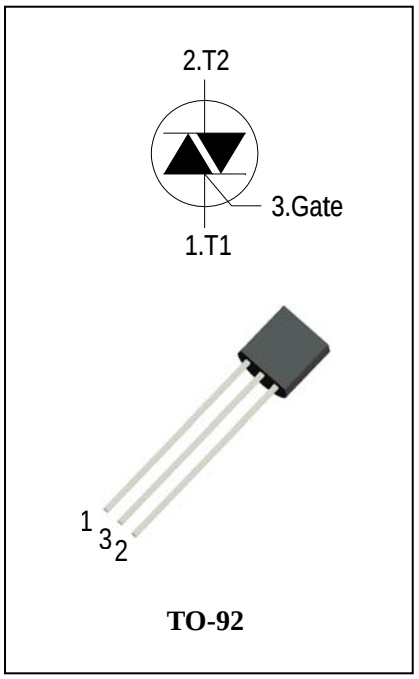
4 Quadrants Triacs

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)
- 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	ADT1D60	600	V
V_{RRM}			ADT1D80	800	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C = 52°C		1	A
I_{TSM}	Surge On-State Current	tp =20ms(50Hz)/tp=16.7ms(60Hz)		12/12.8	A
I^2t	I^2t for fusing	tp=10ms		0.78	A^2s
dI/dt	Critical rate of rise of on-state current	F = 120 Hz Tj = 125°C	Q1-Q2-Q3	50	A/μs
		I_G = 2 x I_{GT} , tr ≤ 100 ns	Q4	10	
I_{GM}	Peak Gate Current	tp = 20 μs Tj = 125°C		1	A
$P_{G(AV)}$	Average Gate Power Dissipation(tp=10ms,Tj=80°C)			0.5	W
P_{GM}	Peak Gate Power Dissipation(tp=10ms,Tj=80°C)			4	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		ADT1D60/80	Unit
I_{DRM}	Peak Forward Reverse Blocking Current		V_{DRM} = V_{RRM}, Tj = 25°C	Max.	5	uA
I_{RRM}			V_{DRM} = V_{RRM}, Tj = 125°C		0.5	mA
V_{TM}	Peak On-State Voltage		I_{TM} = 2A, 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 Tj = 125°C	Min.	0.2	V
V_{GT}	Q1-Q2-Q3-Q4	GateTrigger Voltage	V_D = 12V ， R_L = 100Ω	Max.	1.3	V
I_{GT}	Q1-Q2-Q3	GateTrigger Current		Max.	5	mA
	Q4				10	
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 Tj = 125°C	Min.	25	V/μs
(dV/dt)c	Critical Rate of Change of Commutating Voltage		(dI/dt)c=-0.3A/ms Tj = 125°C	Min.	1	V/μs
$R_{th(j-c)}$	Junction to case (AC)			Max.	60	°C/W
$R_{th(j-a)}$	Junction to ambient			Max.	150	°C/W

