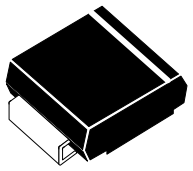
5.0SMDJxx(C)AE

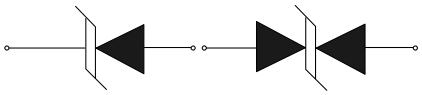
Power Transient Voltage Suppressor

Features

- 5000 watts Peak Pulse Power (10/1000μs)
- Unidirectional and Bidirectional Protection
- Fast Response Time: Typically < 1ns
- Excellent Clamping Capability
- Built-in Strain relief
- Low inductance
- Low profile package
- IEC 61000-4-2 (ESD) ±30kV(air), ±30kV(contact)
- MSL: Level 1



SMC
(JEDEC DO-214AB)



Unidirectional Bidirectional

Mechanical Characteristics

- JEDEC DO-214AB package
- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel per EIA 481
- RoHS & HF Compliant

Applications

- I/O Interfaces
- Power lines
- Telecommunication
- Computers &Consumer Electronics
- Industrial Electronics

Absolute Maximum Rating (T_A=25℃ unless otherwise noted)			
Rating	**Symbol**	**Value**	**Units**
Peak Pulse Power (tp =10/1000μs) (see Note1,2& 3)	P_{PPM}	5000	Watts
Peak pulse current (10/1000 μs) (see Note2& 3)	I_{PPM}	See next table	A
Peak forward surge current (see Note4& 5)	I_{FSM}	300	A
Power dissipation on infinite heat sink T_L = 50 °C(Fig5)	P_D	6.5	W
Operating junction temperature range	T_J	-65 to + 150	℃
storage temperature range	T_{STG}	-65 to + 150	℃

Note1: Peak Pulse Power Rating as Pulse Width , per Fig1.

Note2: Peak Pulse Power or Current Derated above T_A=25℃ Per Fig. 2 and Non-Repetitive Current Pulse, Per Fig.3.

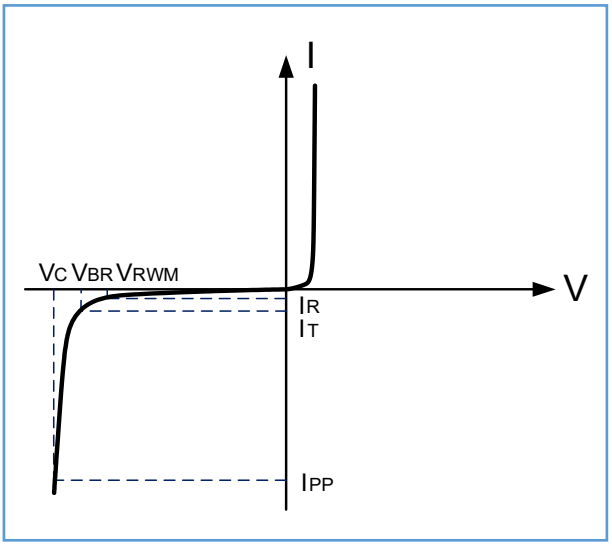
Note3: Mounted on 5.0x5.0mm^2 copper pad to each terminal.

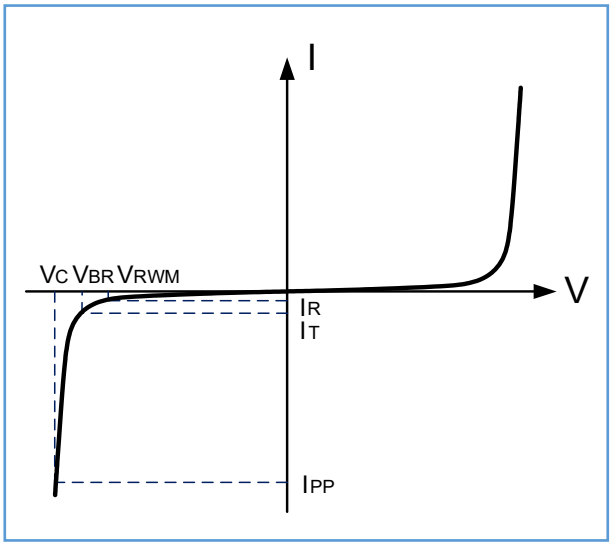
Note4: 8.3ms Single Half Sine Wave or Equivalent Square Wave.

