

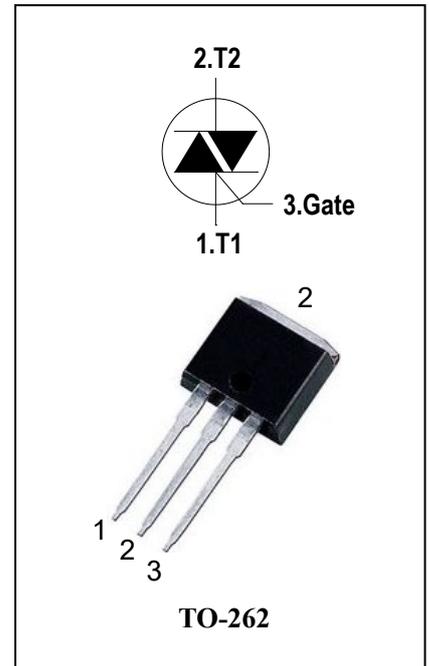
## 3 Quadrants Triacs

### General Description

High current density due to mesa technology .the ADS16C 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 (  $I_{T(RMS)}=16A$  )
- ◆ High Commutation dv/dt
- ◆ 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	$T_j = 25^\circ\text{C}$	ADS16C60I	600	V
			ADS16C80I	800	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_c = 100^\circ\text{C}$		16	A
$I_{TSM}$	Surge On-State Current	$t_p=20\text{ms}(50\text{Hz})/t_p=16.7\text{ms}(60\text{Hz})$		160/168	A
$I^2t$	$I^2t$ for fusing	$t_p=10\text{ms}$		144	$\text{A}^2\text{s}$
di/dt	Critical rate of rise of on-state current	$F = 120 \text{ Hz } T_j = 125^\circ\text{C}$ $I_G = 2 \times I_{GT}, t_r \leq 100 \text{ ns}$		50	$\text{A}/\mu\text{s}$
$I_{GM}$	Peak Gate Current	$t_p = 20 \mu\text{s } T_j = 125^\circ\text{C}$		4	A
$P_{G(AV)}$	Average Gate Power Dissipation( $T_j=125^\circ\text{C}$ )			1	W
$P_{GM}$	Peak Gate Power Dissipation( $t_p=20\mu\text{s}, T_j=125^\circ\text{C}$ )			5	W
$T_j$	Operating Junction Temperature			- 40 ~ 125	$^\circ\text{C}$
$T_{STG}$	Storage Temperature			- 40 ~ 150	$^\circ\text{C}$

