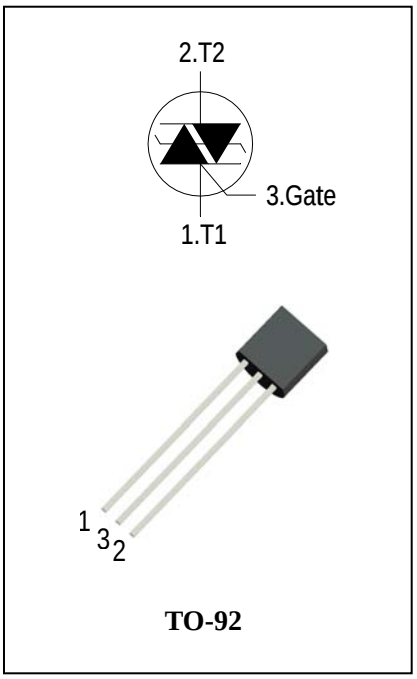
AC Thyristor Triac power switch

General Description

Sensitive gate triac in the TO-92 plastic package, intended for use in AC static switching and industrial control systems, driving low power highly inductive loads like solenoid,pump, fan,and micro-motor.



Features

- ◆ Repetitive Peak Off-State Voltage: 800Vand1000V
- ◆ R.M.S On-State Current ($I_{T(RMS)}$=1A)
- ◆Very high immunity to false turn-on by dV/dt
- ◆Triggering in three quadrants only
- ◆Pin compatible with standard triacs
- ◆Safe clamping capability for low energy over-voltage transients
- ◆ These Devices are Pb-Free and are RoHS Compliant

Absolute Maximum Ratings

Symbol	Items	Conditions		Ratings	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	Tj = 25°C	AACS108	800	V
V_{RRM}			AACS110	1000	V
$I_{T(RMS)}$	R.M.S On-State Current	T_C =57 °C		1	A
I_{TSM}	Surge On-State Current	tp=20ms(50Hz)/tp=16.7ms(60Hz)		10/11	A
I^2t	I^2t for fusing	tp=10ms		1.12	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		1	A
$P_{G(AV)}$	Average Gate Power Dissipation(Tj=125°C)			0.1	W
P_{GM}	Peak Gate Power Dissipation(tp=20us,Tj=125°C)			1	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		AACS108/10	Unit
I_{DRM}	Peak Forward Reverse Blocking Current		V_{DRM} = V_{RRM}, Tj = 25°C	Max.	10	uA
I_{RRM}			V_{DRM} = V_{RRM}, Tj = 125°C		0.5	mA
V_{TM}	Peak On-State Voltage		I_{TM} = 1.4A, t_p = 380 μs	Max.	1.5	V
V_{GD}	Q1-Q2-Q3	Non−Trigger Gate Voltage	V_D = 2/3V_{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.	10	mA
I_H	Q1-Q2-Q3	Holding Current	I_T = 0.1A	Max.	10	mA
I_L	Q1-Q3	Latching Current	I_G = 1.2 I_{GT}	Max.	25	mA
	Q2				35	
dV/dt	Critical Rate of Rise of Off-State Voltage		V_D = 2/3V_{DRM} gate open Tj = 125°C	Min.	600	V/μs
$R_{th(j-c)}$	Junction to case (AC)			Max.	60	°C/W
$R_{th(j-a)}$	Junction to ambient(Copper surface under tab:S=5cm^2)			Max.	150	°C/W

