



ACJP01 Series 1A TRIACs

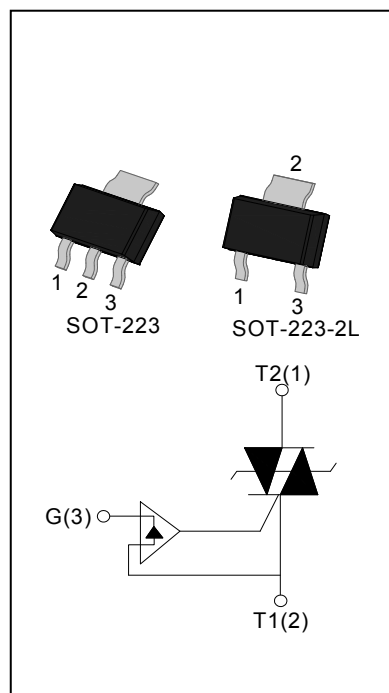
Rev.4.0

DESCRIPTION:

Available either in through-hole or surface-mount package, the ACJP01 series can be used as an AC static ON/OFF function in domestic and industrial control systems, or as a driver of low power and high inductance loads, such as solenoid valves, pumps, fans, micro-motors. Package SOT-223 & SOT-223-2L are RoHS compliant. (2011/65/EU)

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
V_{DRM}/V_{RRM}	600/800	V
I_{GT2-3}	≤ 10	mA



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range		T_j	-40-125	$^{\circ}C$
Repetitive peak off-state voltage($T_j=25^{\circ}C$)		V_{DRM}	600/800	V
Repetitive peak reverse voltage($T_j=25^{\circ}C$)		V_{RRM}	600/800	V
RMS on-state current	SOT-223/ SOT-223-2L ($T_c=100^{\circ}C$)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)		I_{TSM}	12	A
I^2t value for fusing ($t_p=10ms$)		I^2t	0.72	A^2s
Rate of rise of on-state current ($I_G=2 \times I_{GT}$)		di/dt	100	$A/\mu s$
Peak gate current		I_{GM}	1	A
Average gate power dissipation		$P_{G(AV)}$	0.1	W

Peak gate power	P_{GM}	0.5	W
Non repetitive mains peak mains voltage (FIG.7)	V_{PP}	4.5	kV

NOTE 1: Minimum I_{GT} is guaranteed at 10% of I_{GT} max

ELECTRICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Condition	Quadrant		Value	Unit
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	II -III	MAX	10	mA
V_{GT}		II -III	MAX	1.2	V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^\circ\text{C}$ $R_L=3.3\text{K}\Omega$	II -III	MIN	0.2	V
I_L	$I_G=1.2I_{GT}$	II	MAX	30	mA
		III		20	
I_H	$I_T=100\text{mA}$		MAX	20	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$		MIN	500	V/ μs
(dI/dt) _c	Without snubber, (dV/dt) _c = 15 V/ μs , $T_j=125^\circ\text{C}$		MIN	2	A/ms
V_{CL}	$I_{CL}=0.1\text{mA}$, $t_p=1\text{ms}$, $V_{DRM}/V_{RRM}=600\text{V}$		MIN	650	V
	$I_{CL}=0.1\text{mA}$, $t_p=1\text{ms}$, $V_{DRM}/V_{RRM}=800\text{V}$		MIN	850	V

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V_{TM}	$I_{TM}=2\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.7	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	μA
I_{RRM}		$T_j=125^\circ\text{C}$	1	mA
V_{TO}	Threshold voltage	$T_j=125^\circ\text{C}$	0.85	V
R_D	Dynamic resistance	$T_j=125^\circ\text{C}$	300	m Ω

