

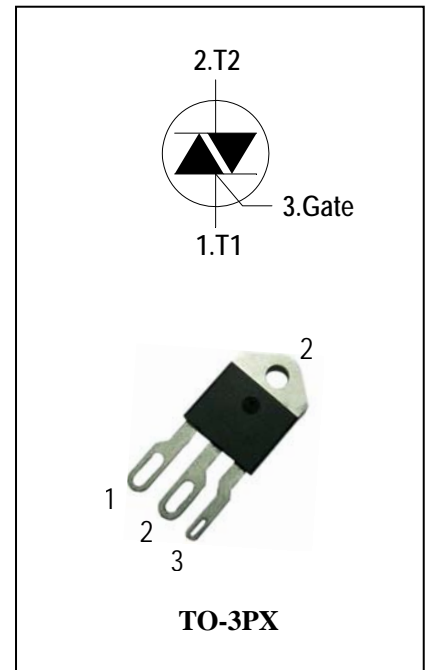
3 Quadrants Triacs

General Description

High current density due to mesa technology .the ADT40C 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 ($I_{T(RMS)} = 40A$)
- ◆ 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	$T_j = 25^\circ C$	ADT40C60X 600 ADT40C80X 800	V V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 95^\circ C$	40	A
I_{TSM}	Surge On-State Current	$t_p = 20ms(50Hz) / t_p = 16.7ms(60Hz)$	400/420	A
I^2t	I^2t for fusing	$t_p = 10ms$	880	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120 Hz$ $T_j = 125^\circ C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100 ns$	55	$A/\mu s$
I_{GM}	Peak Gate Current	$t_p = 20 \mu s$ $T_j = 125^\circ C$	8	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j = 125^\circ C$)		1	W
P_{GM}	Peak Gate Power Dissipation($t_p = 20\mu s, T_j = 125^\circ C$)		10	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		ADT40C60XB/80XB	Unit
I_{DRM}	Peak Forward Reverse Blocking		$V_{DRM} = V_{RRM}, T_j = 25^\circ\text{C}$	Max.	5	μA
I_{RRM}	Current		$V_{DRM} = V_{RRM}, T_j = 125^\circ\text{C}$		5	mA
V_{TM}	Peak On-State Voltage		$I_{TM} = 60\text{A}, t_p = 380 \mu\text{s}$	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.	50	mA
I_H	Q1-Q2-Q3	Holding Current	$I_T = 0.5\text{A}$	Max.	75	mA
I_L	Q1-Q3	Latching Current	$I_G = 1.2 I_{GT}$	Max.	90	mA
	Q2				110	
dV/dt	Critical Rate of Rise of Off-State Voltage		$V_D = 2/3 V_{DRM}$ gate open $T_j = 125^\circ\text{C}$	Min.	1500	V/ μs
(dV/dt)c	Critical Rate of Change of Commutating Voltage		$(dI/dt)_c = -20\text{A/ms}$ $T_j = 125^\circ\text{C}$	Min.	20	V/ μs
$R_{th(j-c)}$	Junction to case (AC)			Max.	0.6	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient			Max.	50	$^\circ\text{C/W}$