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

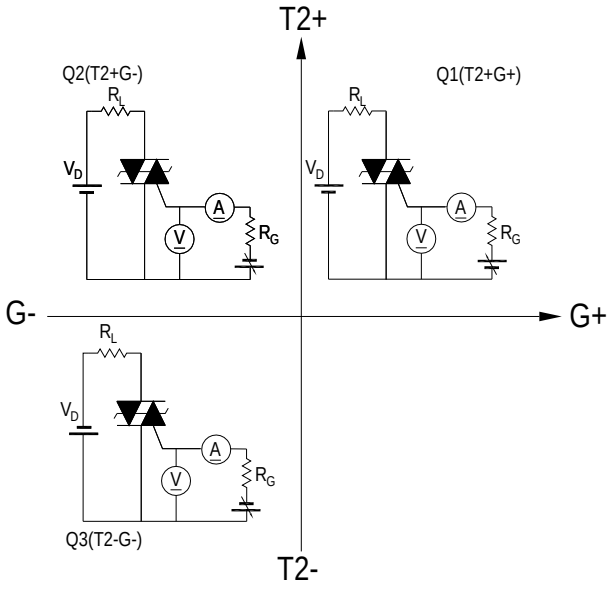


FIG.2: Maximum on-state power dissipation

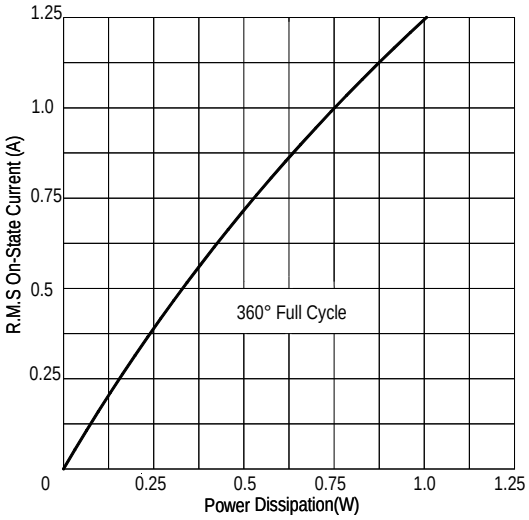


FIG.3: Typical RMS on-state current VS Allowable case Temperature

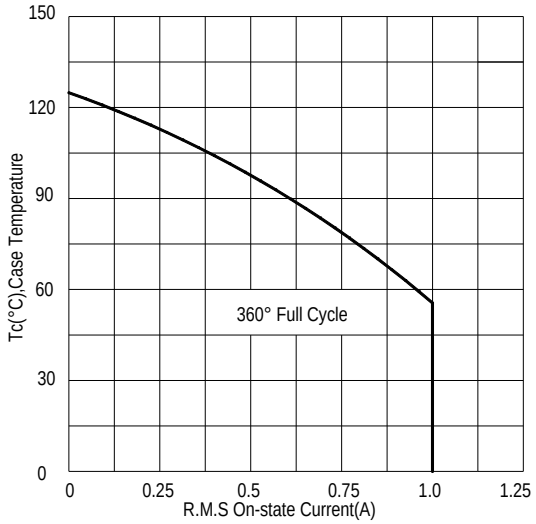


FIG.4: Gate trigger current VS Junction temperature

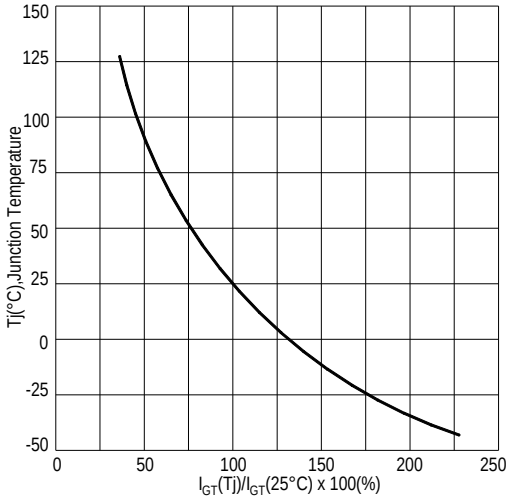


FIG.5: Rated surge on-state current (Non-Repetitive)

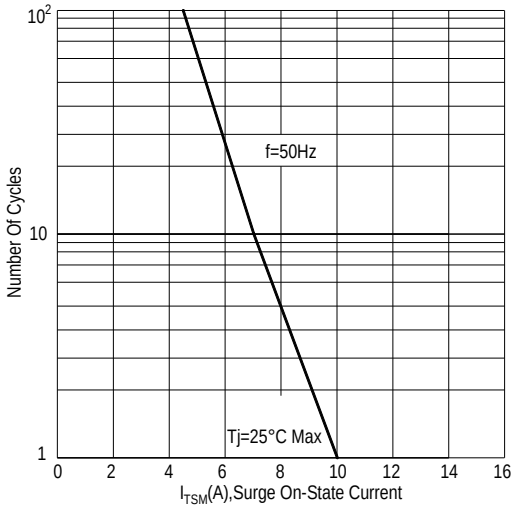


FIG.6: On-state characteristics(Max)

