

V_{RWM}	15	V
P_{PP}	200	W
I_{PP}	8.2	A

● Feature

High reliability
Small mold type

● Application

Surge protection
Voltage regulation

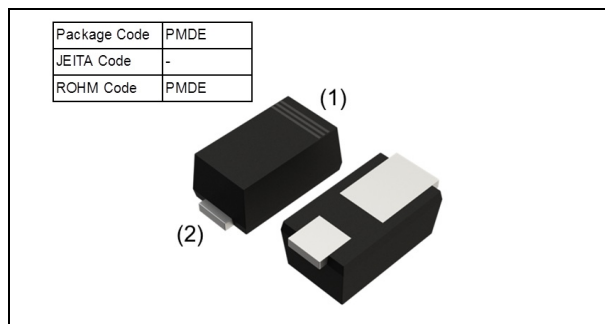
● Structure

Silicon Epitaxial Planar

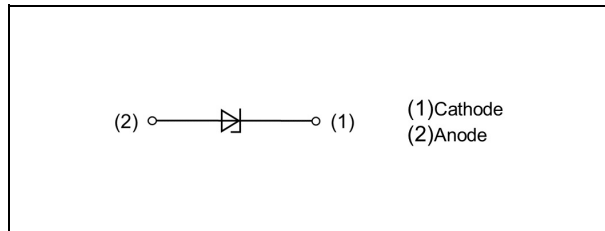
● Absolute Maximum Rating ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Conditions		Min.	Max.	Unit
Peak Pulse Power	P _{pp}	tp=10/1000μs		-	200	W
Peak Pulse Current	I _{pp}	tp=10/1000μs		-	8.2	A
Power dissipation	P _D	on Glass-epoxy substrate		-	1	W
Junction temperature	T _j	-		-	150	°C
Storage temperature	T _{stg}	-		-55	150	°C
ESD capability	V _{ESD}	IEC61000-4-2 C _S =150pF, R _d =330Ω	Air	-	30	kV
			Contact	-	30	kV

● Outline



● Inner Circuit



● Packaging Specification

Packing	Embossed Tape
Reel Size(mm)	180
Taping Width(mm)	8
Quantity(pcs)	3000
Taping Code	TR
Marking	NW

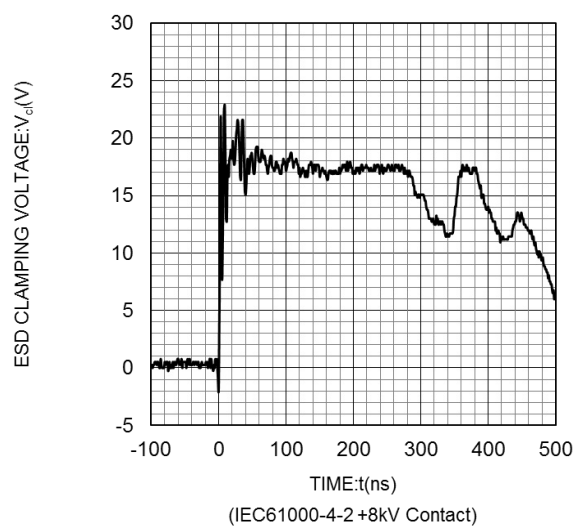
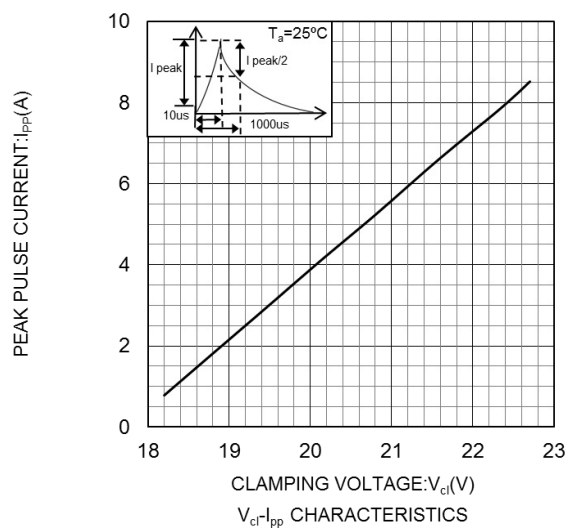
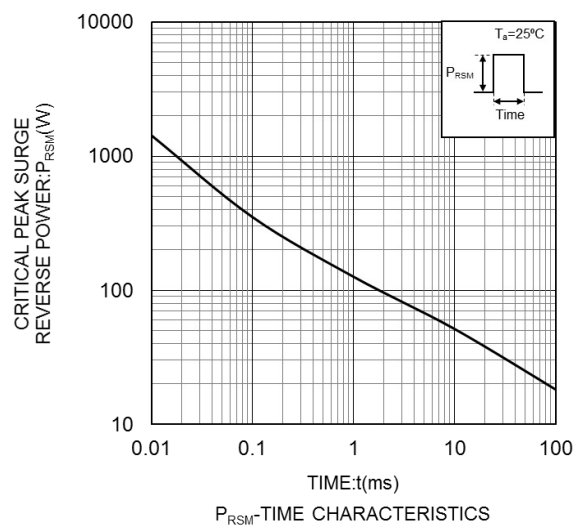
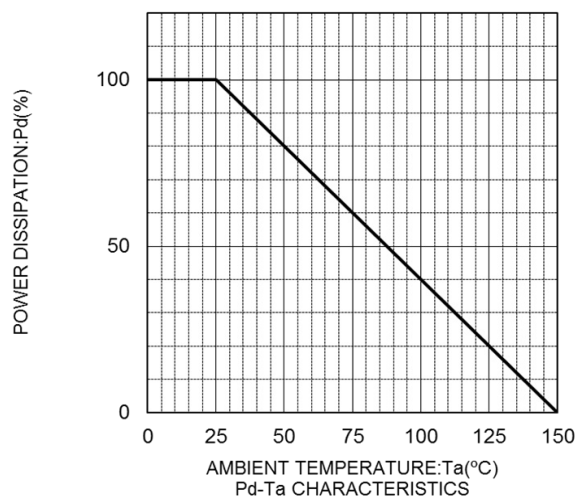
● Characteristic (Ta = 25°C)

