SAMXON®

SAMXON BRAND ALUMINUM ELECTROLYTIC CAPACITORS

PRODUCT SPECIFICATION
規格書

CUSTOMER :	**DATE :**
(客戶) :	**(日期) : 2019-7-18**

CATEGORY (品名)	:	ALUMINUM ELECTROLYTIC CAPACITORS
DESCRIPTION (型号)	:	VT2 10V100μ F (φ 5x5.8)
VERSION (版本)	:	01
Customer P/N	:	
SUPPLIER	:	

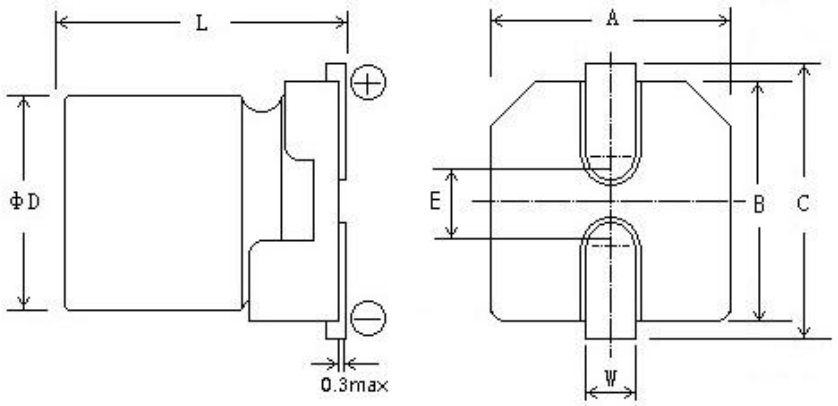
SUPPLIER	
PREPARED **（拟定）**	**CHECKED** **（审核）**
赵安平	刘渭清

CUSTOMER	
APPROVAL **（批准）**	**SIGNATURE** **（签名）**

MAN YUE ELECTRONICS COMPANY LIMITED	*ELECTROLYTIC CAPACITOR SPECIFICATION VT2 SERIES*	**SAMXON**

SPECIFICATION					ALTERNATION HISTORY RECORDS		
VT2 SERIES							
Rev.	Date	Mark	Page	Contents	Purpose	Drafter	Approver

Table 1 Product Dimensions and Characteristics



Size	5X5.8
A ±0.2	5.3
B ±0.2	5.3
C ±0.2	6.1
E ±0.2	1.3
L ±0.2	5.8
W	0.5~0.9

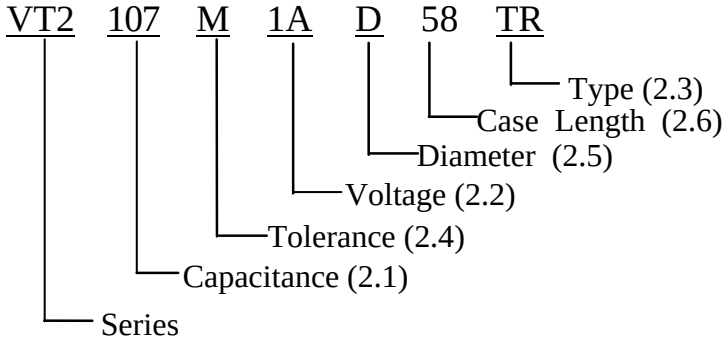
No.	SAMXON Part No.	WV (Vdc)	Cap. (μF)	Cap. tolerance	Temp. range(℃)	tanδ (120Hz, 20℃)	Leakage Current (μA,2min)	Max Ripple Current at 105℃ 120Hz (mA rms)	Load lifetime (Hrs)	Dimension (mm)
										D×L
1	VT2107M1AD58TR**	10	100	-20%~+20%	-55~105	0.20	10	30	2000	5X5.8

C O N T E N T S

1. Application

This specification applies to polar Aluminum electrolytic capacitor (foil type) used in electronic equipment. Designed capacitor's quality meets IEC60384.

2. Part Number System



2.1 Capacitance code

Code	**107**
Capacitance (μ F)	100

2.2 Rated voltage code

Code	**1A**
Voltage (W.V.)	10

2.3 Type

Code	**TR**
Reference	Embossed Taping.

