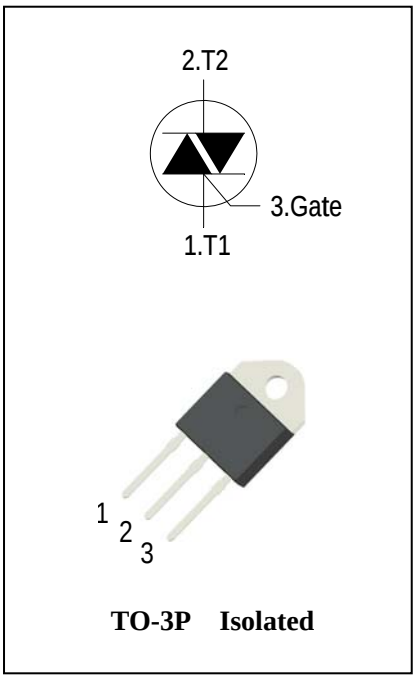
3 Quadrants Triacs

General Description

High current density due to mesa technology .the AIS40C 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.



TO-3P Isolated

Features

- ◆ Repetitive Peak Off-State Voltage: 1200Vand1600V
- ◆ R.M.S On-State Current ($I_{T(RMS)}$= 40A)
- ◆ High Commutation dv/dt
- ◆ These Devices are Pb-Free and are RoHS Compliant
- ◆ Isolated heatsink mounted , Isolation Voltage (V_{ISO} = 2500V AC)

Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	Tj = 25°C	AIS40C120H	1200	V
V_{RRM}			AIS40C160H	1600	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C = 80°C		40	A
I_{TSM}	Surge On-State Current	tp=20ms(50Hz)/tp=16.7ms(60Hz)		400/420	A
I^2t	I^2t for fusing	tp=10ms		880	A^2s
dI/dt	Critical rate of rise of on-state current	F = 120 Hz Tj = 125°C I_G = 2 x I_{GT} , tr ≤ 100 ns		50	A/μs
I_{GM}	Peak Gate Current	tp = 20 μs Tj = 125°C		8	A
$P_{G(AV)}$	Average Gate Power Dissipation(Tj=125°C)			1	W
P_{GM}	Peak Gate Power Dissipation(tp=20us,Tj=125°C)			10	W
T_j	Operating Junction Temperature			- 40 ~ 125	°C
T_{STG}	Storage Temperature			- 40 ~ 150	°C

ADV

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

Symbol	Items		Conditions		AIS40C120HB/160HB	Unit
I_{DRM}	Peak Forward Reverse Blocking Current		V_{DRM} = V_{RRM}, Tj = 25°C	Max.	5	uA
I_{RRM}			V_{DRM} = V_{RRM}, Tj = 125°C		5	mA
V_{TM}	Peak On-State Voltage		I_{TM} = 60A, 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 Tj = 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.	50	mA
I_H	Q1-Q2-Q3	Holding Current	I_T = 0.5A	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 = 2/3V_{DRM} gate open Tj = 125°C	Min.	1500	V/μs
(dV/dt)c	Critical Rate of Change of Commutating Voltage		(dI/dt)c=-20A/ms Tj = 125°C	Min.	20	V/μs
$R_{th(j-c)}$	Junction to case (AC)			Max.	0.9	°C/W
$R_{th(j-a)}$	Junction to ambient			Max.	50	°C/W

