

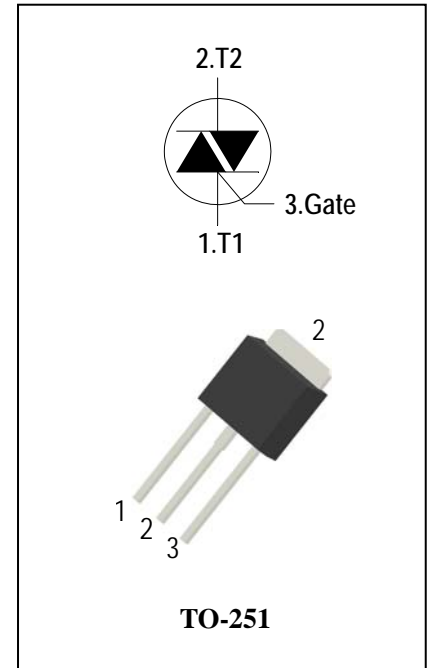
4 Quadrants Triacs

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.

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	$T_j = 25^{\circ}C$	ADS6D60	600	V
			ADS6D80	800	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 110^{\circ}C$		6	A
I_{TSM}	Surge On-State Current	$t_p=20ms(50Hz)/t_p=16.7ms(60Hz)$		60/63	A
I^2t	I^2t for fusing	$t_p=10ms$		20	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120\text{ Hz}$ $T_j = 125^{\circ}C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ ns}$	Q1-Q2-Q3	50	$A/\mu s$
			Q4	50	
I_{GM}	Peak Gate Current	$t_p = 20\text{ }\mu s$ $T_j = 125^{\circ}C$		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		ADS6D60D/80D				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 T _J = 125°C	Min.	10	20	200	400	V/μs
(dV/dt) _c	Rate of Change of Commutating Current,		(dI/dt) _c = -2.7A/ms T _J = 125°C	Min.	1	2	5	10	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	1.8				°C/W
R _{th(i-a)}	Junction to ambient			Max.	100				°C/W

