

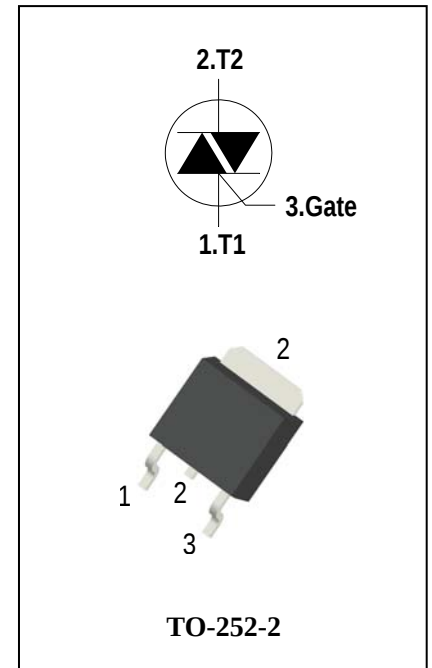
3 Quadrants High temperature Triacs

General Description

High current density due to mesa technology , guaranteed maximum junction temperature 150° C. The ADS4CH 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. The heatsink can be reduced, compared to traditional triacs, according to the high performance at given junction temperatures.

Features

- ◆ Repetitive Peak Off-State Voltage: 600V/800V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 4A$)
- ◆ High Commutation dv/dt
- ◆ High junction temperature operating capability
- ◆ 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	$T_j = 25^{\circ}C$	ADS4CH60E	600	V
			ADS4CH80E	800	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 130^{\circ}C$		4	A
I_{TSM}	Surge On-State Current	$t_p=20ms(50Hz)/t_p=16.7ms(60Hz)$		30/32	A
I^2t	I^2t for fusing	$t_p=10ms$		3.7	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120\text{ Hz}$ $T_j = 150^{\circ}C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ ns}$		50	$A/\mu s$
I_{GM}	Peak Gate Current	$t_p = 20\text{ }\mu s$ $T_j = 150^{\circ}C$		2	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j=150^{\circ}C$)			0.5	W
P_{GM}	Peak Gate Power Dissipation($t_p=20\mu s,T_j=150^{\circ}C$)			5	W
T_j	Operating Junction Temperature			- 40 ~ 150	$^{\circ}C$
T_{STG}	Storage Temperature			- 40 ~ 150	$^{\circ}C$



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

Symbol	Items		Conditions		ADS4CH60E/80E			Unit
					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 = 150°C		1.75			mA
V _{TM}	Peak On-State Voltage		I _{TM} = 5.5A, t _p = 380 μs	Max.	1.5			V
V _{GD}	Q1-Q2-Q3	Non–Trigger Gate Voltage	V _D = V _{DRM} R _L = 3.3 kΩ T _j = 150°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	35	50	mA
I _H	Q1-Q2-Q3	Holding Current	I _T = 0.1A	Max.	20	45	60	mA
I _L	Q1-Q3	Latching Current	I _G = 1.2 I _{GT}	Max.	20	50	70	mA
	Q2				35	70	100	
dV/dt	Critical Rate of Rise of Off-State Voltage		V _D = 2/3V _{DRM} gate open T _j = 150°C	Min.	200	1000	1500	V/μs
(dV/dt) _c	Critical Rate of Change of Commutating Voltage		V _D =400V T _j = 150°C (dI/dt) _c =-1.7A/ms	Min.	1	15	20	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	3.0			°C/W
R _{th(j-a)}	Junction to ambient(Copper surface under tab:S=0.5cm ²)			Max.	70			°C/W

