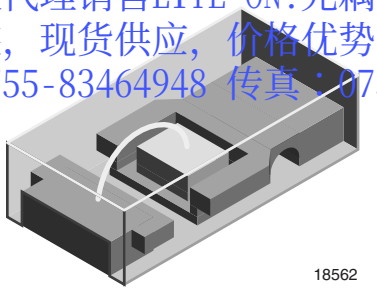
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电话：0755-83464948 传真：0755-83464076

Low Current 0603 SMD LED



18562

FEATURES

- Smallest SMD package 0603 with exceptional brightness 1.6 mm x 0.8 mm x 0.6 mm (L x W x H)
- High reliability lead frame based
- Temperature range -40 °C to +100 °C
- Footprint compatible to 0603 chipled
- AlInGaP technology
- Compatible to IR reflow soldering
- Grouping parameter: luminous intensity, wavelength
- Available in 8 mm tape
- Preconditioning according to JEDEC® level 2
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

DESCRIPTION

The new 0603 LED series has been designed in the smallest SMD package. This innovative 0603 LED technology opens the way to

- Smaller products of higher performance
- More design in flexibility
- Enhanced applications

The 0603 LED is an obvious solution for small-scale, high power products that are expected to work reliability in an arduous environment.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD 0603
- Product series: low current
- Angle of half intensity: ± 80°

APPLICATIONS

- Backlight keypads
- Navigation systems
- Cellular phone displays
- Displays for industrial control systems
- Automotive features
- Miniaturized color effects
- Traffic displays

PARTS TABLE

PART	COLOR	LUMINOUS INTENSITY (mcd)			at I_F (mA)	WAVELENGTH (nm)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
VLMY10J2K2-4-GS08	Yellow	5.6	-	11.25	2	585	588	590	2	-	1.8	2.6	2	AlInGaP

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLMY10J2K2-4

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage (1)		V_R	12	V
DC forward current	$T_{amb} \leq 95$ °C	I_F	15	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.1	A
Power dissipation		P_V	40	mW
Junction temperature		T_j	+120	°C
Operating temperature range		T_{amb}	-40 to +100	°C
Storage temperature range		T_{stg}	-40 to +100	°C
Soldering temperature	according Vishay specifications	T_{sd}	260	°C
Thermal resistance junction/ambient	mounted on PC board (pad size > 5 mm²)	R_{thJA}	500	K/W

Note

(1) Driving the LED in reverse direction is suitable for a short term application

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OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
VLMY10J2K2-4, YELLOW

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	I_F = 2 mA	I_V	5.6	-	11.25	mcd
Dominant wavelength	I_F = 2 mA	λ_d	585	588	590	nm
Peak wavelength	I_F = 2 mA	λ_p	-	591	-	nm
Angle of half intensity	I_F = 2 mA	φ	-	± 80	-	deg
Forward voltage	I_F = 2 mA	V_F	-	1.8	2.6	V
Reverse voltage	I_R = 10 µA	V_R	6	-	-	V
Junction capacitance	V_R = 0 V, f = 1 MHz	C_j	-	15	-	pF

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LUMINOUS INTENSITY I_V (mcd)		
STANDARD	OPTIONAL	MIN.	MAX.
J	2	5.6	7.1
K	1	7.1	9.0
	2	9.0	11.25

Note

- Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of ± 11 %.
  The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each reel (there will be no mixing of two groups on each reel).
  In order to ensure availability, single brightness groups will not be orderable.
  In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped in any one reel.
  In order to ensure availability, single wavelength groups will not be orderable.

COLOR CLASSIFICATION

GROUP	SOFT ORANGE	
	DOM. WAVELENGTH (NM)	
	MIN.	MAX.
4	585	590

Note

- Wavelengths are tested at a current pulse duration of 25 ms.