2.4 Capacitance tolerance

"M" stands for -20% ~ +20%

2.5 Diameter

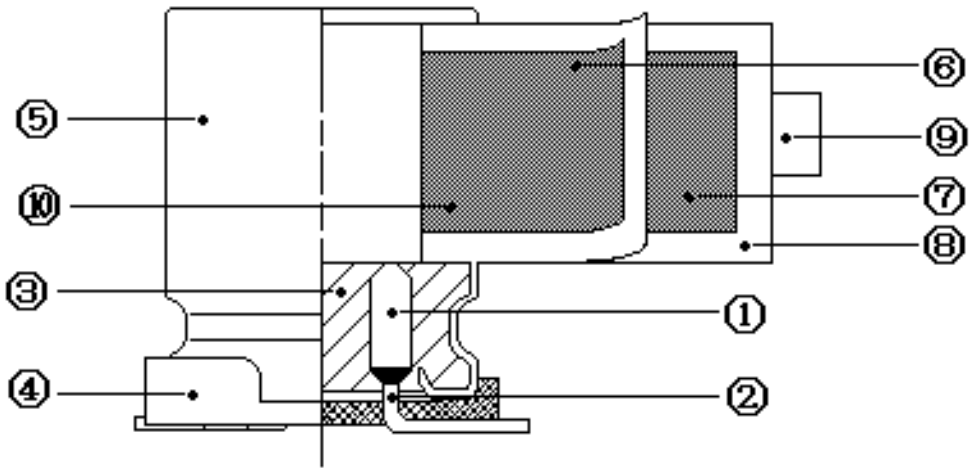
Code	**D**
Diameter	5

2.6 Case length

58=5.8mm

3.Constructions

3-1 Inside Construction



3-2 Construction parts

No.	Parts	Materials	No.	Parts	Materials
1	Lead line	Aluminum 99.93%	6	Anode foil	Formed aluminum 99.99%
2	Terminal	Tinned copper-ply wire (Lead Free) (*2)	7	Cathode foil	Etched aluminum 98%
3	Sealing pad	I.I.R.	8	Separator	Pulp
4	Base plate	P.P.A	9	Adhesive tape	Poly propylene film
5	Case	Aluminum 98%+ PET coating	10	Electrolyte	GBL & EG

4. Characteristics

Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows:

Ambient temperature :15°C to 35°C
Relative humidity : 45% to 85%
Air Pressure : 86kPa to 106kPa

If there is any doubt about the results, measurement shall be made within the following conditions:

Ambient temperature : 20°C ± 2°C
Relative humidity : 60% to 70%
Air Pressure : 86kPa to 106kPa

Operating temperature range

The ambient temperature range at which the capacitor can be operated continuously at rated voltage
See table 1 temperature range.

As to the detailed information, please refer to table 2.

Table 2

<table>
<tr><th colspan="2">ITEM</th><th>PERFORMANCE</th></tr>
<tr><td>4.1</td><td>Rated voltage (WV)

Surge voltage (SV)</td><td>
<table>
<tr><td>WV (V.DC)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr>
<tr><td>SV (V.DC)</td><td>7.3</td><td>11.5</td><td>18.4</td><td>29</td><td>40</td><td>58</td></tr>
</table>
</td></tr>
<tr><td>4.2</td><td>Nominal capacitance (Tolerance)</td><td><Condition>
Measuring Frequency : 120Hz±12Hz
Measuring Voltage : Not more than 0.5Vrms
Measuring Temperature : 20±2℃

<Criteria>
Shall be within the specified capacitance tolerance.</td></tr>
<tr><td>4.3</td><td>Leakage current</td><td><Condition>
Connecting the capacitor with a protective resistor (1kΩ ±10Ω) in series for 2 minutes, and then, measure Leakage Current.
<Criteria>
Refer to Table 1</td></tr>
<tr><td>4.4</td><td>tanδ</td><td><Condition>
See 4.2, Norm Capacitance, for measuring frequency, voltage and temperature.