Note5: Maximum Forward Surge Current only for Unidirectional Device per Fig6.

Electrical Characteristics(T_A=25℃ unless otherwise noted)

Symbol	Parameter
IPP	Maximum Reverse Peak Pulse Current
VC	Clamping Voltage @ IPP
VRWM	Working Peak Reverse Voltage
IR	Maximum Reverse Leakage Current @ VRWM
VBR	Breakdown Voltage @ IT
IT	Test Current





Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T (mA)	Maximum Clamping Voltage Vc@I_{PP} (Volts)	Maximum Peak Pulse Current Ipp (Amps)	Maximum Reverse Leakage I_R@V_{RWM} (μA)
UNI-POLAR	BI-POLAR		MIN	MAX				
5.0SMDJ12AE	5.0SMDJ12CAE	12	13.3	14.7	10	19.9	252.0	800
5.0SMDJ13AE	5.0SMDJ13CAE	13	14.4	15.9	10	21.5	233.0	500
5.0SMDJ14AE	5.0SMDJ14CAE	14	15.6	17.2	10	23.2	216.0	200
5.0SMDJ15AE	5.0SMDJ15CAE	15	16.7	18.5	1	24.4	205.0	100
5.0SMDJ16AE	5.0SMDJ16CAE	16	17.8	19.7	1	26.0	193.0	50

• Electrical Characteristics(Cont.)

Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T (mA)	Maximum Clamping Voltage Vc@I_{PP} (Volts)	Maximum Peak Pulse Current Ipp (Amps)	Maximum Reverse Leakage I_R@V_{RWM} (μA)
UNI-POLAR	BI-POLAR		MIN	MAX				
5.0SMDJ17AE	5.0SMDJ17CAE	17	18.9	20.9	1	27.6	181.0	20
5.0SMDJ18AE	5.0SMDJ18CAE	18	20.0	22.1	1	29.2	172.0	10
5.0SMDJ20AE	5.0SMDJ20CAE	20	22.2	24.5	1	32.4	155.0	5
5.0SMDJ22AE	5.0SMDJ22CAE	22	24.4	26.9	1	35.5	141.0	5
5.0SMDJ24AE	5.0SMDJ24CAE	24	26.7	29.5	1	38.9	129.0	5
5.0SMDJ26AE	5.0SMDJ26CAE	26	28.9	31.9	1	42.1	119.0	5
5.0SMDJ28AE	5.0SMDJ28CAE	28	31.1	34.4	1	45.4	110.0	5
5.0SMDJ30AE	5.0SMDJ30CAE	30	33.3	36.8	1	48.4	103.0	5
5.0SMDJ33AE	5.0SMDJ33CAE	33	36.7	40.6	1	53.3	93.9	5
5.0SMDJ36AE	5.0SMDJ36CAE	36	40.0	44.2	1	58.1	86.1	5
5.0SMDJ40AE	5.0SMDJ40CAE	40	44.4	49.1	1	64.5	77.6	5
5.0SMDJ43AE	5.0SMDJ43CAE	43	47.8	52.8	1	69.4	72.1	5
5.0SMDJ45AE	5.0SMDJ45CAE	45	50.0	55.3	1	72.7	68.8	5
5.0SMDJ48AE	5.0SMDJ48CAE	48	53.3	58.9	1	77.4	64.7	5
5.0SMDJ51AE	5.0SMDJ51CAE	51	56.7	62.7	1	82.4	60.7	5
5.0SMDJ54AE	5.0SMDJ54CAE	54	60.0	66.3	1	87.1	57.5	5
5.0SMDJ58AE	5.0SMDJ58CAE	58	64.4	71.2	1	93.6	53.5	5
5.0SMDJ60AE	5.0SMDJ60CAE	60	66.7	73.7	1	96.8	51.7	5
5.0SMDJ64AE	5.0SMDJ64CAE	64	71.1	78.6	1	103.0	48.6	5
5.0SMDJ70AE	5.0SMDJ70CAE	70	77.8	86.0	1	113.0	44.3	5
5.0SMDJ75AE	5.0SMDJ75CAE	75	83.3	92.1	1	121.0	41.4	5
5.0SMDJ78AE	5.0SMDJ78CAE	78	86.7	95.8	1	126.0	39.7	5
5.0SMDJ80AE	5.0SMDJ80CAE	80	88.8	98.2	1	129.6	38.6	5

