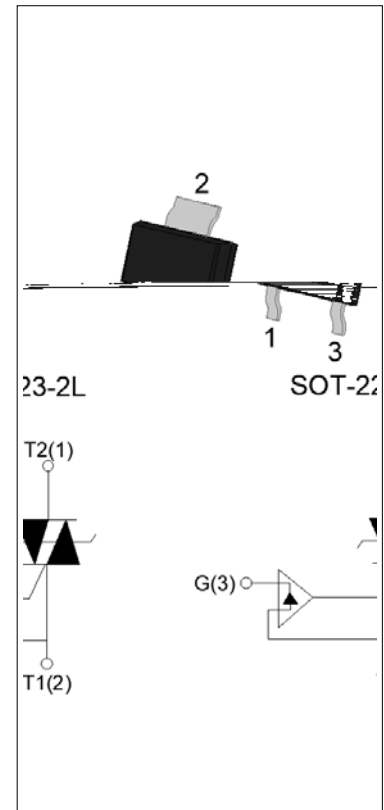


**ACJ110-8W 1A TRIAC**

Rev.A.1.0

**DESCRIPTION:**

The ACJ110-8W triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. The ACJ110-8W embeds a TVS structure to absorb the inductive turn-off energy such as those described in the IEC 61000-4-5 standards. At the same time, the triac shields the positive signal trigger to reduce the probability of product misoperation. It is triggered with a negative gate current flowing out of the gate pin. Package SOT-223-2L is RoHS compliant.


**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
$V_{DRM}/V_{RRM}$	800	V
$I_{GT\ II/III}$	10/10	mA

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40-150	°C
Operating junction temperature range	$T_j$	-40-125	°C
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{DRM}$	800	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	800	V
RMS on-state current ( $T_c \leq 93^\circ\text{C}$ )	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I_{TSM}$	12	A
Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )		13.2	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I^2t$	0.72	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 I_{GT}$ , $f=100\text{Hz}$ , $T_j=125^\circ\text{C}$ )	$di/dt$	100	A s
Peak gate current ( $t_p=20 \text{ s}$ , $T_j=125^\circ\text{C}$ )	$I_{GM}$	1	A
Positive applied gate voltage	$V_{GM}$	15	V

Average gate power dissipation ( $T_j=125^\circ\text{C}$ )	$P_{G(AV)}$	0.1	W
Peak gate power	$P_{GM}$	2	W
Peak pulse voltage ( $T_j=25^\circ\text{C}$ ; non-repetitive, off-state; FIG.8)	$V_{pp}$	3.5	kV

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

Symbol	Test Condition	Quadrant	Value		Unit
$I_{GT}$	$V_D=12\text{V } R_L=33$	II-III	MAX.	10	mA
$V_{GT}$		II-III	MAX.	1.3	V
$V_{GD}$	$V_D=V_{DRM} T_j=125^\circ\text{C}$ $R_L=3.3\text{K}$	II-III	MIN.	0.15	V
$I_L$	$I_G=1.2I_{GT}$	II	MAX.	25	mA
		III		10	
$I_H$	$I_T=100\text{mA}$		MAX.	10	mA
$dV/dt$	$V_D=540\text{V}$ Gate Open $T_j=125^\circ\text{C}$		MIN.	80	V/s
$(dI/dt)_c$	$(dV/dt)_c=1$ $j=125^\circ\text{C}$		MIN.	0.5	A/ms
$t_{on}$	$I_G=20\text{mA } I_A=200\text{mA } I_R=20\text{mA}$ $T_j=25^\circ\text{C}$		TYP.	2.5	s
$t_{off}$				25	
$V_{CL}$	$I_{CL}=0.1\text{mA } t_p=1\text{ms}$		MIN.	850	V

