

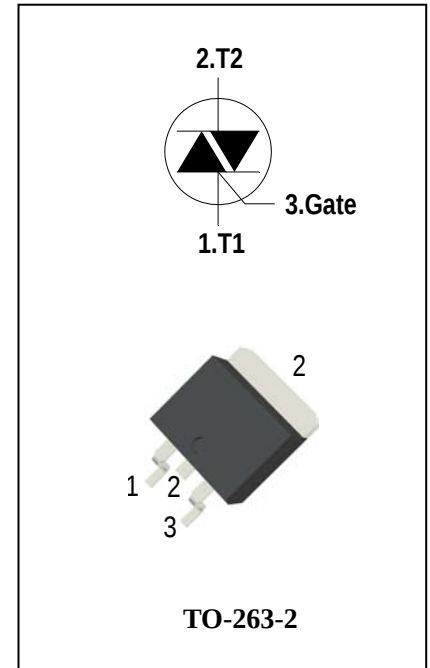
3 Quadrants High temperature Triacs

General Description

High current density due to mesa technology , guaranteed maximum junction temperature 150° C. The ADS20CH 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. 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 ($I_{T(RMS)} = 20A$)
- ◆ 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	$T_j = 25^{\circ}C$	ADS20CH60G	600	V
			ADS20CH80G	800	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 129^{\circ}C$		20	A
I_{TSM}	Surge On-State Current	$t_p=20ms(50Hz)/t_p=16.7ms(60Hz)$		200/210	A
I^2t	I^2t for fusing	$t_p=10ms$		265	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120\text{ Hz}$ $T_j = 150^{\circ}C$ $I_G = 2 \times I_{GT}$, $tr \leq 100\text{ ns}$		50	$A/\mu s$
I_{GM}	Peak Gate Current	$t_p = 20\text{ }\mu s$ $T_j = 150^{\circ}C$		4	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j=150^{\circ}C$)			1	W
P_{GM}	Peak Gate Power Dissipation($t_p=20\mu s, T_j=150^{\circ}C$)			10	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		ADS20CH60G/80G			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		6.2			mA
V _{TM}	Peak On-State Voltage		I _{TM} = 28A, 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.	0.15			V
V _{GT}	Q1-Q2-Q3	Gate Trigger Voltage	V _D = 12V , R _L = 33Ω	Max.	1.3			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	50	75	mA
I _L	Q1-Q3	Latching Current	I _G = 1.2 I _{GT}	Max.	20	80	90	mA
	Q2				35	90	110	
dV/dt	Critical Rate of Rise of Off-State Voltage		V _D = 2/3V _{DRM} gate open T _j = 150°C	Min.	500	1000	1500	V/μs
(dV/dt) _c	Critical Rate of Change of Commutating Voltage		V _D =400V T _j = 150°C (dI/dt) _c =-8.8A/ms	Min.	1	15	20	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	1			°C/W
R _{th(j-a)}	Junction to ambient(Copper surface under tab:S=1cm ²)			Max.	45			°C/W

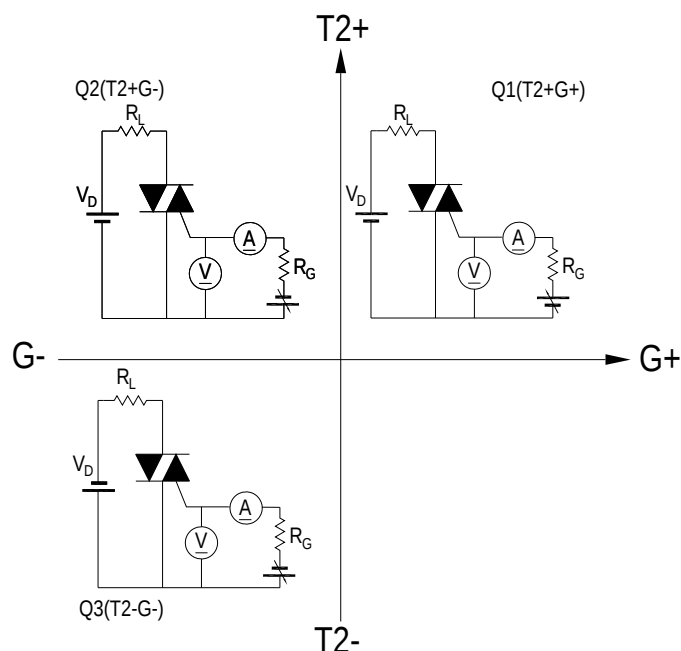
FIG.1:Triac quadrant are defined and the gate trigger test circuit