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

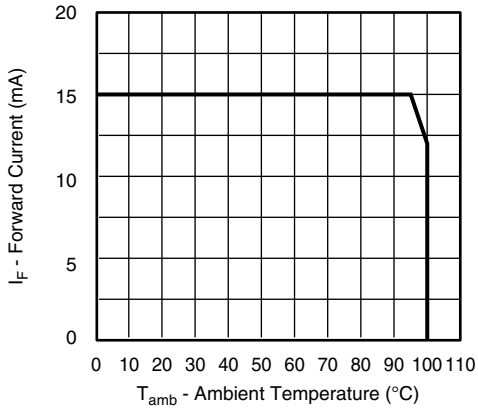


Fig. 1 - Permissible Forward Current vs. Ambient Temperature

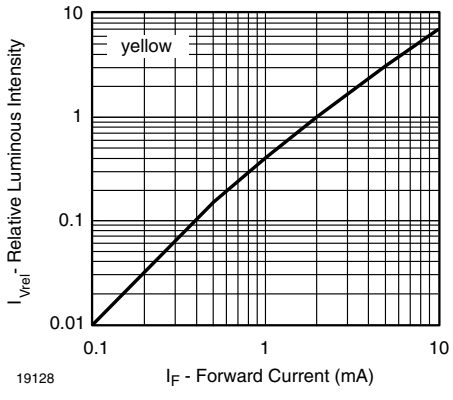


Fig. 2 - Relative Luminous Intensity vs. Forward Current

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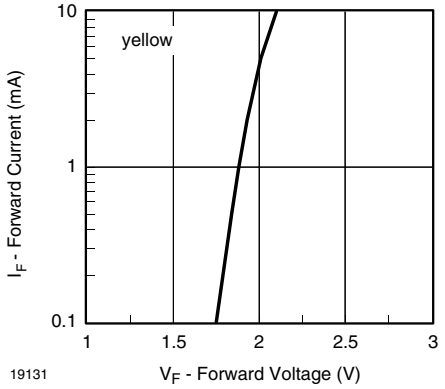