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

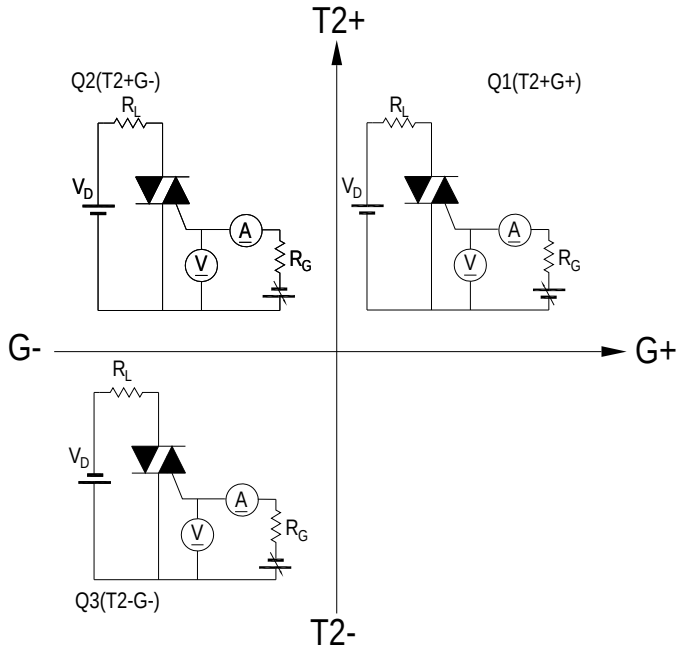


FIG.2: Maximum on-state power dissipation

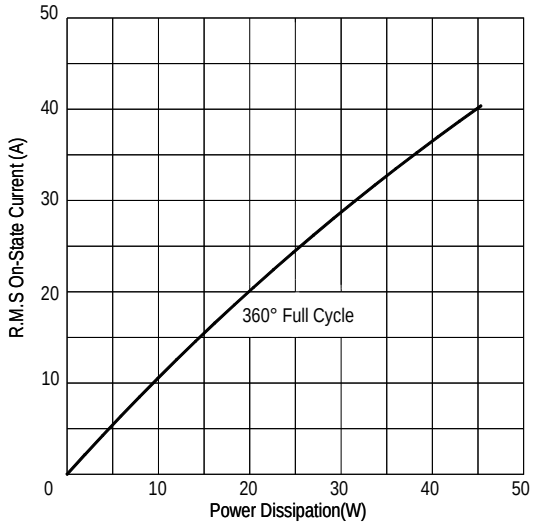


FIG.3: Typical RMS on-state current VS Allowable case Temperature

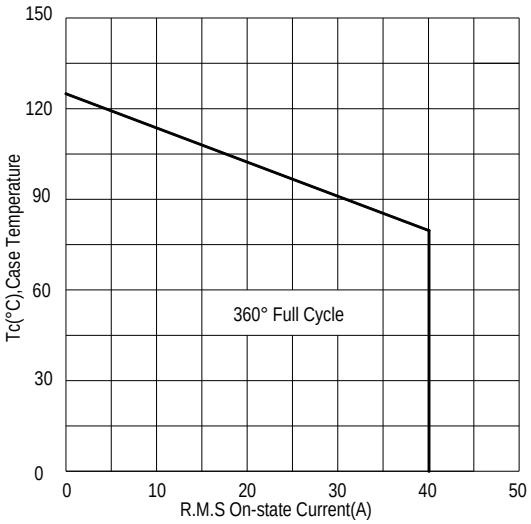


FIG.4: Maximum transient thermal impedance

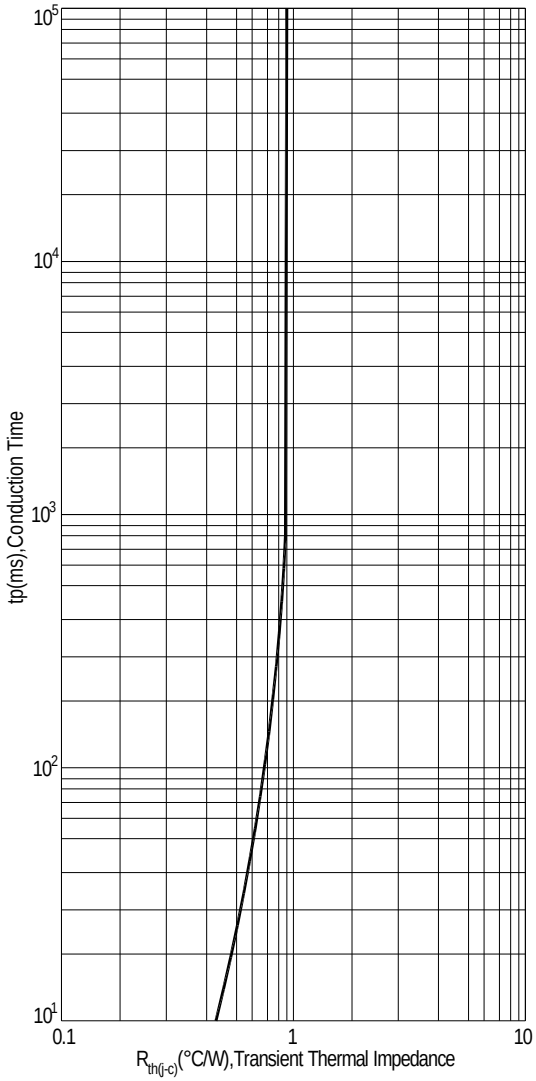


FIG.5: Rated surge on-state current (Non-Repetitive)

