

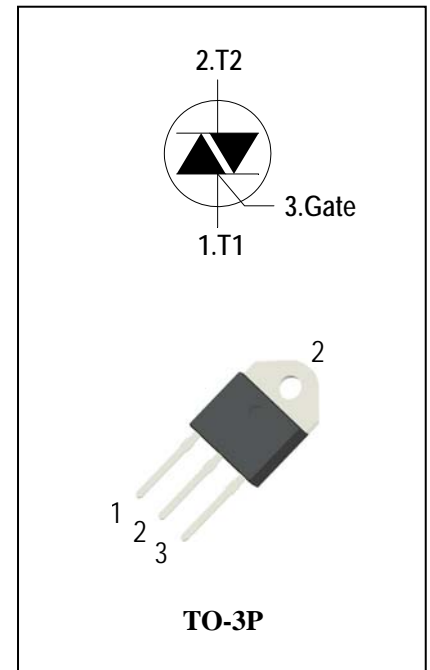
4 Quadrants Triacs

General Description

High current density due to mesa technology . the ADS40D 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 ($I_{T(RMS)} = 40A$)
- ◆ 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	$T_j = 25^\circ C$	ADS40D80H	800	V V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 95^\circ C$		40	A
I_{TSM}	Surge On-State Current	$t_p = 20ms(50Hz) / t_p = 16.7ms(60Hz)$		400/420	A
I^2t	I^2t for fusing	$t_p = 10ms$		880	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120 Hz$ $T_j = 125^\circ C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100 ns$		50	$A/\mu s$
I_{GM}	Peak Gate Current	$t_p = 20 \mu s$ $T_j = 125^\circ C$		8	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j = 125^\circ C$)			1	W
P_{GM}	Peak Gate Power Dissipation($t_p = 20\mu s, T_j = 125^\circ C$)			10	W
T_j	Operating Junction Temperature			- 40 ~ 125	$^\circ C$
T_{STG}	Storage Temperature			- 40 ~ 150	$^\circ C$



Electrical Characteristics (T_j = 25°C unless otherwise specified)

Symbol	Items		Conditions		ADS40D80H		Unit
					B		
I _{DRM}	Peak Forward Reverse Blocking Current		V _{DRM} = V _{RRM} , T _j = 25°C	Max.	5		uA
I _{RDM}			V _{DRM} = V _{RRM} , T _j = 125°C		5		mA
V _{TM}	Peak On-State Voltage		I _{TM} = 60A, 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	Gate Trigger Voltage	V _D = 12V , R _L = 33Ω	Max.	1.3		V
I _{GT}	Q1-Q2-Q3	Gate Trigger Current		Max.	50		mA
	Q4				100		
I _H	Q1-Q2-Q3-Q4	Holding Current	I _T = 0.1A		Max.	50	
I _L	Q1-Q3-Q4	Latching Current	I _G = 1.2 I _{GT}	Max.	70		mA
	Q2				80		
dV/dt	Critical Rate of Rise of Off-State Voltage		V _D = 2/3V _{DRM} gate open T _j = 125°C	Min.	500		V/μs
(dV/dt) _c	Rate of Change of Commutating Current,		(dI/dt) _c = -20A/ms T _j = 125°C	Min.	10		V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	0.5		°C/W
R _{th(j-a)}	Junction to ambient			Max.	50		°C/W