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

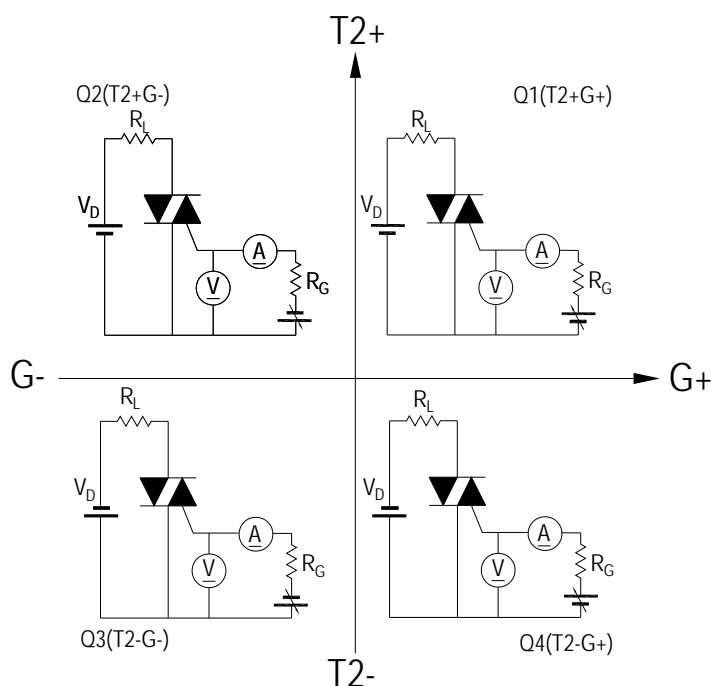


FIG.2: Maximum on-state power dissipation

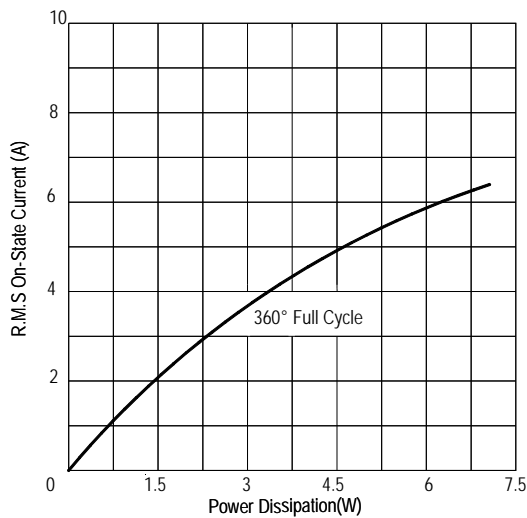


FIG.3: Typical RMS on-state current VS Allowable case Temperature

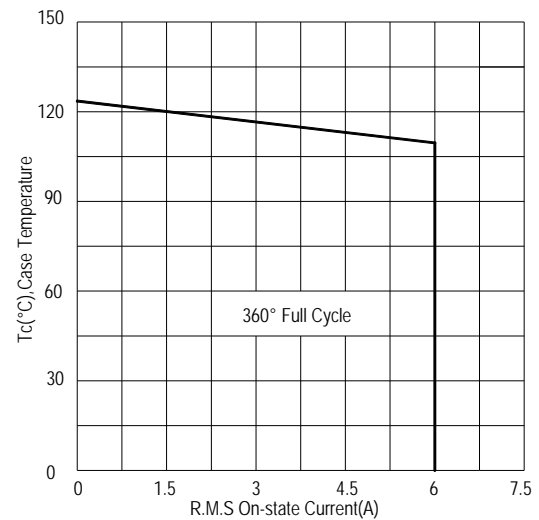


FIG.4: Maximum transient thermal impedance

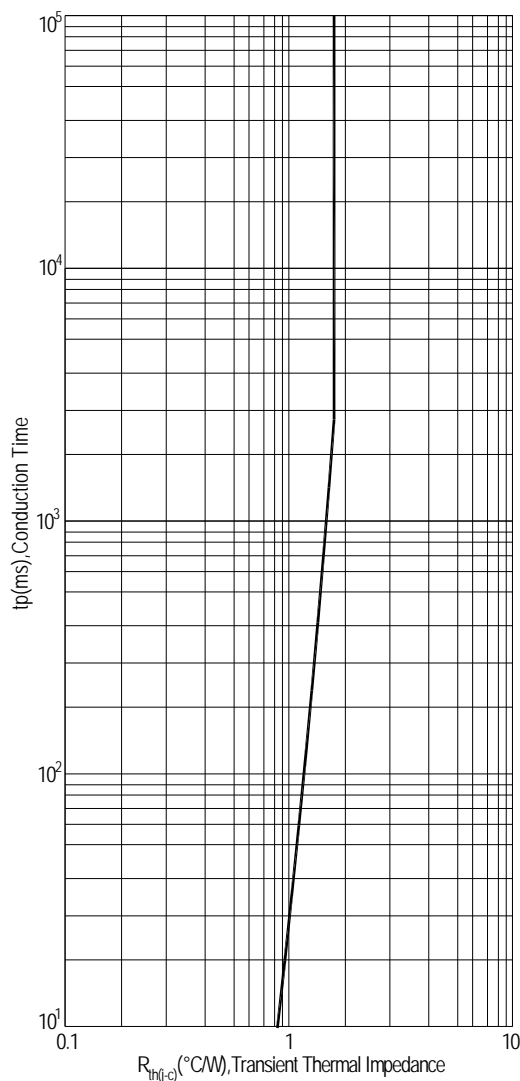


FIG.5: Rated surge on-state current (Non-Repetitive)

