

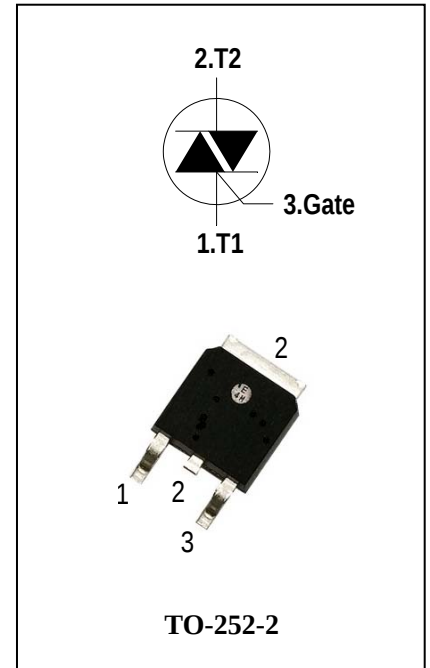
3 Quadrants Triacs

General Description

High current density due to mesa technology . the ADT4C 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.

Features

- ◆ Repetitive Peak Off-State Voltage: 600Vand800V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 4A$)
- ◆ 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	$T_j = 25^{\circ}C$	ADT4C60E	600	V
			ADT4C80E	800	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 110^{\circ}C$		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	$t_p=10ms$		5.1	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120\text{ Hz}$ $T_j = 125^{\circ}C$ $I_G = 2 \times I_{GT}$, $tr \leq 100\text{ ns}$		50	$A/\mu s$
I_{GM}	Peak Gate Current	$t_p = 20\text{ }\mu s$ $T_j = 125^{\circ}C$		2	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j=125^{\circ}C$)			0.5	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	$^{\circ}C$



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

Symbol	Items		Conditions		ADT4C60E/80E				Unit
					T	S	Blank	B	
I_{DRM}	Peak Forward Reverse Blocking Current		$V_{\text{DRM}} = V_{\text{RRM}}, T_{\text{j}} = 25^{\circ}\text{C}$	Max.	5				μA
I_{RRM}			$V_{\text{DRM}} = V_{\text{RRM}}, T_{\text{j}} = 125^{\circ}\text{C}$		1				mA
V_{TM}	Peak On-State Voltage		$I_{\text{TM}} = 5.5\text{A}, t_{\text{p}} = 380\text{ }\mu\text{s}$	Max.	1.6				V
V_{GD}	Q1-Q2-Q3	Non-Trigger Gate Voltage	$V_{\text{D}} = V_{\text{DRM}} \quad R_{\text{L}} = 3.3\text{ k}\Omega$ $T_{\text{j}} = 125^{\circ}\text{C}$	Min.	0.2				V
V_{GT}	Q1-Q2-Q3	Gate Trigger Voltage	$V_{\text{D}} = 12\text{V} \quad , \quad R_{\text{L}} = 33\Omega$	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	$I_{\text{T}} = 0.1\text{A}$	Max.	10	15	40	60	mA
I_{L}	Q1-Q3	Latching Current	$I_{\text{G}} = 1.2 I_{\text{GT}}$	Max.	10	25	50	70	mA
	Q2				15	30	70	80	
dV/dt	Critical Rate of Rise of Off-State Voltage		$V_{\text{D}} = 2/3V_{\text{DRM}} \quad \text{gate open}$ $T_{\text{j}} = 125^{\circ}\text{C}$	Min.	20	40	400	1000	$\text{V}/\mu\text{s}$
(dV/dt)c	Rate of Change of Commutating Current,		$(\text{dI}/\text{d}t)\text{c}=-1.7\text{A}/\text{ms}$ $T_{\text{j}} = 125^{\circ}\text{C}$	Min.	0.5	1	10	25	$\text{V}/\mu\text{s}$
$R_{\text{th(j-c)}}$	Junction to case (AC)			Max.	3.0				$^{\circ}\text{C}/\text{W}$
$R_{\text{th(j-a)}}$	Junction to ambient(Copper surface under tab:S=0.5cm ²)			Max.	70				$^{\circ}\text{C}/\text{W}$

