

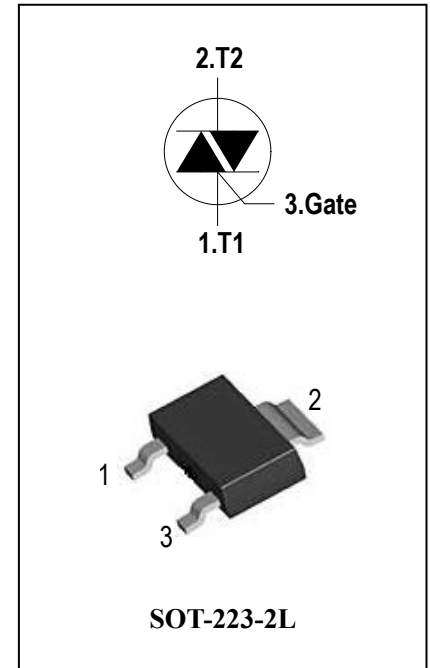
4 Quadrants Triacs

General Description

High current density due to mesa technology . the ADS1D 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 ($I_{T(RMS)} = 1A$)
- ◆ 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	$T_j = 25^{\circ}C$	ADS1D60WL	600	V
			ADS1D80WL	800	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 75^{\circ}C$		1	A
I_{TSM}	Surge On-State Current	$t_p=20ms(50Hz)/t_p=16.7ms(60Hz)$		10/11	A
I^2t	I^2t for fusing	$t_p=10ms$		0.42	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120\text{ Hz}$ $T_j = 110^{\circ}C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ ns}$	Q1-Q2-Q3	50	$A/\mu s$
			Q4	10	
I_{GM}	Peak Gate Current	$t_p = 20\text{ }\mu s$ $T_j = 110^{\circ}C$		1	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j=80^{\circ}C$)			0.1	W
P_{GM}	Peak Gate Power Dissipation($t_p=20\mu s, T_j=80^{\circ}C$)			1	W
T_j	Operating Junction Temperature			- 40 ~ 110	$^{\circ}C$
T_{STG}	Storage Temperature			- 40 ~ 150	$^{\circ}C$



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

Symbol	Items		Conditions		ADS1D60WL/80WL	Unit
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 = 110°C		0.1	mA
V _{TM}	Peak On-State Voltage		I _{TM} = 1.4A, t _p = 380 μs	Max.	1.5	V
V _{GD}	Q1-Q2-Q3-Q4	Non – Trigger Gate Voltage	V _D = V _{DRM} R _L = 3.3 kΩ T _j = 110°C	Min.	0.2	V
V _{GT}	Q1-Q2-Q3-Q4	GateTrigger Voltage	V _D = 12V , R _L = 33Ω	Max.	1.5	V
I _{GT}	Q1-Q2-Q3	GateTrigger Current		Max.	5	mA
	Q4				7	
I _H	Q1-Q2-Q3-Q4	Holding Current	I _T = 0.2A	Max.	5	mA
I _L	Q1-Q3-Q4	Latching Current	I _G = 1.2 I _{GT}	Max.	10	mA
	Q2				20	
dV/dt	Critical Rate of Rise of Off-State Voltage		V _D = 2/3V _{DRM} gate open T _j = 110°C	Min.	25	V/μs
(dV/dt) _c	Rate of Change of Commutating Current,		(dI/dt) _c =-0.3A/ms T _j = 110°C	Min.	0.5	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	25	°C/W
R _{th(j-a)}	Junction to ambient(Copper surface under tab:S=0.5cm²)			Max.	60	°C/W

