

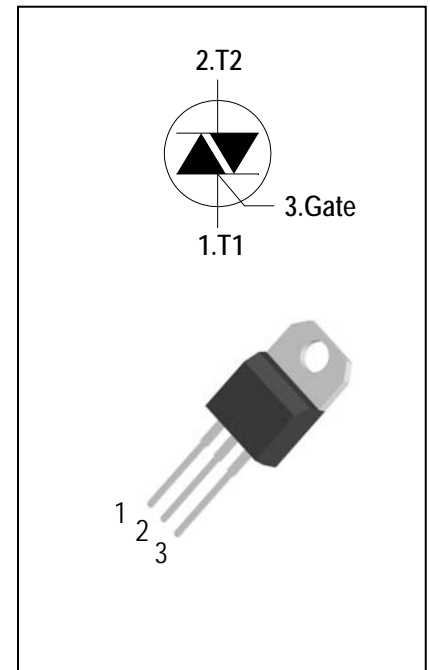
3 Quadrants High temperature Triacs

General Description

High current density due to mesa technology , guaranteed maximum junction temperature 150° C. The AIT8CH 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. The heatsink can be reduced, compared to traditional triacs, according to the high performance at given junction temperatures.

Features

- ◆ Repetitive Peak Off-State Voltage: 600V/800V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 8 \text{ A}$)
- ◆ High Commutation dv/dt
- ◆ Isolated heatsink mounted , Isolation Voltage ($V_{iso} = 2500\text{V AC}$)
- ◆ High junction temperature operating capability
- ◆ 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	$T_j = 25^\circ\text{C}$	AIT8CH60 600 AIT8CH80 800	V V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 125^\circ\text{C}$	8	A
I_{TSM}	Surge On-State Current	$T_p = 20\text{ms}(50\text{Hz})/t_p = 16.7\text{ms}(60\text{Hz})$	100/106	A
I^2t	I^2t for fusing	$t_p = 10\text{ms}$	48	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120 \text{ Hz } T_j = 150^\circ\text{C}$ $I_G = 2 \times I_{GT}, tr \leq 100 \text{ ns}$	50	$\text{A}/\mu\text{s}$
I_{GM}	Peak Gate Current	$t_p = 20 \mu\text{s } T_j = 150^\circ\text{C}$	4	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j = 150^\circ\text{C}$)		1	W
P_{GM}	Peak Gate Power Dissipation($t_p = 20\mu\text{s}, T_j = 150^\circ\text{C}$)		5	W
T_j	Operating Junction Temperature		- 40 ~ 150	$^\circ\text{C}$
T_{STG}	Storage Temperature		- 40 ~ 150	$^\circ\text{C}$



Electrical Characteristics (T_j = 25°C unless otherwise specified)

Symbol	Items		Conditions		AIT8CH60/80			Unit
					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 = 150°C		2.5			mA
V _{TM}	Peak On-State Voltage		I _{TM} = 11A, t _p = 380 μs	Max.	1.5			V
V _{GD}	Q1-Q2-Q3	Non-Trigger Gate Voltage	V _D = V _{DRM} R _L = 3.3 kΩ T _j = 150°C	Min.	0.2			V
V _{GT}	Q1-Q2-Q3	Gate Trigger Voltage	V _D = 12V , R _L = 33Ω	Max.	1.5			V
I _{GT}	Q1-Q2-Q3	Gate Trigger Current		Max.	10	35	50	mA
I _H	Q1-Q2-Q3	Holding Current	I _T = 0.1A	Max.	20	45	60	mA
I _L	Q1-Q3	Latching Current	I _G = 1.2 I _{GT}	Max.	20	50	70	mA
	Q2				35	70	100	
dV/dt	Critical Rate of Rise of Off-State Voltage		V _D = 2/3V _{DRM} gate open T _j = 150°C	Min.	200	1000	1500	V/μs
(dV/dt) _c	Critical Rate of Change of Commutating Voltage		V _D =400V T _j = 150°C (dI/dt) _c =-3.5A/ms	Min.	1	15	20	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	3.7			°C/W
R _{th(j-a)}	Junction to ambient			Max.	60			°C/W