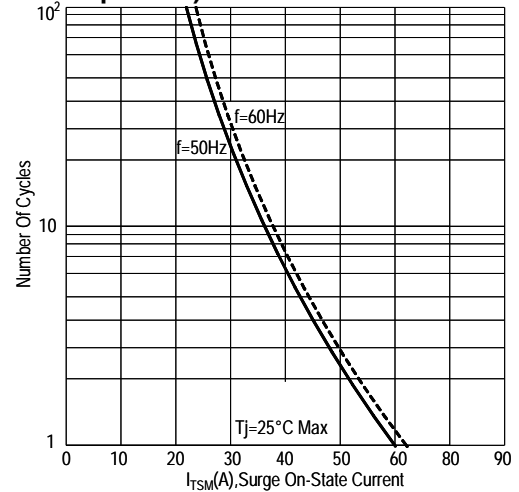


FIG.6: Gate trigger current VS Junction temperature

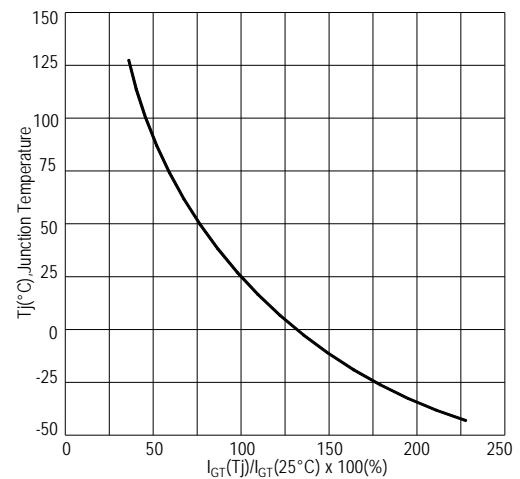


FIG.7: Holding current and Latching current VS Junction temperature

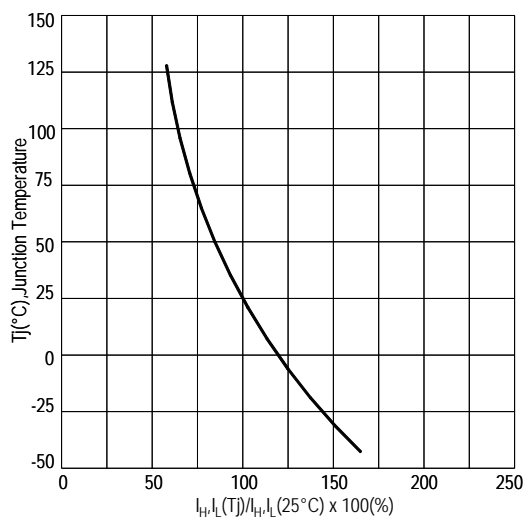


FIG.8: Gate trigger voltage VS Junction temperature

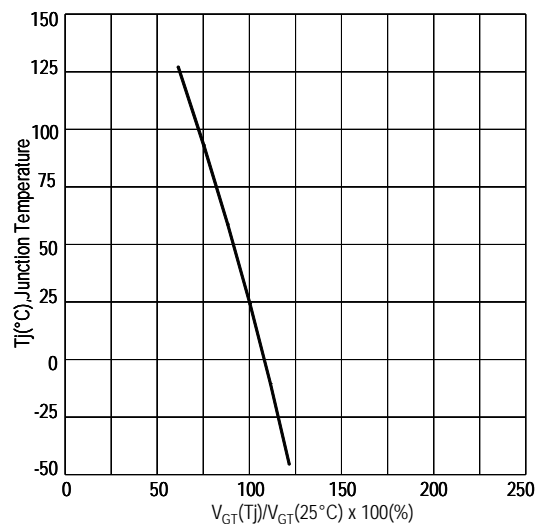
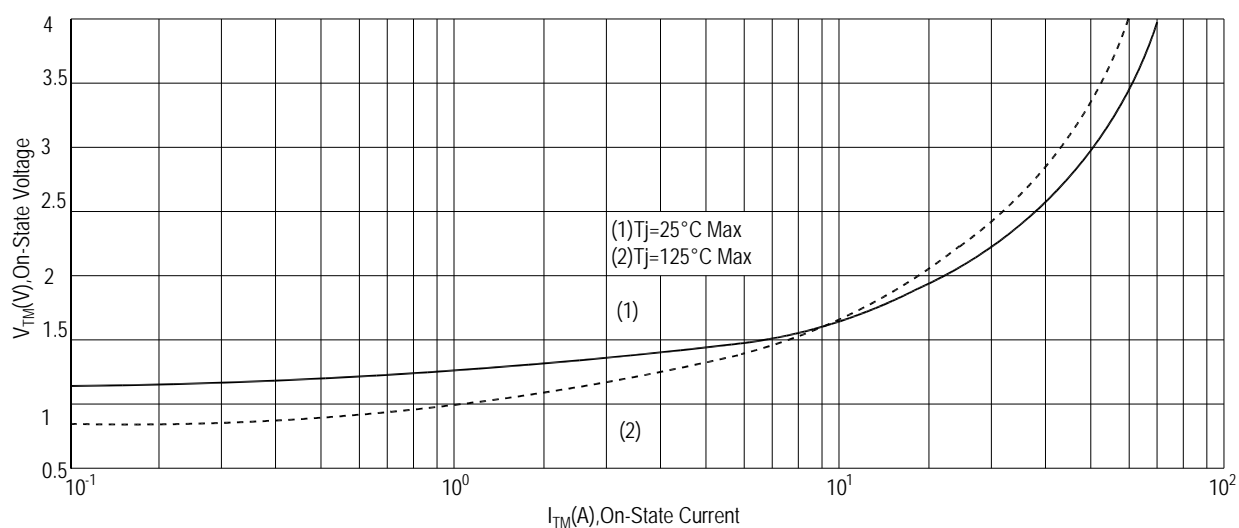
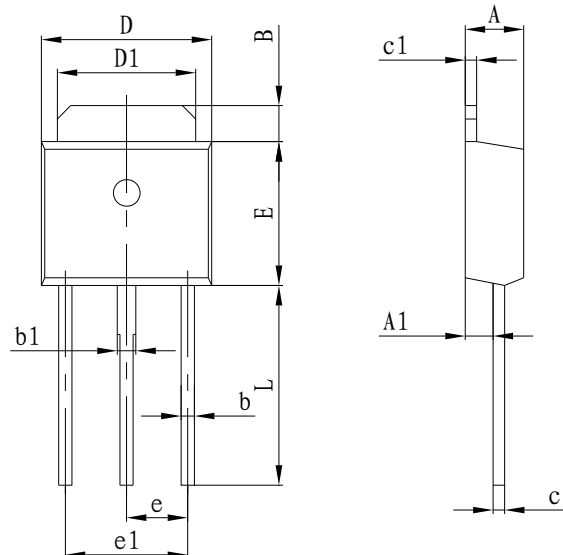


FIG.9: On-state characteristics(Max)



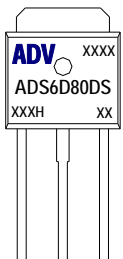
PACKAGE MECHANICAL DATA

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
 ADS6D80DS:Part number
 X:Internal control code
 H:Halogen Free

A D S 6 D 8 0 D T(S)(B)

ADVANCED			
Internal control code			
Current:6=6A			
Quadrant:D=4Q			
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
ADS6D60D#	TO-251	ADS6D60D#	Tube	80pcs
ADS6D80D#	TO-251	ADS6D80D#	Tube	80pcs

Note:# = Gate Trigger Current Sensitivity and type

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