

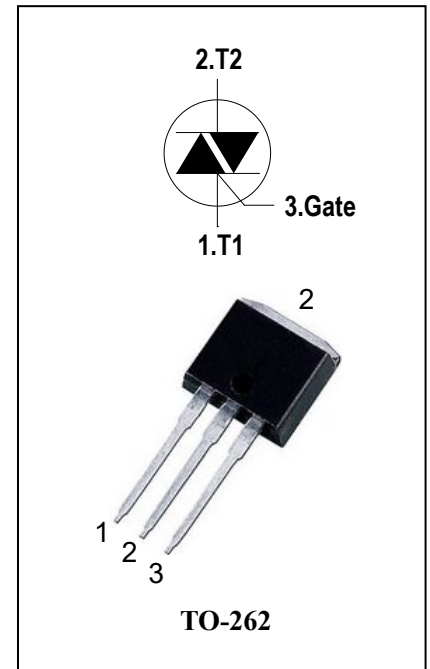
3 Quadrants Triacs

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



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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°C	Max.	5				uA
			V _{DRM} = V _{RRM} , T _j = 125°C		2				mA
V _{TM}	Peak On-State Voltage		I _{TM} = 22.5A, t _p = 380 μs	Max.	1.55				V
V _{GD}	Q1-Q2-Q3	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	Gate Trigger Voltage	V _D = 12V , R _L = 33Ω	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 = 0.1A	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°C	Min.	20	40	400	1000	V/μs
(dV/dt) _c	Critical Rate of Change of Commutating Voltage		(dI/dt) _c =-7A/ms T _j = 125°C	Min.	0.5	1	10	25	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	1.2				°C/W
R _{th(j-a)}	Junction to ambient(Copper surface under tab:S=1cm²)			Max.	60				°C/W