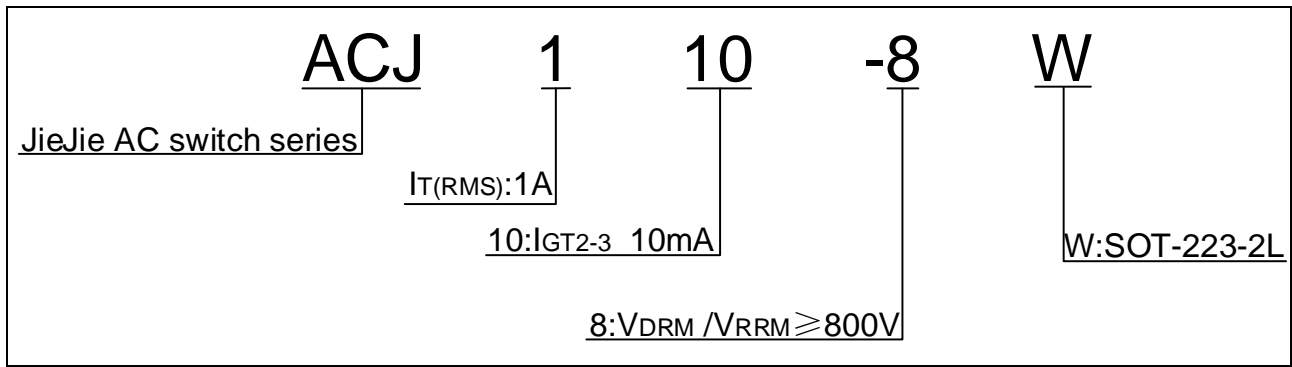
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=1.1\text{A } t_p=380\text{ s}$	$T_j=25^\circ\text{C}$	1.3	V
$V_{TO}$	Threshold voltage	$T_j=125^\circ\text{C}$	0.77	V
$R_D$	Dynamic resistance	$T_j=125^\circ\text{C}$	276	
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	5	A
$I_{RRM}$		$T_j=125^\circ\text{C}$	0.5	mA

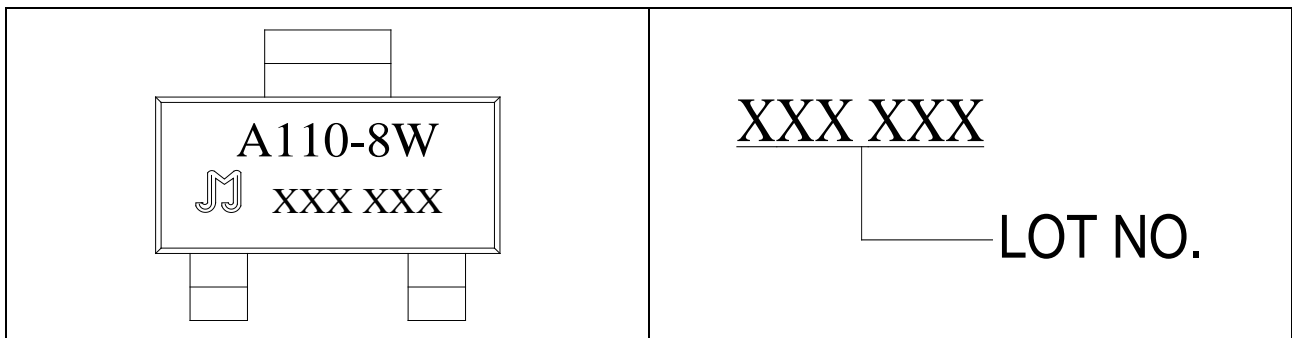
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	25	$^\circ\text{C/W}$
$R_{th(j-a)}$	junction to ambient (AC)	150	$^\circ\text{C/W}$

