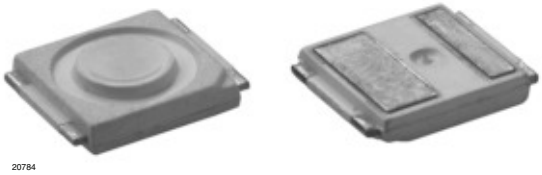
Little Star®
1 Watt Power SMD LED White



FEATURES

- Super high brightness surface mount LED
- High flux output; typical 50 lumens
- 120° viewing angle
- Compact package outline (L x W x H) of 6.0 x 6.0 x 1.5 mm
- Ultra low height profile - 1.5 mm
- Designed for high current drive; up to 350 mA
- Low thermal resistance; R_{thJP} = 18 K/W
- Qualified according to JEDEC moisture sensitivity level 2a
- Compatible to IR reflow soldering
- Little Star® are class 1M LED products. Do not view directly with optical instrument
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- Automotive qualified AEC-Q101
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B

DESCRIPTION

The VLMW711. is one of the most robust and light efficient LEDs in the market. With its extremely high level of brightness and the ultra low high profile, which is only 1.5 mm are highly suitable for both conventional lighting and specialized application such as automotive signal lights, traffic lights, channel lights, tube lights and garden lights among others.

APPLICATIONS

- Automotive: exterior applications, e.g.: fog-lamp, rear mirror lighting, etc.
- Communication: FlashLED
- Industry: white goods (e.g.: oven, microwave, etc.)
- Lighting: garden light, architecture lighting, general lighting, etc.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD Little Star
- Product series: power
- Angle of half intensity: ± 60°

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY (at I_F = 350 mA)	LUMINOUS FLUX CORRELATION BETWEEN LUM. FLUX/LUM. INTENSITY (at I_F = 350 mA)	TECHNOLOGY
VLMW711ADAF-GS08	White, I_V = (14000 to 28500) mcd	39000 to 97000 mlm	InGaN
VLMW711AE-GS08	White, I_V = (18000 to 22400) mcd	52000 to 71000 mlm	InGaN

ABSOLUTE MAXIMUM RATINGS [1] VLMW711.				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
Forward current		I_F	350	mA
Power dissipation		P_{tot}	1.4	W
Junction temperature		T_j	+ 120	°C
Surge current t < 10 µs, d = 0.1		I_{FM}	1000	mA
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 40 to + 100	°C
Thermal resistance junction/pin		R_{thJP}	18	K/W

Note:
Not designed for reverse operation
[1] T_{amb} = 25 °C, unless otherwise specified

OPTICAL AND ELECTRICAL CHARACTERISTICS [1] VLMW711., WHITE								
PARAMETER	**TEST CONDITION**	**PART**	**INCLUDED TYPES**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous intensity	I_F = 350 mA	VLMW711ADAF	VLMW711AD	I_V	14000		18000	mcd
			VLMW711AE	I_V	18000		22400	mcd
			VLMW711AF	I_V	22400		28500	mcd
		VLMW711AE		I_V	18000		22400	mcd
Chromaticity coordinate x acc. to CIE 1931	I_F = 350 mA			x		0.33		
Chromaticity coordinate y acc. to CIE 1931	I_F = 350 mA			y		0.33		
Angle of half intensity	I_F = 350 mA			φ		± 60		deg
Forward voltage [2]	I_F = 350 mA			V_F	3.0	3.6	4.0	V
Temperature coefficient of V_F	I_F = 350 mA			TC_{VF}		- 3		mV/K
Temperature coefficient of I_V	I_F = 350 mA			TC_{IV}		- 0.4		%/K

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of ± 0.05 V

LUMINOUS INTENSITY/FLUX CLASSIFICATION WHITE				
GROUP	**LUMINOUS INTENSITY I_V (MCD)**		**LUMINOUS FLUX ϕ_V (MLM) CORRELATION TABLE**	
STANDARD	**MIN.**	**MAX.**	**MIN.**	**MAX.**
AD	14000	18000	39000	52000
AE	18000	22400	52000	71000
AF	22400	28500	71000	97000

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.