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

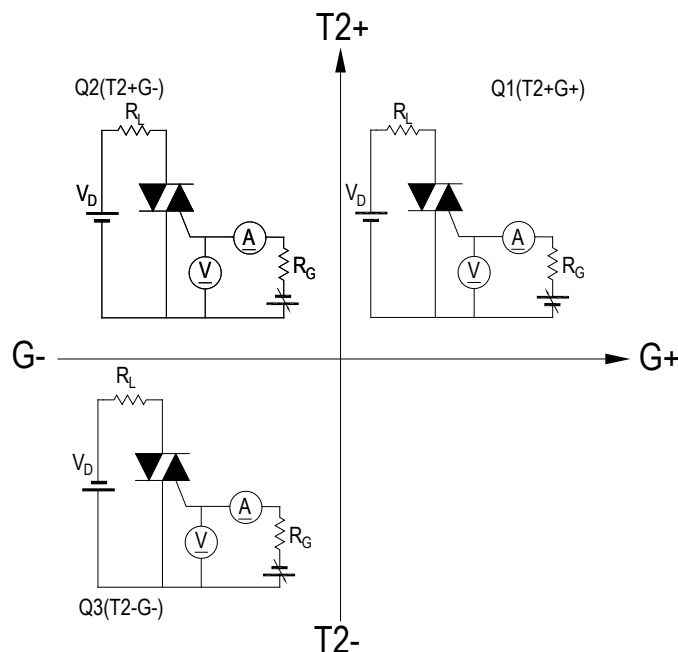


FIG.2: Maximum on-state power dissipation

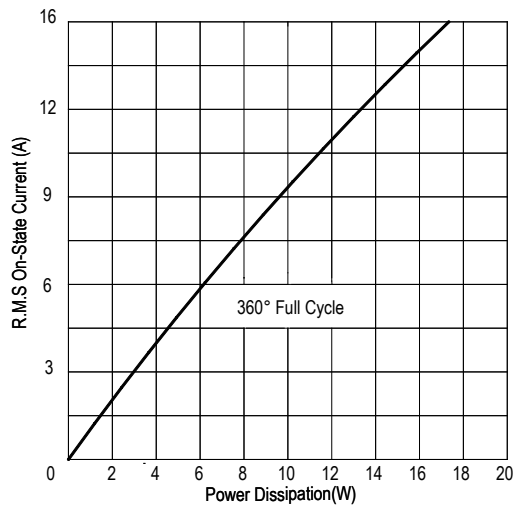


FIG.4: Maximum transient thermal impedance

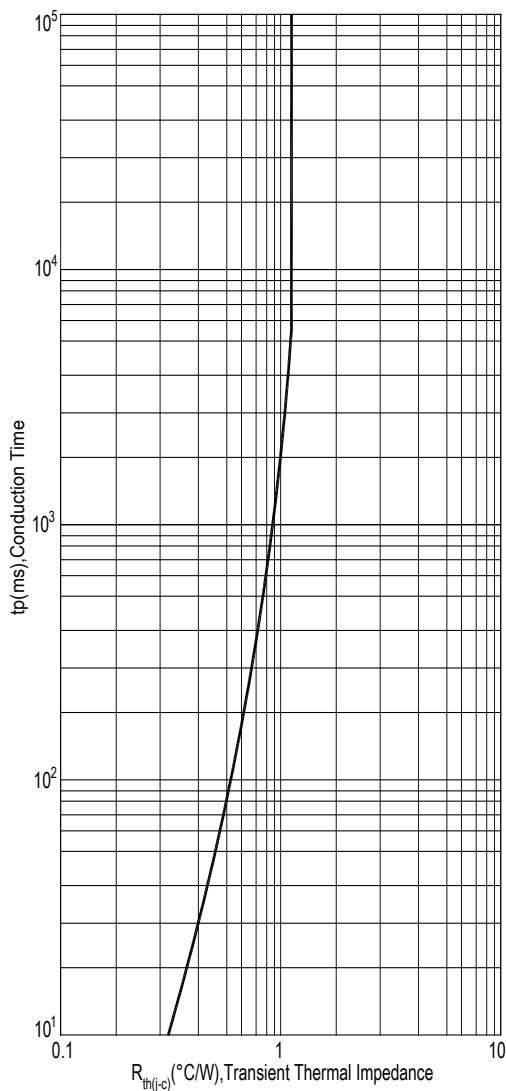


FIG.3: Typical RMS on-state current VS Allowable case Temperature

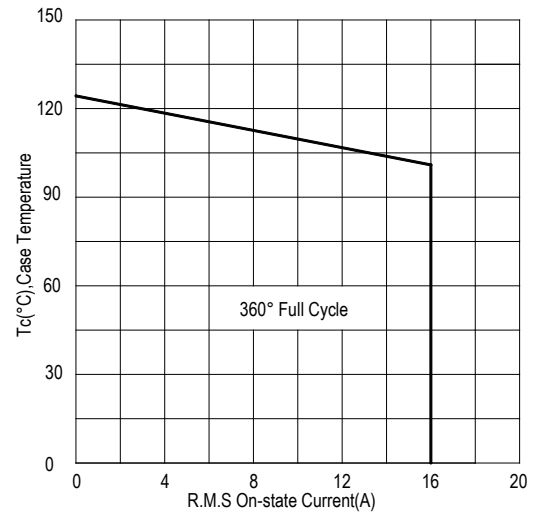


FIG.5: Rated surge on-state current (Non-Repetitive)

