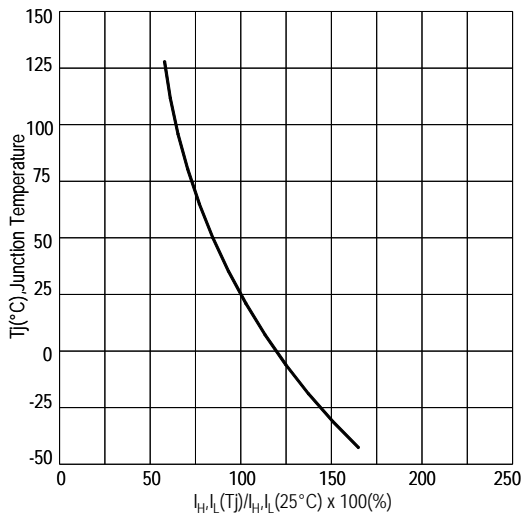


FIG.8: Gate trigger voltage VS Junction temperature

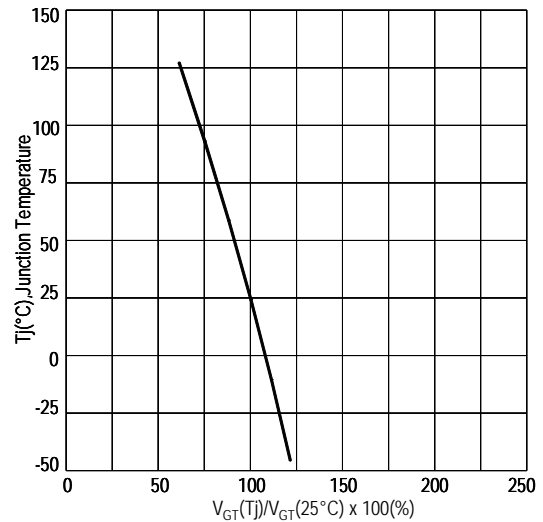
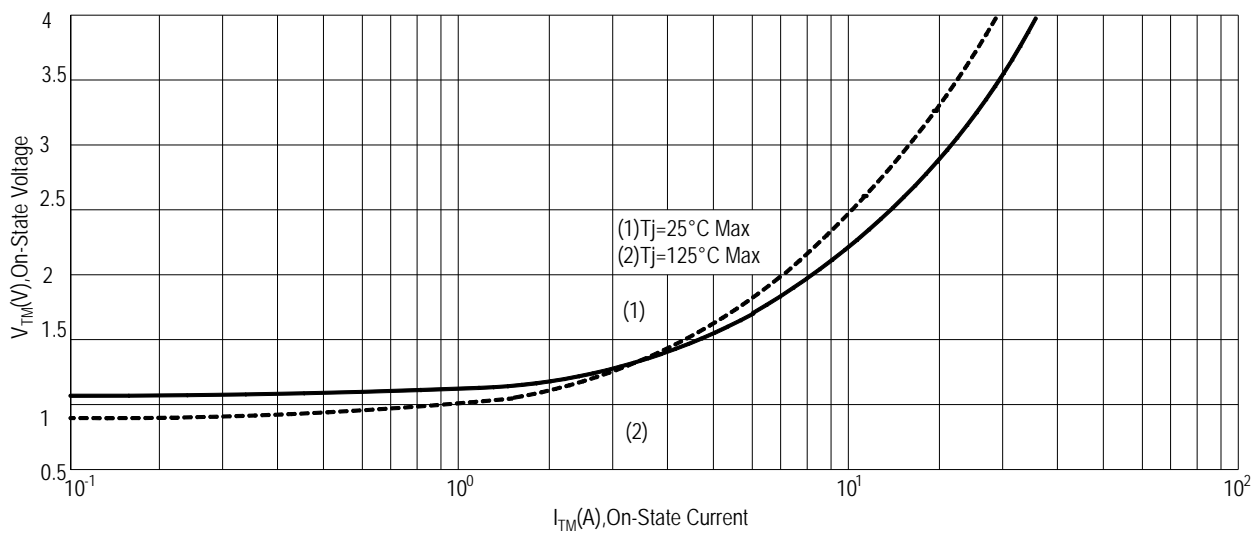
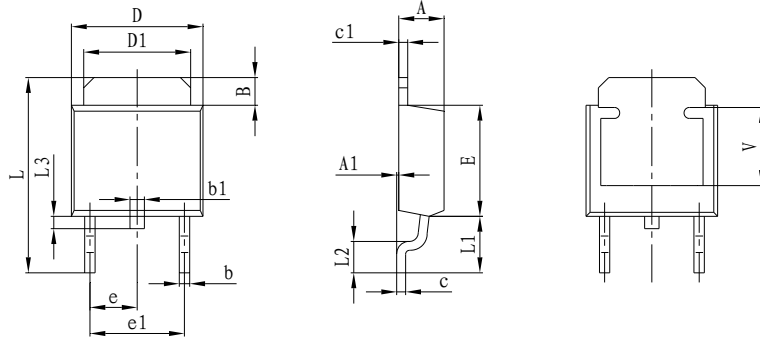


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-252-2 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
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	0.450	0.620	0.017	0.024
c1	0.450	0.620	0.017	0.024
D	6.350	6.650	0.250	0.262
D1	5.100	5.400	0.200	0.213
E	5.900	6.200	0.232	0.244
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	10.60	0.374	0.396
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	4.100 REF.		0.161 REF.	

Making Diagram

ADV:Logo

ADT4D80ES:Part number

X:Internal control code

H:Halogen Free

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

ADVANCED	Sensitivity and type: T=5mA S=10mA Blank=35mA B=50mA
Internal control code	Package explain:D=TO-252-2
Current:4=4A	
Quadrant:D=4Q	
Voltage:60=600V 80=800V	

Ordering information

Part number	Package	Marking	Packing	Quantity
ADT4D60E#	TO-252-2	ADT4D60E#	Tube	80pcs
			Embossed tape	2500pcs
ADT4D80E#	TO-252-2	ADT4D80E#	Tube	80pcs
			Embossed tape	2500pcs

Note:# = Gate Trigger Current Sensitivity and type

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