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

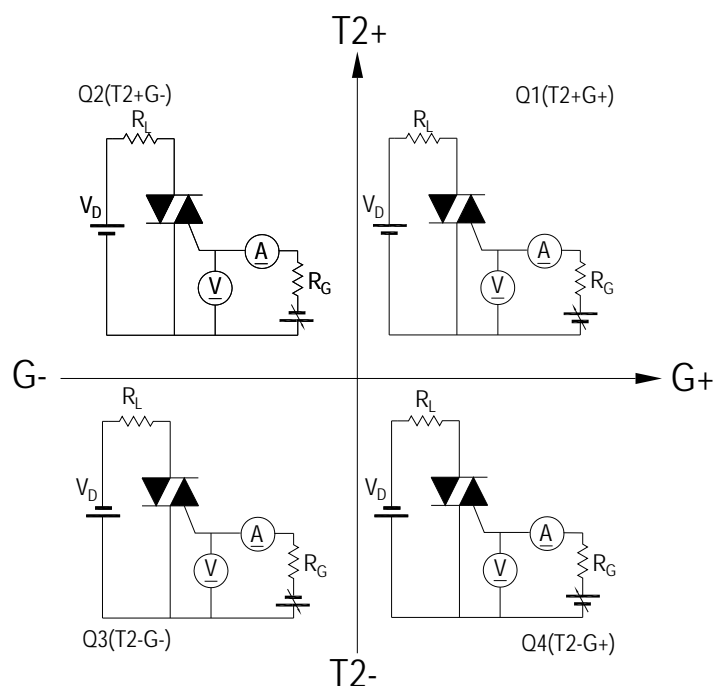


FIG.2: Maximum on-state power dissipation

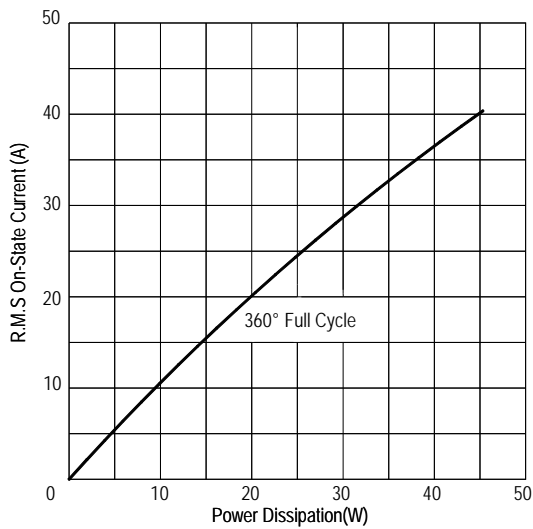


FIG.3: Typical RMS on-state current VS Allowable case Temperature

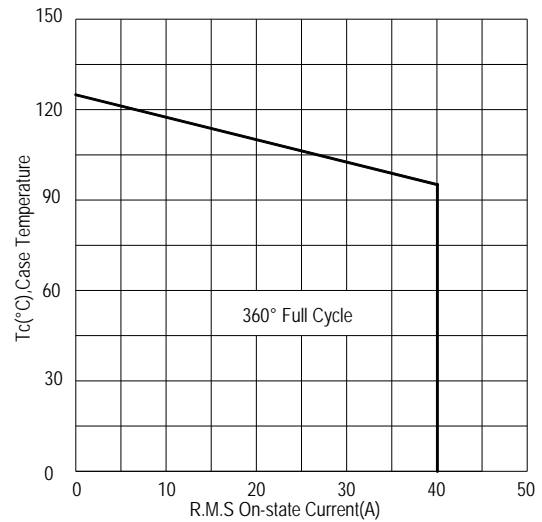


FIG.4: Maximum transient thermal impedance

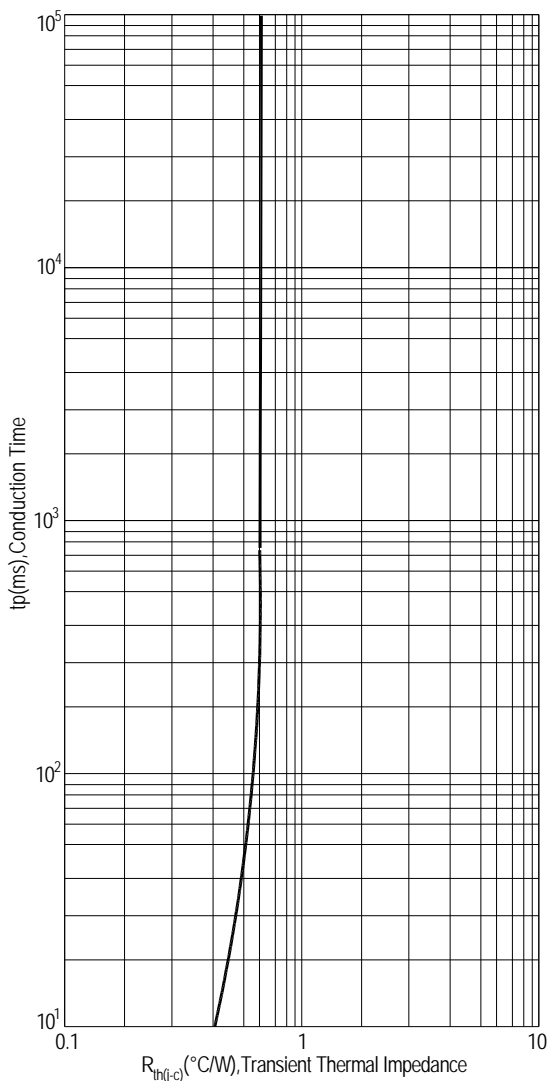


FIG.5: Rated surge on-state current (Non-Repetitive)