<Criteria>
Refer to Table 1</td></tr>
<tr><td>4.5</td><td>Temperature characteristics</td><td>ondition>
<table>
<tr><th>STEP</th><th>Testing Temperature(℃)</th><th>Time</th></tr>
<tr><td>1</td><td>20±2</td><td>Time to reach thermal equilibrium</td></tr>
<tr><td>2</td><td>-55(-40) (-25)±3</td><td>Time to reach thermal equilibrium</td></tr>
<tr><td>3</td><td>20±2</td><td>Time to reach thermal equilibrium</td></tr>
<tr><td>4</td><td>105±2</td><td>Time to reach thermal equilibrium</td></tr>
<tr><td>5</td><td>20±2</td><td>Time to reach thermal equilibrium</td></tr>
</table>
Capacitance, DF, and impedance shall be measured at 120Hz.

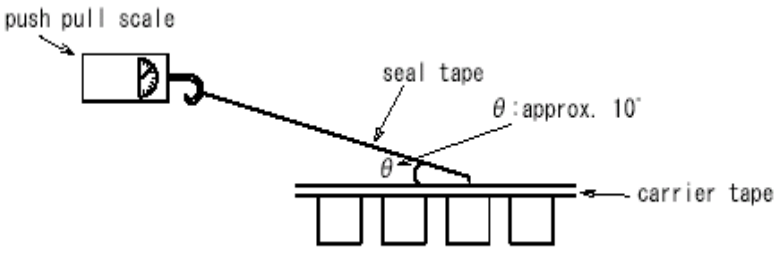
<Criteria>
a. The leakage current value at +105℃ shall not more than 8 times the Specified value.
b. At step 5.capacitance shall be within ±25% of their original +20℃, measured capacitance</td></tr>
</table>

<table>
<tr>
<td>4.5</td>
<td>Temperature characteristics</td>
<td>b. At-55℃ (-25℃), impedance (z) ratio shall not exceed the value of the following table.
<table>
<tr><td>Working Voltage (V)</td><td>10</td></tr>
<tr><td>Z-25℃/Z+20℃</td><td>3</td></tr>
<tr><td>Z-55℃/Z+20℃</td><td>6</td></tr>
</table>
</td>
</tr>
<tr>
<td>4.6</td>
<td>Load life test</td>
<td><Condition>
According to IEC60384-4No.4.13 methods, The capacitor is stored at a temperature of 105℃ ±2 with DC bias voltage plus the rated ripple current for Table 1. (The sum of DC and ripple peak voltage shall not exceed the rated working voltage) Then the product should be tested after 16 hours recovering time at atmospheric conditions. The result should meet the following table:
<Criteria>
The characteristic shall meet the following requirements.
<table>
<tr><td>Leakage current</td><td>Value in 4.3 shall be satisfied</td></tr>
<tr><td>Capacitance Change</td><td>Within ±25% of initial value.</td></tr>
<tr><td>tanδ</td><td>Not more than 300% of the specified value.</td></tr>
<tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr>
</table>
</td>
</tr>
<tr>
<td>4.7</td>
<td>Shelf life test</td>
<td><Condition>
The capacitors are then stored with no voltage applied at a temperature of 105±2℃ for 1000+48/0 hours. Following this period the capacitors shall be removed from the test chamber and be allowed to stabilized at room temperature for 4~8 hours. Next they shall be connected to a series limiting resistor(1k±100Ω) with D.C. rated voltage applied for 30min. After which the capacitors shall be discharged, and then, tested the characteristics.

<Criteria>
The characteristic shall meet the following requirements.
<table>
<tr><td>Leakage current</td><td>Value in 4.3 shall be satisfied</td></tr>
<tr><td>Capacitance Change</td><td>Within ±20% of initial value.</td></tr>
<tr><td>tanδ</td><td>Not more than 200%of the specified value.</td></tr>
<tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr>
</table>
Remark: If the capacitors are stored more than 1 year, the leakage current may increase. Please apply voltage through about 1 kΩ resistor, if necessary.
</td>
</tr>
</table>

