

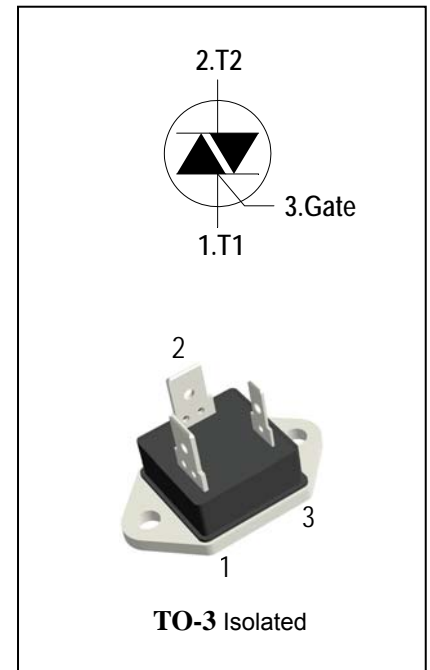
3 Quadrants Triacs

General Description

High current density due to mesa technology .the ADS41C 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: 1200V and 1600V
- ◆ 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} V_{RRM}	Repetitive Peak Off-State Voltage	$T_j = 25^\circ C$	ADS41C120 1200 ADS41C160 1600	V V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 80^\circ C$	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	$F = 120 Hz$ $T_j = 125^\circ C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100 ns$	50	$A/\mu s$
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		ADS41C120B/160B	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	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	Critical Rate of Change of Commutating Voltage		$(dI/dt)_c = -20\text{A/ms}$ $T_j = 125^\circ\text{C}$	Min.	20	$\text{V}/\mu\text{s}$
$R_{th(j-c)}$	Junction to case (AC)			Max.	0.9	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient			Max.	50	$^\circ\text{C}/\text{W}$