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

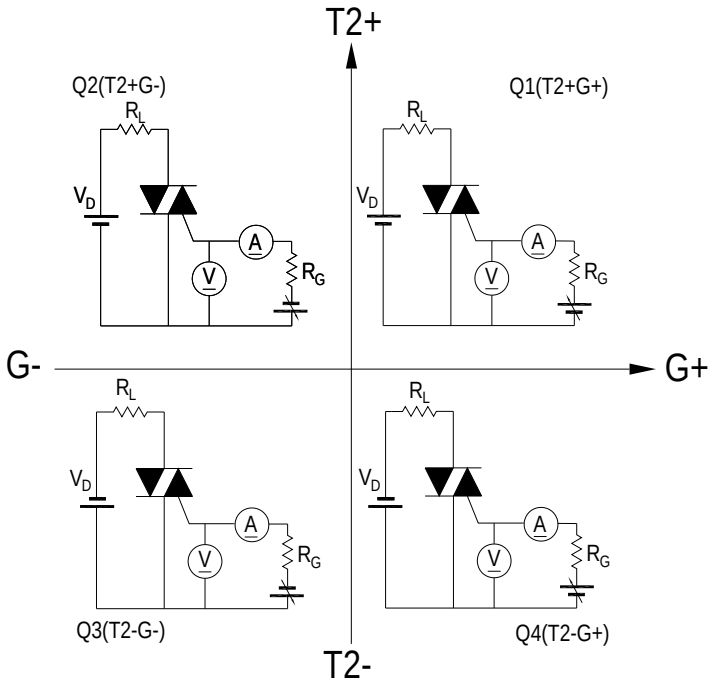


FIG.2: Maximum on-state power dissipation

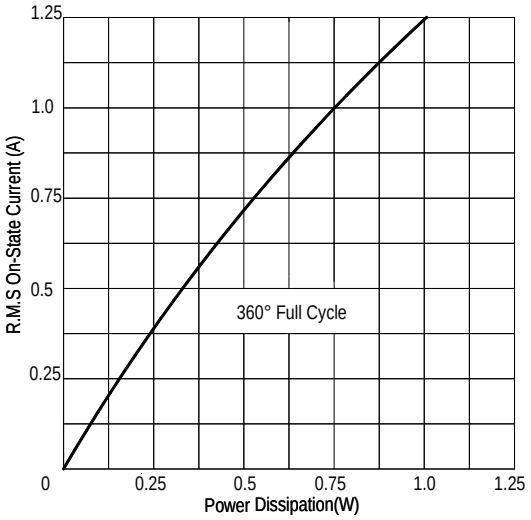


FIG.3: Typical RMS on-state current VS Allowable case Temperature

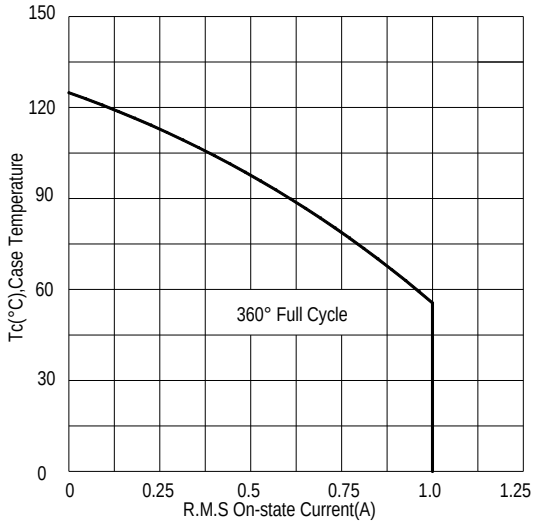


FIG.4: Gate trigger current VS Junction temperature

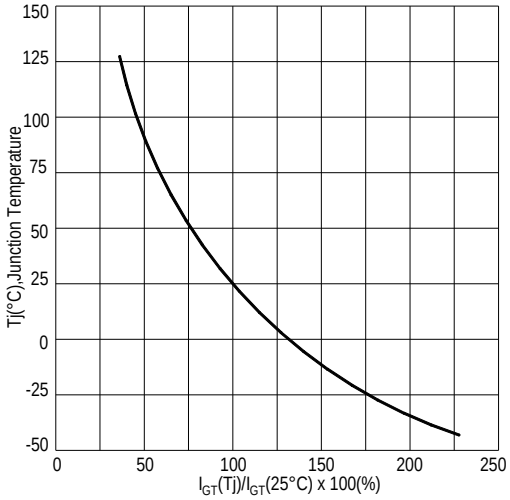


FIG.5: Rated surge on-state current (Non-Repetitive)

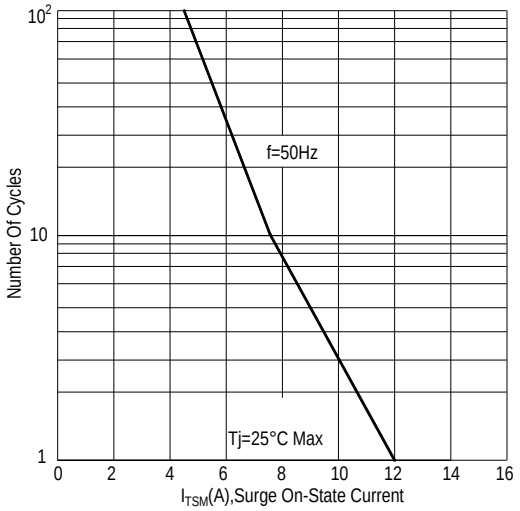


FIG.6: On-state characteristics(Max)

