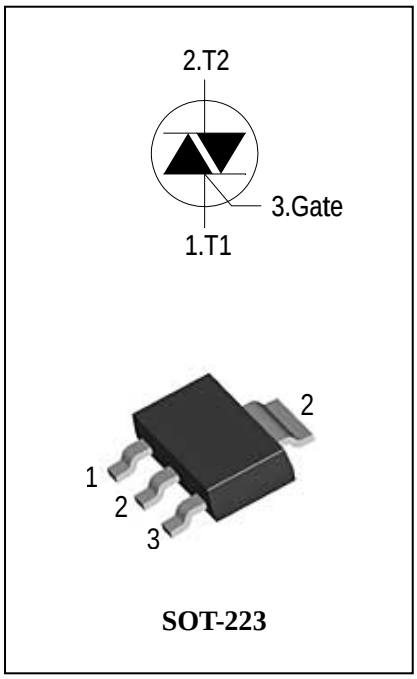
3Quadrants Triacs

General Description

This device is suitable for low power AC switching application, phase control application such as fan speed and temperature modulation control , lighting control and static switching relay also designed for use in MPU interface, TTLlogic.



Features

- Repetitive Peak Off-State Voltage: 600Vand800V
- R.M.S On-State Current ($I_{T(RMS)}$= 1 A)
- High Commutation dv/dt⩾500V/uS
- 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	ADS1C60W	600	V
V_{RRM}			ADS1C80W	800	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C = 85 °C		1	A
I_{TSM}	Surge On-State Current	tp=20ms(50Hz)/tp=16.7ms(60Hz)		10/11	A
I^2t	I^2t for fusing	tp=10ms		1.12	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		1	A
$P_{G(AV)}$	Average Gate Power Dissipation(Tj=125°C)			0.2	W
P_{GM}	Peak Gate Power Dissipation(tp=20us,Tj=125°C)			1	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		ADS1C60W/80W	Unit
I_{DRM}	Peak Forward Reverse Blocking Current		V_{DRM} = V_{RRM}, Tj = 25°C	Max.	10	uA
I_{RRM}			V_{DRM} = V_{RRM}, Tj = 125°C		0.5	mA
V_{TM}	Peak On-State Voltage		I_{TM} = 1.4A, t_p = 380 μs	Max.	1.6	V
V_{GD}	Q1-Q2-Q3	Non−Trigger Gate Voltage	V_D = V_{DRM} R_L = 3.3 kΩ Tj = 125°C	Min.	0.2	V
V_{GT}	Q1-Q2-Q3	Gate Trigger Voltage	V_D = 12V ， R_L = 33Ω	Max.	1.5	V
I_{GT}	Q1-Q2-Q3	Gate Trigger Current		Max.	10	mA
I_H	Q1-Q2-Q3	Holding Current	I_T = 0.1A	Max.	10	mA
I_L	Q1-Q3	Latching Current	I_G = 1.2 I_{GT}	Max.	15	mA
	Q2				25	
dV/dt	Critical Rate of Rise of Off-State Voltage		V_D = 2/3V_{DRM} gate open Tj = 125°C	Min.	500	V/μs
(dV/dt)c	Rate of Change of Commutating Current,		(dI/dt)c=-0.4A/ms Tj = 125°C	Min.	10	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=5cm^2)			Max.	60	°C/W

