

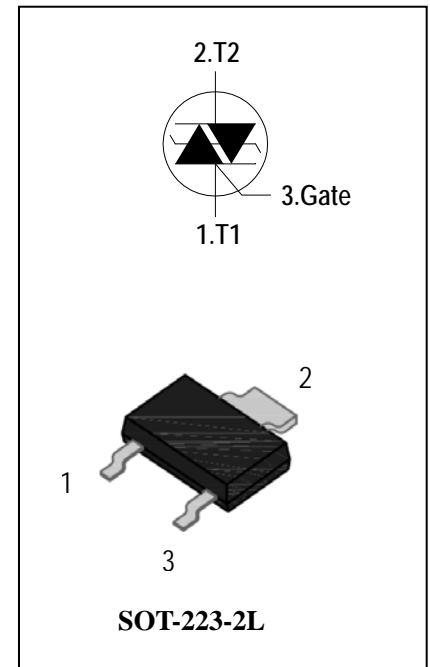
AC Thyristor Triac power switch

General Description

Available either in through-hole or surface-mount packages, the AACT2 suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation in light dimmers, motor speed controllers,...

Features

- ◆ Repetitive Peak Off-State Voltage: 800V and 1000V
- ◆ R.M.S On-State Current ($I_{T(RMS)} = 2A$)
- ◆ 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} V_{RRM}	Repetitive Peak Off-State Voltage	$T_j = 25^{\circ}C$	AACT208W	800	V
			AACT210W	1000	V
$I_{T(RMS)}$	R.M.S On-State Current	$T_C = 110^{\circ}C$		2	A
I_{TSM}	Surge On-State Current	$t_p=20ms(50Hz)/t_p=16.7ms(60Hz)$		20/21	A
I^2t	I^2t for fusing	$t_p=10ms$		2	A^2s
di/dt	Critical rate of rise of on-state current	$F = 120\text{ Hz}$ $T_j = 125^{\circ}C$ $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ ns}$		50	$A/\mu s$
I_{GM}	Peak Gate Current	$t_p = 20\text{ }\mu s$ $T_j = 125^{\circ}C$		1	A
$P_{G(AV)}$	Average Gate Power Dissipation($T_j=125^{\circ}C$)			0.1	W
P_{GM}	Peak Gate Power Dissipation($t_p=20\mu s,T_j=125^{\circ}C$)			5	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		AACT208W/10W	Unit
I _{DRM} I _{RRM}	Peak Forward Reverse Blocking Current		V _{DRM} = V _{RRM} , T _j = 25°C	Max.	10	uA
			V _{DRM} = V _{RRM} , T _j = 125°C		1	mA
V _{TM}	Peak On-State Voltage		I _{TM} = 2.8A, t _p = 380 μs	Max.	1.55	V
V _{GD}	Q1-Q2-Q3	Non–Trigger Gate Voltage	V _D = 2/3V _{DRM} R _L = 3.3 kΩ T _j = 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 T _j = 125°C	Min.	600	V/μs
R _{th(j-c)}	Junction to case (AC)			Max.	25	°C/W
R _{th(j-a)}	Junction to ambient(Copper surface under tab:S=5cm ²)			Max.	60	°C/W