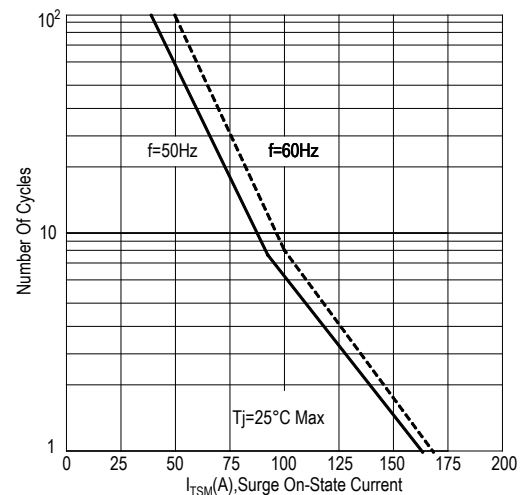


FIG.6: Gate trigger current VS Junction temperature

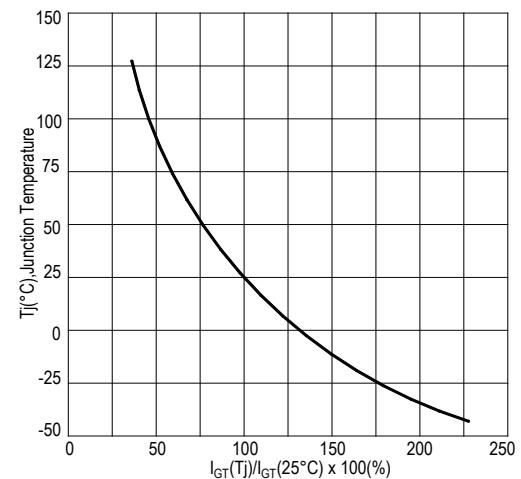


FIG.7: Holding current and Latching current VS Junction temperature

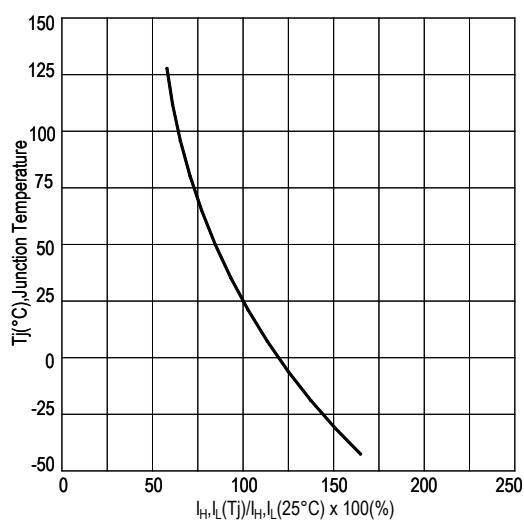


FIG.8: Gate trigger voltage VS Junction temperature

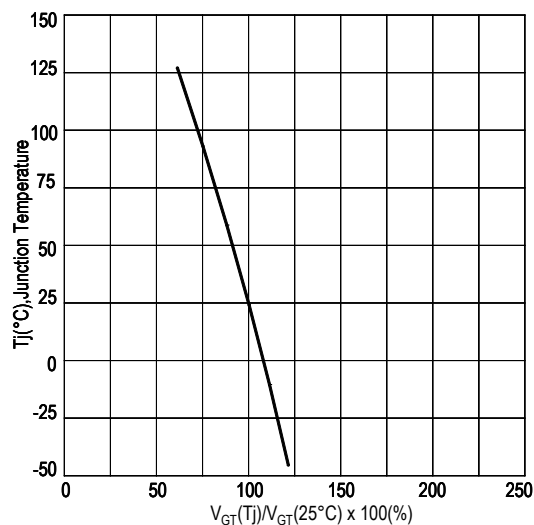
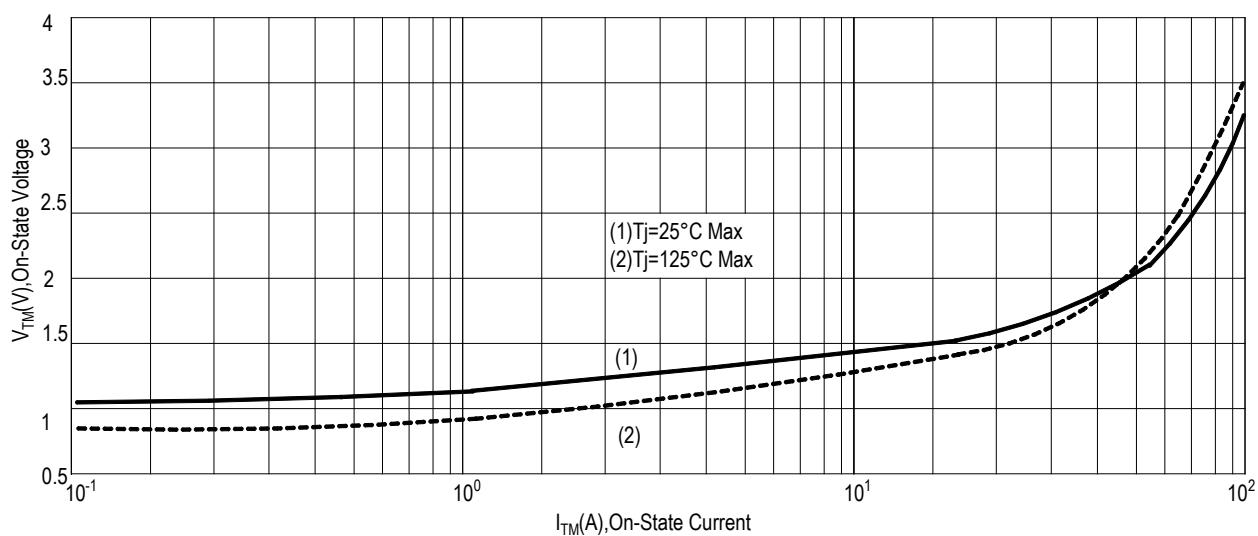
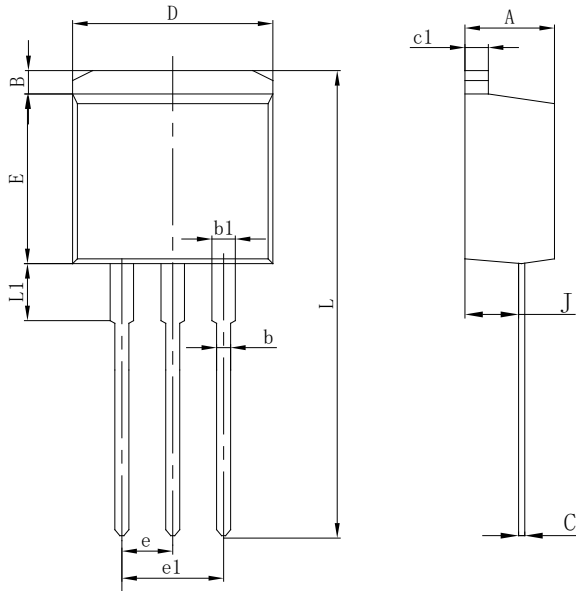