Fig. 3 - Forward Current vs. Forward Voltage

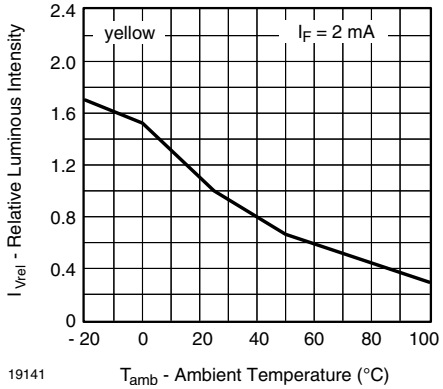


Fig. 6 - Relative Luminous Intensity vs. Ambient Temperature

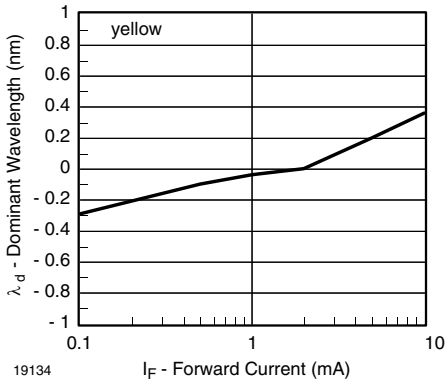


Fig. 4 - Dominant Wavelength vs. Forward Current

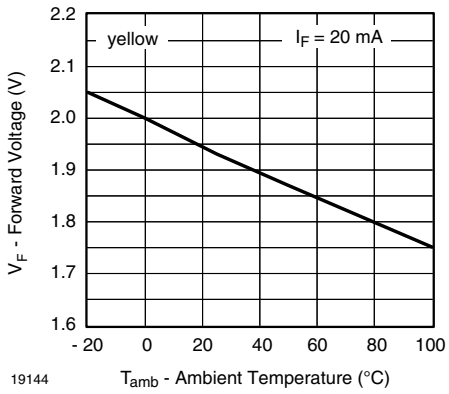


Fig. 7 - Forward Voltage vs. Ambient Temperature