FIG.2: Maximum on-state power dissipation

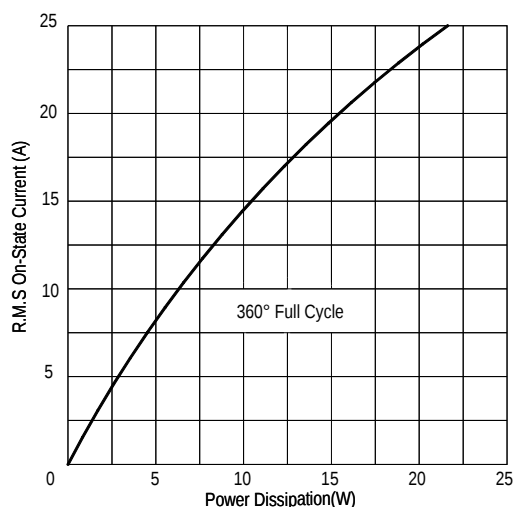


FIG.4: Maximum transient thermal impedance

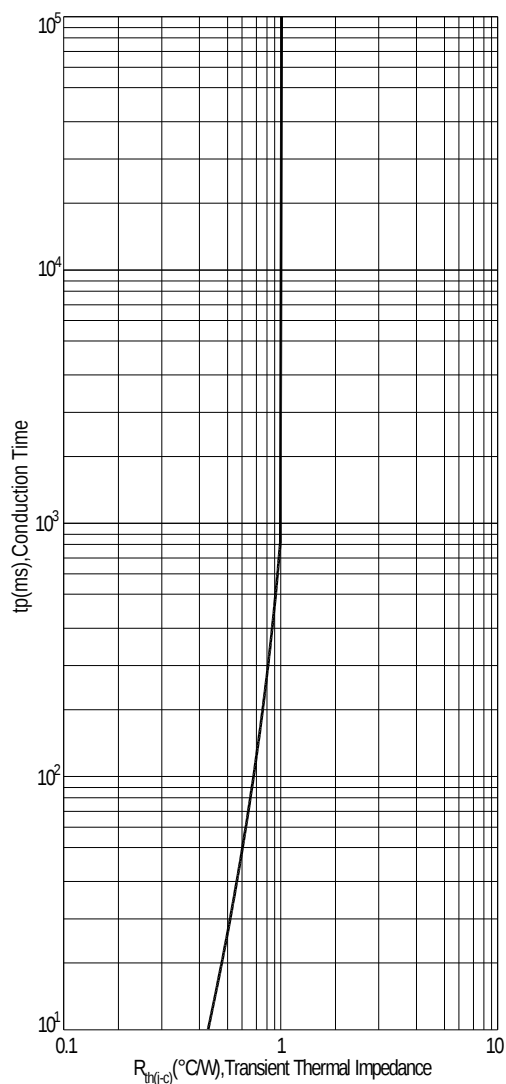


FIG.3: Typical RMS on-state current VS Allowable case Temperature

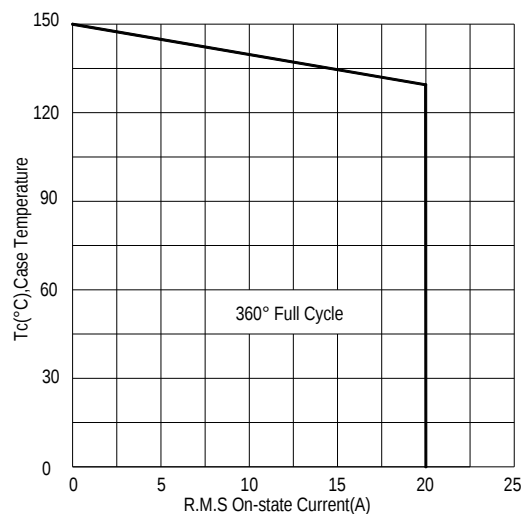


FIG.5: Rated surge on-state current (Non-Repetitive)