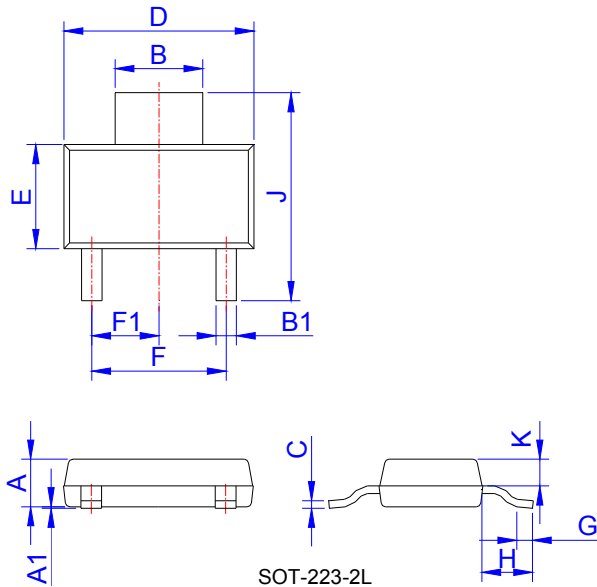
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	SOT-223/ SOT-223-2L	9.5	°C/W
$R_{th(j-t)}$	junction to tab(AC)		25	
$R_{th(j-a)}$	Junction to ambient	$S = 5 \text{ cm}^2$	60	

ORDERING INFORMATION

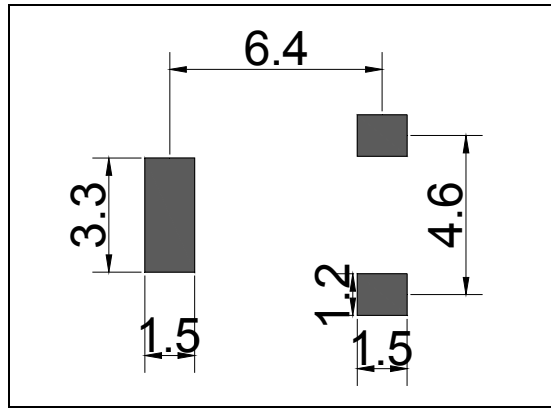
<p>ACJ JieJie AC switch series</p> <p>P Plannar technology</p> <p>01 $I_{T(RMS)}:1A$</p> <p>W V:SOT-223 W:SOT-223-2L</p>	<p>-800 600:$V_{DRM}/V_{RRM} \geq 600V$ 800:$V_{DRM}/V_{RRM} \geq 800V$</p>	<p>SW SW:$I_{GT2-3} \leq 10mA$</p>
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PACKAGE MECHANICAL DATA

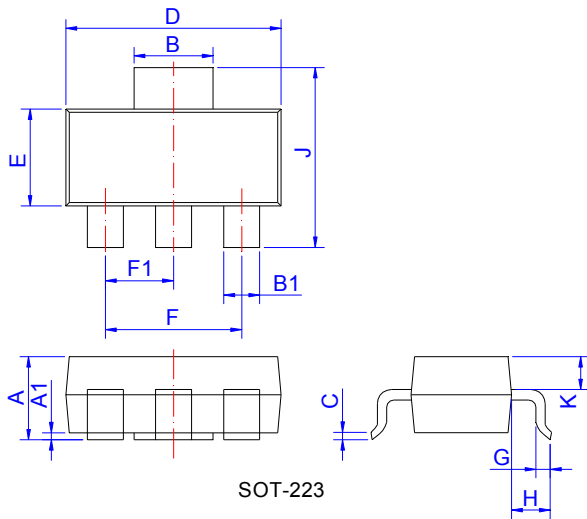


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.50	1.60	1.80	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.90	3.00	3.10	0.114	0.118	0.122
B1	0.60	0.70	0.80	0.024	0.028	0.031
C	0.22	0.254	0.32	0.009	0.010	0.013
D	6.30	6.50	6.70	0.248	0.256	0.264
E	3.30	3.50	3.70	0.130	0.138	0.146
F		4.60			0.181	
F1		2.30			0.091	
G	0.70	0.90	1.10	0.028	0.035	0.043
H	1.50	1.75	2.00	0.059	0.069	0.079
J	6.70	7.00	7.30	0.264	0.276	0.287
K		0.90			0.035	

FOOTPRINT-SOT-223-2L (dimensions in mm)

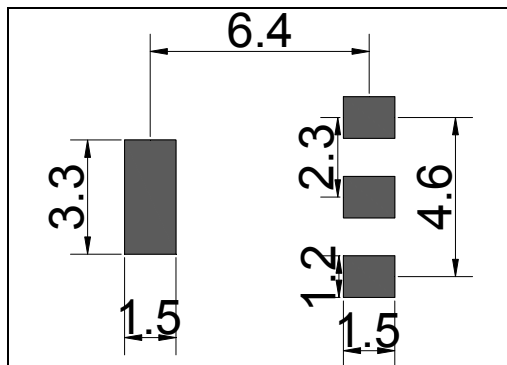


PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F		4.6			0.181	
F1		2.3			0.091	
G	0.7	0.9	1.1	0.028	0.035	0.043
H	1.5	1.75	2.0	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K	0.8	0.9	1.0	0.031	0.035	0.039