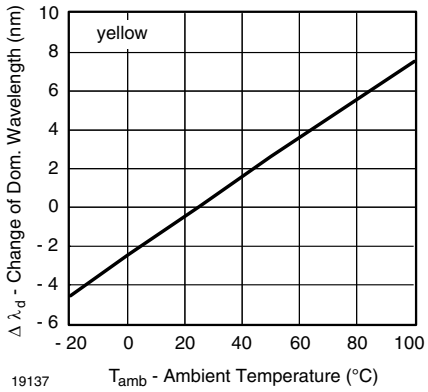


Fig. 5 - Change of Dominant Wavelength vs. Ambient Temperature

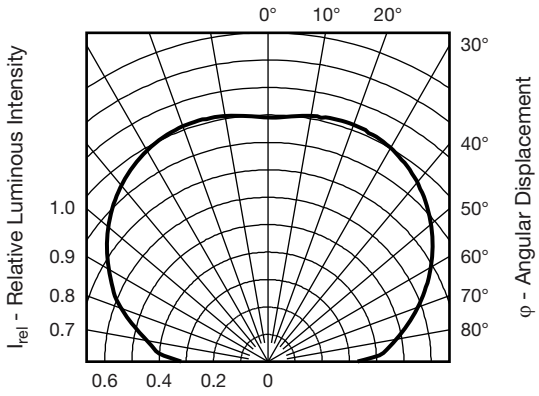


Fig. 8 - Relative Luminous Intensity vs. Angular Displacement

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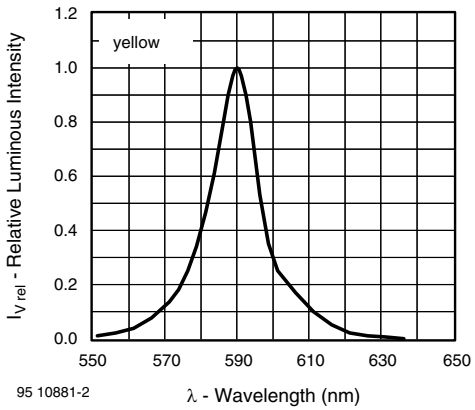
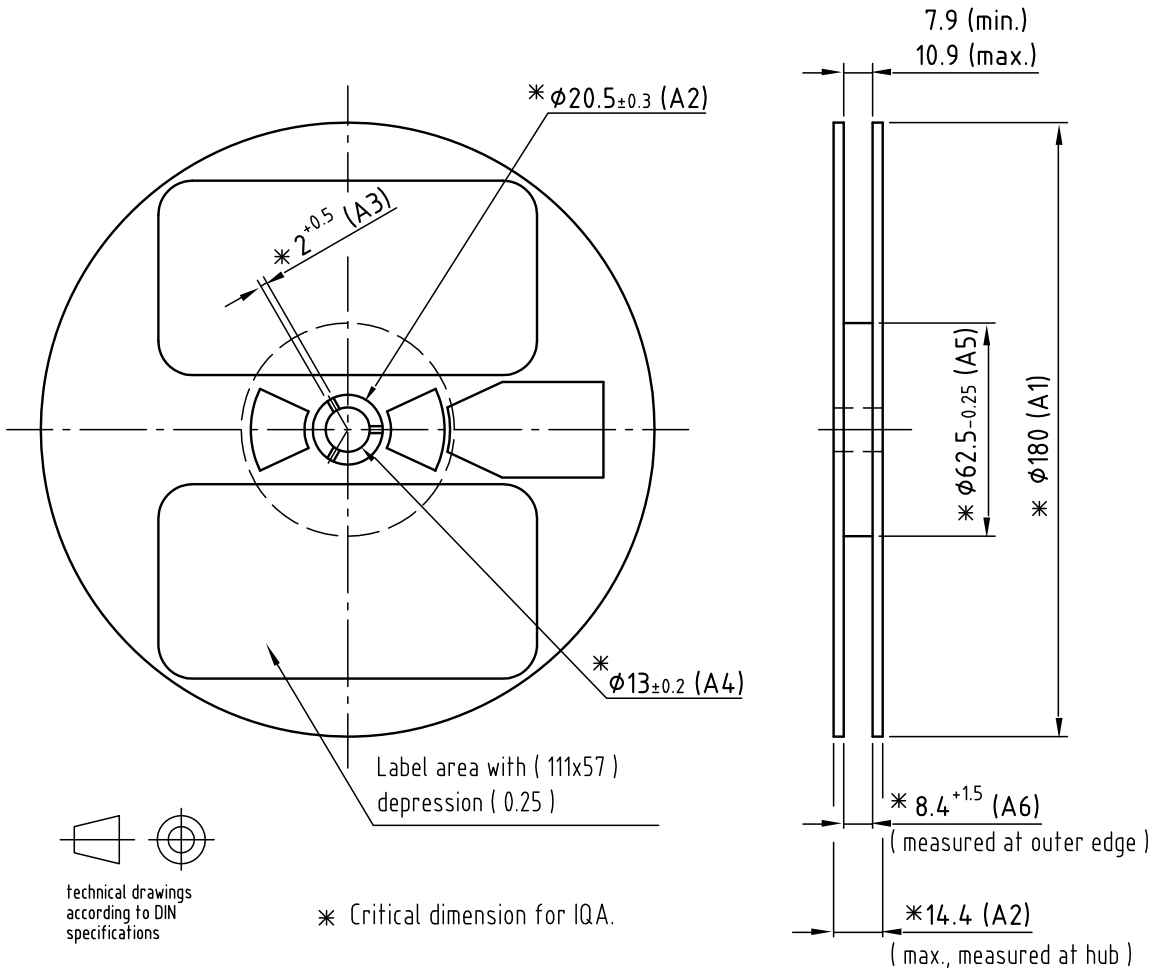