FIG.9: On-state characteristics(Max)



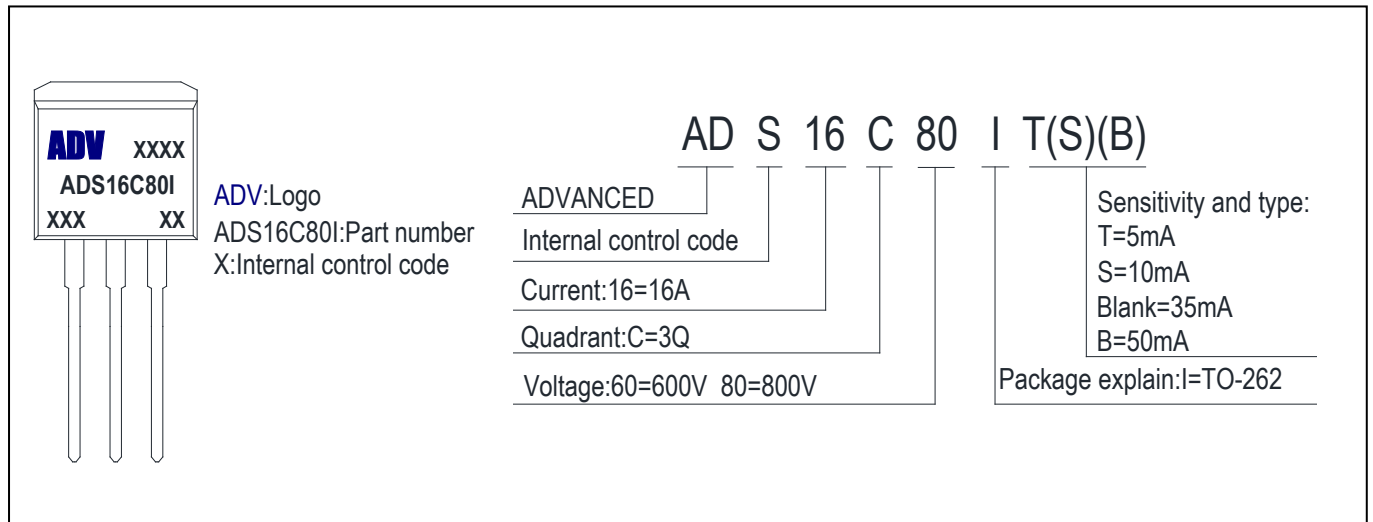
PACKAGE MECHANICAL DATA

TO-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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