FOOTPRINT-SOT-223 (dimensions in mm)



PACKAGE INFORMATION

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
SOT-223/ SOT-223-2L	TAPING	4,000	40,000	13 inch

FIG.1 Maximum power dissipation versus RMS on-state current

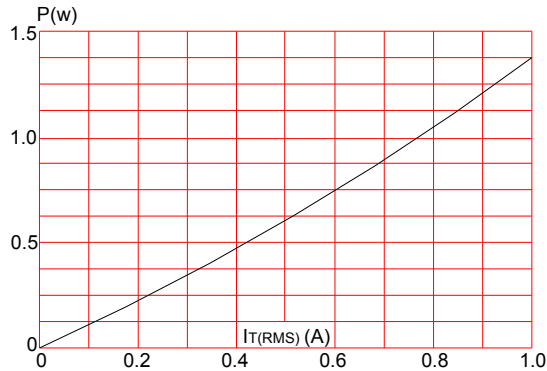


FIG.2: RMS on-state current versus ambient temperature (printed circuit board, FR4 copper thickness:35μm)(full cycle)

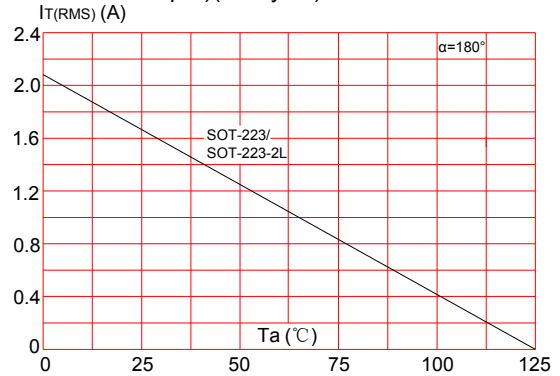


FIG.3: Surge peak on-state current versus number of cycles

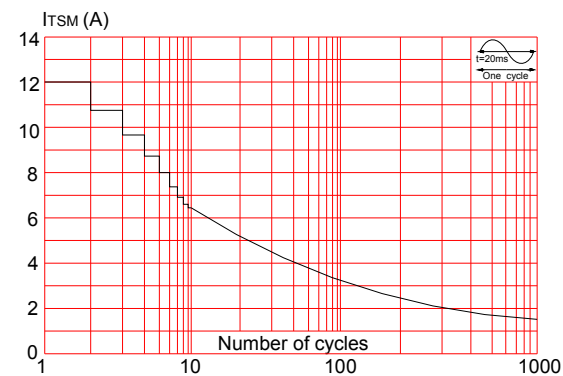


FIG.4: On-state characteristics (maximum values)

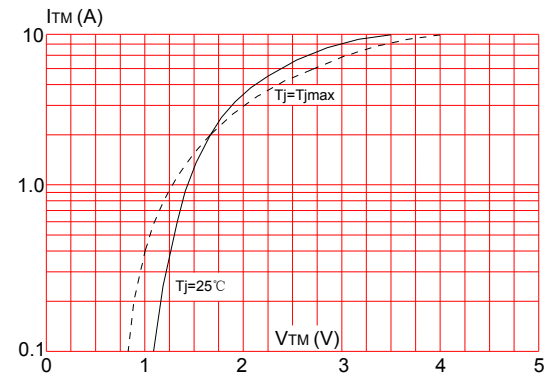


FIG.5: Relative variations of gate trigger current versus junction temperature

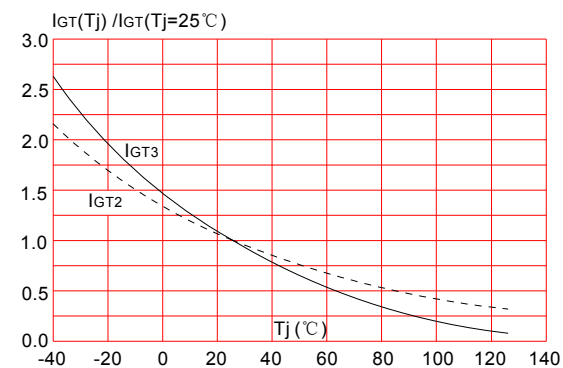


FIG.6: Relative variations of holding current, latching current versus junction temperature