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

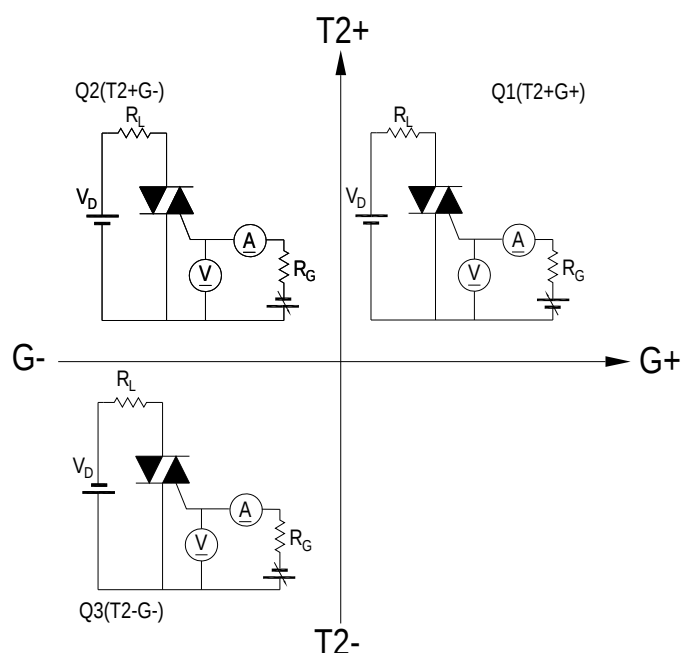


FIG.2: Maximum on-state power dissipation

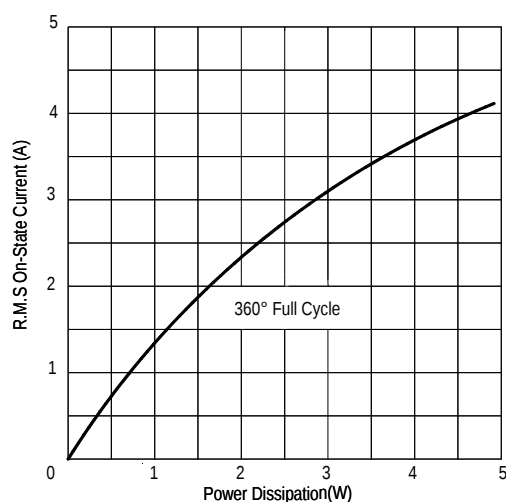


FIG.4: Maximum transient thermal impedance

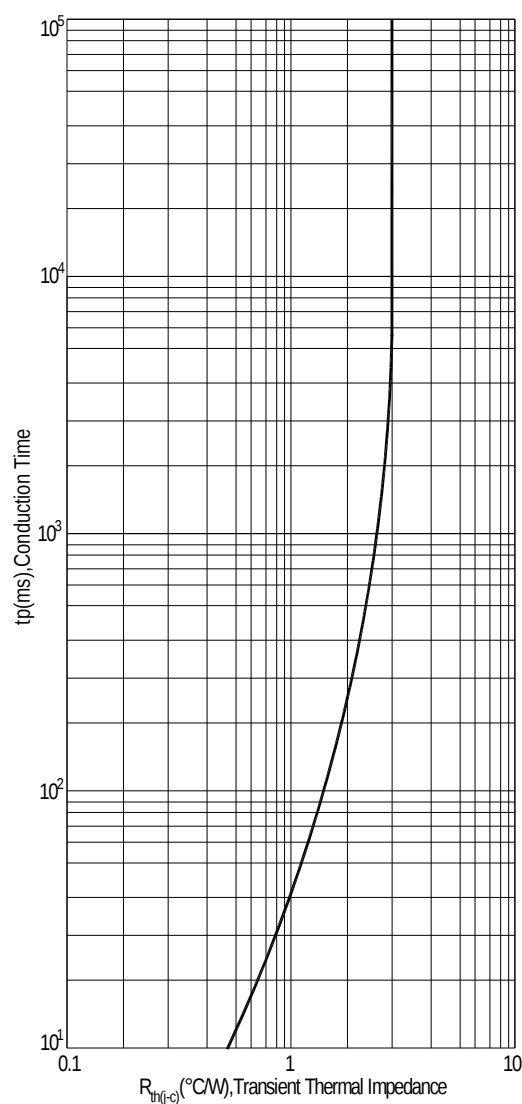


FIG.3: Typical RMS on-state current VS Allowable case Temperature

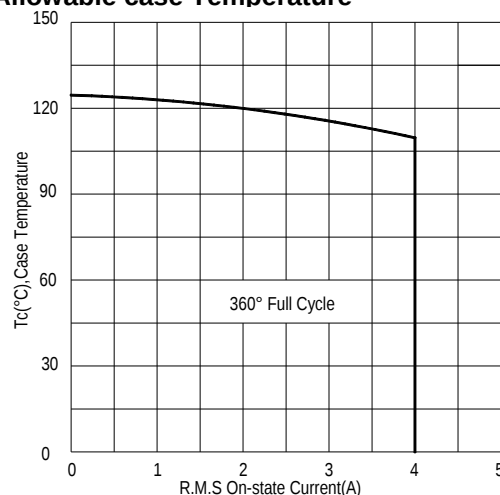


FIG.5: Rated surge on-state current (Non-Repetitive)

