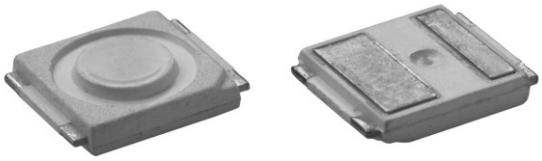
Little Star®
1 W Power SMD LED White



FEATURES

- Super high brightness surface mount LED
- High flux output; typical 80 lm to 85 lm
- 120° viewing angle
- Compact package outline (L x W x H) of 6 x 6 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} = 10 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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- AEC-Q101 qualified
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B

Pb-free

e3

RoHS COMPLIANT

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 height 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.

PRODUCT GROUP AND PACKAGE DATA

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

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.

PARTS TABLE

PART	LUMINOUS FLUX CORRELATION BETWEEN LUM. FLUX/LUM. INTENSITY (at I_F = 350 mA)	LUMINOUS INTENSITY (at I_F = 350 mA)	TECHNOLOGY
VLMW711T3U2US-GS08	White, ϕ = (76 500 to 99 400) mlm	$I_{V\ typ.}$ = 25 000 mcd	InGaN

ABSOLUTE MAXIMUM RATINGS [1] VLMW711T3U2US				
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}	10	K/W

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

OPTICAL AND ELECTRICAL CHARACTERISTICS [1] VLMW711T3U2US, WHITE						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous flux/luminous intensity	I_F = 350 mA	ϕ	76 500		99 400	mlm
		I_V		25 000		mcd
Chromaticity coordinate x acc. to CIE 1931	I_F = 350 mA	x		0.37		
Chromaticity coordinate y acc. to CIE 1931	I_F = 350 mA	y		0.38		
Angle of half intensity	I_F = 350 mA	φ		± 60		deg
Forward voltage [2]	I_F = 350 mA	V_F	3	3.5	4	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 FLUX ϕ_V (mlm) CORRELATION TABLE**	
STANDARD	**MIN.**	**MAX.**
T3	76 500	87 400
U2	87 400	99 400

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		
Bin	**Cx**	**Cy**
UM	0.348	0.383
	0.367	0.400
	0.364	0.383
	0.347	0.368
UN	0.347	0.368
	0.364	0.383
	0.362	0.372
	0.346	0.357
UO	0.346	0.357
	0.362	0.372
	0.359	0.356
	0.344	0.343
UP	0.344	0.343
	0.359	0.356
	0.357	0.343
	0.343	0.331
TM	0.367	0.400
	0.364	0.383
	0.381	0.394
	0.386	0.411
TN	0.364	0.383
	0.362	0.372
	0.378	0.381
	0.381	0.394
TO	0.362	0.372
	0.359	0.356
	0.374	0.365
	0.378	0.381
TP	0.359	0.356
	0.357	0.343
	0.370	0.351
	0.374	0.365
SM	0.386	0.411
	0.381	0.394
	0.396	0.404
	0.402	0.421
SN	0.381	0.394
	0.378	0.381
	0.392	0.389
	0.396	0.404
SO	0.378	0.381
	0.374	0.365
	0.387	0.373
	0.392	0.389
SP	0.374	0.365
	0.370	0.351
	0.382	0.358
	0.387	0.373