<table>
<tr>
<td>4.8</td>
<td>Surge test</td>
<td>
<Condition>
Applied a surge voltage to the capacitor connected with a (100 ±50)/C_R (kΩ) resistor. The capacitor shall be submitted to 1000 cycles, each consisting of charge of 30 ±5s, followed discharge of 5 min 30s.
The test temperature shall be 15~35℃.
C_R :Nominal Capacitance (μ F)
<Criteria>
<table>
<tr><td>Leakage current</td><td>Not more than the specified value.</td></tr>
<tr><td>Capacitance Change</td><td>Within ±20% of initial value.</td></tr>
<tr><td>tanδ</td><td>Not more than 200% of the specified value.</td></tr>
<tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr>
</table>
Attention:
This test simulates over voltage at abnormal situation only. It is not applicable to such over voltage as often applied.
</td>
</tr>
<tr>
<td>4.9</td>
<td>Vibration test</td>
<td>
<Condition>
The following conditions shall be applied for 2 hours in each 3 mutually perpendicular directions.
Vibration frequency range : 10Hz ~ 55Hz
Peak to peak amplitude : 1.5mm
Sweep rate : 10Hz ~ 55Hz ~ 10Hz in about 1 minute
Mounting method:
The capacitor with diameter greater than 12.5mm or longer than 25mm must be fixed in place with a bracket.

<Criteria>
After the test, the following items shall be tested:
<table>
<tr><td>Capacitance Change</td><td>Within ±10% of initial value.</td></tr>
<tr><td>Inner construction</td><td>No intermittent contacts, open or short circuiting.
No damage of tab terminals or electrodes.</td></tr>
<tr><td>Appearance</td><td>No mechanical damage in terminal. No leakage of electrolyte or swelling of the case.
The markings shall be legible.</td></tr>
</table>
</td>
</tr>
<tr>
<td>4.10</td>
<td>Solderability test</td>
<td>
<Condition>
The capacitor shall be tested under the following conditions:
Soldering temperature : 245±3°C
Dipping depth : 2mm
Dipping speed : 25±2.5mm/s
Dipping time : 3±0.5s
<Criteria>
<table>
<tr><td>Coating quality</td><td>A minimum of 95% of the surface being immersed</td></tr>
</table>
</td>
</tr>
</table>

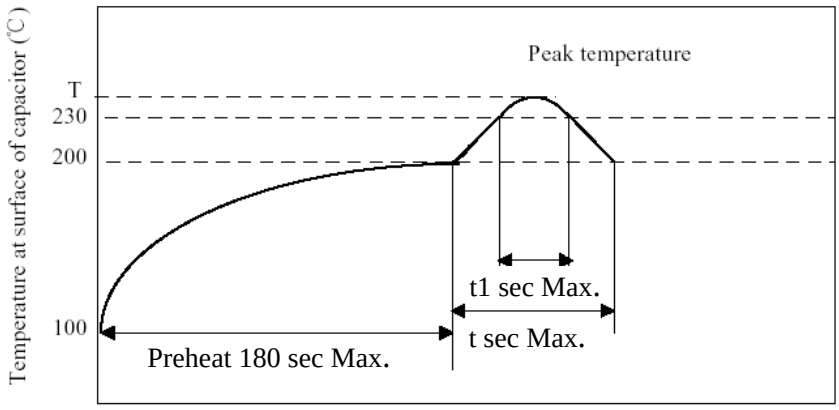
<table>
<tr>
<td>4.11</td>
<td>Resistance to solder heat test</td>
<td><Condition>
Terminals of the capacitor shall be immersed into solder bath at 260±5℃for10±1seconds or 400±10℃for3 $^{+1}_{-0}$ seconds to 1.5~2.0mm from the body of capacitor .
Then the capacitor shall be left under the normal temperature and normal humidity for 1~2 hours before measurement.
<Criteria>
<table>
<tr><td>Capacitance Change</td><td>Within ±10% of initial value.</td></tr>
<tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr>
</table>
</td>
</tr>
<tr>
<td>4.12</td>
<td>Damp heat test</td>
<td><Condition>
Humidity Test:
According toIEC60384-4 No.4.12 methods, capacitor shall be exposed for 500±8 hours in an atmosphere of 90~95%R H .at 40±2℃, the characteristic change shall meet the following requirement.
<Criteria>
<table>
<tr><td>Leakage current</td><td>Not more than the specified value.</td></tr>
<tr><td>Capacitance Change</td><td>Within ±15% of initial value.</td></tr>
<tr><td>Dissipation Factor</td><td>Not more than the specified value.</td></tr>
<tr><td>Appearance</td><td>There shall be no leakage of electrolyte.</td></tr>
</table>
</td>
</tr>
<tr>
<td>4.13</td>
<td>Adhesion test</td>
<td>Reasonable pulling strength :0.1~0.7N
Pulling speed: 300mm/min
 