Part Number	Symbol							
	Breakdown voltage V_{BR} (V) ⁽¹⁾			Stand-off voltage V_{RWM} (V)	Reverse Current I_R (μA)		Clamping voltage V_{CL} (V)	
	Mn.	Max.	I_T (mA)	Max.	Max.	V_R (V)	Max.	I_{PP} (A)
VS5V0UA1WMM	6.40	7.20	40	5.0	5.0	5.0	9.2	21.7
VS6V0UA1WMM	6.80	7.70	40	6.0	26	6.0	10.3	19.4
VS6V5UA1WMM	7.50	8.40	40	6.5	20	6.5	11.2	17.9
VS7V5UA1WMM	8.20	9.30	40	7.5	7.5	7.5	12.9	15.5
VS9V0UA1WMM	10.0	11.2	40	9.0	0.10	9.0	15.4	13.0
VS11VUA1WMM	12.0	12.2	20	11	0.10	11	18.2	11.0
VS12VUA1WMM	13.3	15.0	20	12	0.10	12	19.9	10.1
VS13VUA1WMM	14.7	16.5	20	13	0.10	13	21.5	9.3
VS15VUA1WMM	16.2	18.3	20	15	0.10	15	24.4	8.2
VS16VUA1WMM	18.0	20.3	20	16	0.10	16	26.0	7.7
VS17VUA1WMM	18.8	21.2	20	17	0.10	17	27.6	7.2
VS18VUA1WMM	20.0	22.4	20	18	0.10	18	29.2	6.8
VS20VUA1WMM	22.0	24.5	10	20	0.10	20	32.4	6.2
VS22VUA1WMM	24.0	27.6	10	22	0.10	22	35.5	5.6
VS24VUA1WMM	27.0	30.8	10	24	0.10	24	38.9	5.1
VS26VUA1WMM	28.6	32.1	10	26	0.10	26	42.1	4.8
VS30VUA1WMM	33.0	37.0	10	30	0.10	30	48.4	4.1
VS33VUA1WMM	36.0	40.0	10	33	0.10	33	53.3	3.8
VS36VUA1WMM	40.0	46.0	10	36	0.10	36	58.1	3.4
VS40VUA1WMM	44.0	50.0	10	40	0.10	40	64.5	3.1