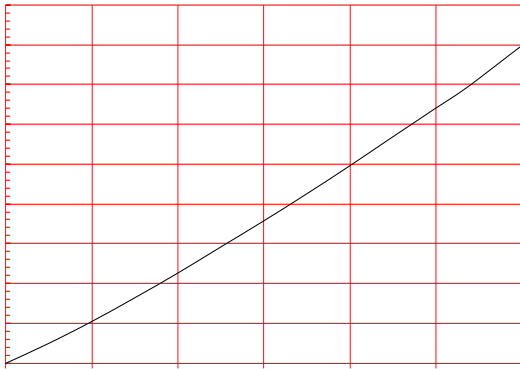
ORDERING INFORMATION



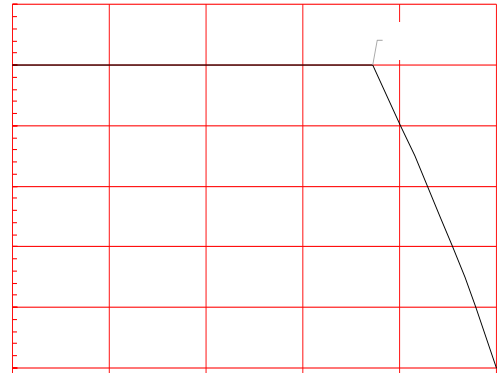
MARKING



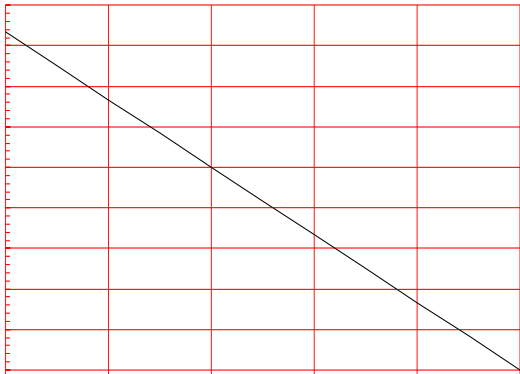
**FIG.1** Maximum power dissipation versus RMS on-state current



**FIG.2:** RMS on-state current versus case temperature



**FIG.3:** RMS on-state current versus ambient temperature (printed circuit board FR4,copper)

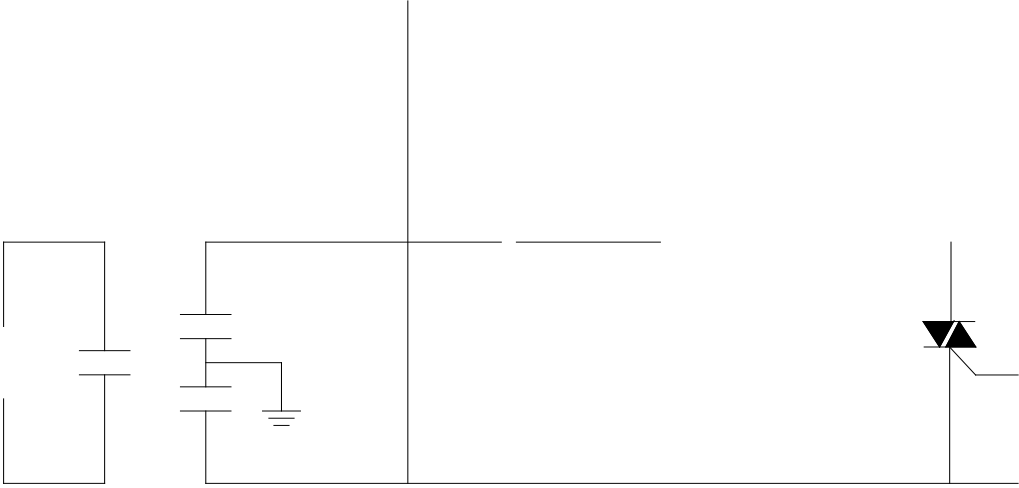


**FIG.4:** Surge peak on-state current versus number of cycles





FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



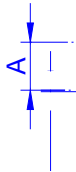
**ORDERING INFORMATION**

<b>Order code</b>	<b>Voltage <math>V_{\text{DRM}}/V_{\text{RRM}}</math> (V)</b>	<b>IGT(mA)</b>	<b>Package</b>	<b>Base qty. (pcs)</b>	<b>Delivery mode</b>
<b>ACJ110-8W</b>	<b>800</b>	<b>10</b>	<b>SOT-223-2L</b>	<b>4,000</b>	<b>Tape &amp; Reel</b>

**Document Revision History**

<b>Date</b>	<b>Revision</b>	<b>Changes</b>
Apr.13, 2023	A.1.0	Last updated

PACKAGE MECHANICAL DATA






DELIVERY MODE

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	-		12.30	-		0.482
E	1.65	1.75	1.85	0.065	0.069	0.073
F	5.45	5.50	5.55	0.215	0.217	0.219
D0		1.55	1.60		0.061	0.063
D1		-	-			
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.95	2.00	2.05	0.077	0.079	0.081
10P0	39.80	40.00	40.20	1.567	1.575	1.583
A0	6.85	6.95	7.05	0.269	0.273	0.276
B0	7.15	7.25	7.35	0.280	0.284	0.288
K0	1.95	2.05	2.15	0.076	0.080	0.084
T	0.20	0.25	0.30	0.008	0.010	0.012

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