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

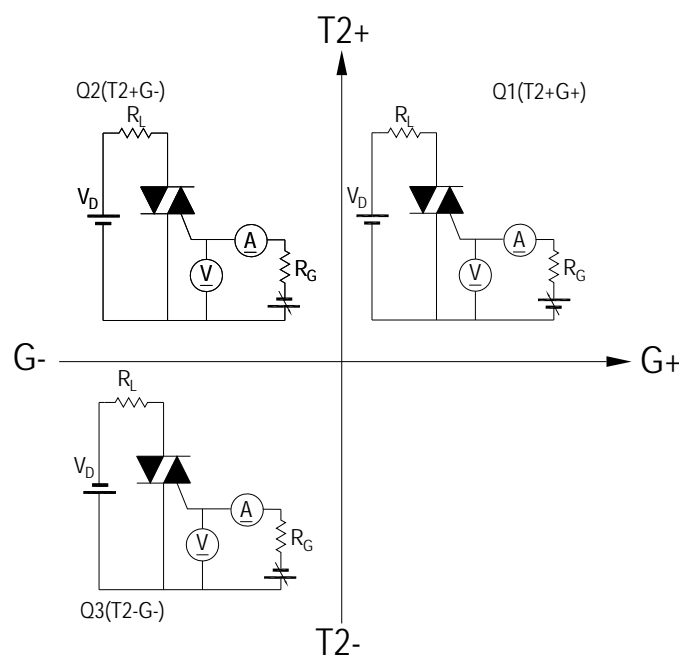


FIG.2: Maximum on-state power dissipation

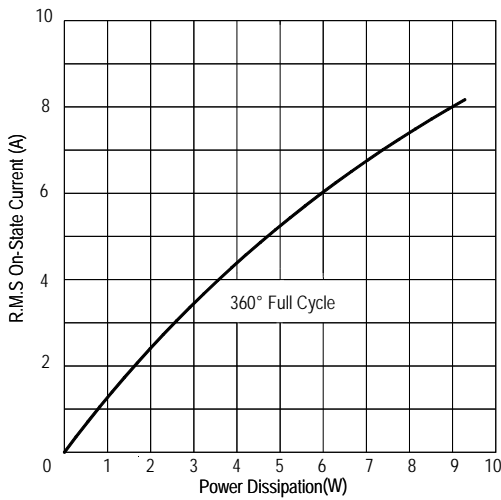


FIG.3: Typical RMS on-state current VS Allowable case Temperature

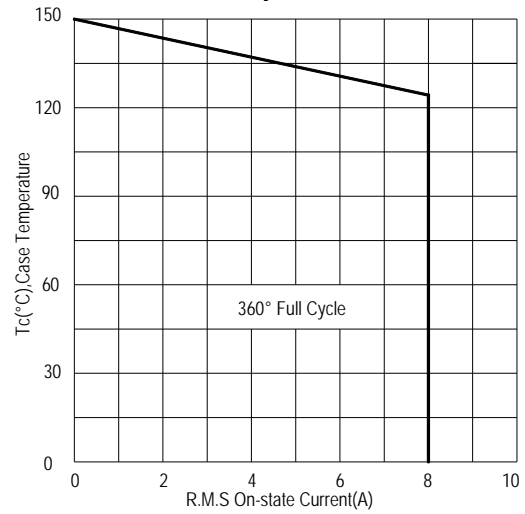


FIG.4: Maximum transient thermal impedance

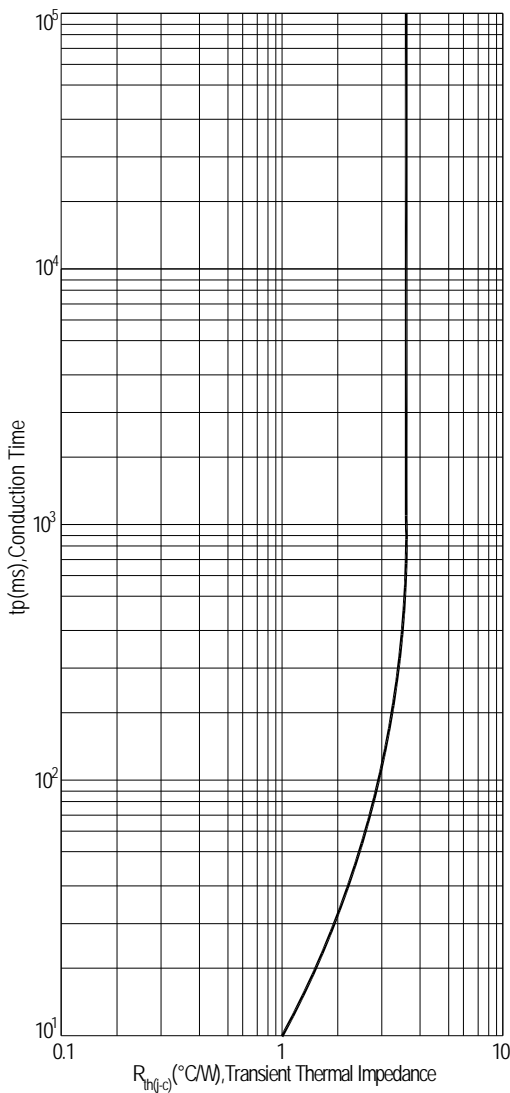


FIG.5: Rated surge on-state current (Non-Repetitive)