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

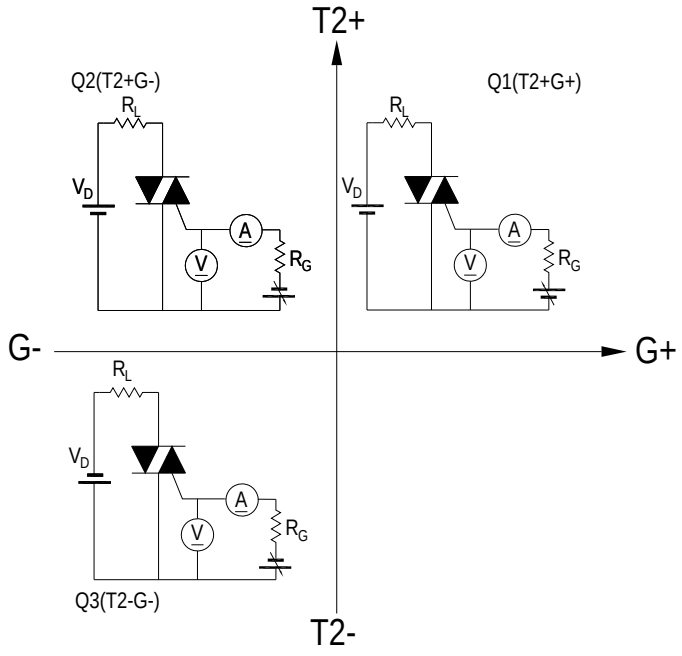


FIG.2: Maximum on-state power dissipation

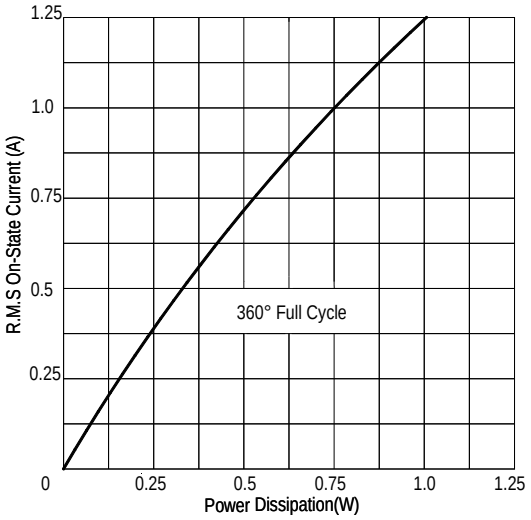


FIG.3: Typical RMS on-state current VS Allowable case Temperature

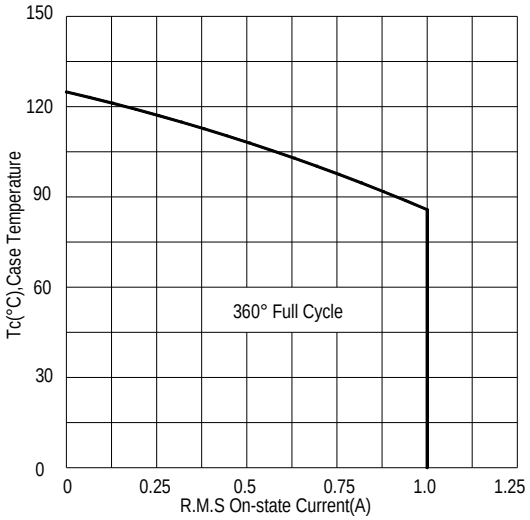


FIG.4: Gate trigger current VS Junction temperature

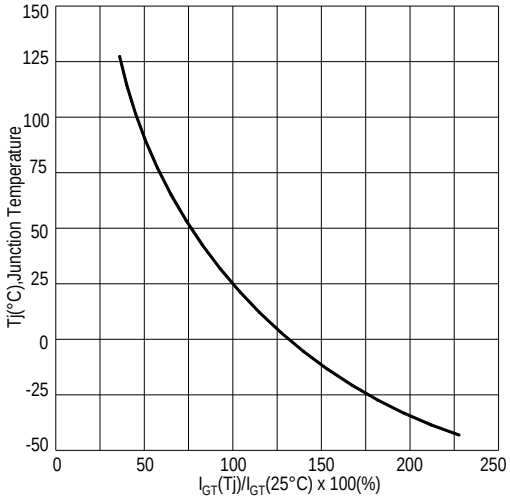


FIG.5: Rated surge on-state current (Non-Repetitive)

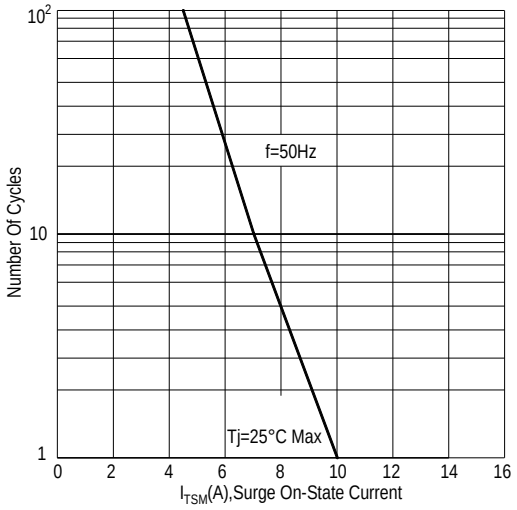


FIG.6: On-state characteristics(Max)