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

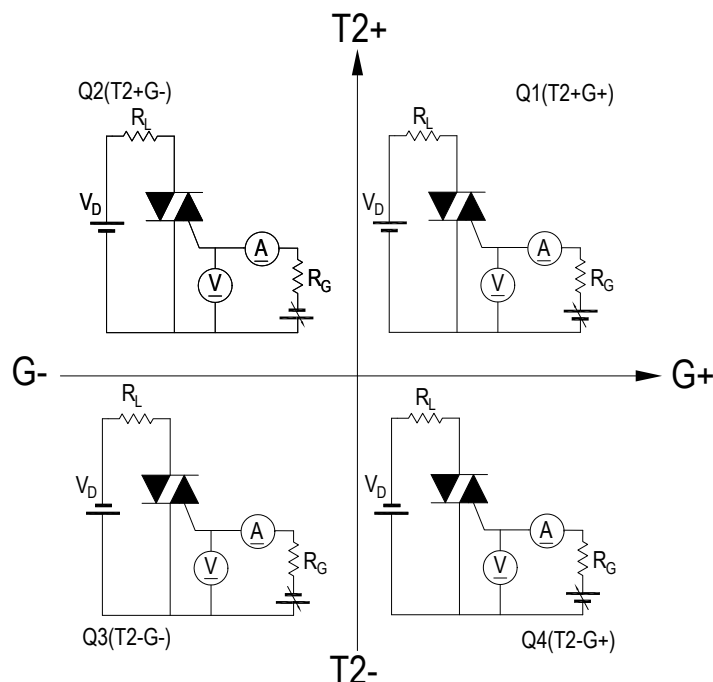


FIG.2: Maximum on-state power dissipation

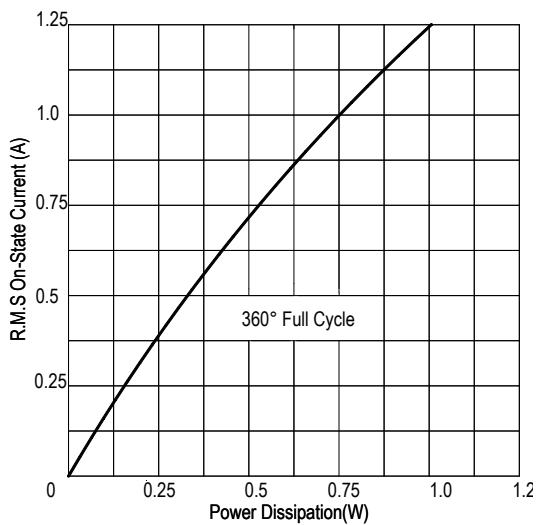


FIG.3: Typical RMS on-state current VS Allowable case Temperature

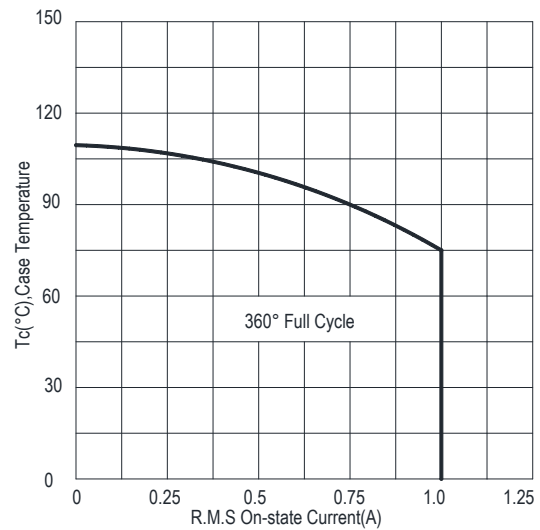


FIG.4: Gate trigger current VS Junction temperature

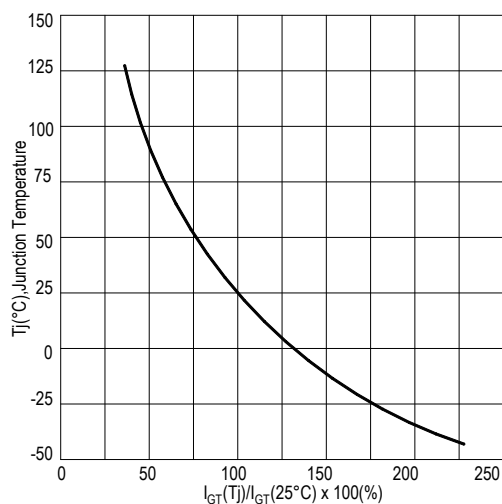


FIG.5: Rated surge on-state current (Non-Repetitive)

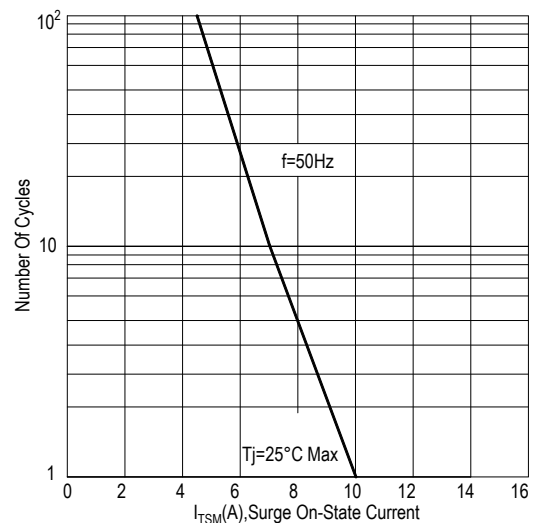


FIG.6: On-state characteristics(Max)