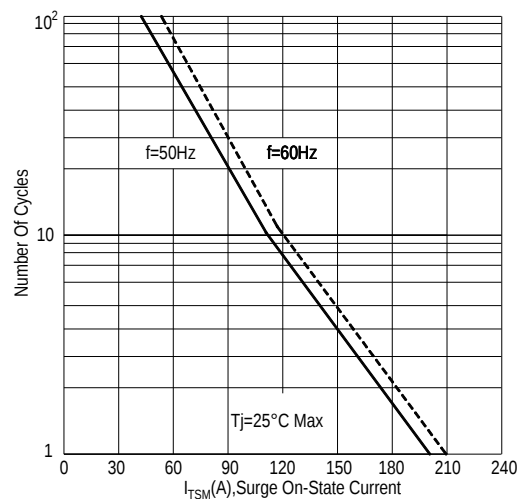


FIG.6: Gate trigger current VS Junction temperature

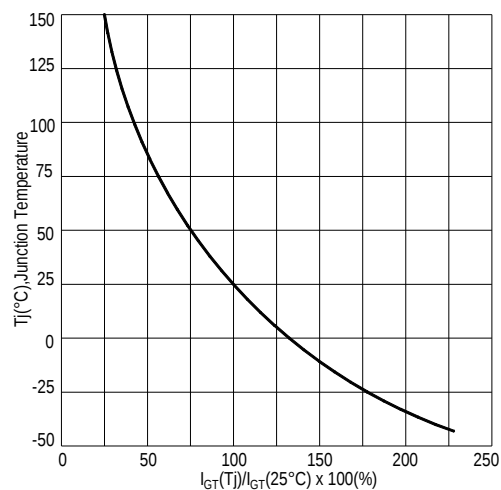


FIG.7: Holding current and Latching current VS Junction temperature

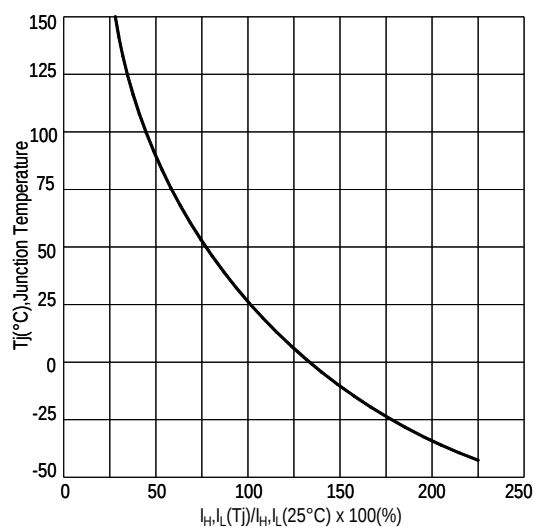


FIG.8: Gate trigger voltage VS Junction temperature

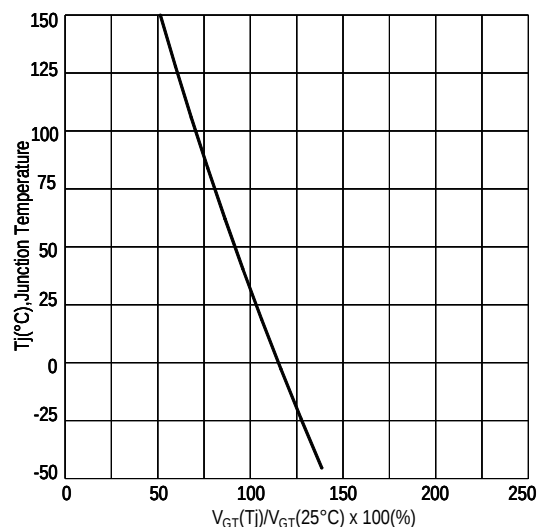
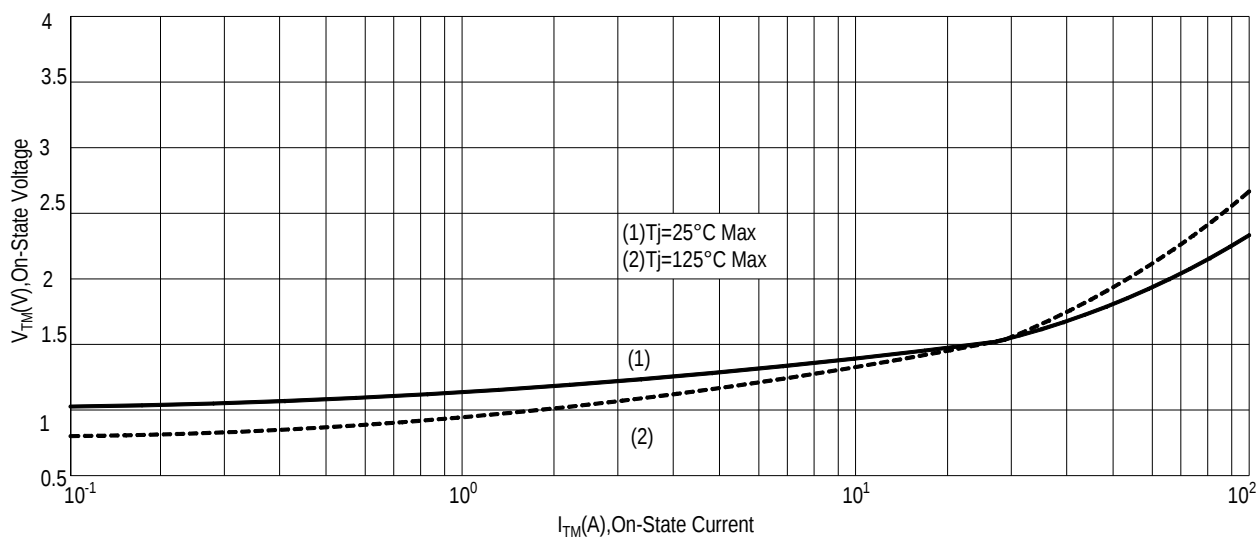
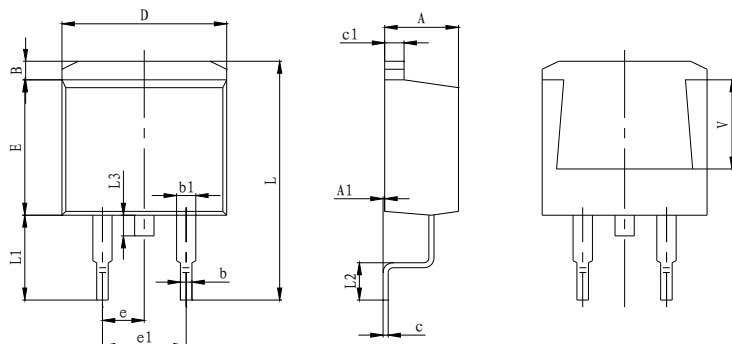


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-263-2 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.170	1.370	0.046	0.054
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
L	15.050	15.450	0.593	0.608
L1	5.080	5.480	0.200	0.216
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
V	5.600 REF		0.220 REF	

Making Diagram

ADV:Logo
 ADS20CH60GB:Part number
 X:Internal control code
 H:Halogen Free

A D S 20 C H 60 G S(B)

<u>ADVANCED</u> <u>Internal control code</u> <u>Current:20=20A</u> <u>Quadrant:C=3Q</u> <u>High temperature:H=150°C</u>	<u>Sensitivity and type:</u> S=10mA Blank=35mA B=50mA <u>Package explain:G=TO263-2</u> <u>Voltage:60=600V 80=800V</u>
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Ordering information

Part number	Package	Marking	Packing	Quantity
ADS20CH60G#	TO-263-2	ADS20CH60G#	Tube	50pcs
			Embossed tape	800pcs
ADS20CH80G#	TO-263-2	ADS20CH80G#	Tube	50pcs
			Embossed tape	800pcs

Note:# = Gate Trigger Current Sensitivity and type

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