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

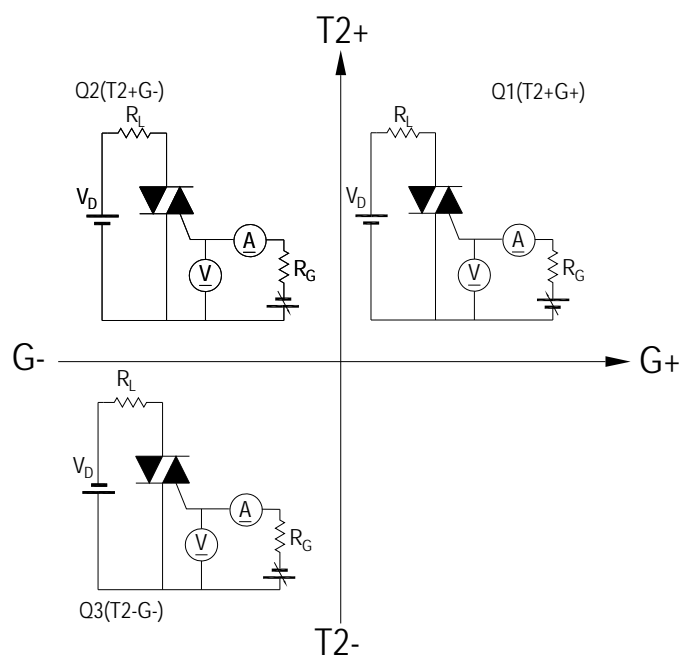


FIG.2: Maximum on-state power dissipation

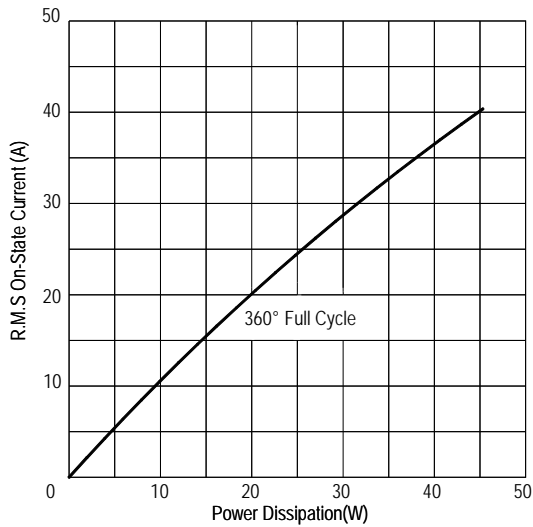


FIG.3: Typical RMS on-state current VS Allowable case Temperature

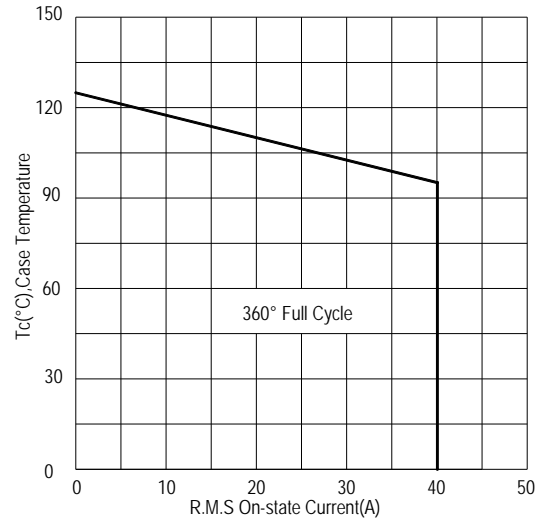


FIG.4: Maximum transient thermal impedance

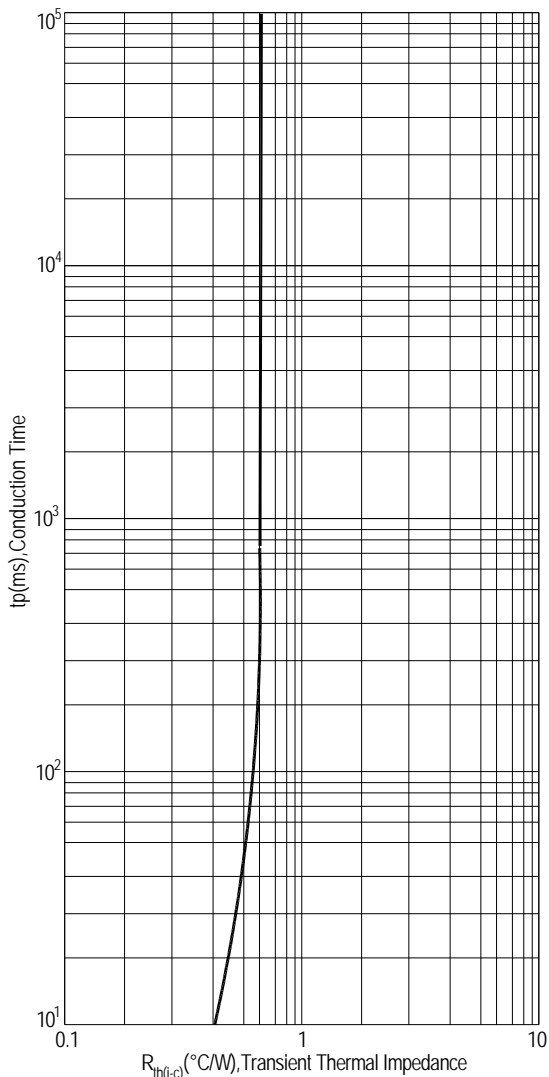


FIG.5: Rated surge on-state current (Non-Repetitive)