Fig. 9 - Relative Luminous Intensity vs. Wavelength

REEL DIMENSIONS in millimeters

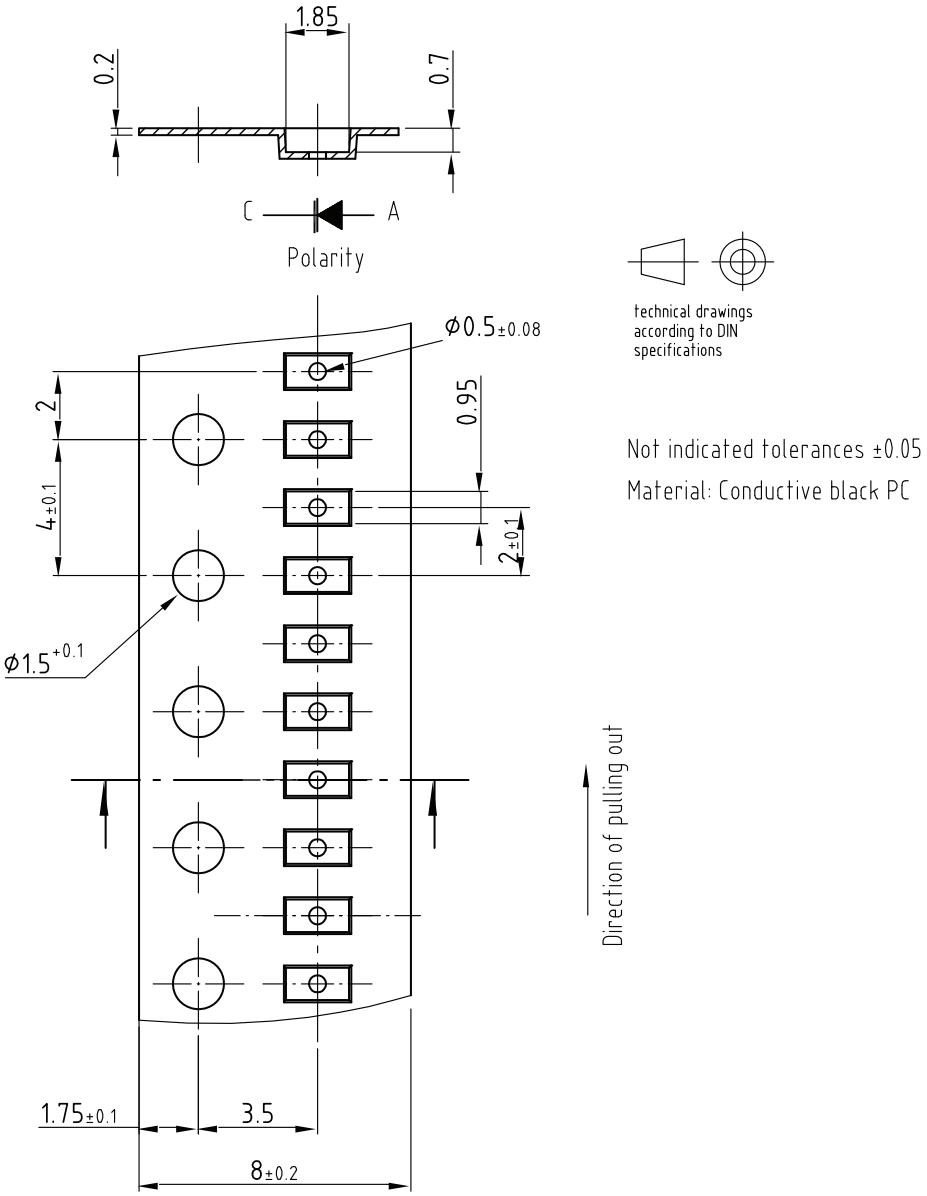


Drawing-No.: 9.800-5086.01-4
Issue: 1; 29.04.04
19043

Not indicated tolerances ±0.05
Material: black static dissipative

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TAPE DIMENSIONS in millimeters



Drawing-No.: 9.700-5290.01-4

Issue: 2; 10.07.06

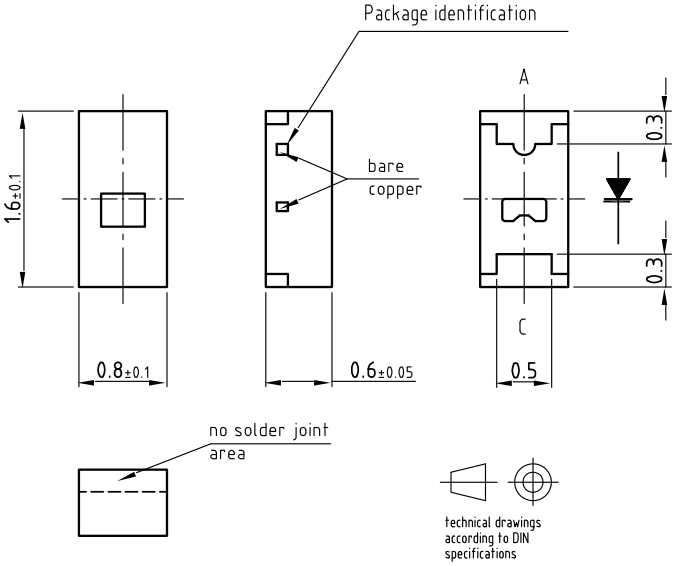
19044

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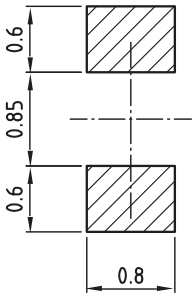
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PACKAGE DIMENSIONS in millimeters



