

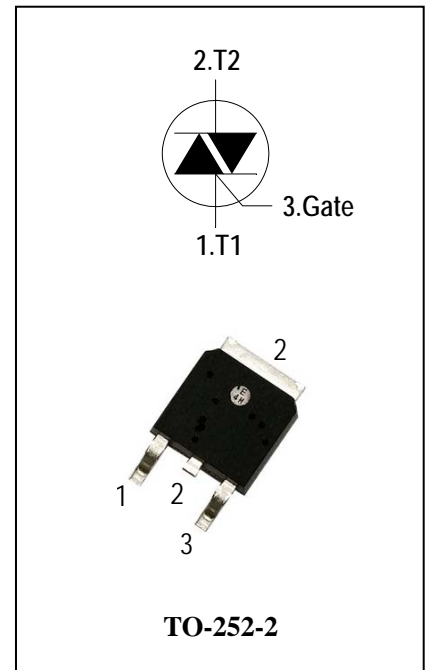
## 4Quadrants Triacs

### General Description

High current density due to mesa technology . the ADS8D 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 (  $I_{T(RMS)} = 8A$  )
- ◆ High Commutation  $dv/dt$
- ◆ These Devices are Pb-Free and are RoHS Compliant



### Absolute Maximum Ratings

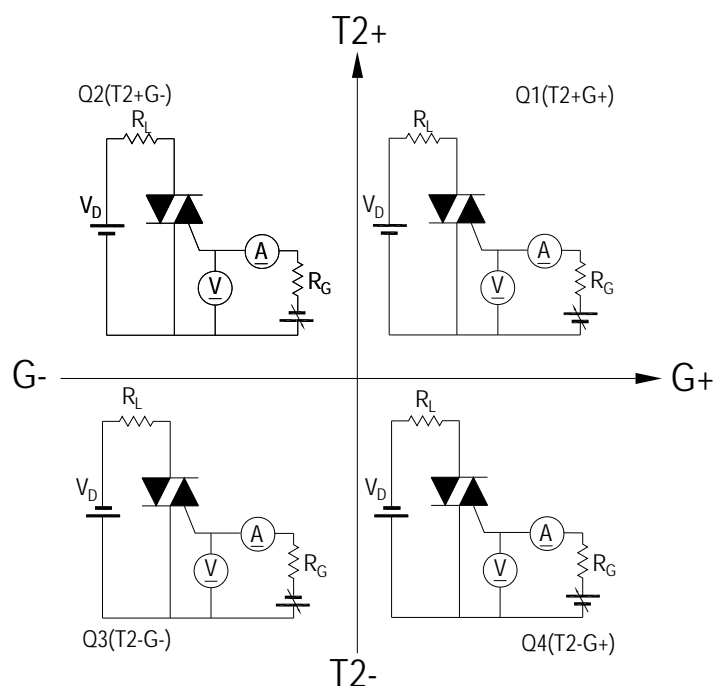
Symbol	Items	Conditions	Ratings	Unit
$V_{DRM}$ $V_{RRM}$	Repetitive Peak Off-State Voltage	$T_j = 25^\circ C$	ADS8D60E 600 ADS8D80E 800	V V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 110^\circ C$	8	A
$I_{TSM}$	Surge On-State Current	$t_p = 20ms(50Hz) / t_p = 16.7ms(60Hz)$	80/84	A
$I^2t$	$I^2t$ for fusing	$t_p = 10ms$	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( $t_p = 20\mu s, T_j = 125^\circ C$ )		10	W
$T_j$	Operating Junction Temperature		- 40 ~ 125	$^\circ C$
$T_{STG}$	Storage Temperature		- 40 ~ 150	$^\circ C$



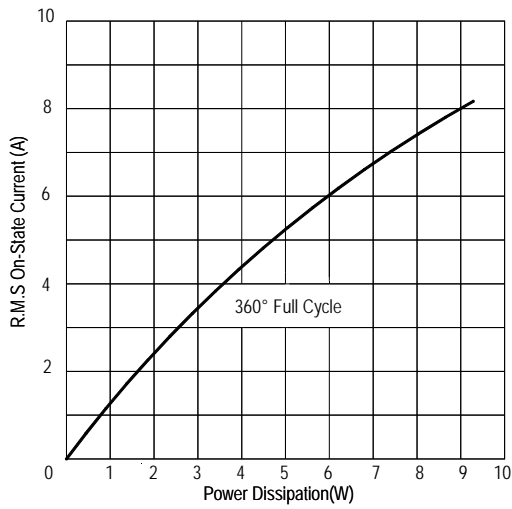
## Electrical Characteristics ( $T_J = 25^\circ\text{C}$ unless otherwise specified )