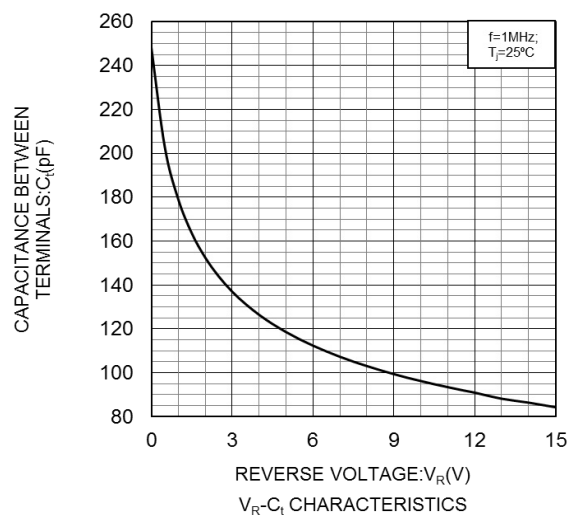
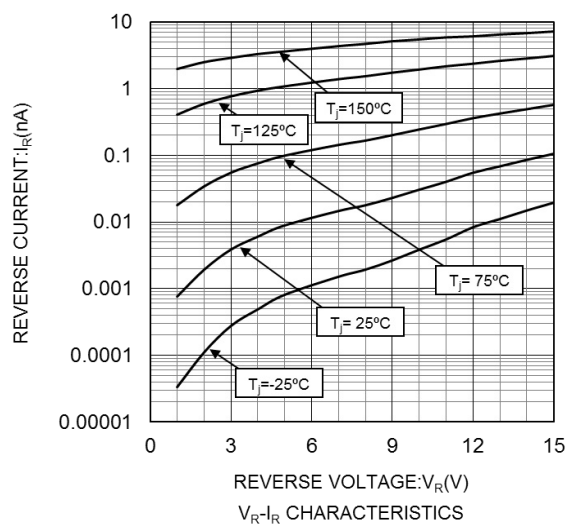
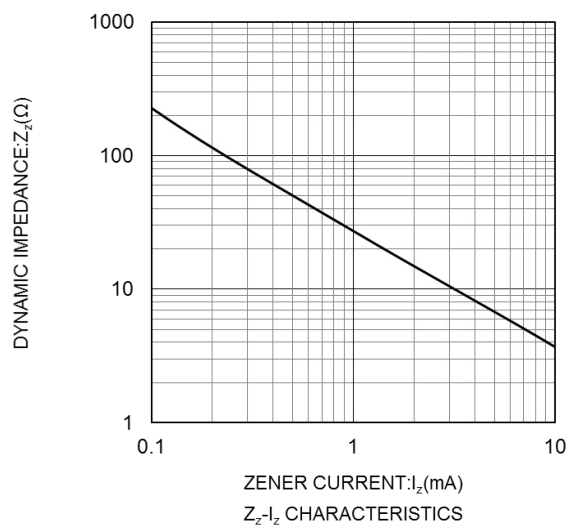
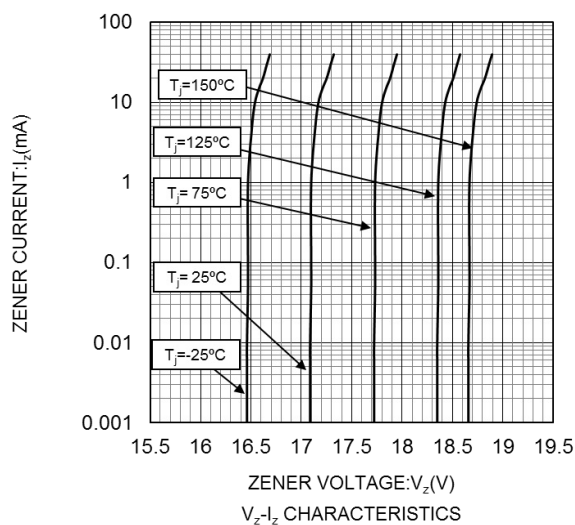
● Marking

Part Number	Marking	Part Number	Marking
VS5V0UA1WMM	AW	VS17VUA1WMM	QW
VS6V0UA1WMM	BW	VS18VUA1WMM	RW
VS6V5UA1WMM	CW	VS20VUA1WMM	SW
VS7V5UA1WMM	EW	VS22VUA1WMM	TW
VS9V0UA1WMM	GW	VS24VUA1WMM	UW
VS11VUA1WMM	JW	VS26VUA1WMM	VW
VS12VUA1WMM	KW	VS30VUA1WMM	XW
VS13VUA1WMM	LW	VS33VUA1WMM	YW
VS15VUA1WMM	NW	VS36VUA1WMM	ZW
VS16VUA1WMM	PW	VS40VUA1WMM	AX