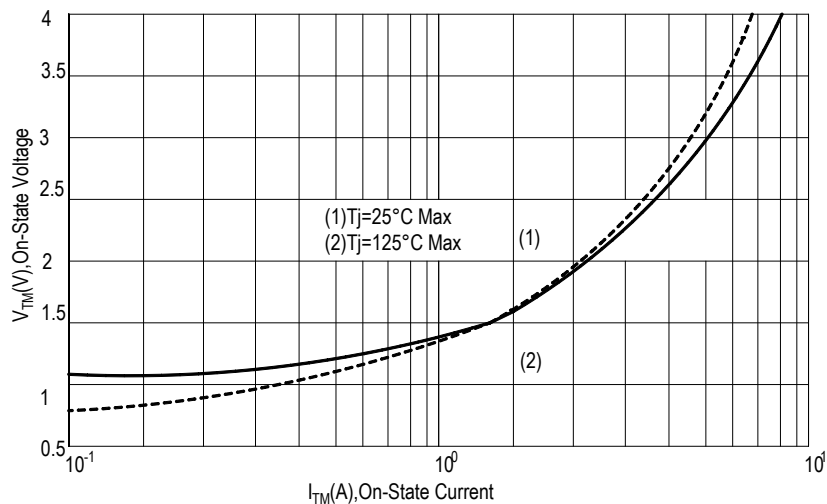


FIG.7:Holding current and Latching current VS Junction temperature

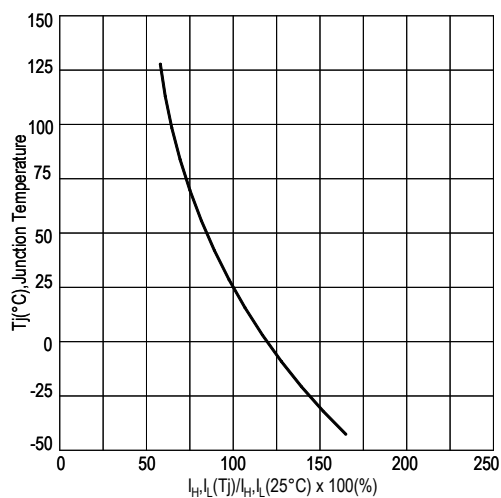
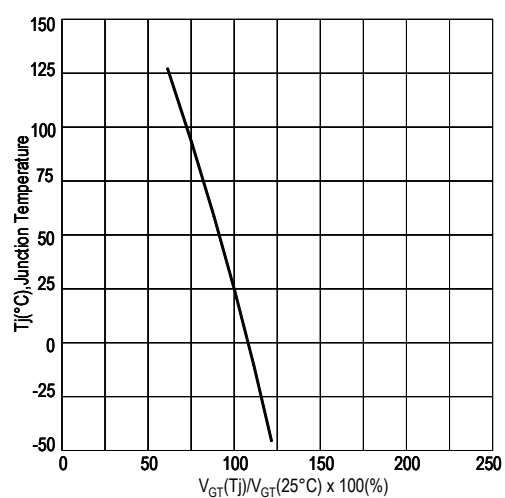
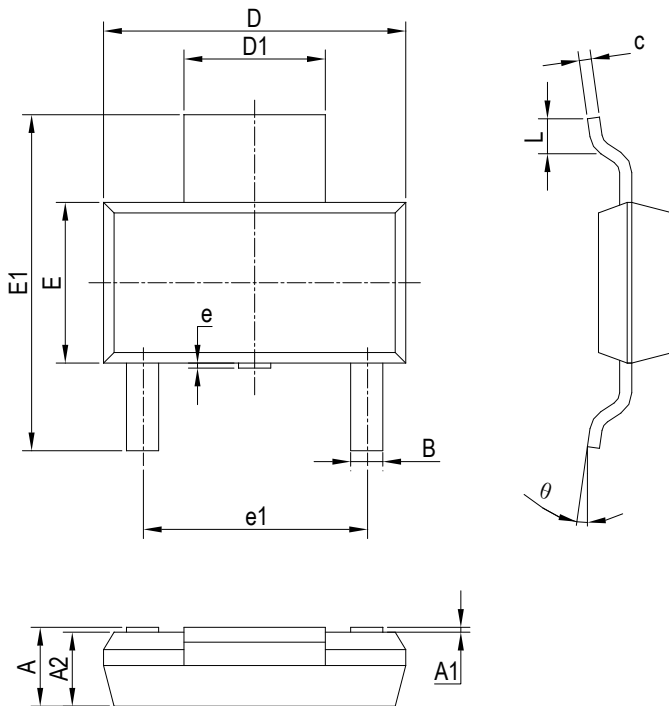


FIG.8: Gate trigger voltage VS Junction temperature



PACKAGE MECHANICAL DATA

SOT-223-2L Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.500	1.800	0.059	0.071
A1	0.010	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
c	0.220	0.350	0.009	0.014
D	6.200	6.700	0.244	0.264
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.700	7.300	0.264	0.287
e	0	0.200	0	0.008
e1	4.500	4.700	0.177	0.185
L	0.700	1.150	0.028	0.045
θ	0°	10°	0°	10°
B	0.600	0.800	0.024	0.031

Making Diagram



ADV:Logo
 ADS1D60WL:Part number
 X:Internal control code
 H:Halogen Free

AD S 1 D 60 WL

ADVANCED
 Internal control code
 Current:1=1A
 Quadrant:D=4Q
 Voltage:60=600V 80=800V
 Package explain:WL=SOT-223-2L

Ordering information

Part number	Package	Marking	Packing	Quantity
ADS1D60WL	SOT-223-2L	ADS1D60WL	Embossed tape	4000pcs
ADS1D80WL	SOT-223-2L	ADS1D80WL	Embossed tape	4000pcs

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