• Electrical Characteristics(Cont.)

Part Number		Reverse Stand off Voltage V_{RWM} (Volts)	Breakdown Voltage V_{BR}(Volts)@I_T		Test Current I_T (mA)	Maximum Clamping Voltage Vc@I_{PP} (Volts)	Maximum Peak Pulse Current Ipp (Amps)	Maximum Reverse Leakage I_R@V_{RWM} (μA)
UNI-POLAR	BI-POLAR		MIN	MAX				
5.0SMDJ85AE	5.0SMDJ85CAE	85	94.4	104.0	1	137.0	36.5	5
5.0SMDJ90AE	5.0SMDJ90CAE	90	100.0	111.0	1	146.0	34.3	5
5.0SMDJ100AE	5.0SMDJ100CAE	100	111.0	123.0	1	162.0	30.9	5
5.0SMDJ110AE	5.0SMDJ110CAE	110	122.0	135.0	1	177.0	28.3	5
5.0SMDJ120AE	5.0SMDJ120CAE	120	133.0	147.0	1	193.0	26.0	5
5.0SMDJ130AE	5.0SMDJ130CAE	130	144.0	159.0	1	209.0	24.0	5
5.0SMDJ150AE	5.0SMDJ150CAE	150	167.0	185.0	1	243.0	20.6	5
5.0SMDJ160AE	5.0SMDJ160CAE	160	178.0	197.0	1	259.0	19.3	5
5.0SMDJ170AE	5.0SMDJ170CAE	170	189.0	209.0	1	275.0	18.2	5

