

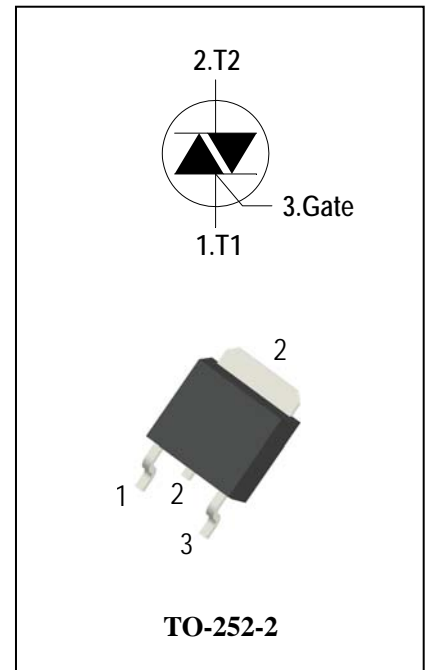
3 Quadrants Triacs

General Description

High current density due to mesa technology . the ADT3C 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 ($I_{T(RMS)} = 3A$)
- ◆ 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	$T_j = 25^\circ\text{C}$	ADT3C60E 600 ADT3C80E 800	V V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 110^\circ\text{C}$	3	A
I_{TSM}	Surge On-State Current	$t_p=20\text{ms}(50\text{Hz})/t_p=16.7\text{ms}(60\text{Hz})$	25/27	A
I^2t	I^2t for fusing	$t_p=10\text{ms}$	3.1	A^2s
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	$t_p = 20\ \mu\text{s } T_j = 125^\circ\text{C}$	2	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j=125^\circ\text{C}$)		0.5	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	$^\circ\text{C}$



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

Symbol	Items		Conditions		ADT3C60E/80E				Unit
					T	S	Blank	B	
I_{DRM} I_{RRM}	Peak Forward Reverse Blocking Current		$V_{DRM} = V_{RRM}, T_j = 25^\circ\text{C}$	Max.	5				μA
			$V_{DRM} = V_{RRM}, T_j = 125^\circ\text{C}$		1				mA
V_{TM}	Peak On-State Voltage		$I_{TM} = 5\text{A}, t_p = 380 \mu\text{s}$	Max.	1.55				V
V_{GD}	Q1-Q2-Q3	Non-Trigger Gate Voltage	$V_D = V_{DRM} \quad R_L = 3.3 \text{ k}\Omega$ $T_j = 125^\circ\text{C}$	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.	10	25	50	70	mA
	Q2				15	30	70	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	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	Rate of Change of Commutating Current,		$(dI/dt)_c = -1.7\text{A}/\text{ms}$ $T_j = 125^\circ\text{C}$	Min.	0.5	1	10	25	$\text{V}/\mu\text{s}$
$R_{th(j-c)}$	Junction to case (AC)			Max.	3.0				$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient (Copper surface under tab: $S=0.5\text{cm}^2$)			Max.	70				$^\circ\text{C}/\text{W}$