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

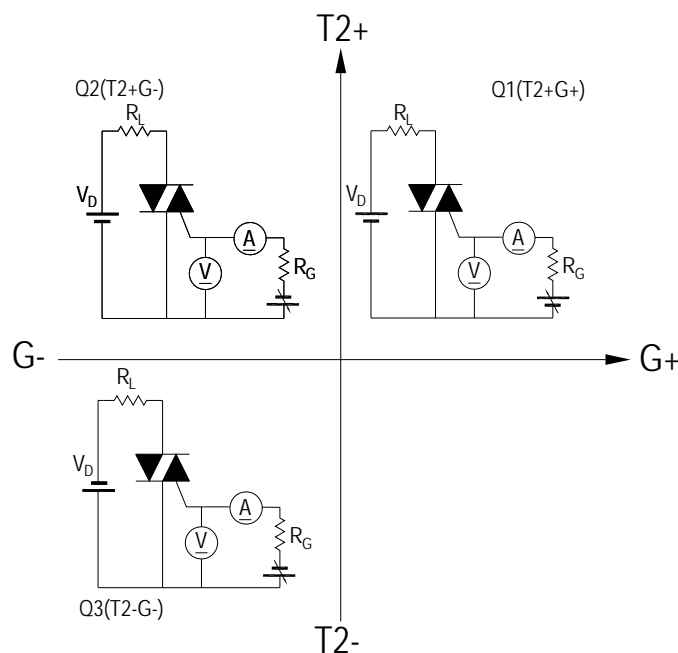


FIG.2: Maximum on-state power dissipation

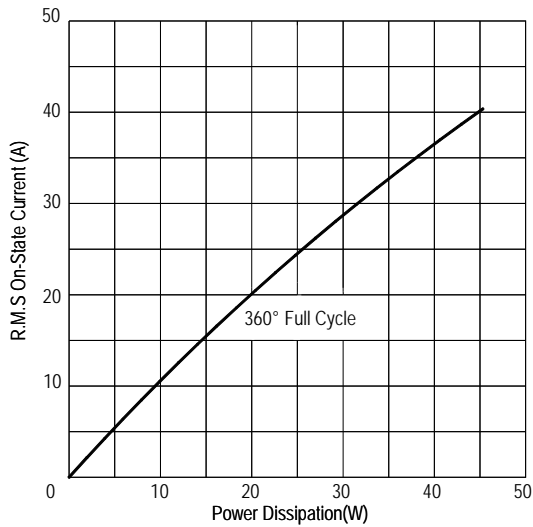


FIG.3: Typical RMS on-state current VS Allowable case Temperature

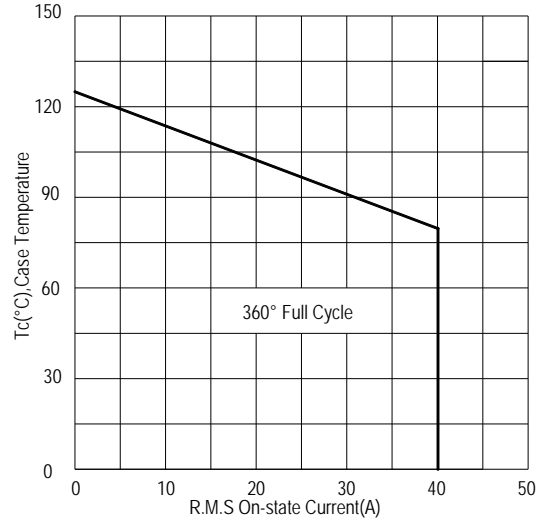


FIG.4: Maximum transient thermal impedance

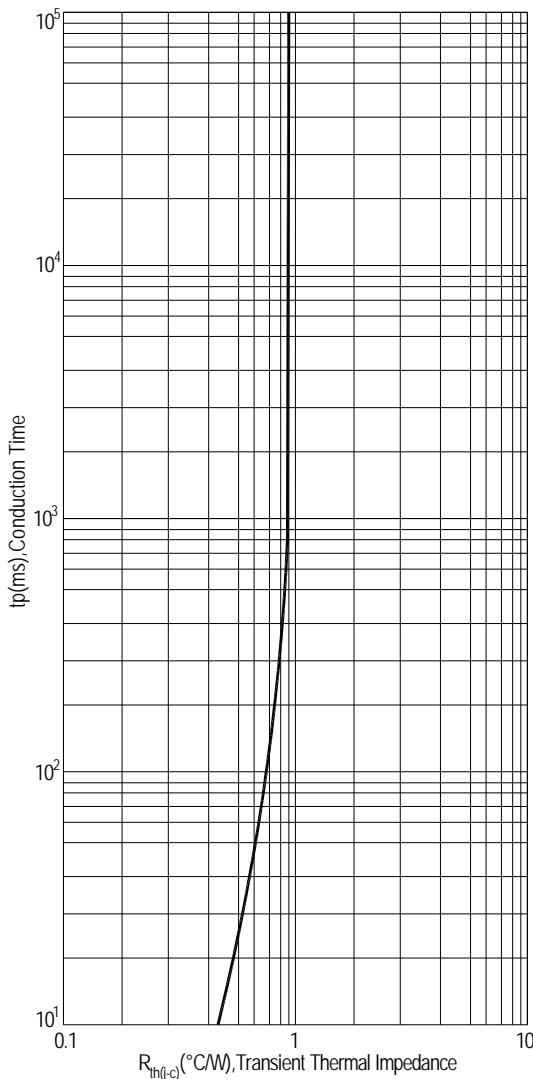


FIG.5: Rated surge on-state current (Non-Repetitive)