Symbol	Items	Conditions		ADS8D60E/80E				Unit
				T	S	Blank	B	
$I_{DRM}$ $I_{RRM}$	Peak Forward Reverse Blocking Current	$V_{DRM} = V_{RRM}, T_J = 25^\circ\text{C}$ $V_{DRM} = V_{RRM}, T_J = 125^\circ\text{C}$	Max.	5 1				$\mu\text{A}$ mA
$V_{TM}$	Peak On-State Voltage	$I_{TM} = 11\text{A}, t_p = 380 \mu\text{s}$	Max.	1.55				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 GateTrigger Voltage	$V_D = 12\text{V}, R_L = 33\Omega$	Max.	1.3				V
$I_{GT}$	Q1-Q2-Q3 Q4 GateTrigger 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.	10	20	200	400	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	Rate of Change of Commutating Current,	$(dI/dt)_c = -3.5\text{A/ms}$ $T_J = 125^\circ\text{C}$	Min.	1	2	5	10	$\text{V}/\mu\text{s}$
$R_{th(j-c)}$	Junction to case (AC)		Max.	1.6				$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient(Copper surface under tab:S=0.5cm <sup>2</sup> )		Max.	70				$^\circ\text{C}/\text{W}$

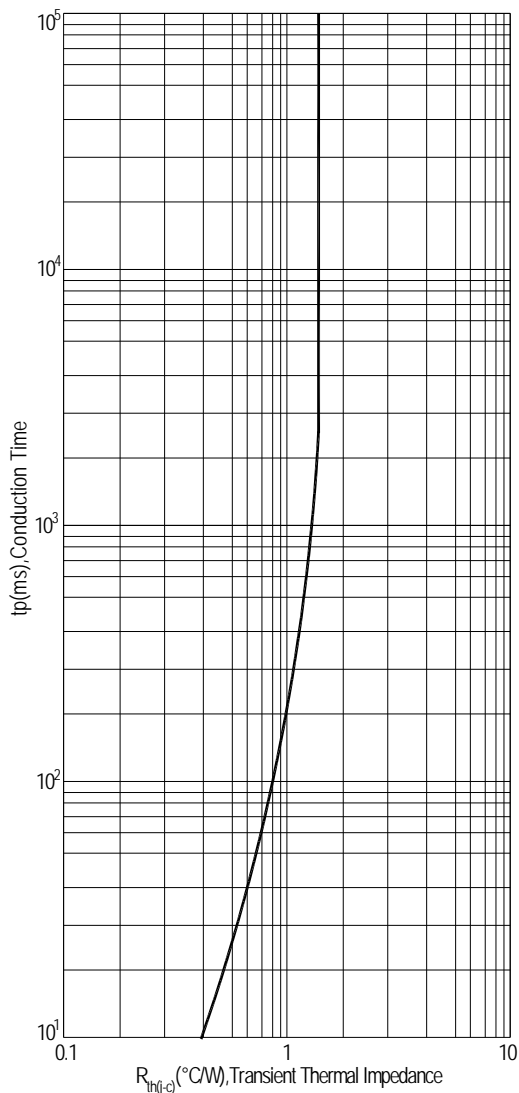
FIG.1:Triac quadrant are defined and the gate trigger test circuit



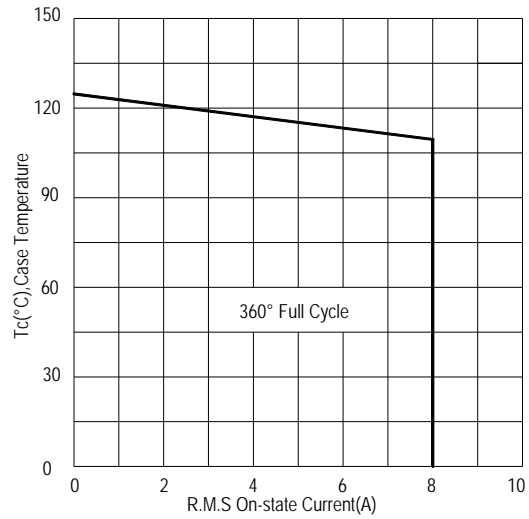
**FIG.2: Maximum on-state power dissipation**