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

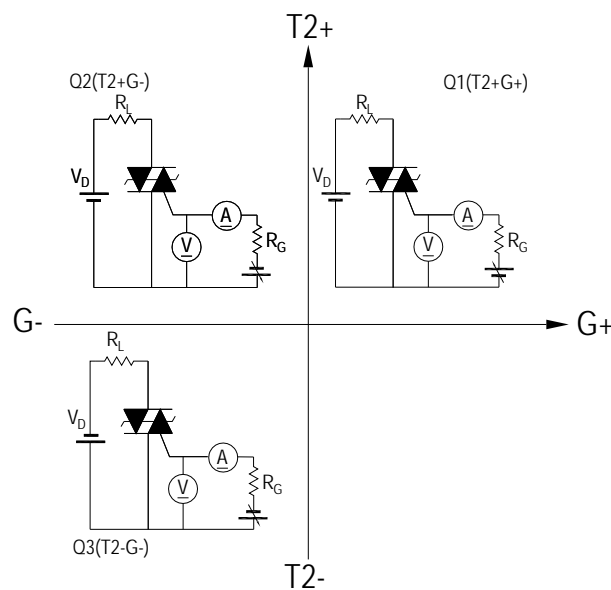


FIG.2: Maximum on-state power dissipation

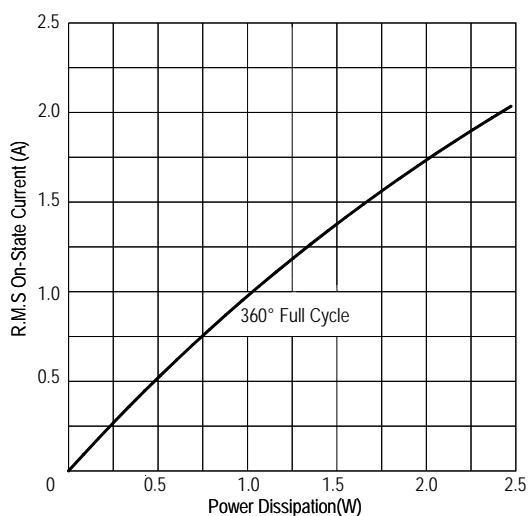


FIG.3: Typical RMS on-state current VS Allowable case Temperature

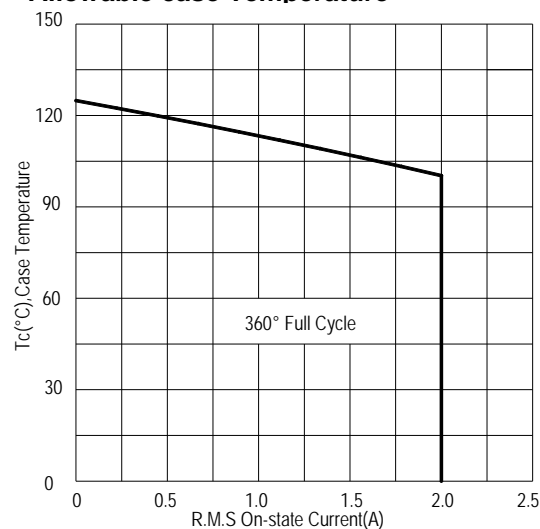


FIG.4: Gate trigger current VS Junction temperature

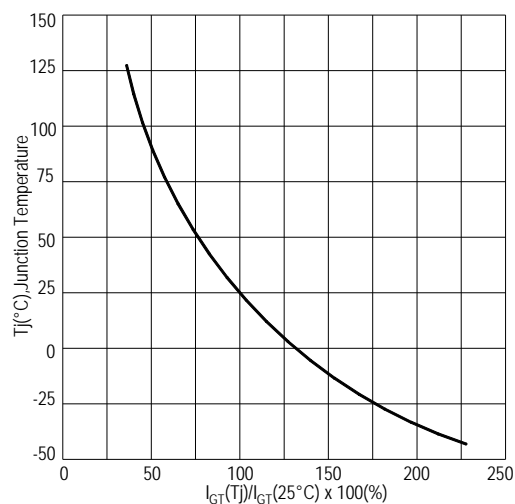


FIG.5: Rated surge on-state current (Non-Repetitive)