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

FIG.2: Maximum on-state power dissipation

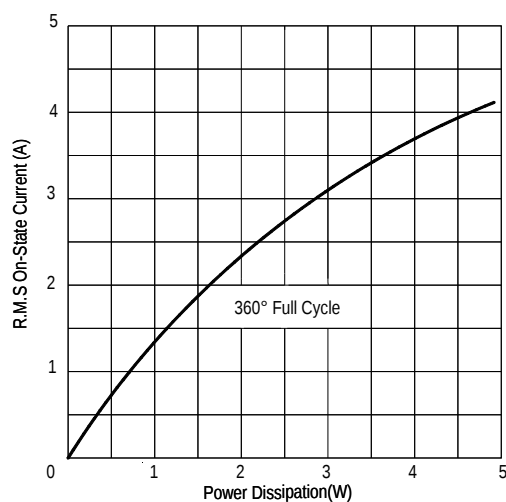


FIG.3: Typical RMS on-state current VS Allowable case Temperature

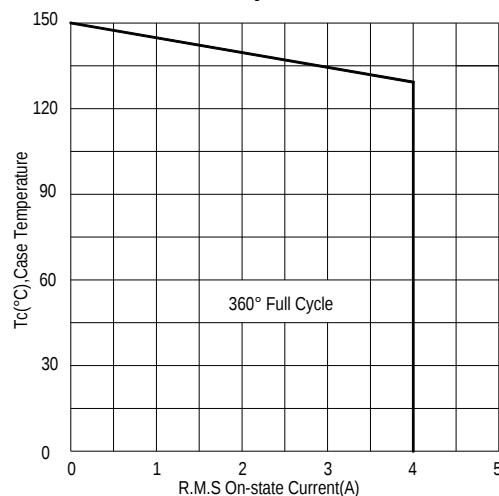


FIG.4: Maximum transient thermal impedance

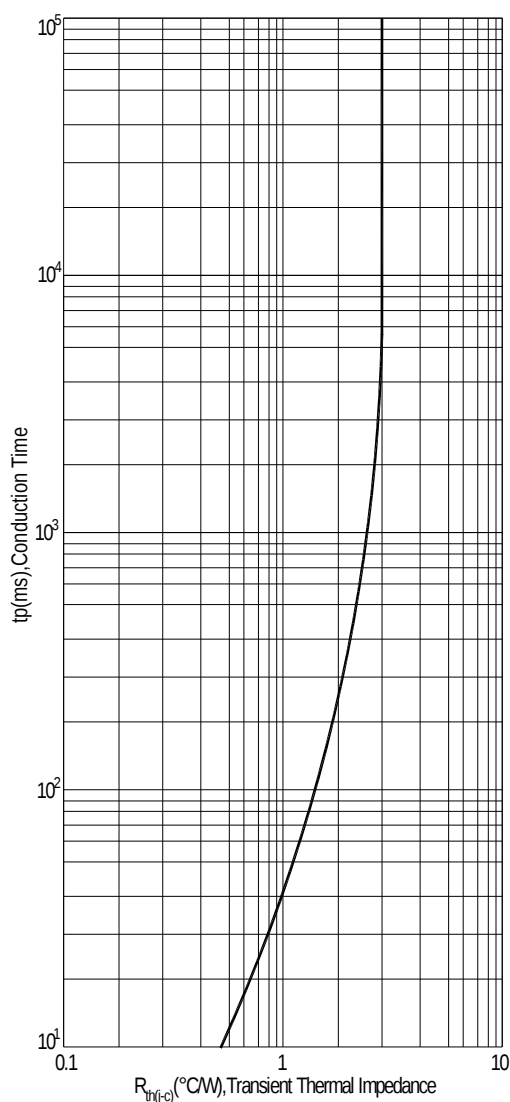


FIG.5: Rated surge on-state current (Non-Repetitive)