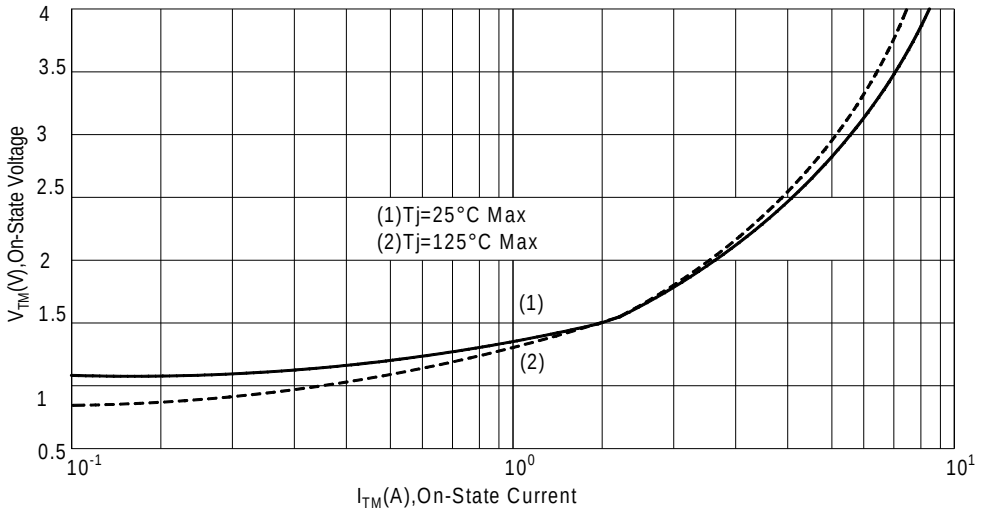


FIG.7:Holding current and Latching current VS Junction temperature

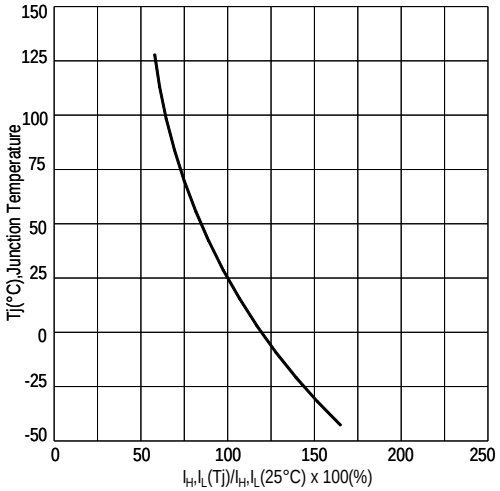
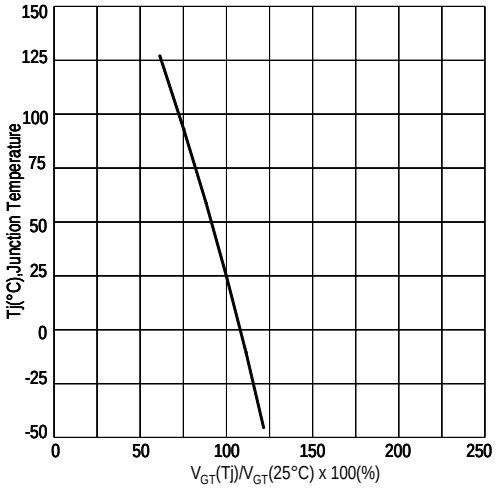
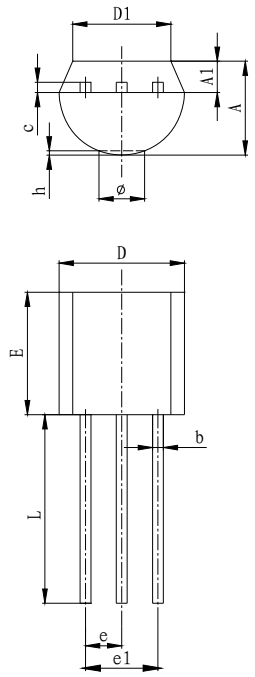


FIG.8: Gate trigger voltage VS Junction temperature



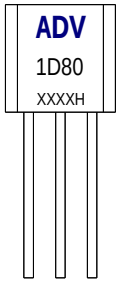
PACKAGE MECHANICAL DATA

TO-92 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.180	4.190	0.125	0.165
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	5.200	0.173	0.205
D1	3.430		0.135	
E	4.300	5.330	0.169	0.210
e	1.270 TYP		0.050 TYP	
e1	2.420	2.660	0.095	0.105
L	12.70	-	0.500	-
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

Making Diagram



ADV:Logo
1D80:Part number(ADT1D80)
X:Internal control code
H:Halogen Free

AD T 1 D 80 #

ADVANCED
Internal control code
Current:1=1A
Quadrant:D=4Q
Voltage:60=600V 80=800V
Package explain:Blank=TO-92

Ordering information

Part number	Package	Marking	Packing	Quantity
ADT1D60	TO-92	1D60	Vinyl sack	1000pcs
ADT1D80	TO-92	1D80	Vinyl sack	1000pcs

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