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

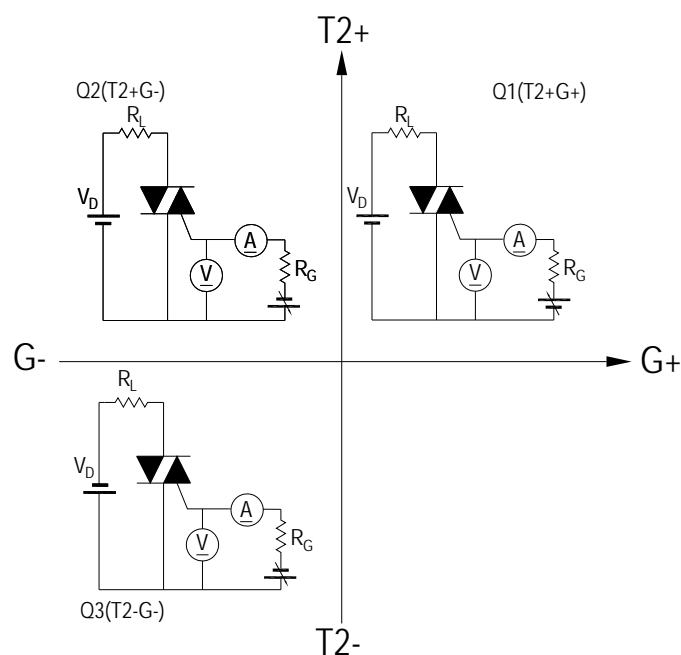


FIG.2: Maximum on-state power dissipation

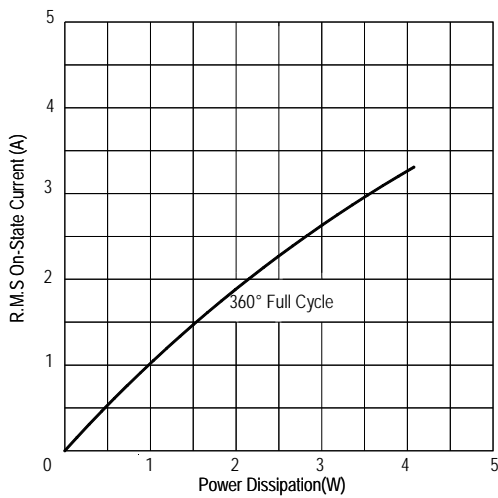


FIG.4: Maximum transient thermal impedance

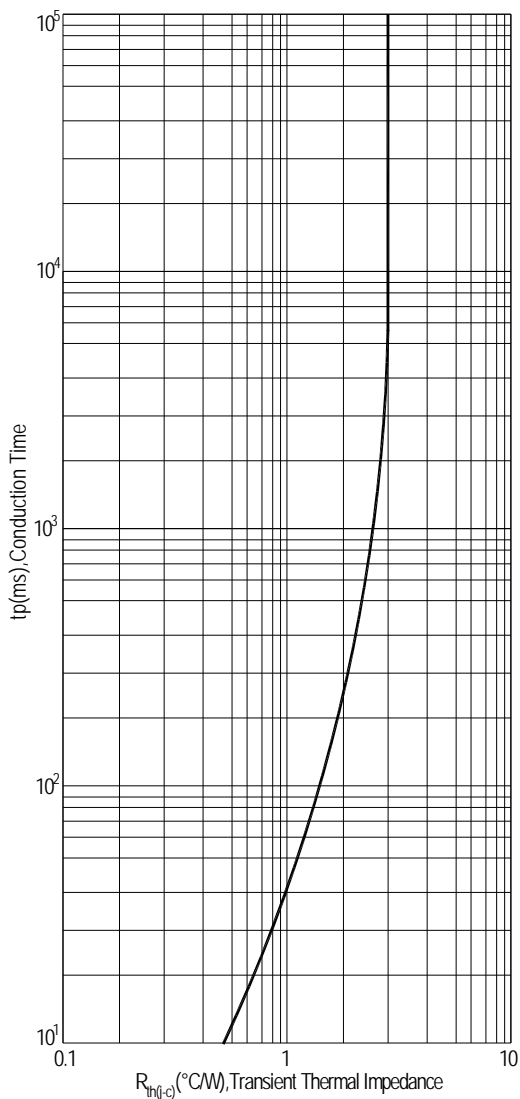


FIG.3: Typical RMS on-state current VS Allowable case Temperature

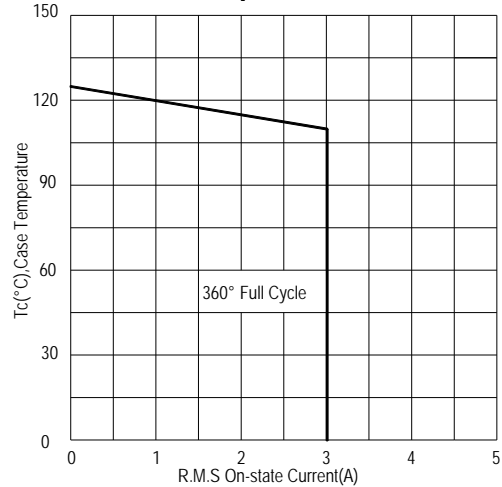


FIG.5: Rated surge on-state current (Non-Repetitive)