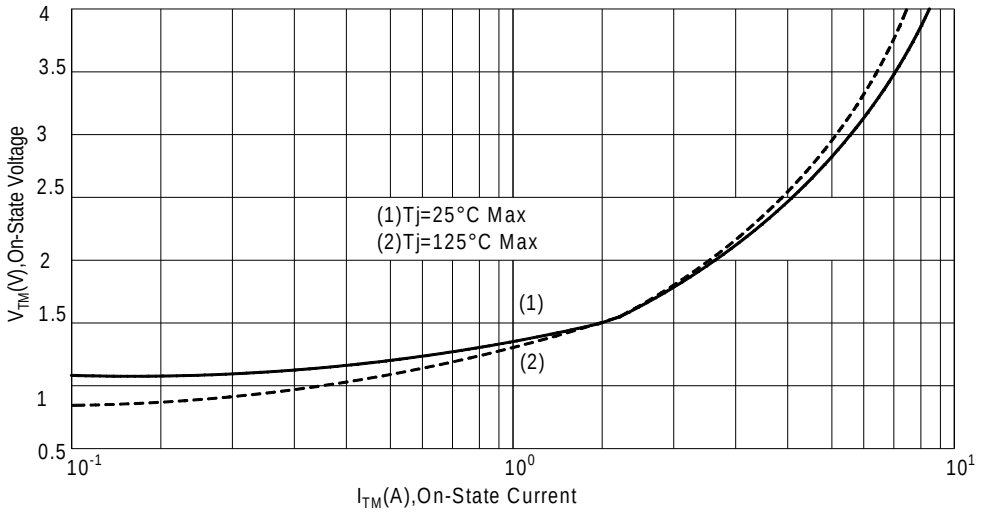


FIG.7:Holding current and Latching current VS Junction temperature

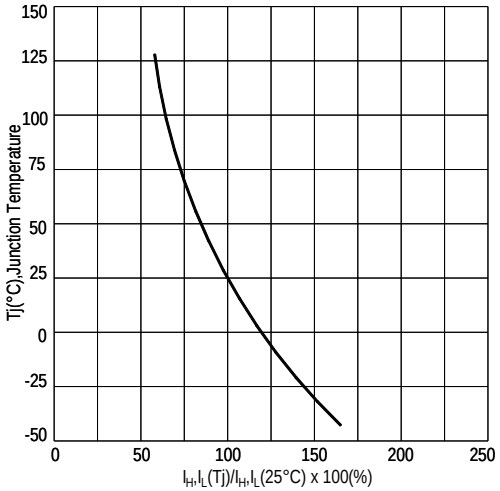
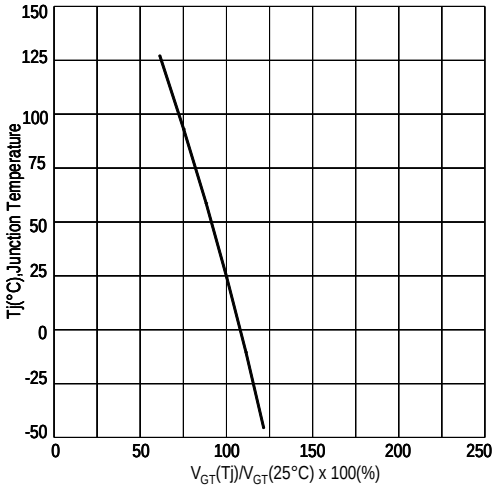
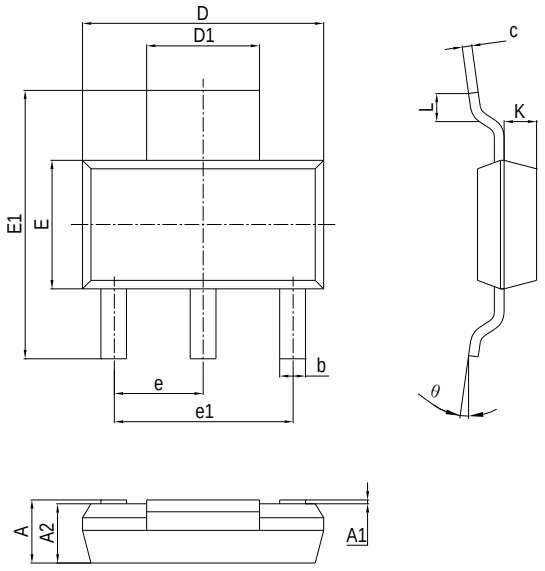


FIG.8: Gate trigger voltage VS Junction temperature



PACKAGE MECHANICAL DATA

SOT-223 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°
b	0.660	0.820	0.026	0.032
K	0.890	0.91	0.035	0.036

Making Diagram

ADV:Logo
ADS1C60W:Part number
X:Internal control code
H:Halogen Free

AD S 1 C 60 W

ADVANCED
Internal control code
Current:1=1A
Quadrant:C=3Q
Voltage:60=600V 80=800V
Package explain:W=SOT-223

Ordering information

Part number	Package	Marking	Packing	Quantity
ADT1C60W	SOT-223	ADT1C60W	Embossed tape	2000pcs
ADT1C80W	SOT-223	ADT1C80W	Embossed tape	2000pcs

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