CHROMATICITY COORDINATED GROUPS FOR WHITE SMD LED		
	X	Y
X1	0.278	0.243
	0.290	0.265
	0.290	0.310
	0.278	0.288
X2	0.290	0.265
	0.303	0.286
	0.303	0.331
	0.290	0.310
X3	0.303	0.286
	0.315	0.308
	0.315	0.353
	0.303	0.331
Y1	0.315	0.308
	0.328	0.330
	0.328	0.375
	0.315	0.353
Y2	0.328	0.330
	0.340	0.351
	0.340	0.396
	0.328	0.375
Y3	0.340	0.351
	0.353	0.373
	0.353	0.418
	0.340	0.396

Note:
Chromaticity coordinate groups are tested at a current pulse duration of 25 ms and a tolerance of ± 0.01.

TYPICAL CHARACTERISTICS

T_{amb} = 25 °C, unless otherwise specified

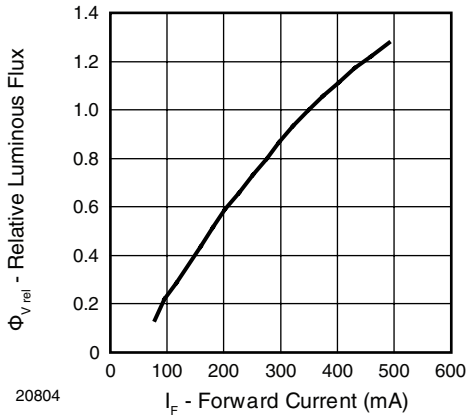


Figure 1. Relative Luminous Flux vs. Forward Current

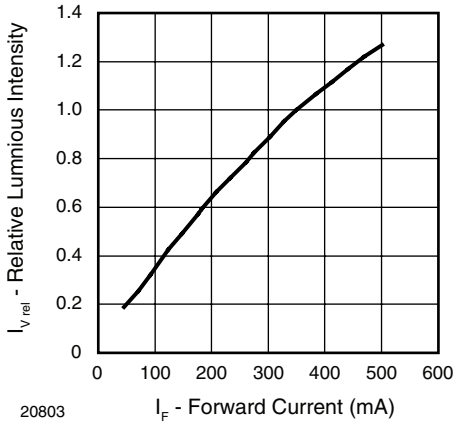


Figure 2. Relative Luminous Intensity vs. Forward Current

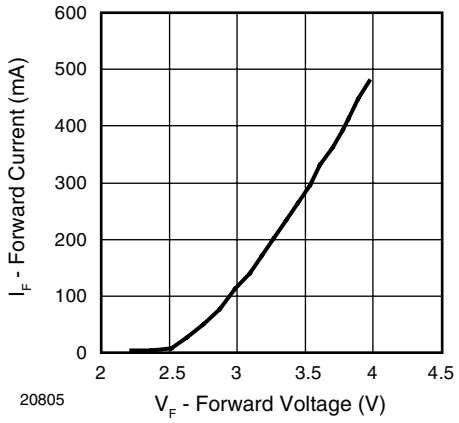


Figure 3. Forward Current vs. Forward Voltage

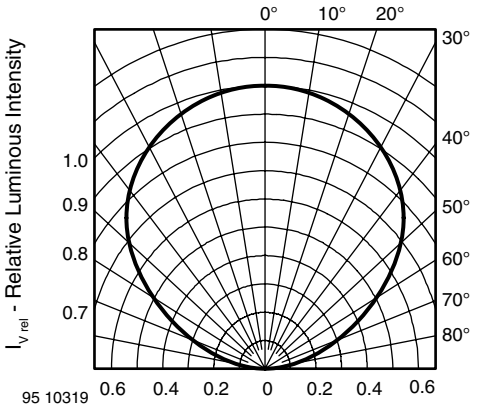


Figure 6. Relative Luminous Intensity vs. Angular Displacement

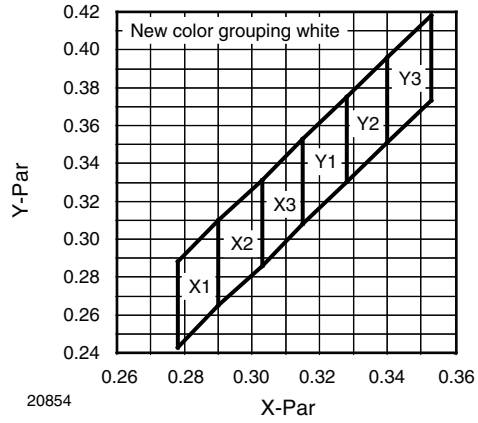


Figure 4. Coordinates of Color Groups

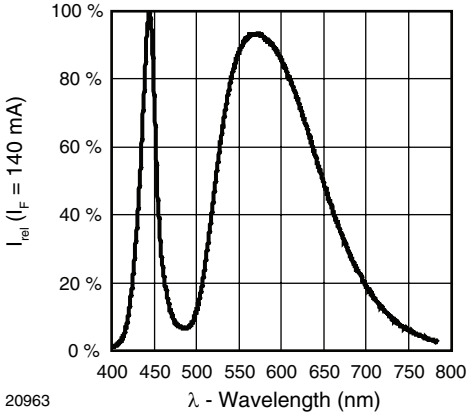
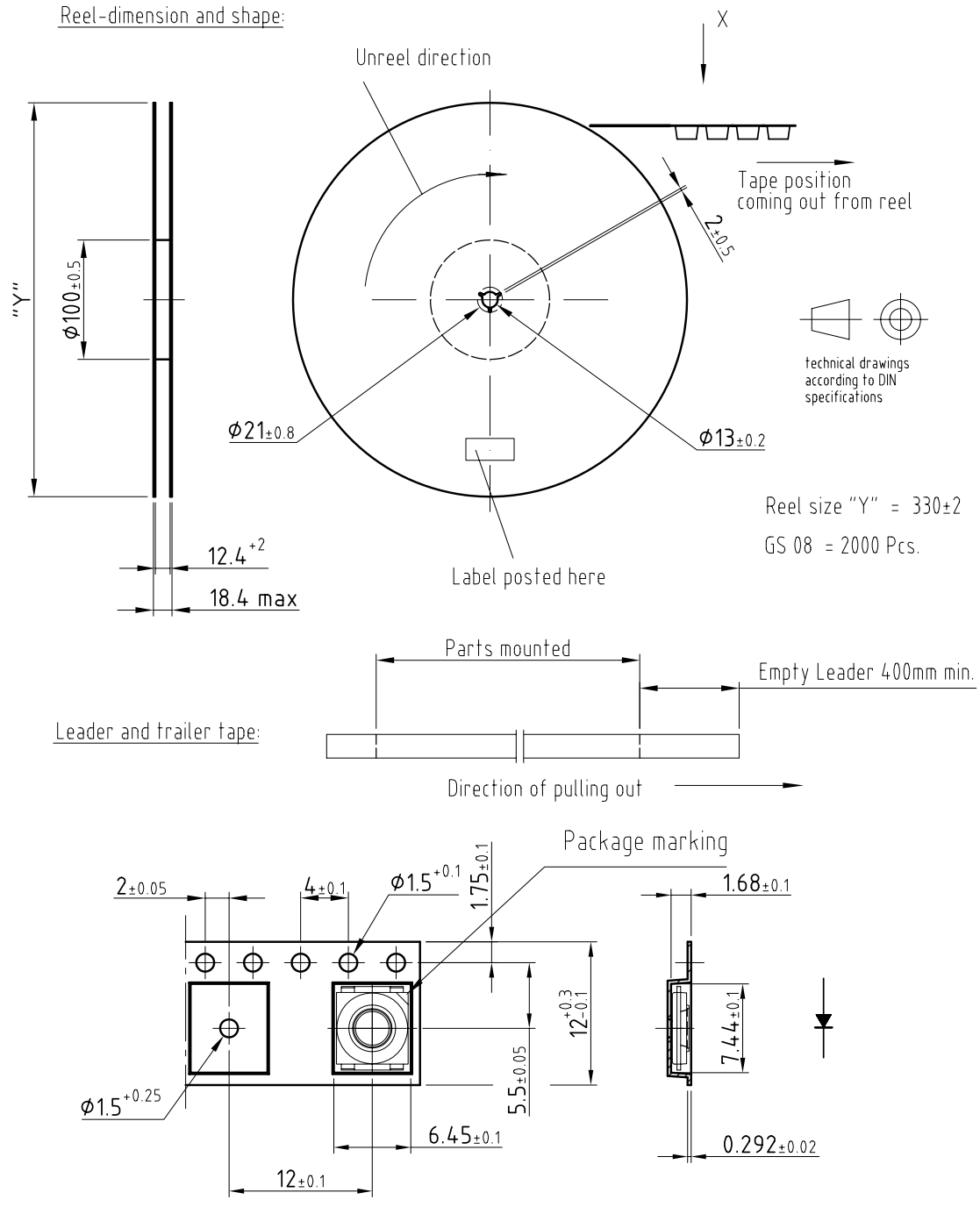