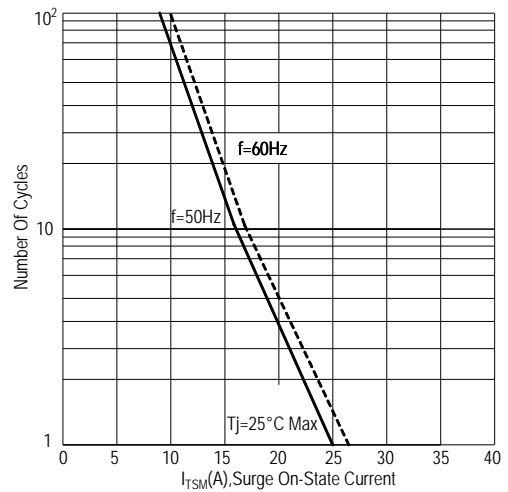


FIG.6: Gate trigger current VS Junction temperature

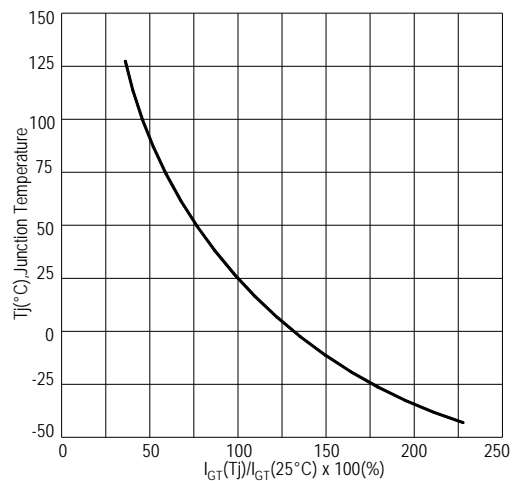


FIG.7: Holding current and Latching current VS Junction temperature

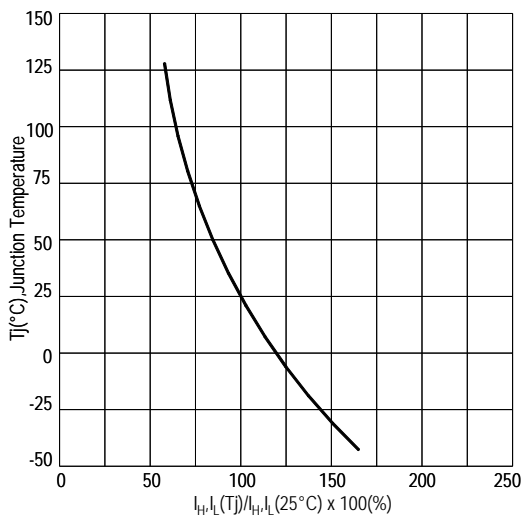


FIG.8: Gate trigger voltage VS Junction temperature

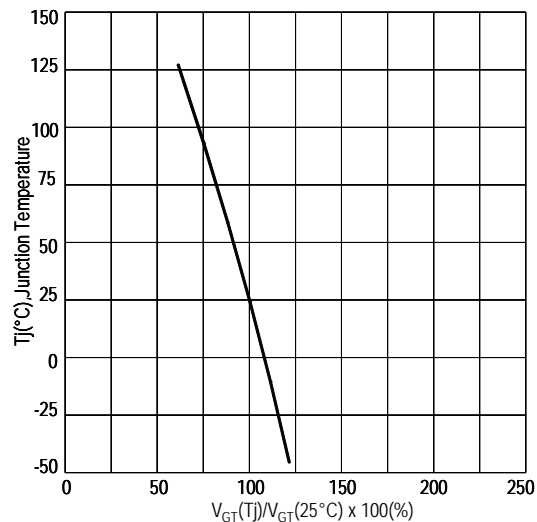
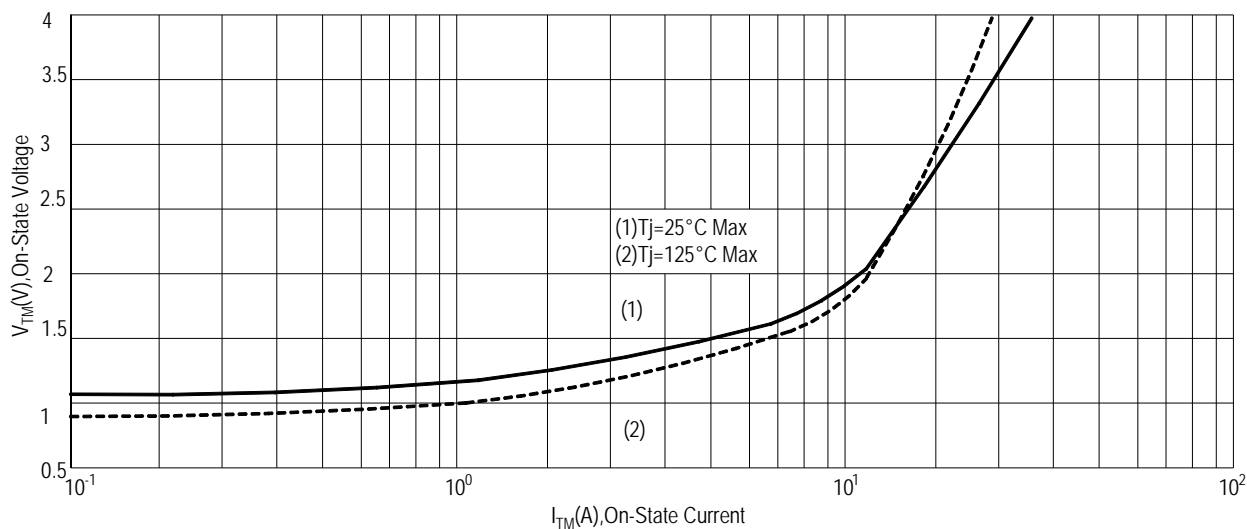
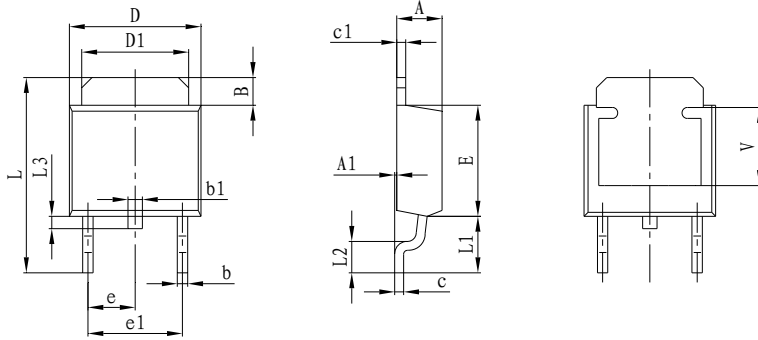


FIG.9: On-state characteristics(Max)



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	1.350	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
ADT3C80ET: Part number
X: Internal control code
H: Halogen Free

AD T 3 C 80 E T(S)(B)

ADVANCED Internal control code Current:3=3A Quadrant:C=3Q Voltage:60=600V 80=800V			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
ADT3C60E#	TO-252-2	ADT3C60E#	Tube	80pcs
			Embossed tape	2500pcs
ADT3C80E#	TO-252-2	ADT3C80E#	Tube	80pcs
			Embossed tape	2500pcs

Note:# = Gate Trigger Current Sensitivity and type

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