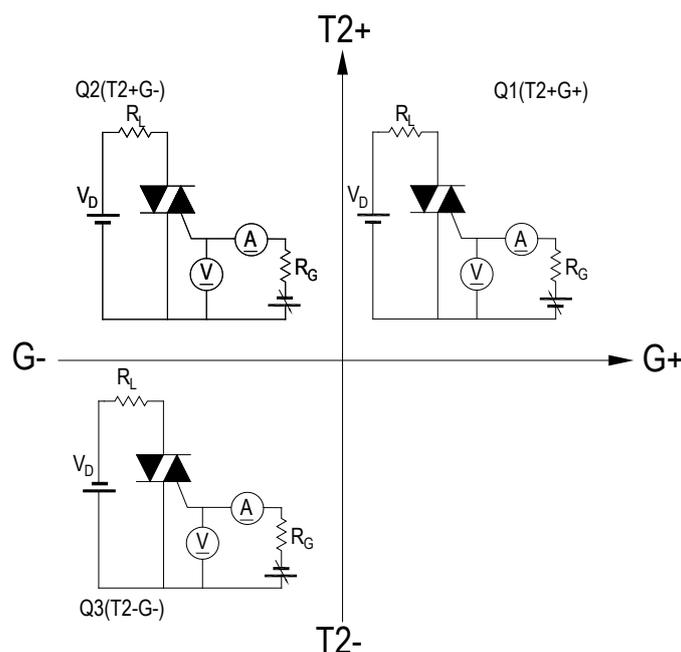


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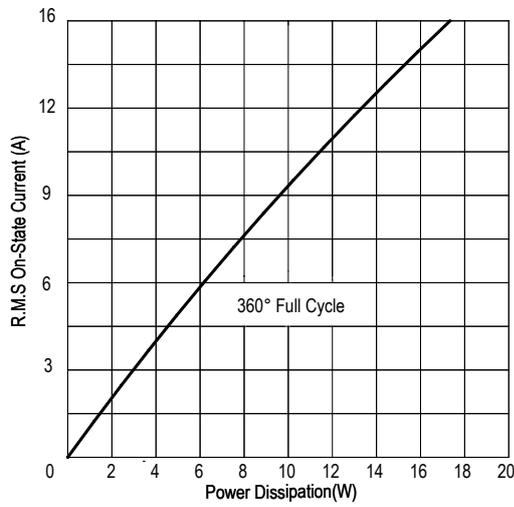
## Electrical Characteristics ( $T_j = 25^\circ\text{C}$ unless otherwise specified )

Symbol	Items		Conditions		ADS16C60I/80I				Unit
					T	S	Blank	B	
$I_{DRM}$ $I_{RRM}$	Peak Forward Reverse Blocking Current		$V_{DRM} = V_{RRM}, T_j = 25^\circ\text{C}$ $V_{DRM} = V_{RRM}, T_j = 125^\circ\text{C}$	Max.	5 2				$\mu\text{A}$ mA
$V_{TM}$	Peak On-State Voltage		$I_{TM} = 22.5\text{A}, t_p = 380 \mu\text{s}$	Max.	1.55				V
$V_{GD}$	Q1-Q2-Q3	Non-Trigger Gate Voltage	$V_D = V_{DRM}, R_L = 3.3 \text{ k}\Omega$ $T_j = 125^\circ\text{C}$	Min.	0.2				V
$V_{GT}$	Q1-Q2-Q3	Gate Trigger Voltage	$V_D = 12\text{V}, R_L = 33\Omega$	Max.	1.3				V
$I_{GT}$	Q1-Q2-Q3	Gate Trigger Current		Max.	5	10	35	50	mA
$I_H$	Q1-Q2-Q3	Holding Current	$I_T = 0.1\text{A}$	Max.	10	15	40	60	mA
$I_L$	Q1-Q3	Latching Current	$I_G = 1.2 I_{GT}$	Max.	15	20	50	70	mA
	Q2				25	35	60	80	
$dV/dt$	Critical Rate of Rise of Off-State Voltage		$V_D = 2/3V_{DRM}$ gate open $T_j = 125^\circ\text{C}$	Min.	20	40	400	1000	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	Critical Rate of Change of Commutating Voltage		$(dI/dt)_c = -7\text{A/ms}$ $T_j = 125^\circ\text{C}$	Min.	0.5	1	10	25	$\text{V}/\mu\text{s}$
$R_{th(j-c)}$	Junction to case (AC)			Max.	1.2				$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient (Copper surface under tab: $S=1\text{cm}^2$ )			Max.	60				$^\circ\text{C}/\text{W}$

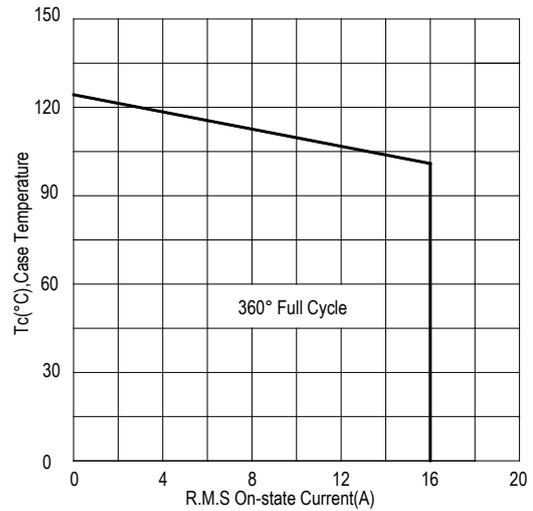
FIG.1: Triac quadrant are defined and the gate trigger test circuit



