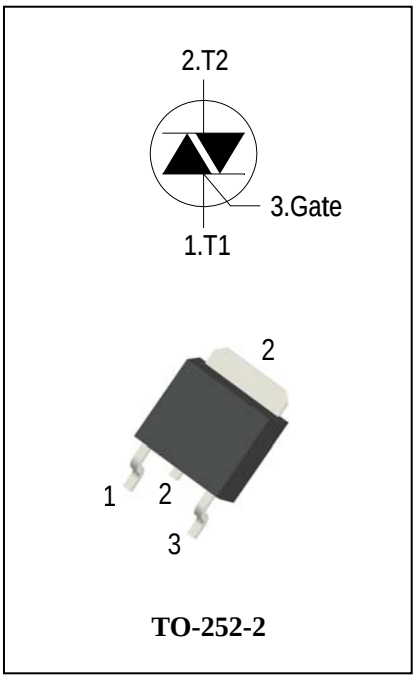
4Quadrants Triacs

General Description

High current density due to mesa technology . the ADS6D 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.



TO-252-2

Features

- Repetitive Peak Off-State Voltage: 600Vand800V
- 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}	Repetitive Peak Off-State Voltage	Tj = 25°C	ADS6D60	600	V
V_{RRM}			ADS6D80	800	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C = 110 °C		6	A
I_{TSM}	Surge On-State Current	tp=20ms(50Hz)/tp=16.7ms(60Hz)		60/63	A
I^2t	I^2t for fusing	tp=10ms		20	A^2s
dI/dt	Critical rate of rise of on-state current	F = 120 Hz Tj = 125°C I_G = 2 x I_{GT} , tr ≤ 100 ns		50	A/μs
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		ADS6D60E/80E				Unit
					T	S	Blank	B	
I_{DRM}	Peak Forward Reverse Blocking Current		V_{DRM} = V_{RRM}, T_J = 25°C	Max.	5				uA
I_{RRM}			V_{DRM} = V_{RRM}, T_J = 125°C		1				mA
V_{TM}	Peak On-State Voltage		I_{TM} = 8.5A, t_p = 380 μs	Max.	1.55				V
V_{GD}	Q1-Q2-Q3-Q4	Non – Trigger Gate Voltage	V_D = V_{DRM} R_L = 3.3 kΩ T_J = 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.	10	20	200	400	V/μs
(dV/dt)c	Rate of Change of Commutating Current,		(dI/dt)c=-2.7A/ms Tj = 125°C	Min.	1	2	5	10	V/μs
$R_{th(j-c)}$	Junction to case (AC)			Max.	1.8				°C/W
$R_{th(j-a)}$	Junction to ambient(Copper surface under tab:S=0.5cm^2)			Max.	70				°C/W