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

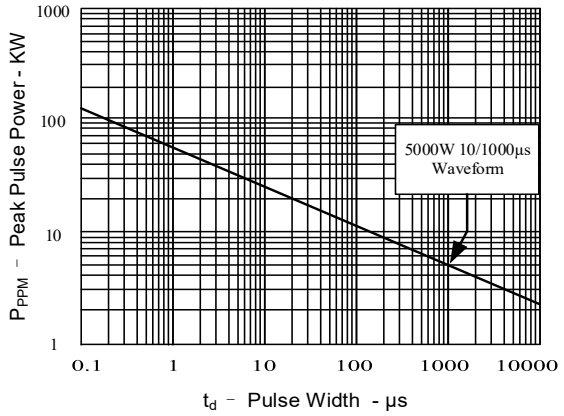


Figure 2: Pulse Derating Curve

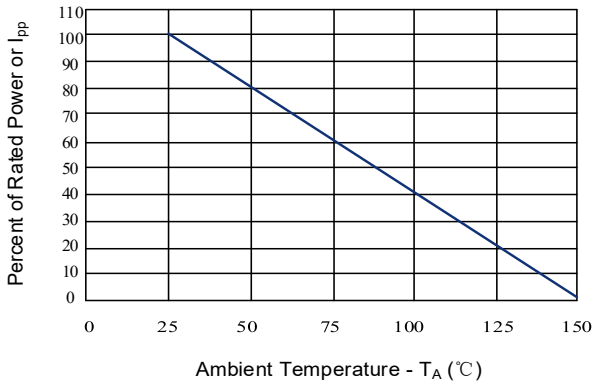


Figure 3: Pulse Waveform

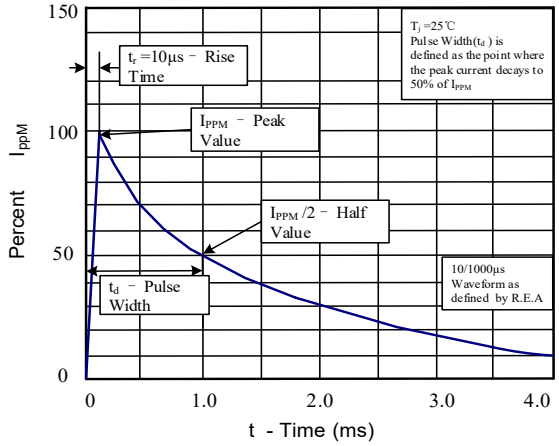


Figure 4: Typical Junction Capacitance

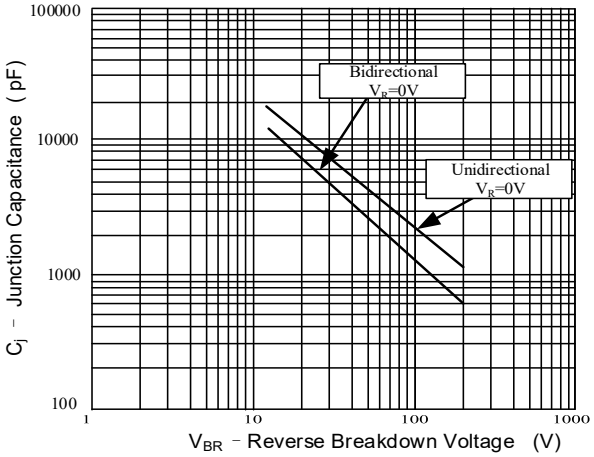


Figure 5: Steady State Power Dissipation Derating Curve

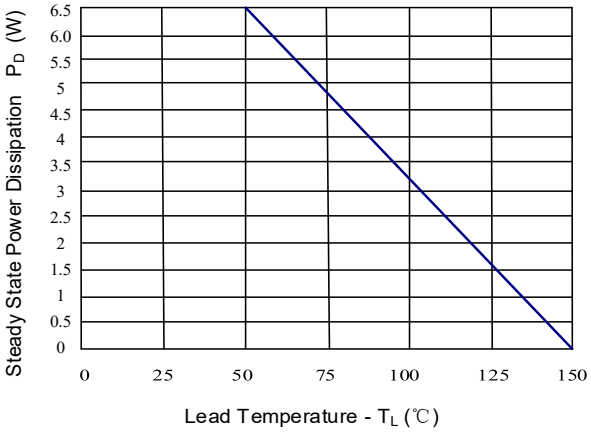
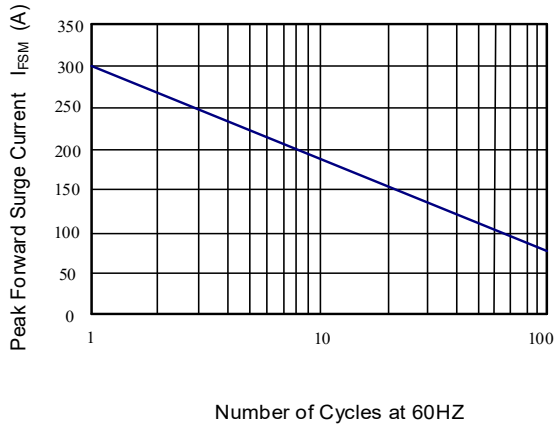