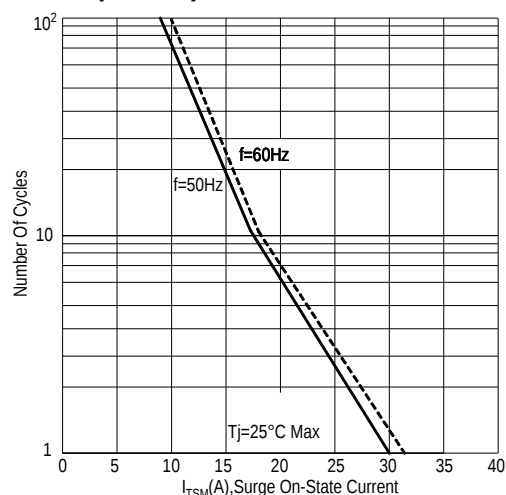


FIG.6: Gate trigger current VS Junction temperature

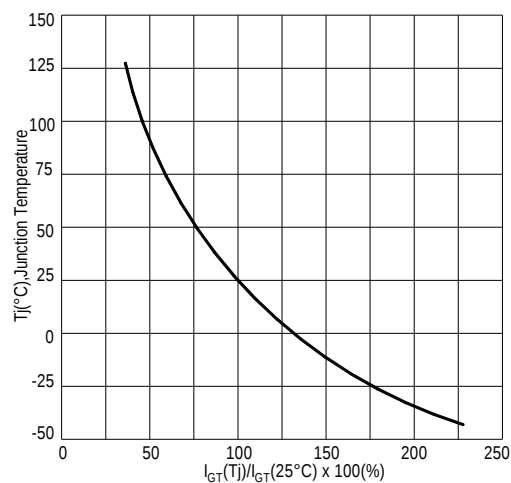


FIG.7:Holding current and Latching current VS Junction temperature

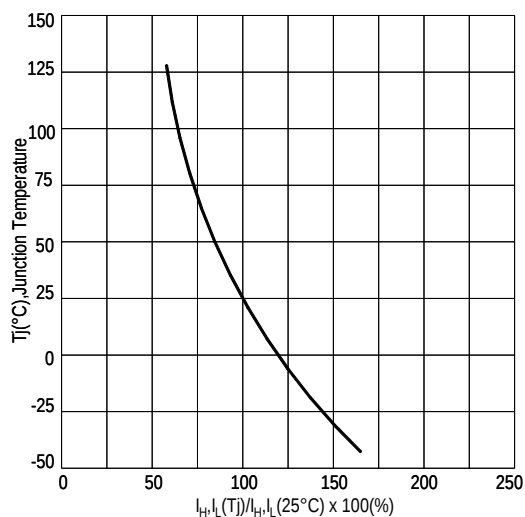


FIG.8: Gate trigger voltage VS Junction temperature

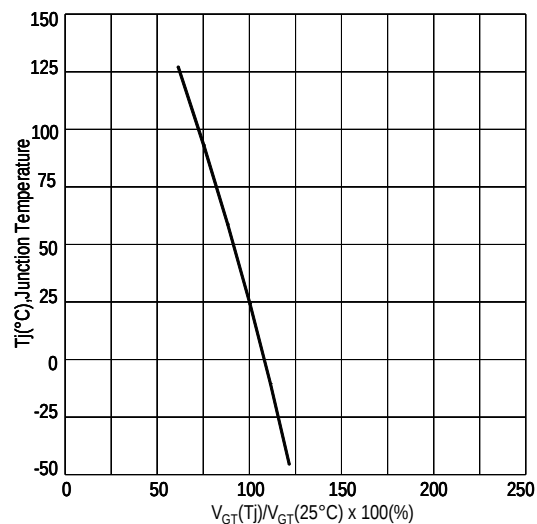
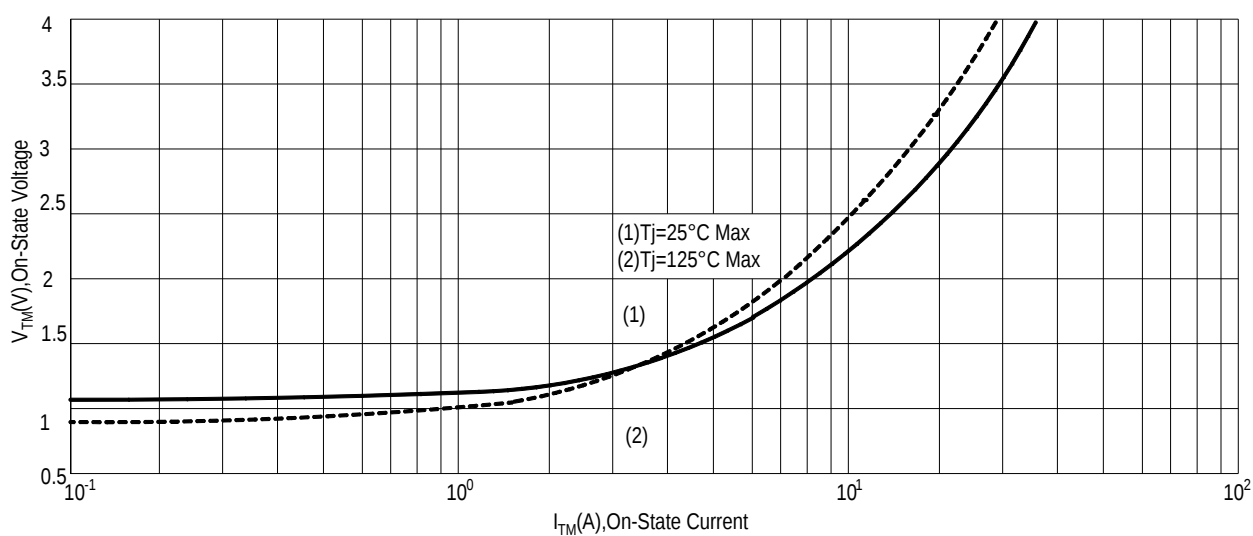
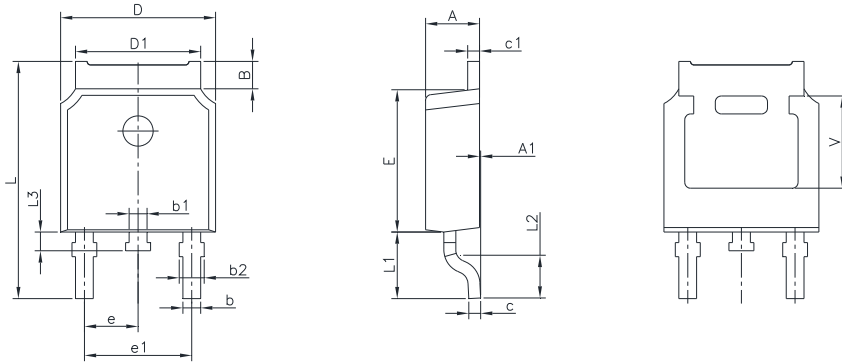


FIG.9: On-state characteristics(Max)



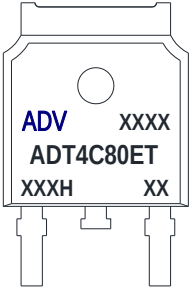
PACKAGE MECHANICAL DATA

TO-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	1.070	1.220	0.042	0.048
b	0.720	0.850	0.028	0.033
b1	0.720	0.850	0.028	0.033
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	5.200	5.400	0.205	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	3.950 REF.		0.155 REF.	

Making Diagram



ADV:Logo
ADT4C80ET:Part number
X:Internal control code
H:Halogen Free

AD T 4 C 80 E T(S)(B)

ADVANCED Internal control code Current:4=4A Quadrant:C=3Q Voltage:60=600V 80=800V	T=5mA S=10mA Blank=35mA B=50mA	Sensitivity and type: T=5mA S=10mA Blank=35mA B=50mA Package explain:D=TO-252-2
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Ordering information

Part number	Package	Marking	Packing	Quantity
ADT4C60E#	TO-252-2	ADT4C60E#	Tube	80pcs
			Embossed tape	2500pcs
ADT4C80E#	TO-252-2	ADT4C80E#	Tube	80pcs
			Embossed tape	2500pcs

Note:# = Gate Trigger Current Sensitivity and type

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