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

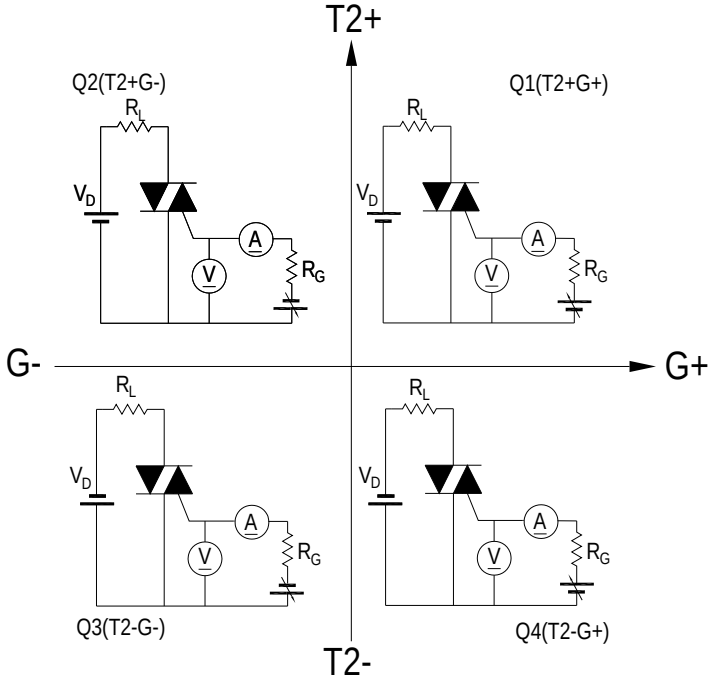


FIG.2: Maximum on-state power dissipation

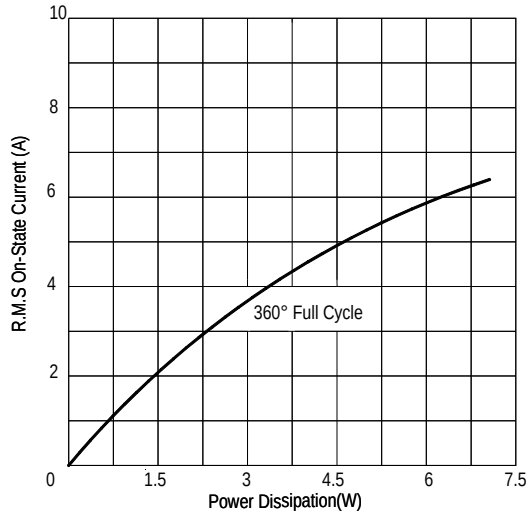


FIG.3: Typical RMS on-state current VS Allowable case Temperature

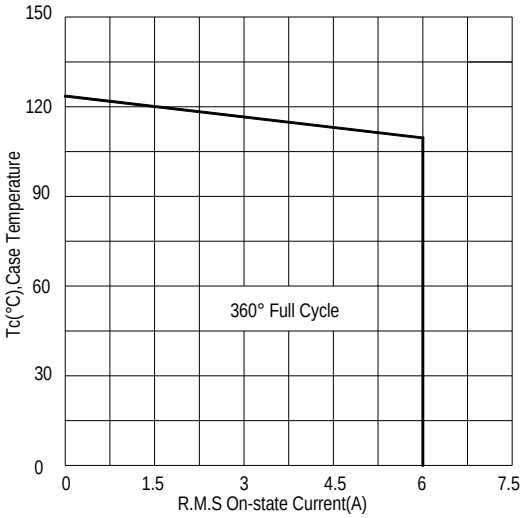


FIG.4: Maximum transient thermal impedance

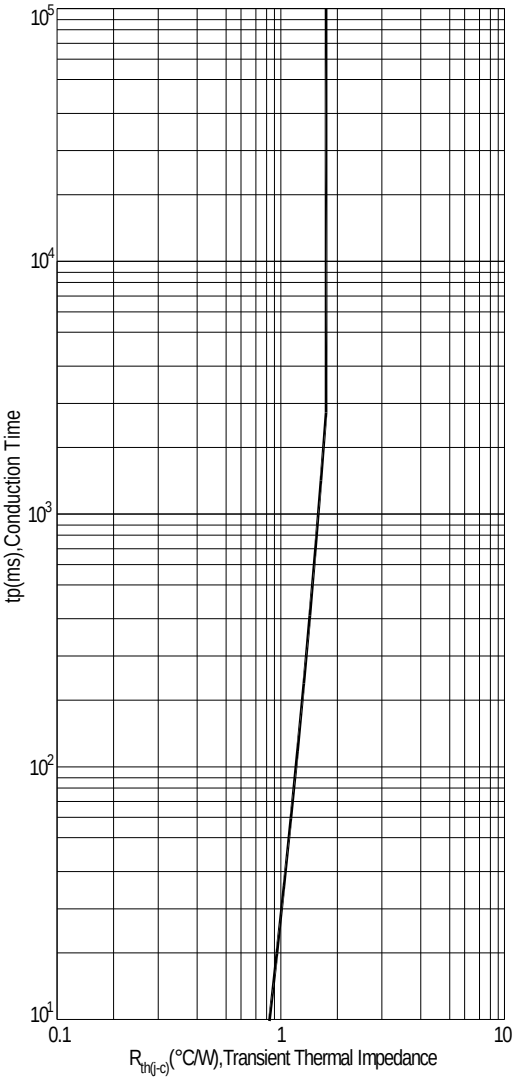


FIG.5: Rated surge on-state current (Non-Repetitive)