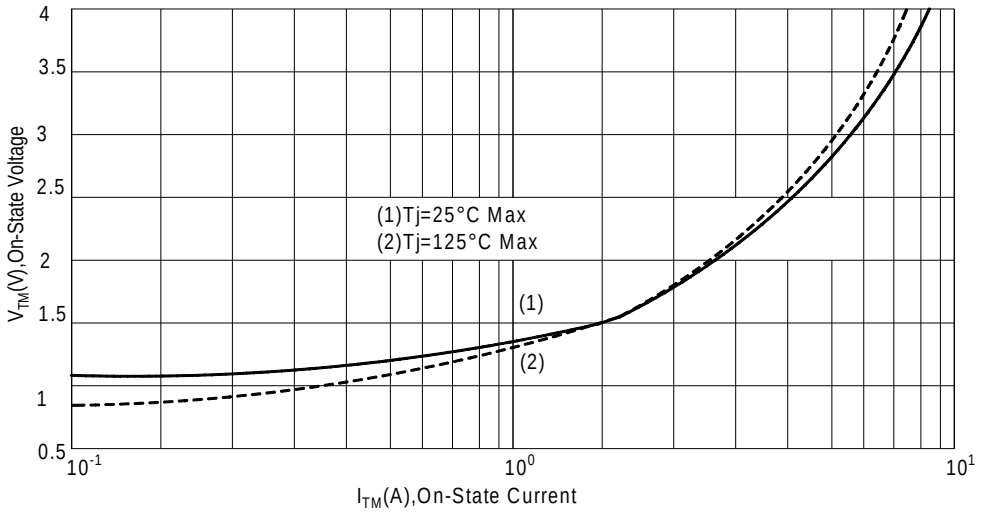


FIG.7:Holding current and Latching current VS Junction temperature

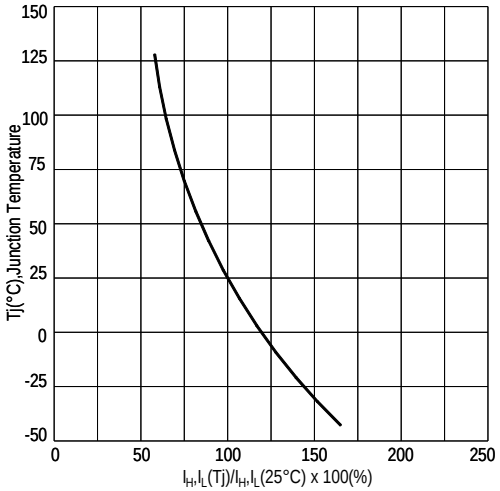
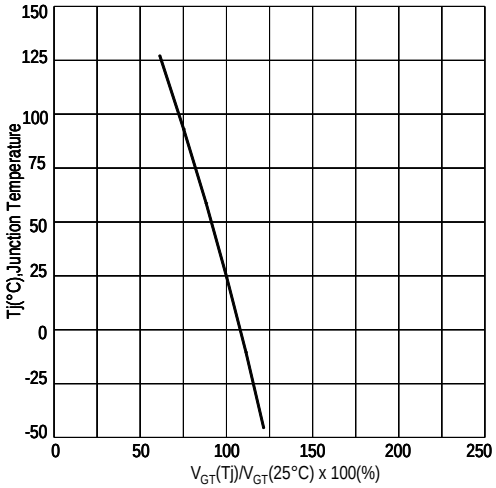
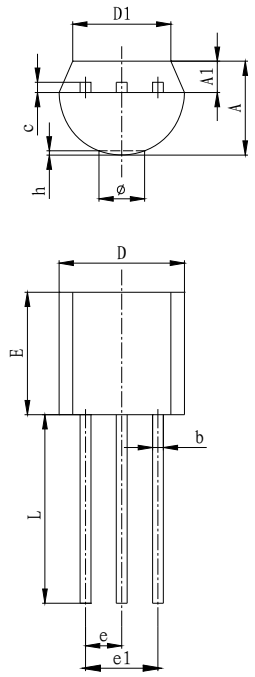


FIG.8: Gate trigger voltage VS Junction temperature



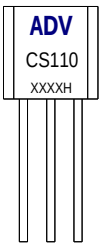
PACKAGE MECHANICAL DATA

TO-92 Package Dimension

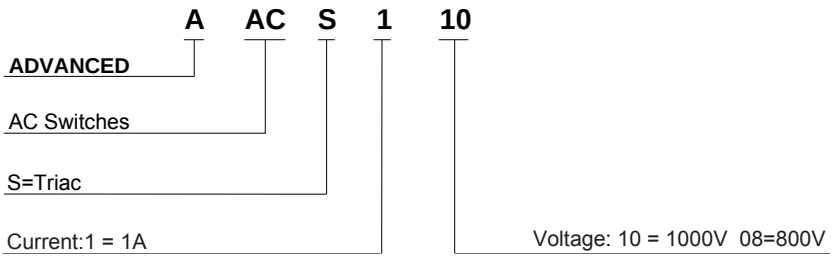


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.180	4.190	0.125	0.165
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	5.200	0.173	0.205
D1	3.430		0.135	
E	4.300	5.330	0.169	0.210
e	1.270 TYP		0.050 TYP	
e1	2.420	2.660	0.095	0.105
L	12.70	-	0.500	-
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

Making Diagram



ADV:Logo
CS110:Part number(AACS110)
X:Internal control code
H:Halogen Free



Ordering information

Part number	Package	Marking	Packing	Quantity
AACS108	TO-92	CS108	Vinyl sack	1000pcs
AACS110	TO-92	CS110	Vinyl sack	1000pcs

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