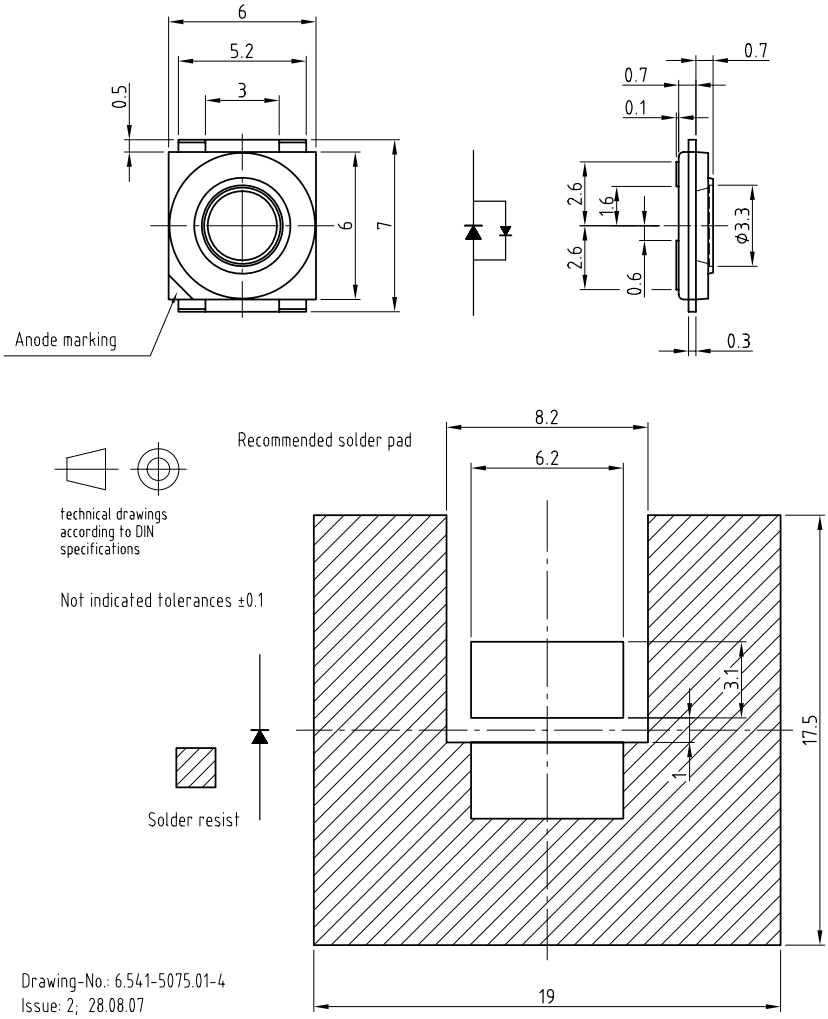
Figure 5. Relative Spectrale Emission

TAPING DIMENSIONS in millimeters



Drawing-No.: 9.800-5094.01-4
Issue: 3; 22.01.08
20846

PACKAGE DIMENSIONS/SOLDERING PADS DIMENSIONS in millimeters



SOLDERING PROFILE

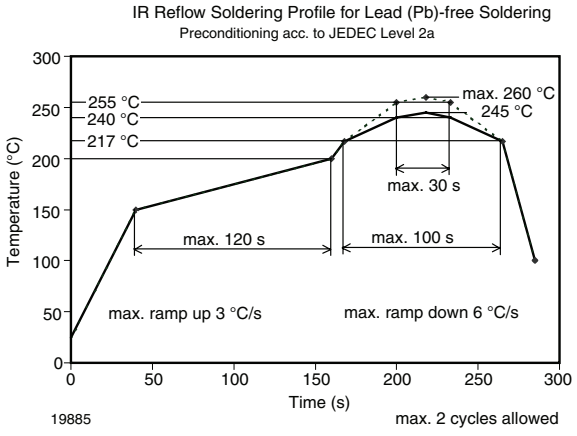
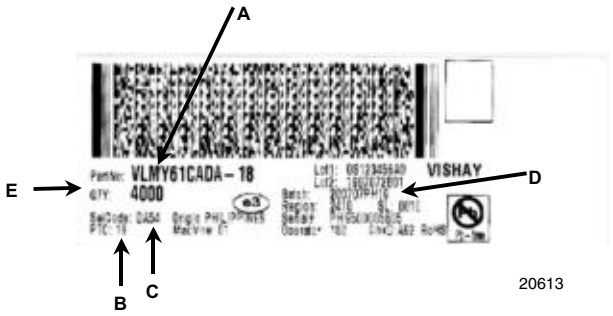


Figure 7. Vishay Lead (Pb)-free Reflow Soldering Profile
(acc. to J-STD-020C)

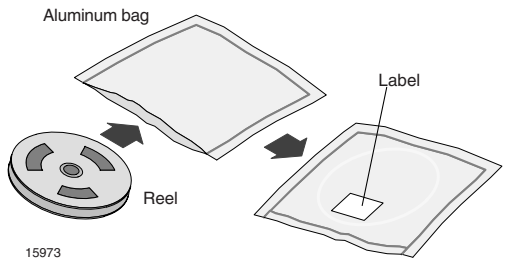
BAR CODE PRODUCT LABEL EXAMPLE:



A) Type of component
B) Manufacturing plant
C) SEL - selection code (bin):
e.g.: DA = code for luminous intensity group
5 = code for color group
D) Batch:
200707 = year 2007, week 07
PH19 = plant code
E) Total quantity

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.

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 672 h under these conditions moisture content will be too high for reflow soldering.

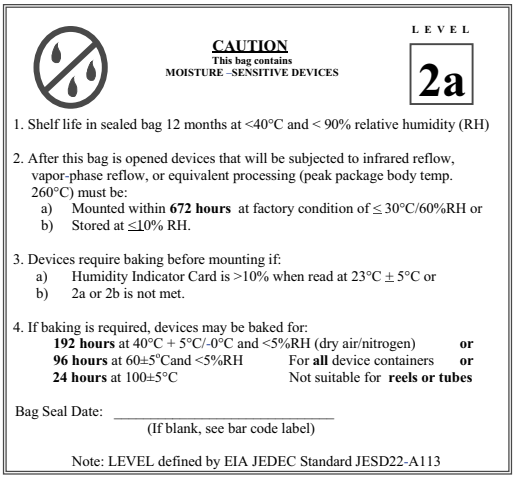
In case of moisture absorption, the devices will recover to the former condition by drying under the following condition:

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 2a label is included on all dry bags.



Example of JESD22-A112 level 2a 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. Electro-static 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.

OZONE DEPLETING SUBSTANCES POLICY STATEMENT

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively.
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA.
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

The IEC/EN standards require that the desired classification Accessible Emission Limit shall not be exceeded in “Normal” and “Single Fault Conditions”. This product is in Compliance with the requirement in CEN/IEC/EN60825-1 to ensure that required classifications are not exceeded in single fault conditions.

We reserve the right to make changes to improve technical design
and may do so without further notice.
Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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All product specifications and data are subject to change without notice.

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