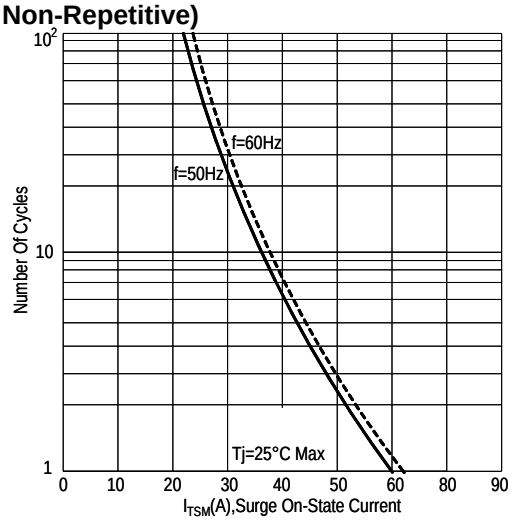


FIG.6: Gate trigger current VS Junction temperature

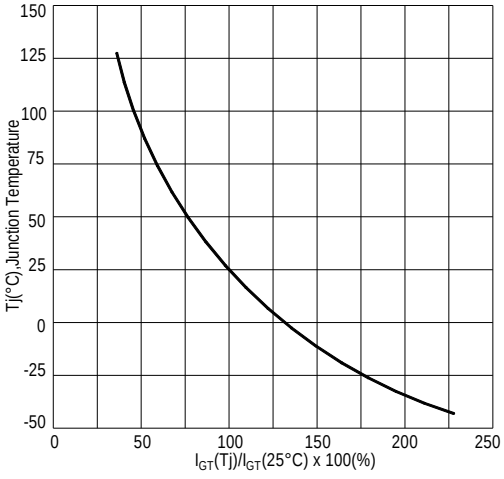


FIG.7:Holding current and Latching current VS Junction temperature

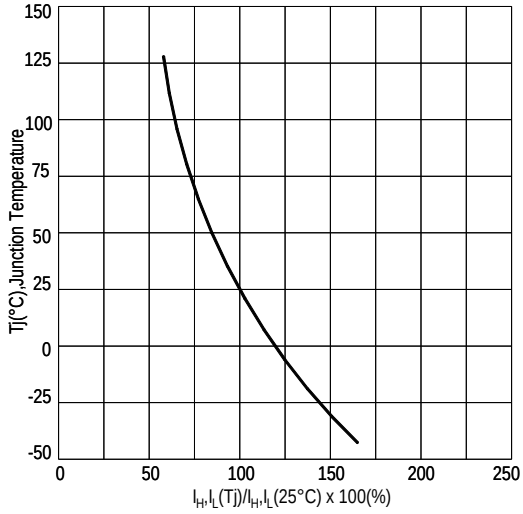


FIG.8: Gate trigger voltage VS Junction temperature

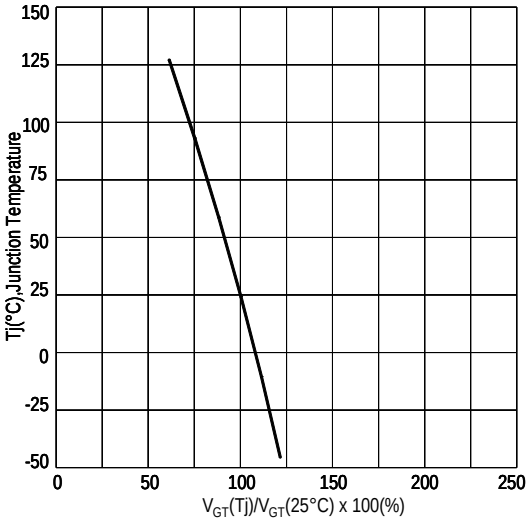
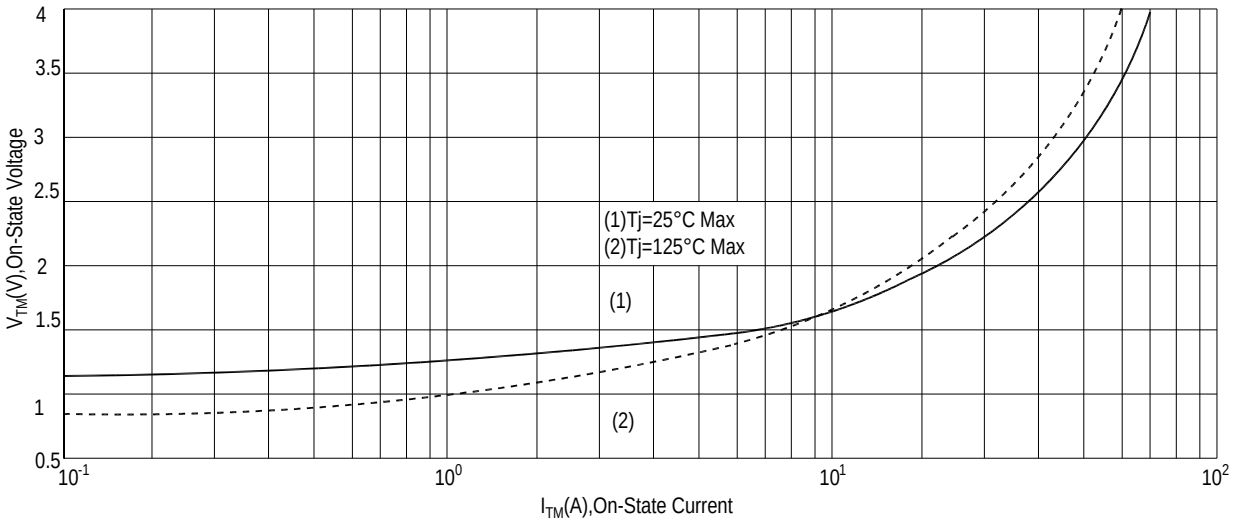
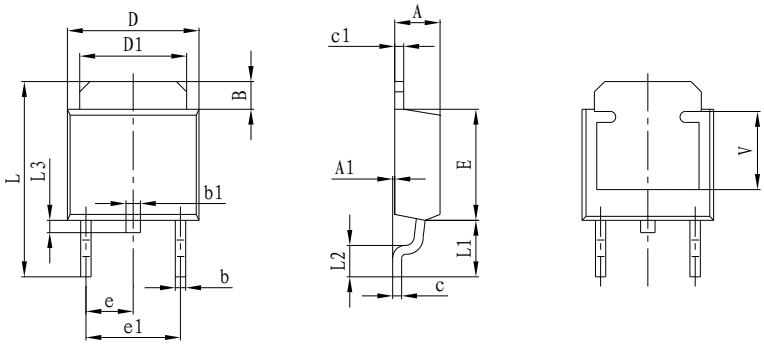


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-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
ADS6D80ES:Part number
X:Internal control code
H:Halogen Free

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

- AD: ADVANCED
- S: Internal control code
- 6: Current:6=6A
- D: Quadrant:D=4Q
- 80: Voltage:60=600V 80=800V
- E: Package explain:D=TO-252-2
- T(S)(B): Sensitivity and type: T=5mA, S=10mA, Blank=35mA, B=50mA

Ordering information

Part number	Package	Marking	Packing	Quantity
ADS6D60E#	TO-252-2	ADS6D60E#	Tube	80pcs
			Embossed tape	2500pcs
ADS6D80E#	TO-252-2	ADS6D80E#	Tube	80pcs
			Embossed tape	2500pcs

Note:# = Gate Trigger Current Sensitivity and type

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