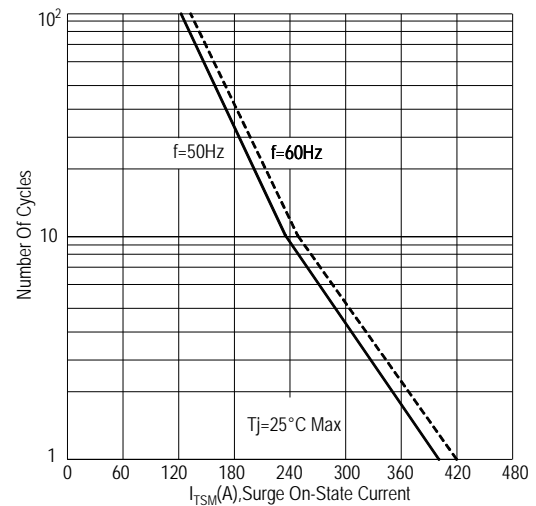


FIG.6: Gate trigger current VS Junction temperature

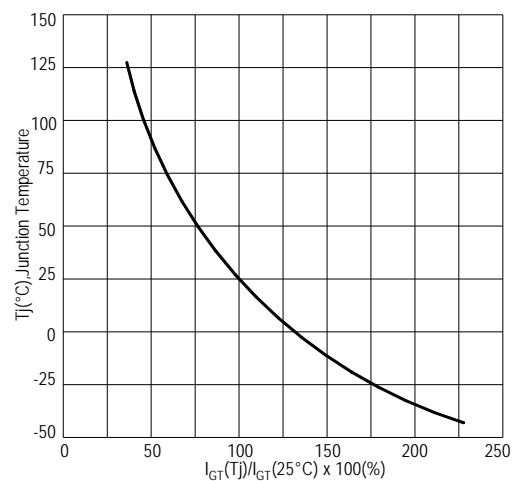


FIG.7: Holding current and Latching current VS Junction temperature

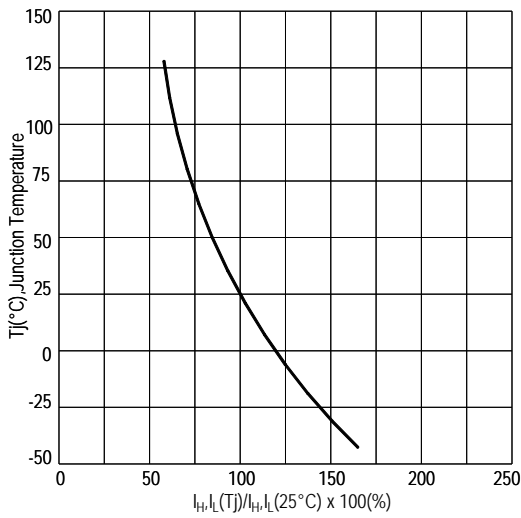


FIG.8: Gate trigger voltage VS Junction temperature

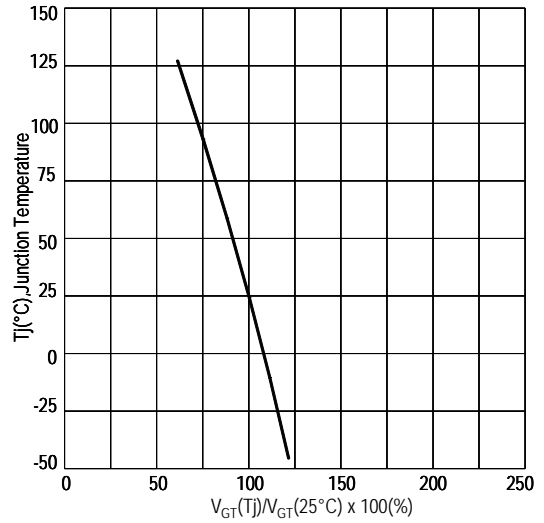
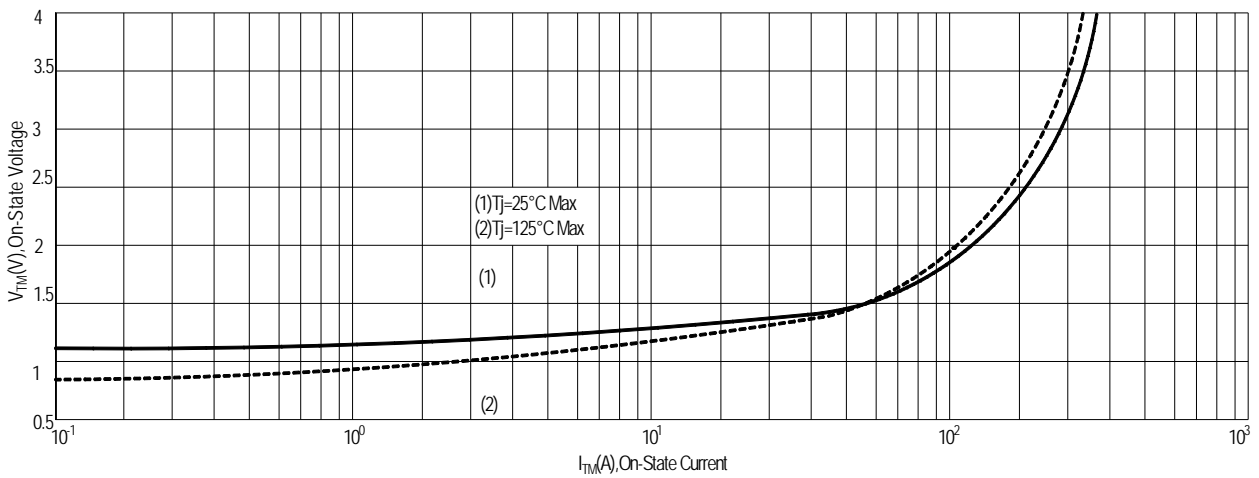
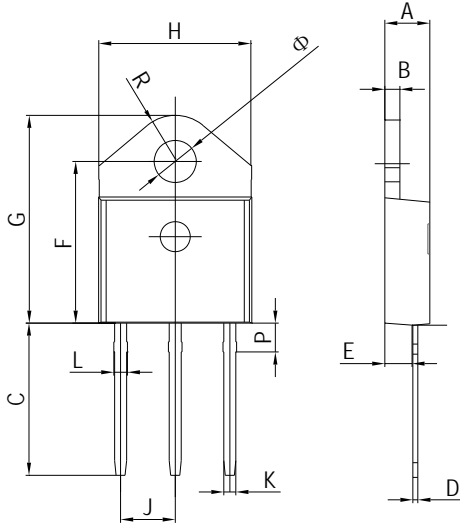


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-3P Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.4	4.6	0.173	0.181
B	1.45	1.55	0.057	0.061
C	14.35	15.60	0.565	0.614
D	0.5	0.7	0.020	0.028
E	2.7	2.9	0.106	0.114
F	15.8	16.5	0.622	0.650
G	20.4	21.1	0.815	0.831
H	15.1	15.5	0.594	0.610
J	5.4	5.65	0.213	0.222
K	1.2	1.4	0.047	0.055
Ø	4.08	4.20	0.161	0.165
L	1.35	1.50	0.053	0.059
P	2.8	3.0	0.110	0.118
R	4.60 typ.		0.181 typ.	

Making Diagram

ADV: Logo
ADS40D80HB: Part number
X: Internal control code
H: Halogen Free

AD S 40 D 80 H B

ADVANCED	Internal control code	Current: 40=40A	Sensitivity and type: B=50mA
Quadrant: D=4Q	Voltage: 80=800V	Package explain: H=TO-3P	

Ordering information

Part number	Package	Marking	Packing	Quantity
ADS40D80HB	TO-3P	ADS40D80HB	Tube	30pcs
Note: B = Gate Trigger Current Sensitivity and type				

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