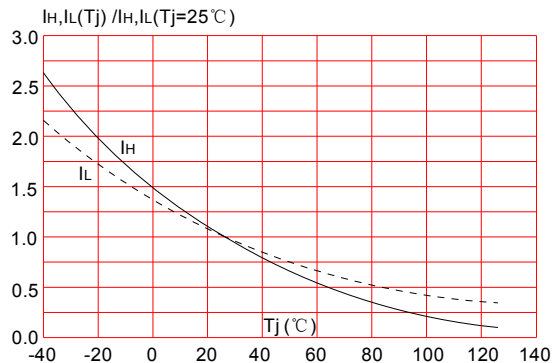
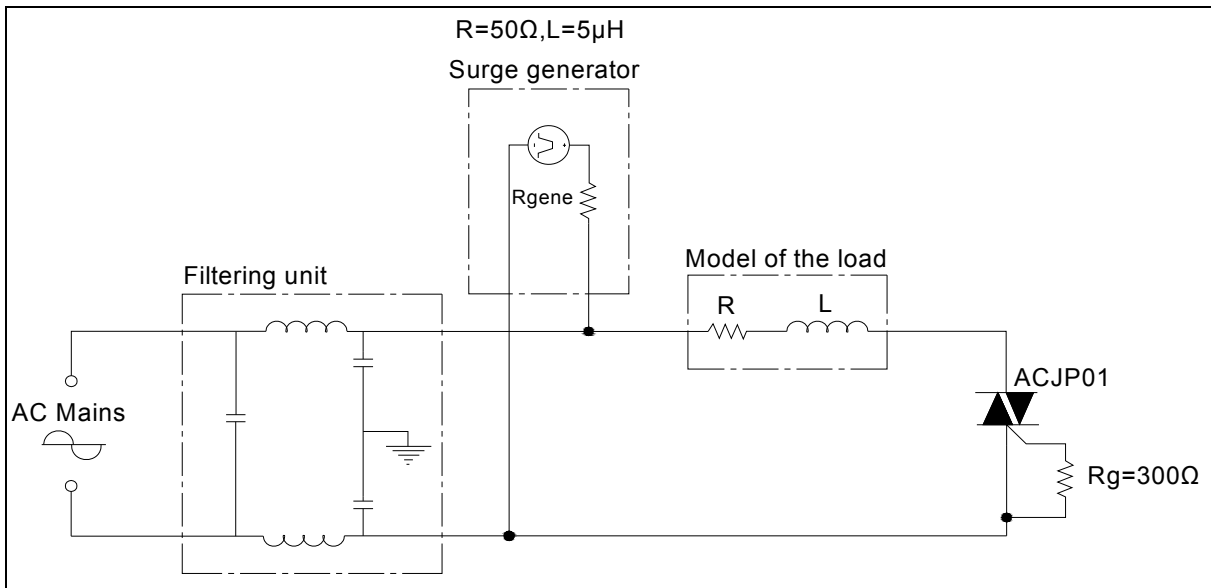
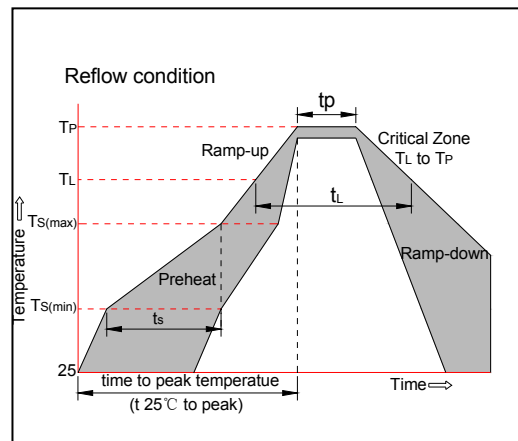


Fig.7: Overvoltage ruggedness test circuit for resistive and inductive loads for IEC 61000-4-5 standards




SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



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