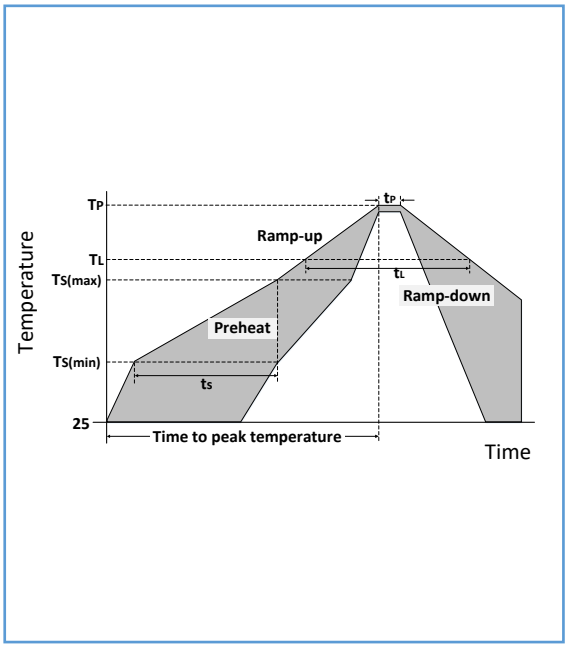
Figure 6: Maximum Non-Repetitive Forward Surge Current Only Unidirectional



Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

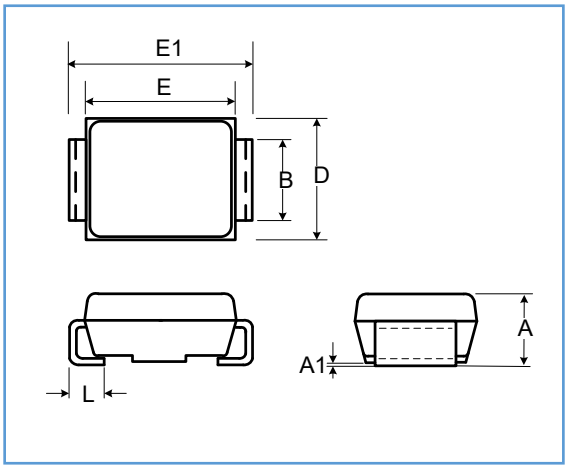
Recommended Soldering Parameters

Reflow Condition		
Pre-Heat	Temperature min ($T_{s(min)}$)	150°C
	Temperature max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60-190 s
Average ramp up rate (Liquidus Temp) (T_L) to peak		3°C/s max
Ts(max) to TL - Ramp-up Rate		3°C/s max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60-150 s
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within actual peak Temperature (t_p)		20-40 s
Ramp-down Rate		5°C/s max
Time 25°C to peak Temperature (T_P)		8 minutes max
Do not exceed		260°C

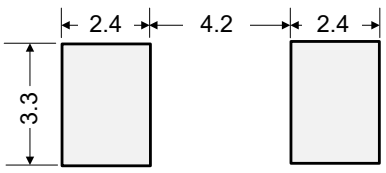


Outline Drawing – SMC(DO-214AB)

Ref.（mm）	Millimeters	
	Min.	Max.
A	2.06	2.70
A1	-	0.30
B	2.90	3.20
E	6.60	7.40
E1	7.75	8.13
D	5.59	6.22
L	0.76	1.52