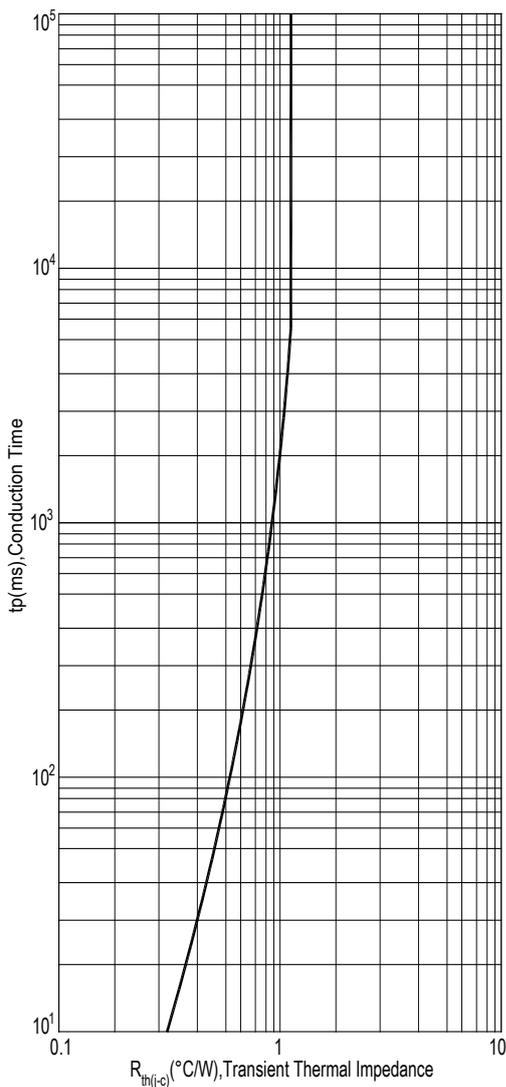
**FIG.2: Maximum on-state power dissipation**



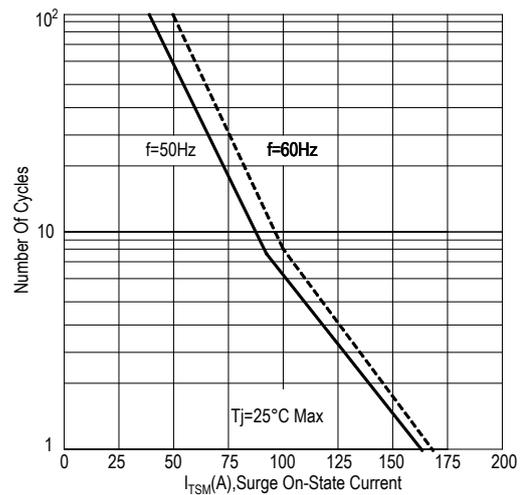
**FIG.3: Typical RMS on-state current VS Allowable case Temperature**



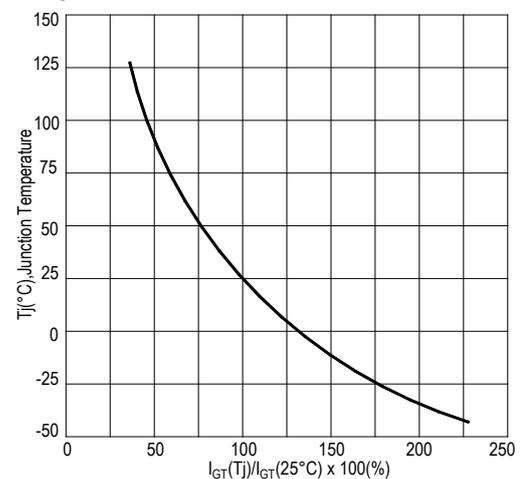
**FIG.4: Maximum transient thermal impedance**