Not indicated tolerances ±0.1

Recommended solder pad



Drawing-No.: 6.541-5056.01-4
Issue: 2; 04.05.05
19426

SOLDERING PROFILE

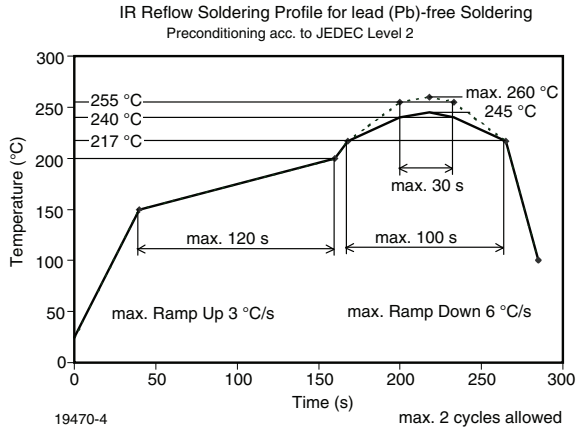
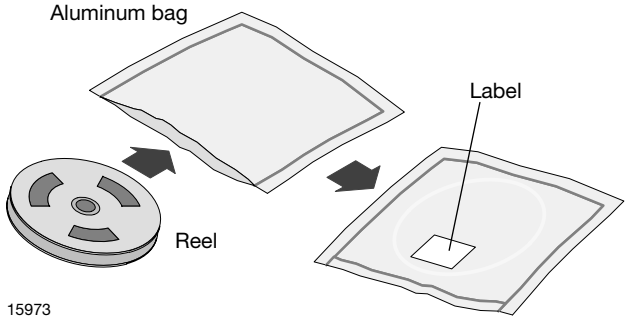


Fig. 10 - Vishay Lead (Pb)-free Reflow Soldering Profile (acc. to J-STD-020C)

DRY PACKING

The reel is packed in an anti-humidity bag to protect the devices from absorbing moisture during transportation and storage.



FINAL PACKING

The sealed reel is packed into a cardboard box. A secondary cardboard box is used for shipping purposes.

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RECOMMENDED METHOD OF STORAGE

Dry box storage is recommended as soon as the aluminum bag has been opened to prevent moisture absorption. The following conditions should be observed, if dry boxes are not available:

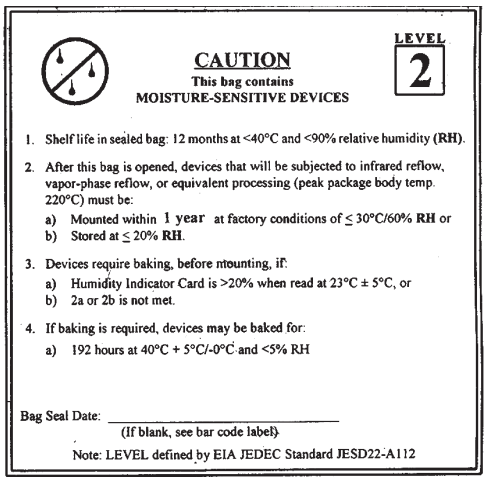
- Storage temperature 10 °C to 30 °C
- Storage humidity ≤ 60 % RH max.

After more than 1 year under these conditions moisture content will be too high for reflow soldering.

In case of moisture absorption, the devices will recover to the former condition by drying under the following condition:

192 h at 40 °C + 5 °C / - 0 °C and < 5 % RH (dry air / nitrogen) or
96 h at 60 °C + 5 °C and < 5 % RH for all device containers or
24 h at 100 °C + 5 °C not suitable for reel or tubes.

An EIA JEDEC standard JESD22-A112 level 2 label is included on all dry bags.



17028

Example of JESD22-A112 level 2 label

ESD PRECAUTION

Proper storage and handling procedures should be followed to prevent ESD damage to the devices especially when they are removed from the antistatic shielding bag. Electrostatic sensitive devices warning labels are on the packaging.

VISHAY SEMICONDUCTORS STANDARD BAR CODE LABELS

The Vishay Semiconductors standard bar code labels are printed at final packing areas. The labels are on each packing unit and contain Vishay Semiconductors specific data.

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