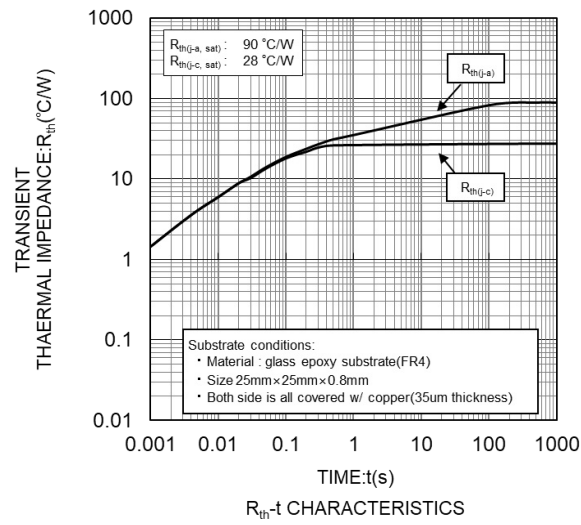
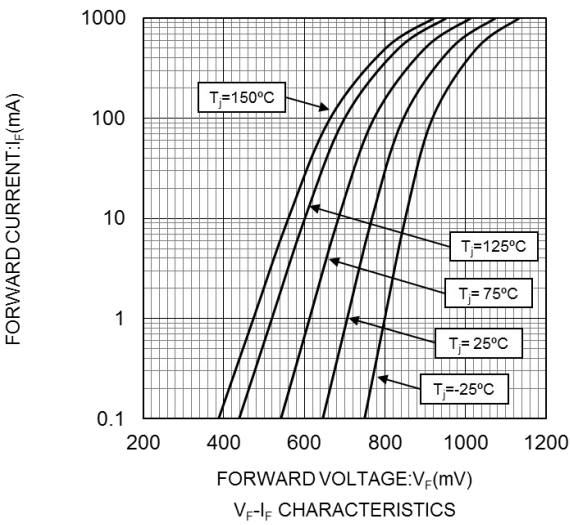
● Characteristic Curves



● Characteristic Curves



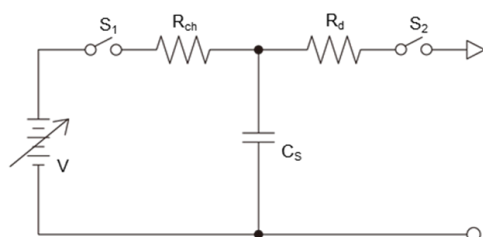
●Characteristic Curves



● Appended figure

Procedure to obtain ESD Clamping Voltage
IEC61000-4-2 Spec

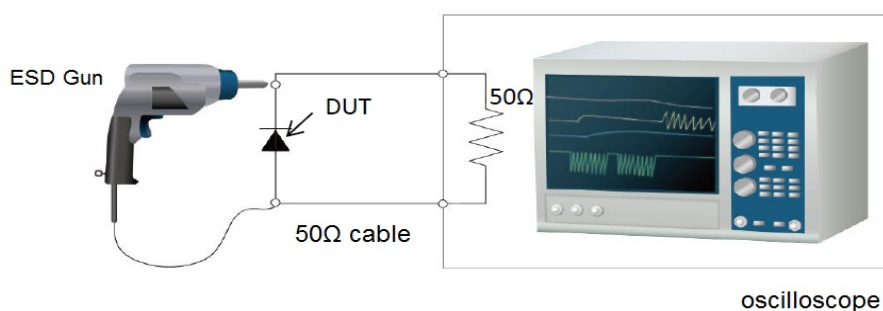
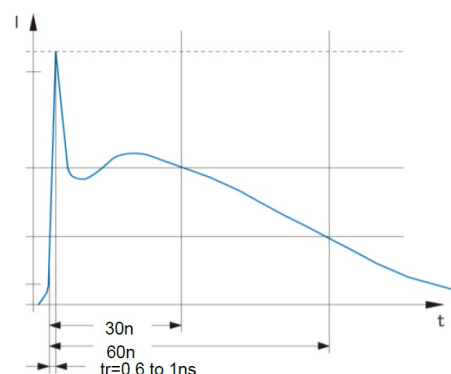
Level	Test Voltage (kV)	First Peak Current (A)	Current at 30ns (A)	Current at 60ns (A)
1	2	7.5	4	2
2	4	15	8	4
3	6	22.5	12	6
4	8	30	16	8



$C_s: 150\text{pF}$ $R_d: 330\Omega$

simplified diagram in ESD machine

IEC61000-4-2 Waveform



1 Set up ESD Tester at IEC61000-4-2 condition.

(IEC61000-4-2 : $C=150\text{pF}$, $R=330\Omega$)