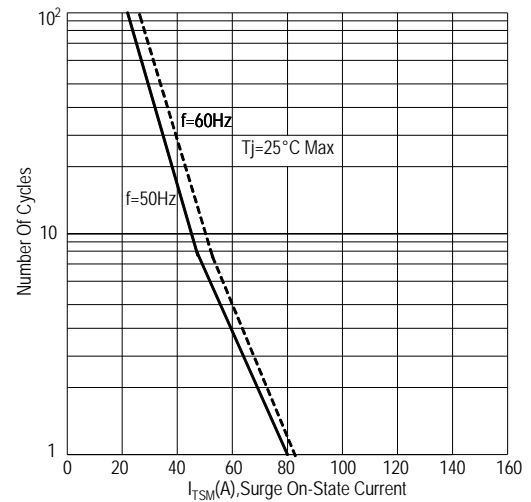
**FIG.4: Maximum transient thermal impedance**



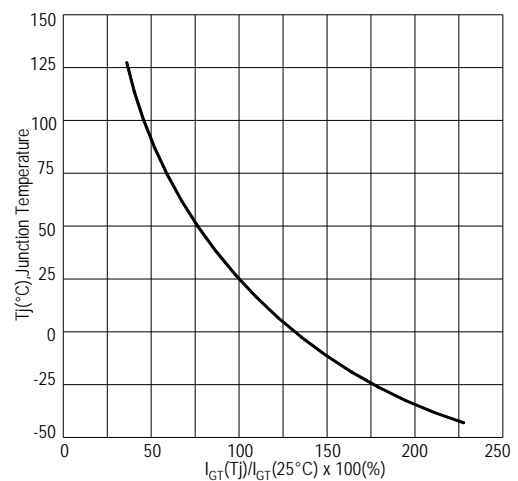
**FIG.3: Typical RMS on-state current VS Allowable case Temperature**



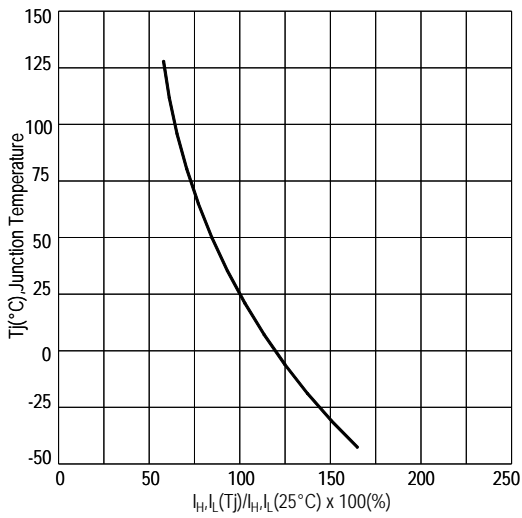
**FIG.5: Rated surge on-state current (Non-Repetitive)**



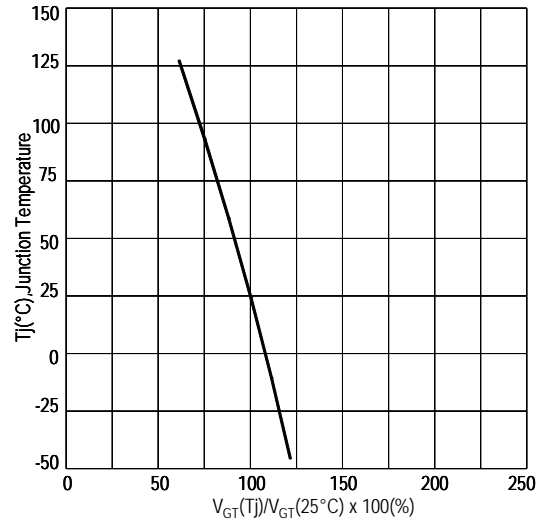
**FIG.6: Gate trigger current VS Junction temperature**