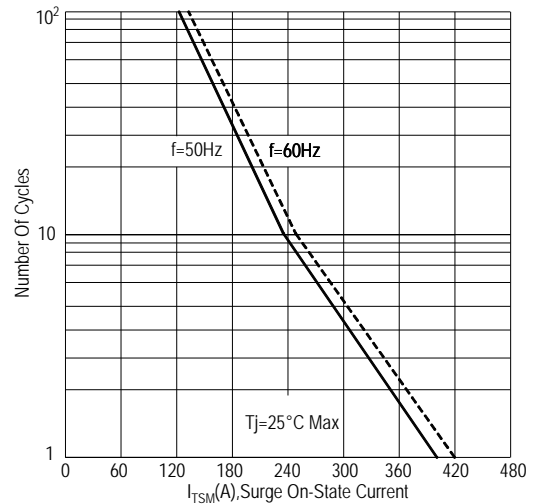


FIG.6: Gate trigger current VS Junction temperature

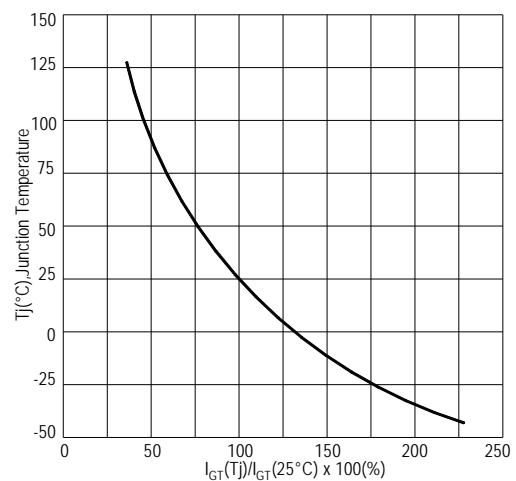


FIG.7: Holding current and Latching current VS Junction temperature

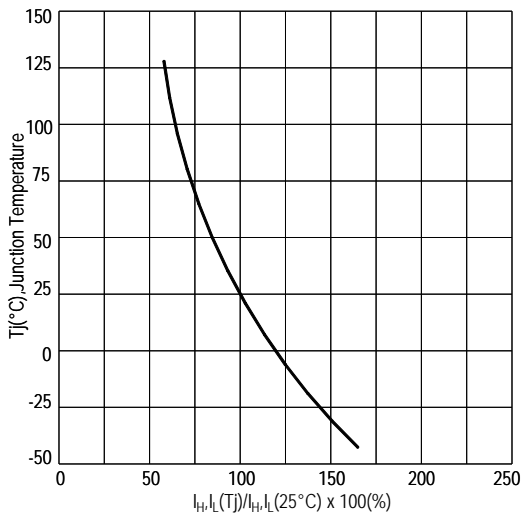


FIG.8: Gate trigger voltage VS Junction temperature

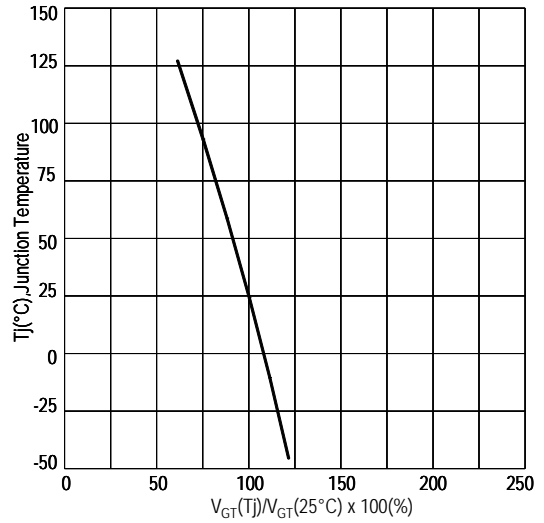
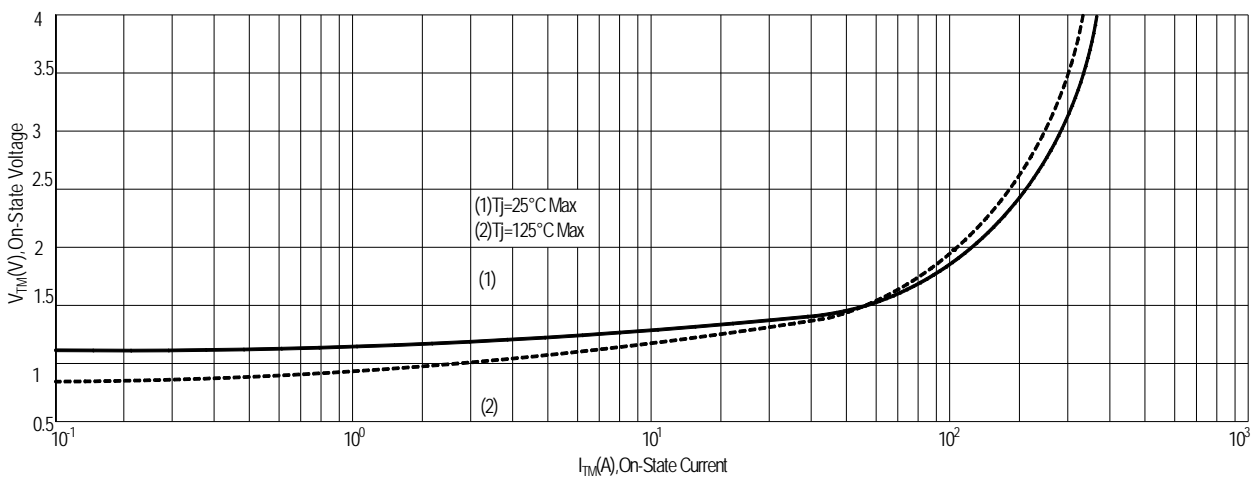
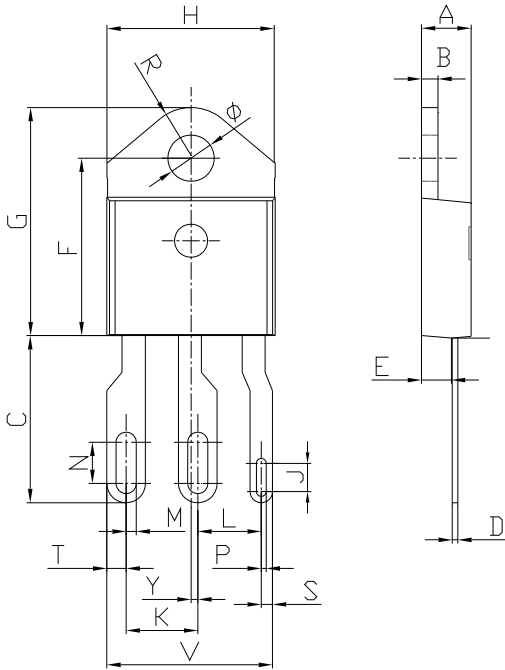


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-3PX Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.40	4.60	0.173	0.181
B	1.45	1.55	0.057	0.061
C	14.35	15.60	0.565	0.614
D	0.50	0.70	0.020	0.028
E	2.70	2.90	0.106	0.114
F	15.80	16.50	0.622	0.650
G	20.40	21.10	0.815	0.831
H	15.10	15.50	0.594	0.610
J	2.87	3.07	0.113	0.121
K	6.50	6.71	0.256	0.264
Ø	4.08	4.20	0.161	0.165
L	5.58	5.79	0.220	0.228
P	0.43	0.53	0.017	0.020
N	4.29	4.49	0.169	0.177
M	1.015	1.12	0.040	0.044
T	1.98	2.11	0.078	0.083
Y	0.71	0.81	0.028	0.032
V	15.31	15.70	0.603	0.618
S	1.09	1.22	0.086	0.096
R	4.60 typ.		0.181 typ.	

Making Diagram

ADV: Logo
ADT40C60XB: Part number
X: Internal control code
H: Halogen Free

AD T 40 C 60 X B

ADVANCED
 Internal control code
 Current: 40=40A
 Quadrant: C=3Q
 Voltage: 60=600V 80=800V

Sensitivity and type:
 B=50mA
 Package explain: X=TO-3PX

Ordering information

Part number	Package	Marking	Packing	Quantity
ADT40C60XB	TO-3PX	ADT40C60XB	Tube	30pcs
ADT40C80XB	TO-3PX	ADT40C80XB	Tube	30pcs

Note: B = Gate Trigger Current Sensitivity and type

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