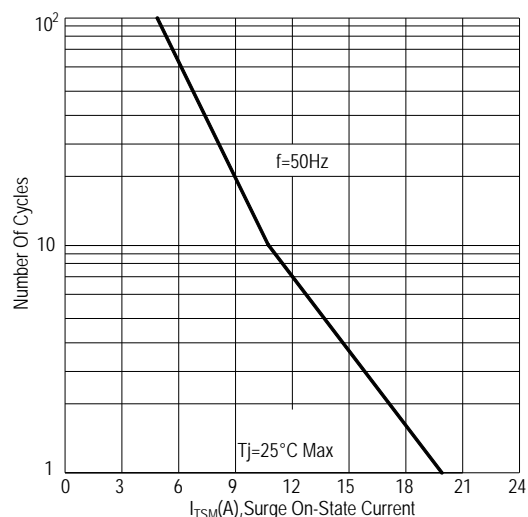


FIG.6: On-state characteristics(Max)

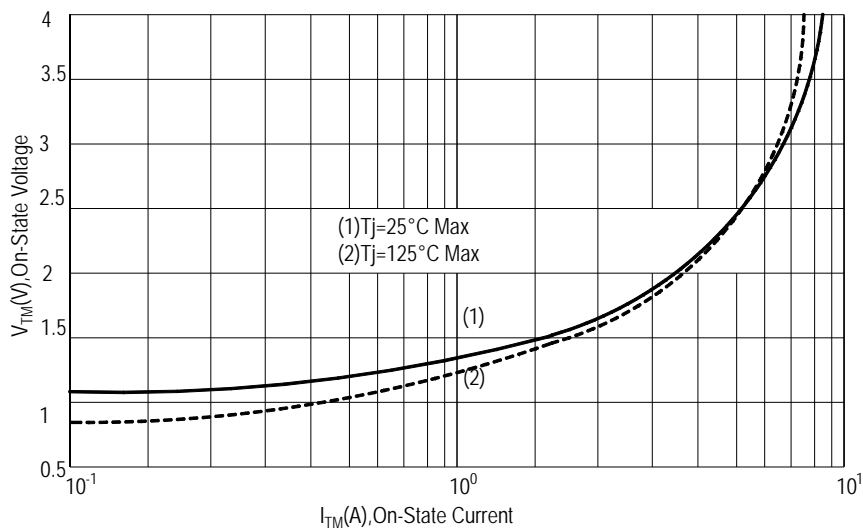


FIG.7:Holding current and Latching current VS Junction temperature

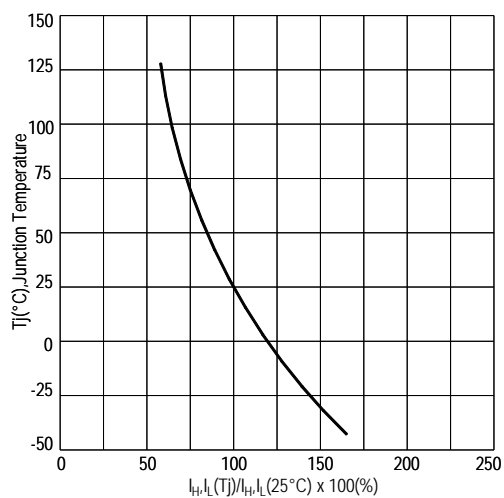
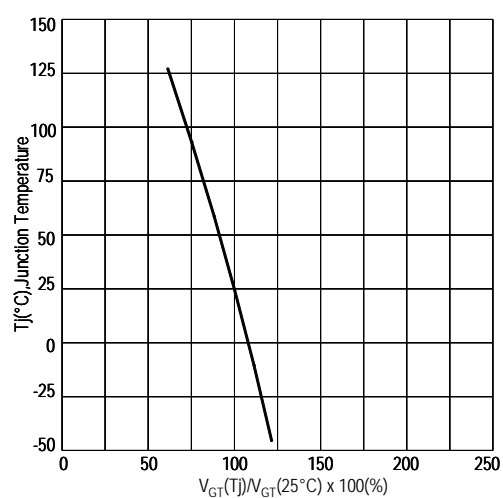
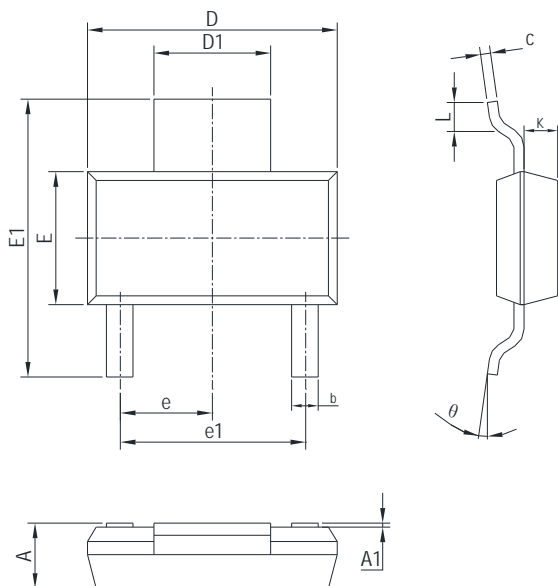