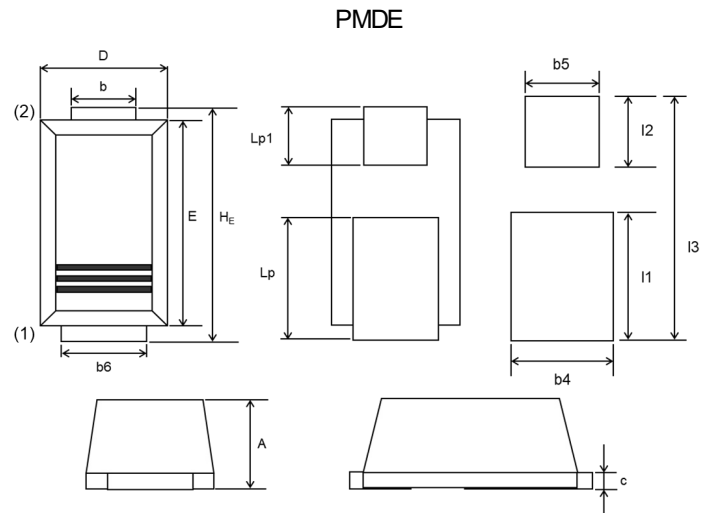
2 Mount a sample on the high frequency test board with the SMA connector.

3 Connect the SMA connector to the oscilloscope by 50Ω cable.

Then, add the 10X-attenuator between test board and the cable to protect the oscilloscope.

4 Discharge ESD in contact discharge mode at any voltage.
(normally 8kV Max.)

● Dimension

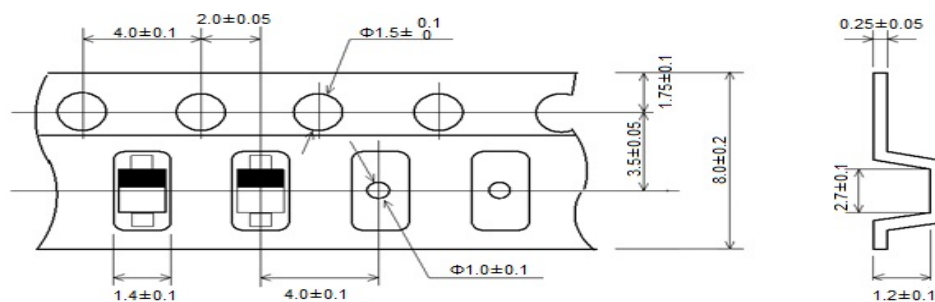


DIM	Millimeters			Inches		
	Min.	Average	Max.	Min.	Average	Max.
A	0.90	0.95	1.00	0.035	0.037	0.039
b	0.60	0.65	0.70	0.024	0.026	0.028
b ₆	0.78	0.88	0.98	0.031	0.035	0.039
c	0.12	0.17	0.27	0.005	0.007	0.011
D	1.20	1.30	1.40	0.047	0.051	0.055
E	2.10	2.20	2.30	0.083	0.087	0.091
H _E	2.30	2.50	2.70	0.091	0.098	0.106
L _p	1.10	1.30	1.50	0.043	0.051	0.059
L _{p1}	0.55	0.65	0.75	0.022	0.026	0.030
b ₄	-	1.10	-	-	0.043	-
b ₅	-	0.80	-	-	0.031	-
l ₁	-	1.45	-	-	0.057	-
l ₂	-	0.80	-	-	0.031	-
l ₃	-	2.75	-	-	0.108	-

(1) The marking bar indicates the cathode.

(2) The direction indicates the anode.

● Taping (Unit:mm)



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(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASS III	CLASS III	CLASS II b	CLASS III
CLASS IV		CLASS III	

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 - Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - Sealing or coating our Products with resin or other coating materials
 - Use of our Products without cleaning residue of flux (Exclude cases where no-clean type fluxes is used. However, recommend sufficiently about the residue.) ; or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - Use of the Products in places subject to dew condensation
- The Products are not subject to radiation-proof design.
- Please verify and confirm characteristics of the final or mounted products in using the Products.
- In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse, is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
- Confirm that operation temperature is within the specified range described in the product specification.
- ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

- When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

Precautions Regarding Application Examples and External Circuits

1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
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Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of ionizer, friction prevention and temperature / humidity control).

Precaution for Storage / Transportation

1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

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A two-dimensional barcode printed on ROHM Products label is for ROHM's internal use only.

Precaution for Disposition

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