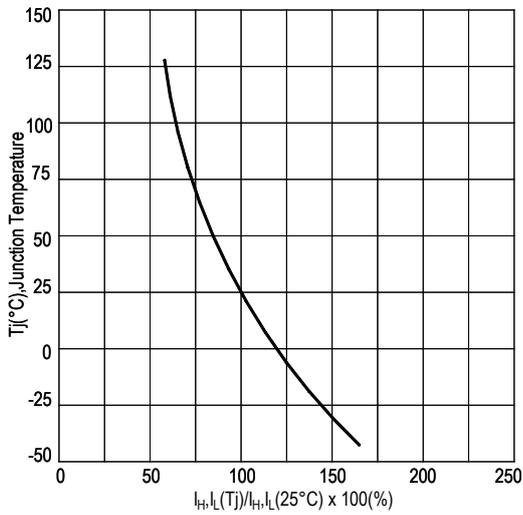
**FIG.5: Rated surge on-state current ( Non-Repetitive)**



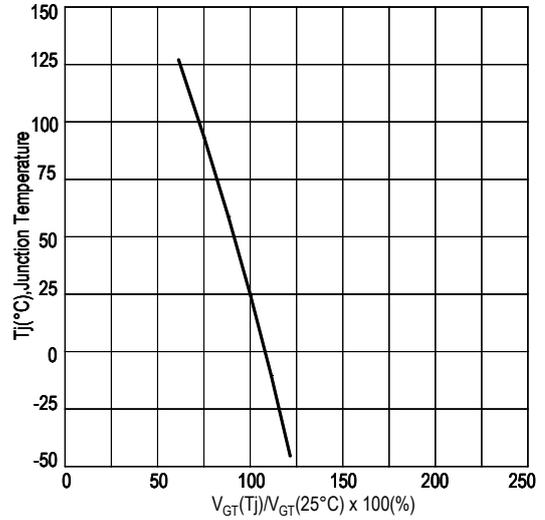
**FIG.6: Gate trigger current VS Junction temperature**



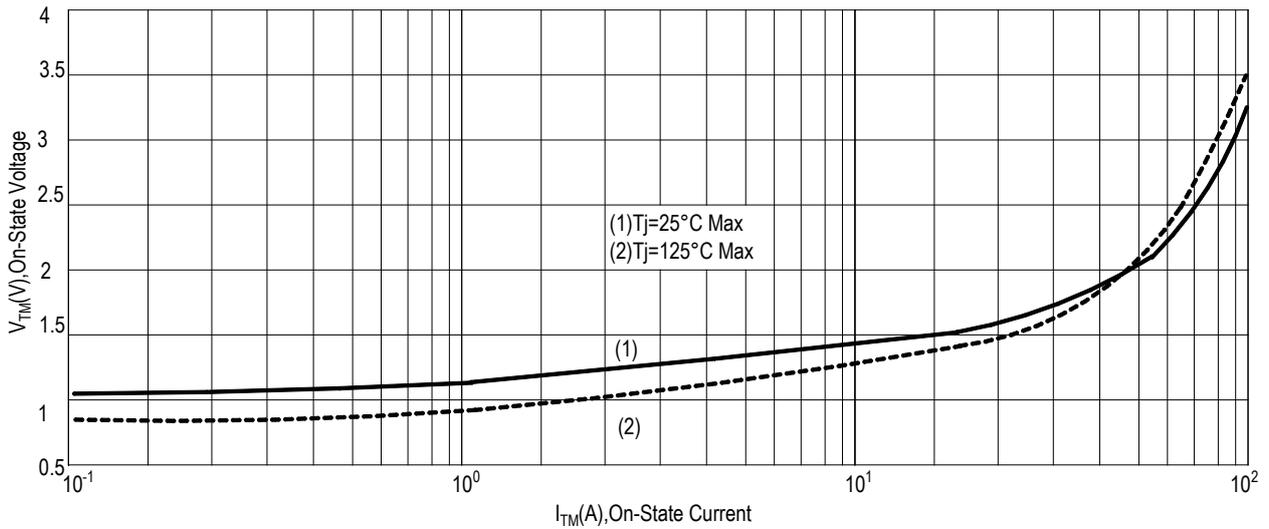
**FIG.7: Holding current and Latching current VS Junction temperature**