FIG.8: Gate trigger voltage VS Junction temperature



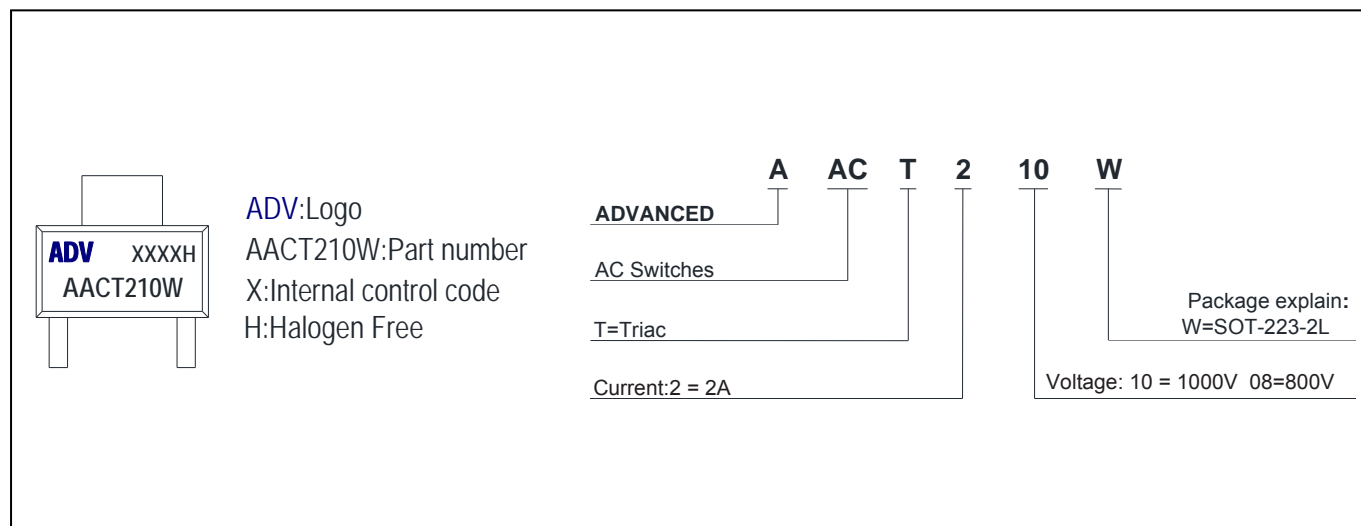
PACKAGE MECHANICAL DATA

SOT-223-2L Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
c	0.220	0.320	0.090	0.013
D	6.300	6.700	0.248	0.264
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.700	7.300	0.264	0.287
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	0.700	1.100	0.028	0.043
θ	0°	10°	0°	10°
b	0.600	0.820	0.026	0.032
K	0.890	0.91	0.035	0.036

Making Diagram



Ordering information

Part number	Package	Marking	Packing	Quantity
AACT210W	SOT-223-2L	AACT210W	Embossed tape	2000pcs
AACT208W	SOT-223-2L	AACT208W	Embossed tape	2000pcs

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