</td>
</tr>
<tr>
<td>4.14</td>
<td>Reflow soldering temperature profile</td>
<td>After the capacitor is subjected to the specified reflow soldering ,
(see temperature profile below) it shall meet the condition stated in the page 10, item 4.11.

<Reflow soldering condition >
The temperature shall be measured with thermal couple. which shall be placed and fixed on the top of capacitor body.

Maximum Permissible Reflow Soldering Temperature Profile
We recommend soldering shall done according to following maximum permissible reflow soldering temperature reflow soldering temperature profile.</td>
</tr>
</table>

4.14	Reflow soldering temperatur e profile	Reflow soldering (This is a method to heat parts and the substrate by hot air or infrared furnace.)



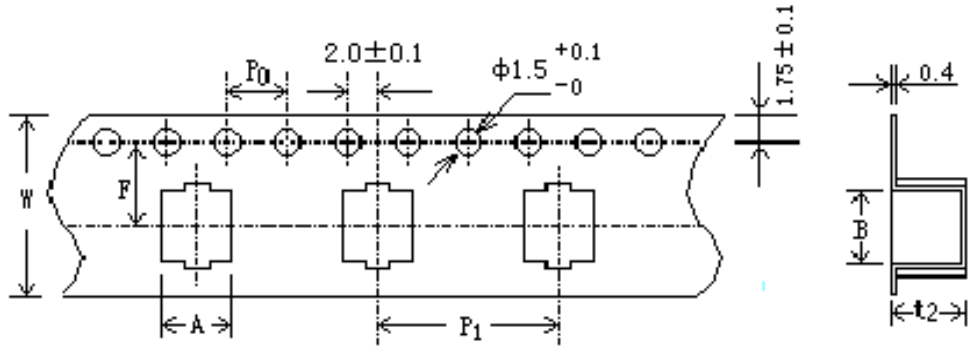
1) Temperature at surface of capacitor shall not exceed T(℃).
2) Period that temperature at surface of capacitor becomes more than 200℃ and 230℃ shall not exceed t and t1 seconds, respectively.
3) Preheat shall be made at 100℃~200℃ and for maximum 180 seconds.

Size	T(℃)	t(sec)	t1(sec)
Φ 4~6.3	255	100	50
Φ 8	245	100	40
Φ 10~16	245	100	40

5. Taping

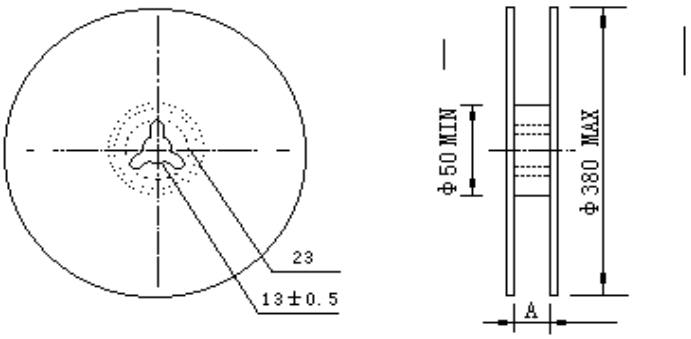
[Unit: mm]

a) Carrier Tape



φ D×L	W±0.3	A±0.2	B±0.2	F±0.1	P_0±0.1	P_1±0.1	t_2±0.2
φ 5X5.8	12.0	6.0	6.0	5.5	4.0	12.0	6.2

b) Reel



φ D	5	6.3	10
A	14	18	26

6. Packing Style

(1). Carrier tape shall be reeled inside. (seal tape shall be outside)
(2). End of the tape shall be inside to the reel physically as shown in the below figure and leader part of seal tape shall not be attached.