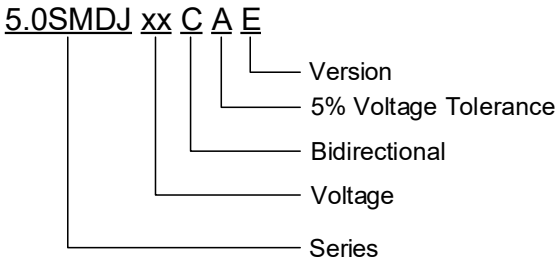


Recommended Solder Pad Layout

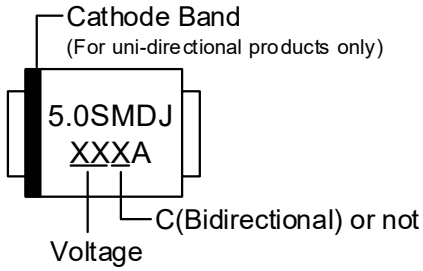


Dimensions in mm

Part Numbering System



Part Marking System

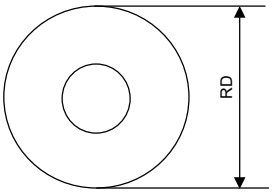


Package Information

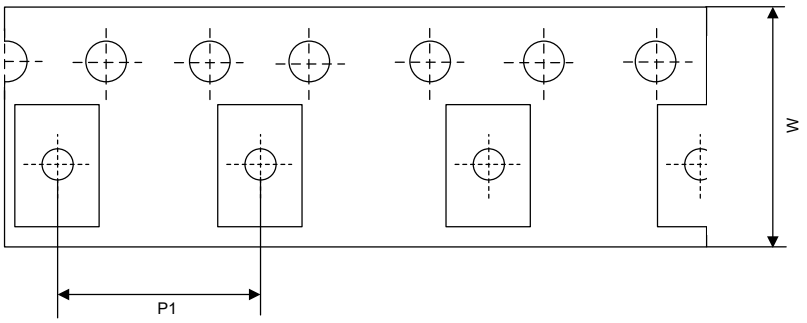
Package Type	Description	Quantity（pcs）
SMC(DO-214AB)	Tape & Reel -16mm/13″ tape	3000

Tape and Reel Information

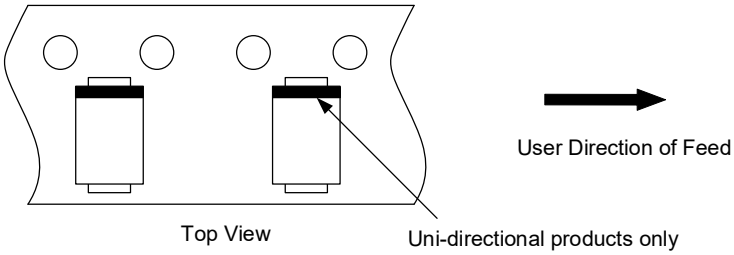
Reel Dimensions



Tape Dimensions



Quadrant Assignments for PIN1 Orientation in tape



RD	Reel Dimensions	13 inch
W	Overall width of the carrier tape	16 mm
P1	Pitch between successive cavity centers	8 mm

Contact Information

No.1001, Shiwan(7) Road, Pudong District, Shanghai, P.R.China.201207
Tel: 86-21-50310888 Fax: 86-21-50757680 Email: market@way-on.com
WAYON website: http://www.way-on.com
For additional information, please contact your local Sales Representative.
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Product Specification Statement

1.The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

2.The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. WAYON shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and WAYON assumes no responsibility for the application of the product.

3.WAYON strives to provide accurate and up-to-date information to the best of our ability. However, due to technical, human, or other reasons, WAYON cannot guarantee that the information provided in the product specification is entirely accurate and error-free. WAYON shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications. WAYON reserves the right to revise or update the product specification and the products at any time without prior notice, and the user's continued use of the product specification is considered an acceptance of these revisions and updates. Prior to purchasing and using the product, users should verify the above information with WAYON to ensure that the product specification is the most current, effective, and complete. If users are particularly concerned about product parameters, please consult WAYON in detail or request relevant product test reports. Any data not explicitly mentioned in the product specification shall be subject to separate agreement.

4.Users are advised to pay attention to the parameter limit values specified in the product specification and maintain a certain margin in design or application to ensure that the product does not exceed the parameter limit values defined in the product specification. This precaution should be taken to avoid exceeding one or more of the limit values, which may result in permanent irreversible damage to the product, ultimately affecting the quality and reliability of the system or equipment.

5.The design of the product is intended to meet civilian needs and is not guaranteed for use in harsh environments or precision equipment. It is not recommended for use in systems or equipment such as medical devices, aircraft, nuclear power, and similar systems, where failures in these systems or equipment could reasonably be expected to result in personal injury. WAYON shall assume no responsibility for any consequences resulting from such usage.

6.Users should also comply with relevant laws, regulations, policies, and standards when using the product specification. Users are responsible for the risks and liabilities arising from the use of the product specification and must ensure that it is not used for illegal purposes. Additionally, users should respect the intellectual property rights related to the product specification and refrain from infringing upon any third-party legal rights. WAYON shall assume no responsibility for any disputes or controversies arising from the above-mentioned issues in any form.