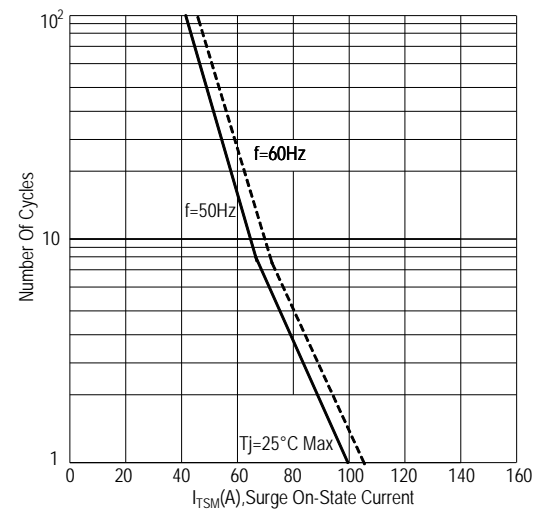


FIG.6: Gate trigger current VS Junction temperature

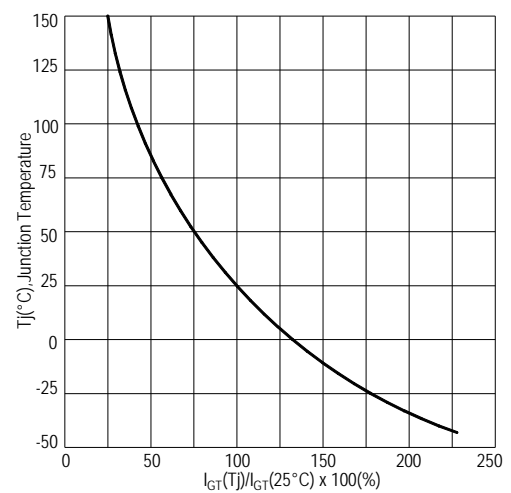


FIG.7: Holding current and Latching current VS Junction temperature

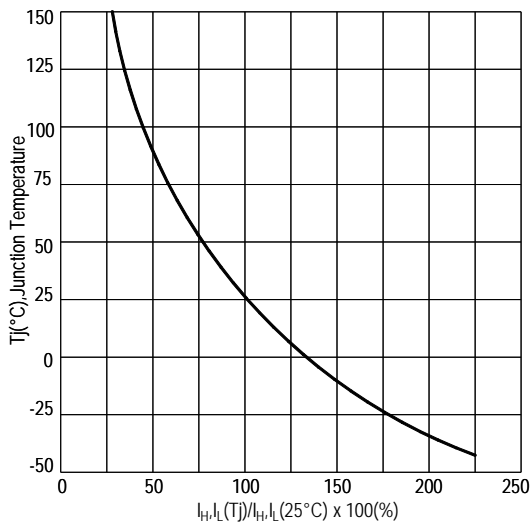


FIG.8: Gate trigger voltage VS Junction temperature

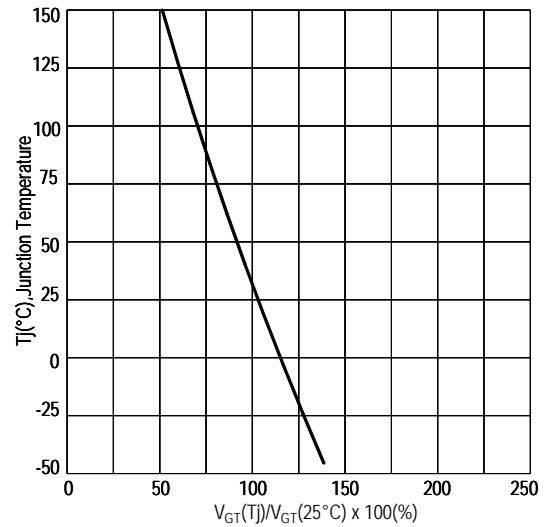
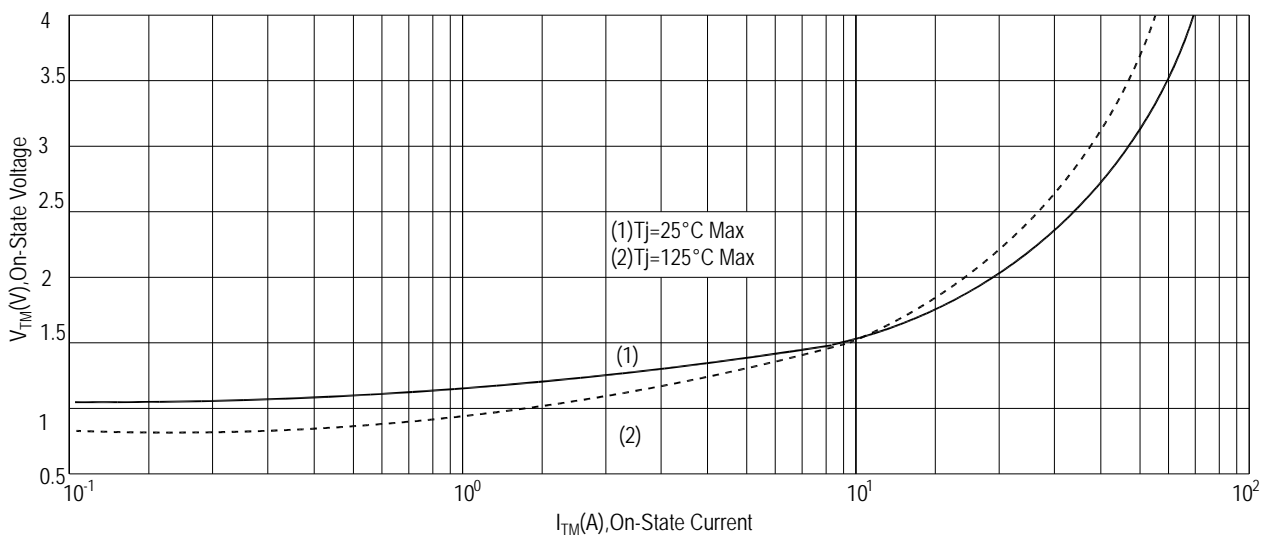
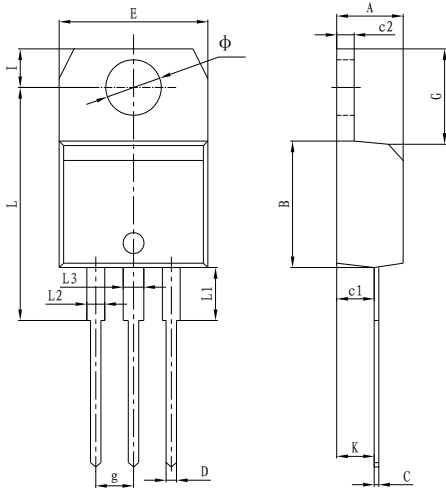


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA

TO-220(Isolated) Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.40	4.60	0.173	0.181
B	9.00	9.30	0.354	0.366
C	0.40	0.60	0.015	0.023
c1	2.00	2.60	0.078	0.102
c2	1.23	1.32	0.048	0.051
D	0.70	1.00	0.027	0.039
E	10.00	10.40	0.393	0.409
g	2.40	2.70	0.094	0.106
G	6.20	6.80	0.244	0.267
I	2.65	2.95	0.104	0.116
L	15.80	16.80	0.622	0.661
L1	3.75		0.147	
L2	1.14	1.70	0.044	0.066
L3	1.14	1.70	0.044	0.066
Φ	3.60	3.90	0.141	0.153
K	2.60TYP		0.102TYP	

Making Diagram

ADV XXXX
 AIT8CH60B
 XXXH ○ XX

ADV: Logo
 AIT8CH60B: Part number
 X: Internal control code
 H: Halogen Free

A I T 8 C H 6 0 # S(B)

<p>ADVANCED</p> <p>isolated</p> <p>Internal control code</p> <p>Current: 8=8A</p> <p>Quadrant: C=3Q</p> <p>High temperature: H=150°C</p>	<p>Sensitivity and type:</p> <p>S=10mA</p> <p>Blank=35mA</p> <p>B=50mA</p> <p>Package explain: Blank=TO-220</p> <p>Voltage: 60=600V 80=800V</p>
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Ordering information

Part number	Package	Marking	Packing	Quantity
AIT8CH60#	TO-220isolated	AIT8CH60#	Tube	50pcs
AIT8CH80#	TO-220isolated	AIT8CH80#	Tube	50pcs

Note: # = Gate Trigger Current Sensitivity and type

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