**FIG.8: Gate trigger voltage VS Junction temperature**

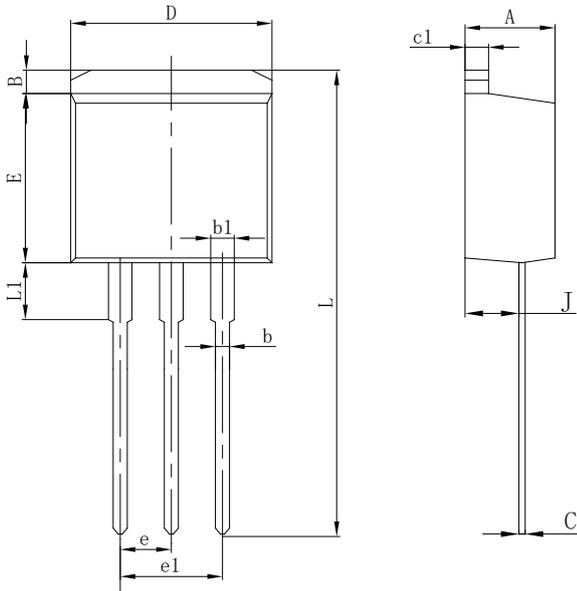


**FIG.9: On-state characteristics(Max)**



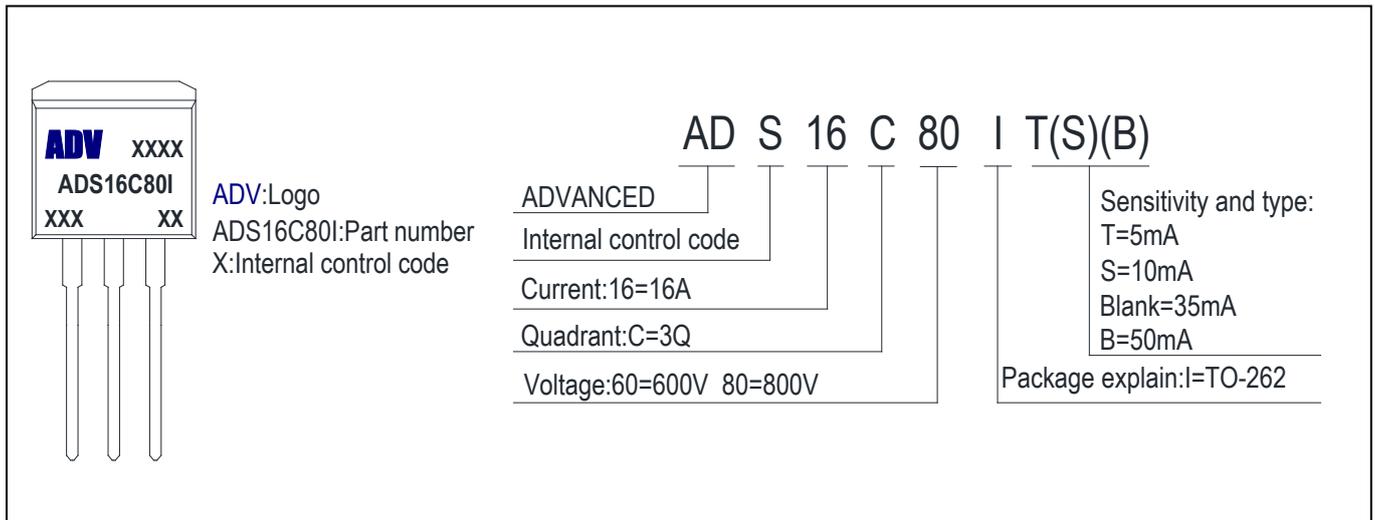
## PACKAGE MECHANICAL DATA

### TO-262 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.420	4.670	0.174	0.184
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	9.900	10.330	0.390	0.407
E	9.070	9.600	0.357	0.378
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
L	23.25	23.45	0.915	0.923
L1	3.000	3.600	0.118	0.141
J	2.500	2.700	0.098	0.106

## Making Diagram



## Ordering information

Part number	Package	Marking	Packing	Quantity
ADS16C60I#	TO-262	ADS16C60I#	Tube	50pcs
ADS16C80I#	TO-262	ADS16C80I#	Tube	50pcs

Note: # = Gate Trigger Current Sensitivity and type

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