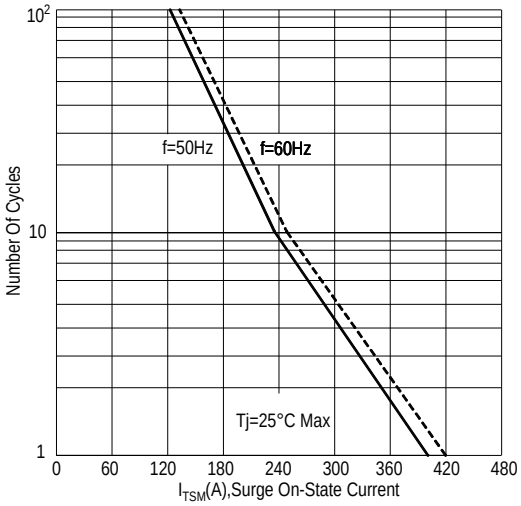


FIG.6: Gate trigger current VS Junction temperature

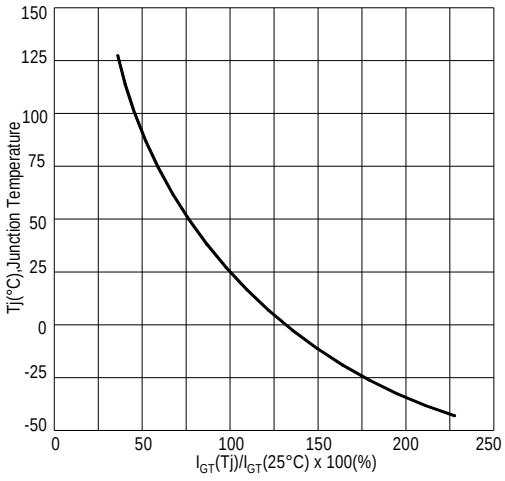


FIG.7:Holding current and Latching current VS Junction temperature

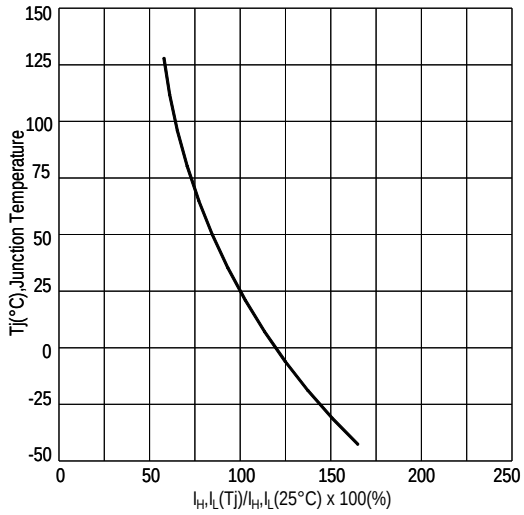


FIG.8: Gate trigger voltage VS Junction temperature

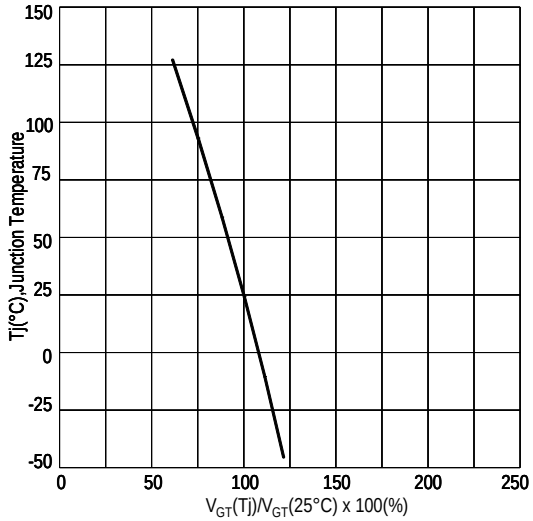
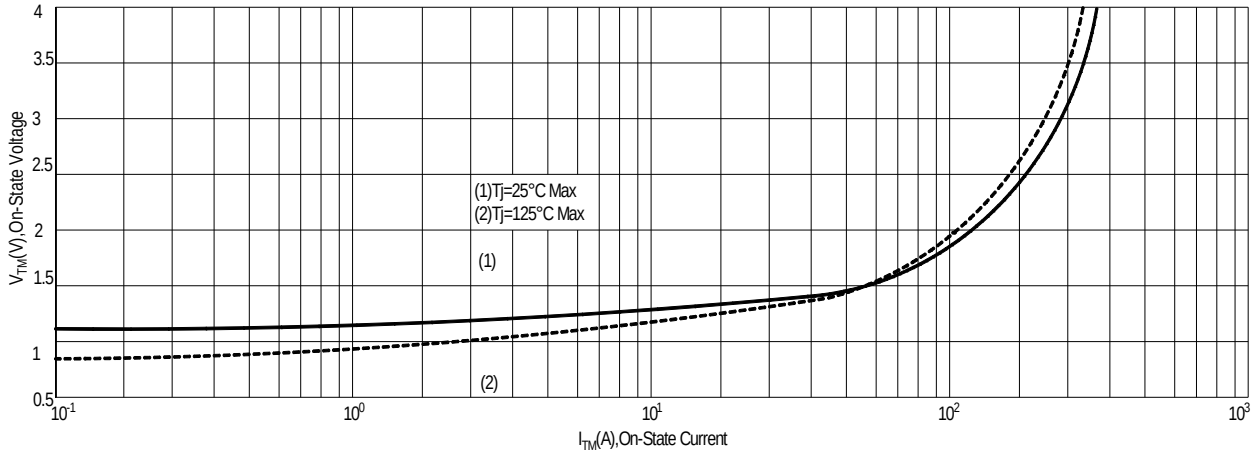
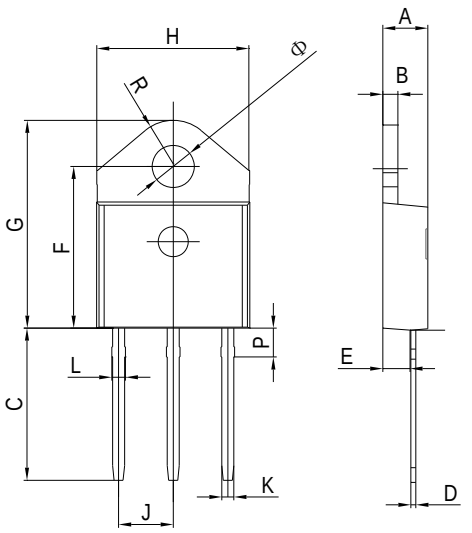


FIG.9: On-state characteristics(Max)



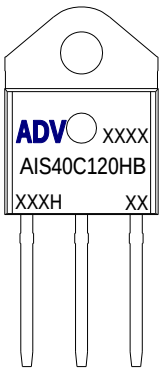
PACKAGE MECHANICAL DATA

TO-3P(isolated) Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	**Max**	**Min**	**Max**
A	4.4	4.6	0.173	0.181
B	1.45	1.55	0.057	0.061
C	14.35	15.60	0.565	0.614
D	0.5	0.7	0.020	0.028
E	2.7	2.9	0.106	0.114
F	15.8	16.5	0.622	0.650
G	20.4	21.1	0.815	0.831
H	15.1	15.5	0.594	0.610
J	5.4	5.65	0.213	0.222
K	1.2	1.4	0.047	0.055
Ø	4.08	4.20	0.161	0.165
L	1.35	1.50	0.053	0.059
P	2.8	3.0	0.110	0.118
R	4.60 typ.		0.181 typ.	

Making Diagram



ADV:Logo
AIS40C120HB:Part number
X:Internal control code
H:Halogen Free

A I S 40 C 120 H B

ADVANCED
isolated
Internal control code
Current:40=40A
Quadrant:C=3Q
Voltage:120=1200V 160=1600V
Package explain:H=TO-3P
Sensitivity and type:
B=50mA

Ordering information

Part number	Package	Marking	Packing	Quantity
AIS40C120HB	TO-3P isolated	AIS40C120HB	Tube	30pcs
AIS40C160HB	TO-3P isolated	AIS40C160HB	Tube	30pcs
Note:B = Gate Trigger Current Sensitivity and type				

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