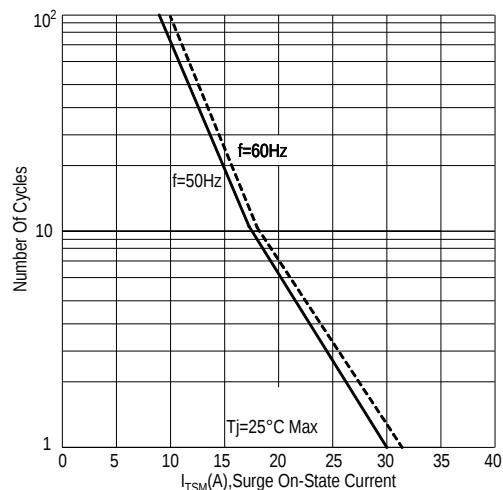


FIG.6: Gate trigger current VS Junction temperature

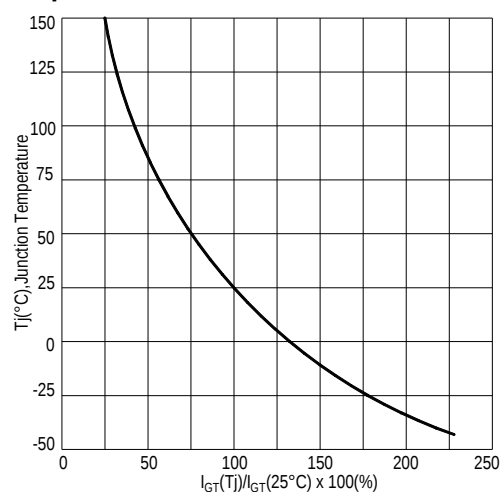


FIG.7:Holding current and Latching current VS Junction temperature

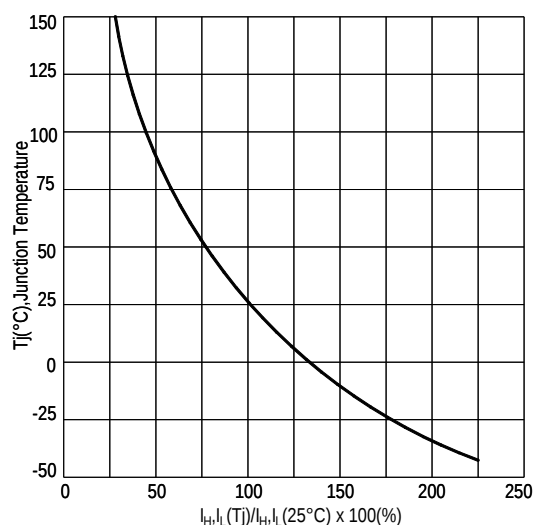


FIG.8: Gate trigger voltage VS Junction temperature

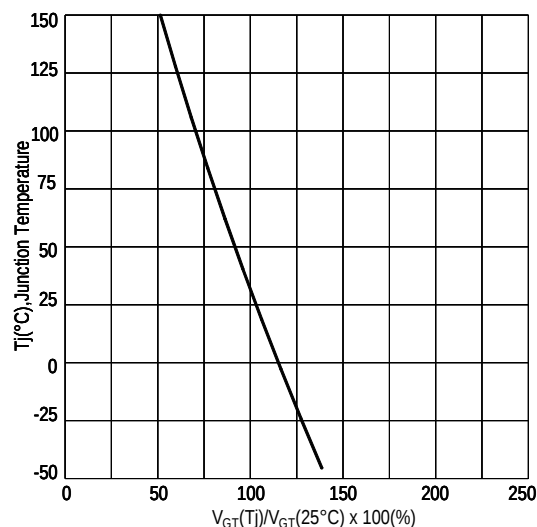
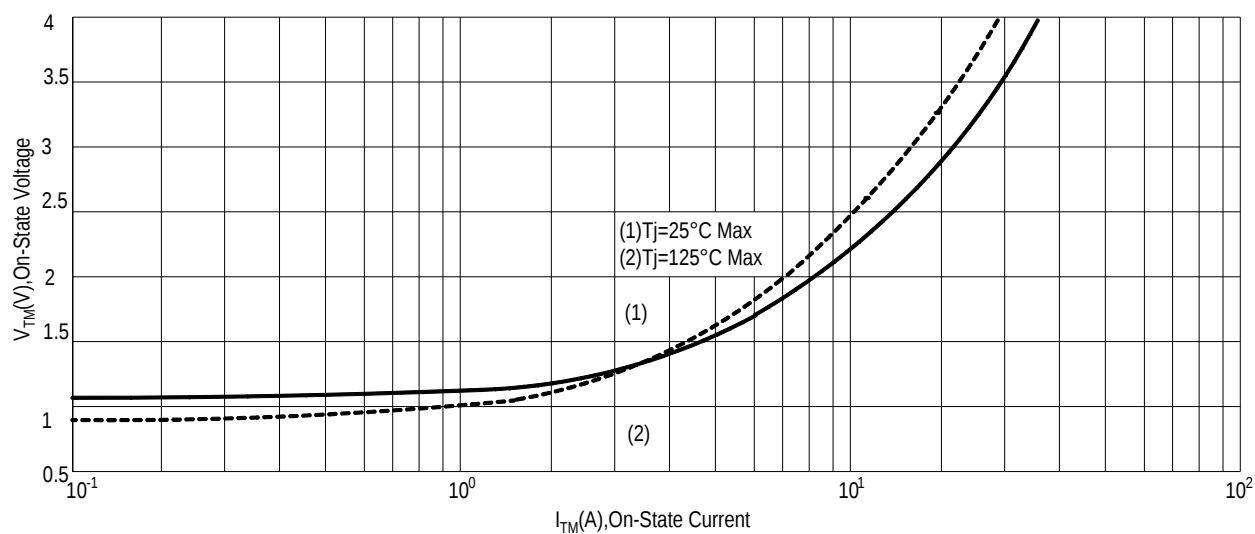
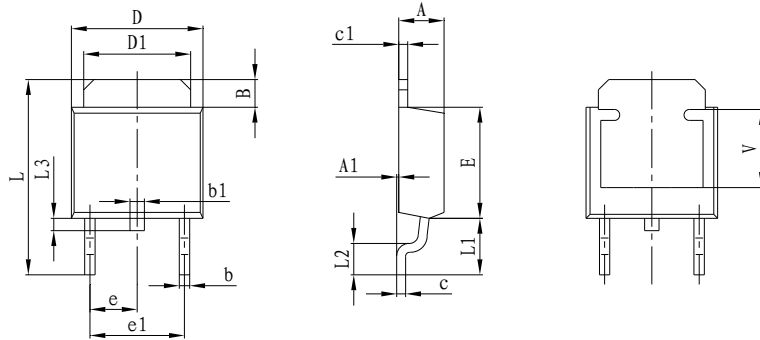


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-252-2 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
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	0.450	0.620	0.017	0.024
c1	0.450	0.620	0.017	0.024
D	6.350	6.650	0.250	0.262
D1	5.100	5.400	0.200	0.213
E	5.900	6.200	0.232	0.244
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	10.60	0.374	0.396
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	4.100 REF.		0.161 REF.	

Making Diagram



ADV:Logo
 ADS4CH60EB:Part number
 X:Internal control code
 H:Halogen Free

AD S 4 C H 60 E S(B)

ADVANCED
 Internal control code
 Current:4=4A
 Quadrant:C=3Q
 High temperature:H=150°C

Sensitivity and type:
 S=10mA
 Blank=35mA
 B=50mA

Package explain:E=TO-252-2
 Voltage:60=600V 80=800V

Ordering information

Part number	Package	Marking	Packing	Quantity
ADS4CH60E#	TO-252-2	ADS4CH60E#	Tube	80pcs
			Embossed tape	2500pcs
ADS4CH80E#	TO-252-2	ADS4CH80E#	Tube	80pcs
			Embossed tape	2500pcs

Note:# = Gate Trigger Current Sensitivity and type

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