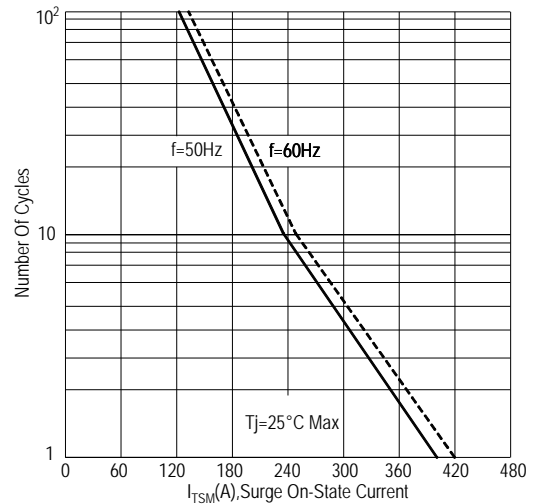


FIG.6: Gate trigger current VS Junction temperature

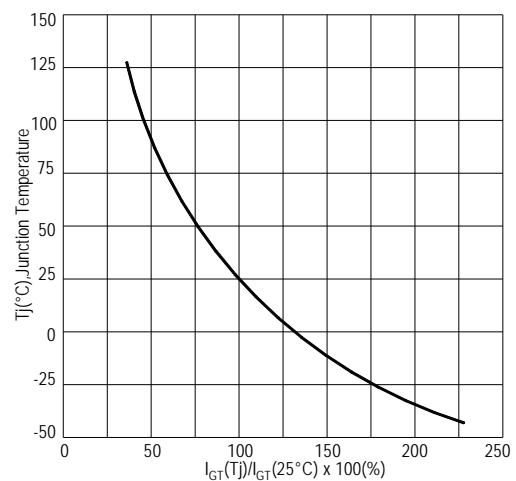


FIG.7: Holding current and Latching current VS Junction temperature

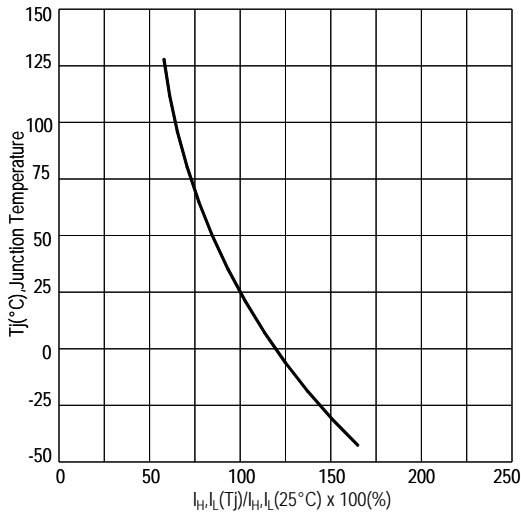


FIG.8: Gate trigger voltage VS Junction temperature

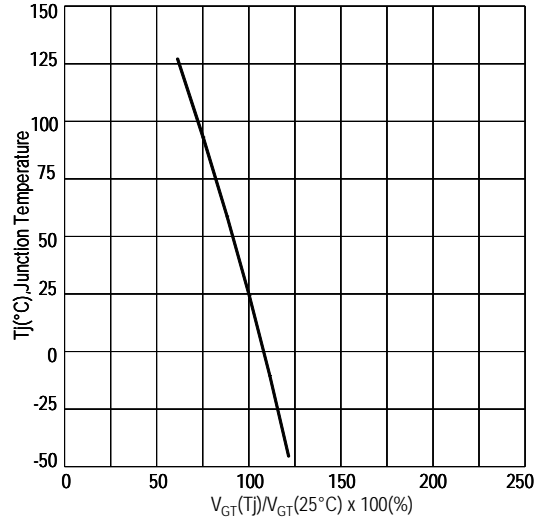
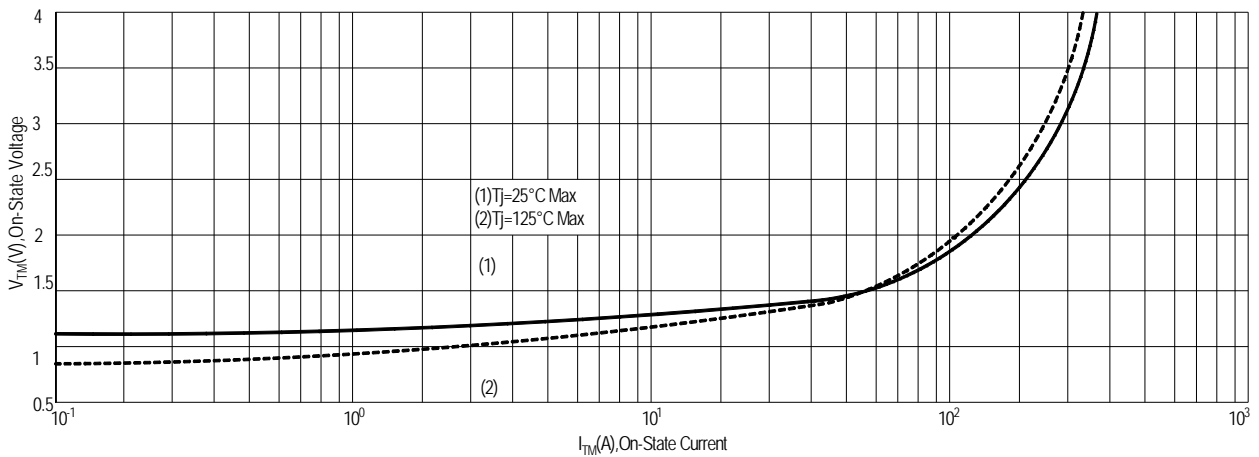
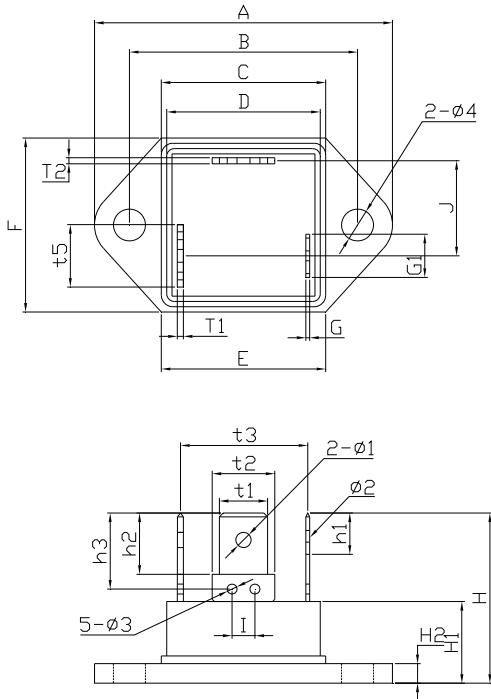


FIG.9: On-state characteristics(Max)



PACKAGE MECHANICAL DATA TO-3(isolated) Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A		39.20		1.543
B	29.80	30.20	1.173	1.189
C		21.60		0.850
D		20.20		0.795
E		20.10		0.791
F		23.00		0.906
G	0.50 typ.		0.020 typ.	
G1	5.70 typ.		0.224 typ.	
T1、T2	0.80 typ.		0.031 typ.	
t1	6.35 typ.		0.250 typ.	
t2、t5	8.25 typ.		0.325 typ.	
J	10.80 typ.		0.425 typ.	
t3	13.90 typ.		0.547 typ.	
H1	10.80 typ.		0.425 typ.	
H2	2.60 typ.		0.102 typ.	
H		22.50		0.886
h1	6.20	6.50	0.244	0.256
h2	7.80	8.10	0.307	0.319
h3	9.45	10.05	0.372	0.396
I	2.70	3.30	0.106	0.130

Making Diagram

ADV: Logo
 ADS41C120B: Part number
 X: Internal control code
 H: Halogen Free

AD S 41 C 120 # B

ADVANCED	Internal control code	Current: 41=40A	Sensitivity and type: B=50mA
Quadrant: C=3Q	Voltage: 120=1200V 160=1600V	Package explain: Blank=TO-3 isolated	

Ordering information

Part number	Package	Marking	Packing	Quantity
ADS41C120B	TO-3 isolated	ADS41C120B	Tray	80pcs
ADS41C160B	TO-3 isolated	ADS41C160B	Tray	80pcs

Note: B = Gate Trigger Current Sensitivity and type

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