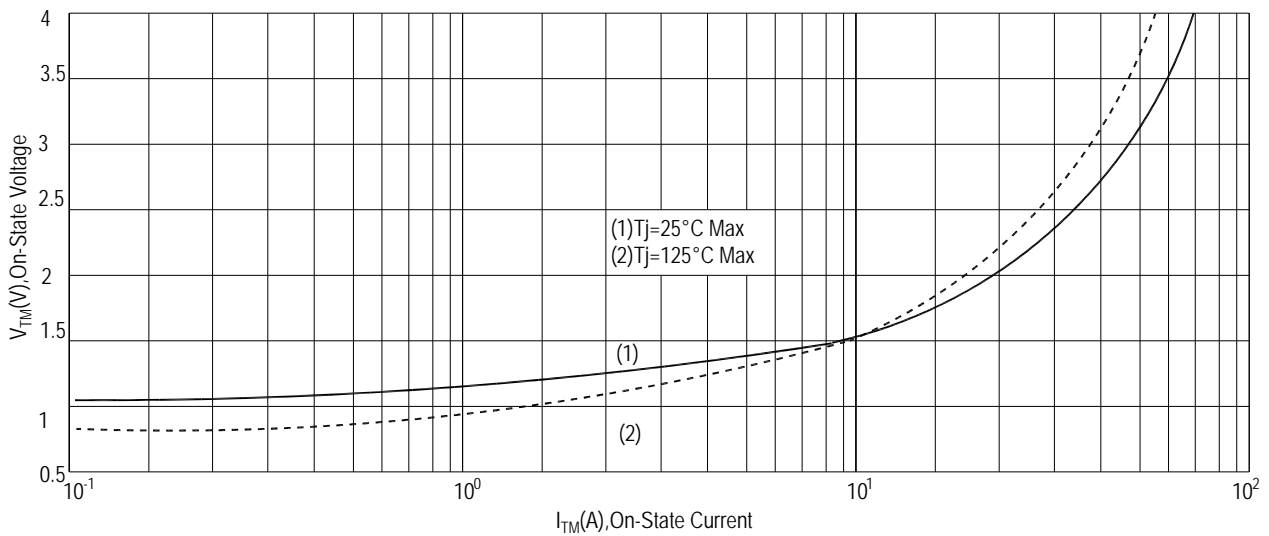
**FIG.7: Holding current and Latching current VS Junction temperature**



**FIG.8: Gate trigger voltage VS Junction temperature**

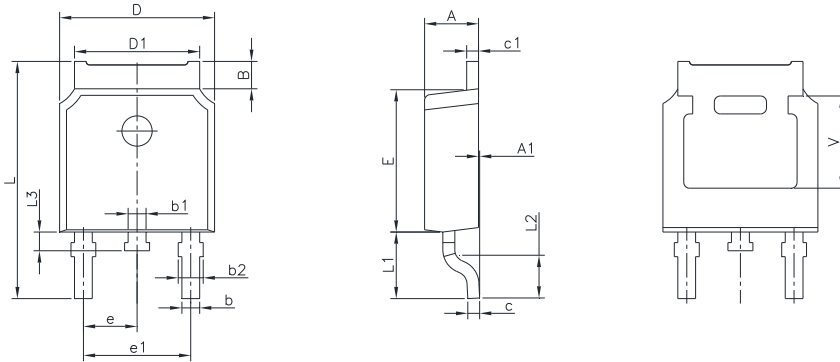


**FIG.9: On-state characteristics(Max)**



## 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	1.070	1.220	0.042	0.048
b	0.720	0.850	0.028	0.033
b1	0.720	0.850	0.028	0.033
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	5.200	5.400	0.205	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	3.950 REF.		0.155 REF.	

### Making Diagram

ADV: Logo  
 ADS8D80ES: Part number  
 X: Internal control code  
 H: Halogen Free

**AD S 8 D 80 E T(S)(B)**

ADVANCED  
 Internal control code  
 Current: 8=8A  
 Quadrant: D=4Q  
 Voltage: 60=600V 80=800V

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

Package explain: D=TO-252-2

### Ordering information

Part number	Package	Marking	Packing	Quantity
ADS8D60E#	TO-252-2	ADS8D60E#	Tube	80pcs
			Embossed tape	2500pcs
ADS8D80E#	TO-252-2	ADS8D80E#	Tube	80pcs
			Embossed tape	2500pcs

Note: # = Gate Trigger Current Sensitivity and type

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