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

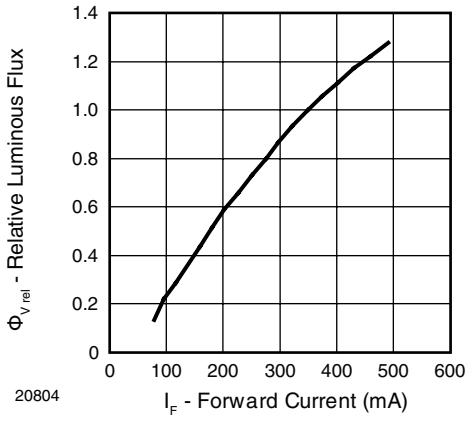


Figure 1. Relative Luminous Flux vs. Forward Current

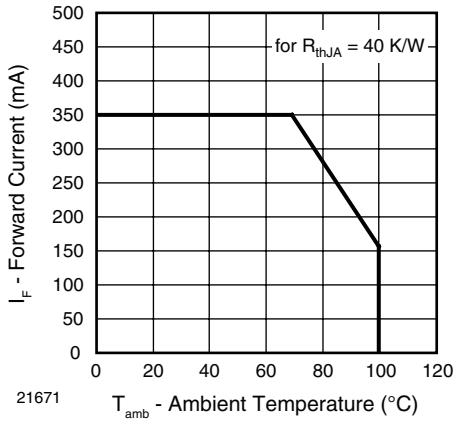


Figure 4. Max. Permissible Forward Current vs. Ambient Temperature

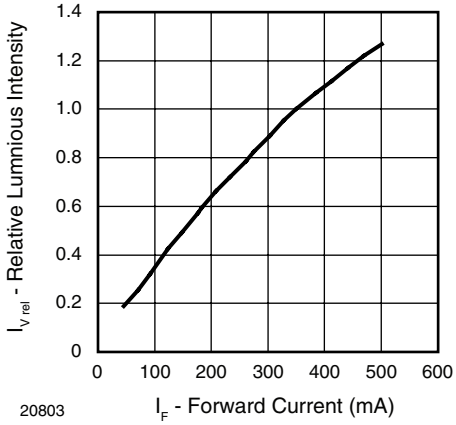


Figure 2. Relative Luminous Intensity vs. Forward Current

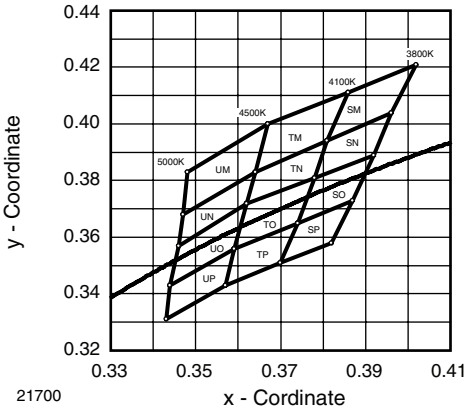


Figure 5. Coordinates of Color Groups

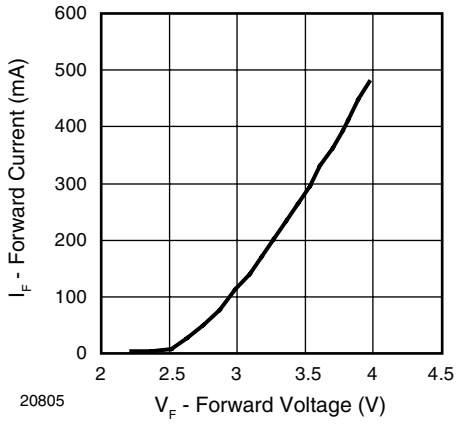


Figure 3. Forward Current vs. Forward Voltage

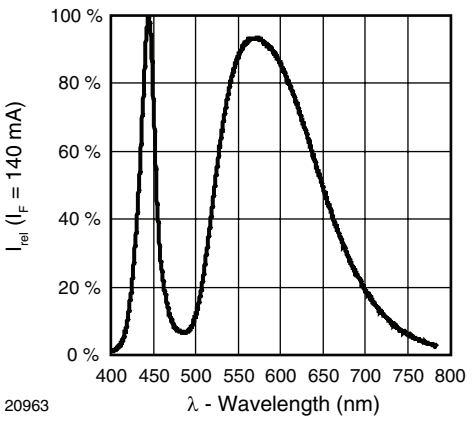


Figure 6. Relative Spectrale Emission

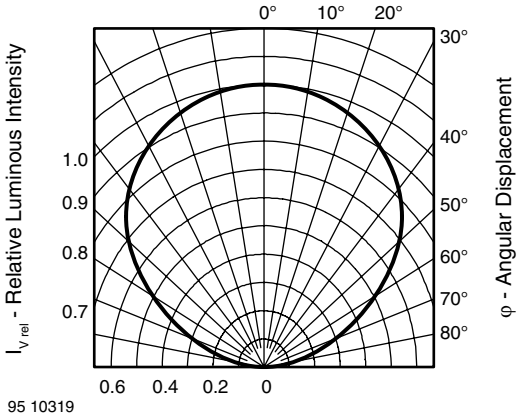
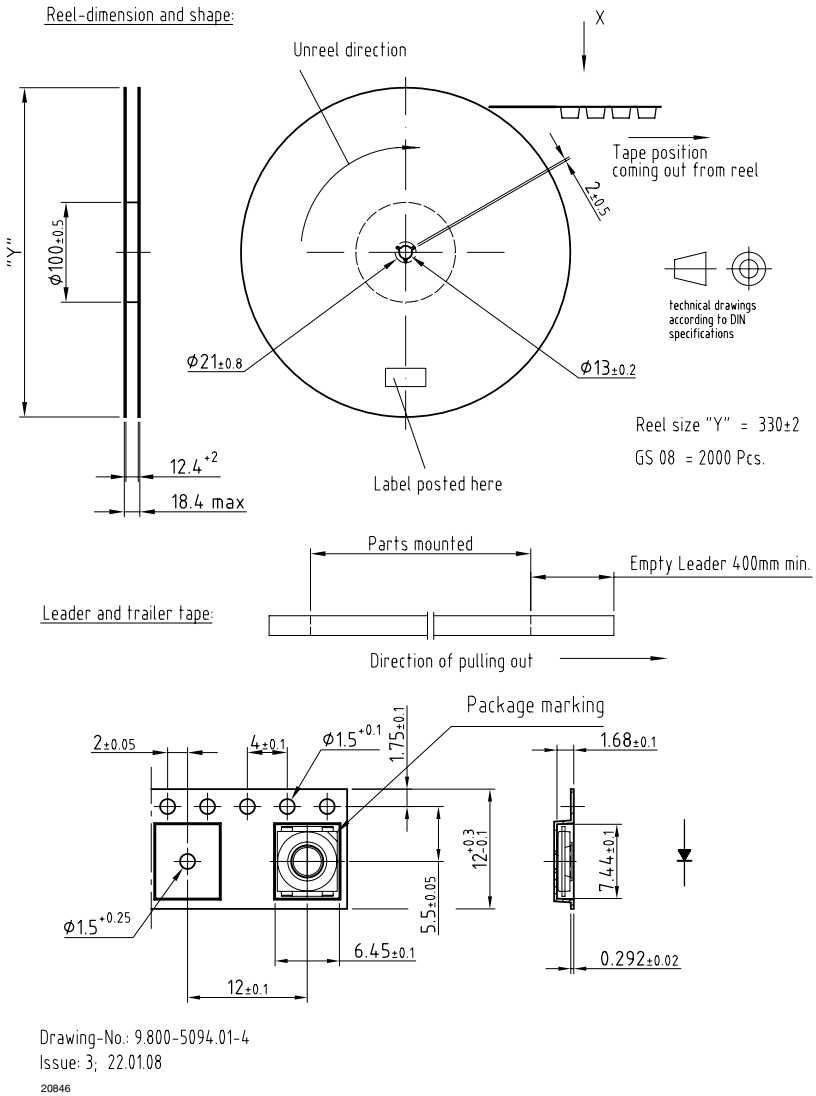
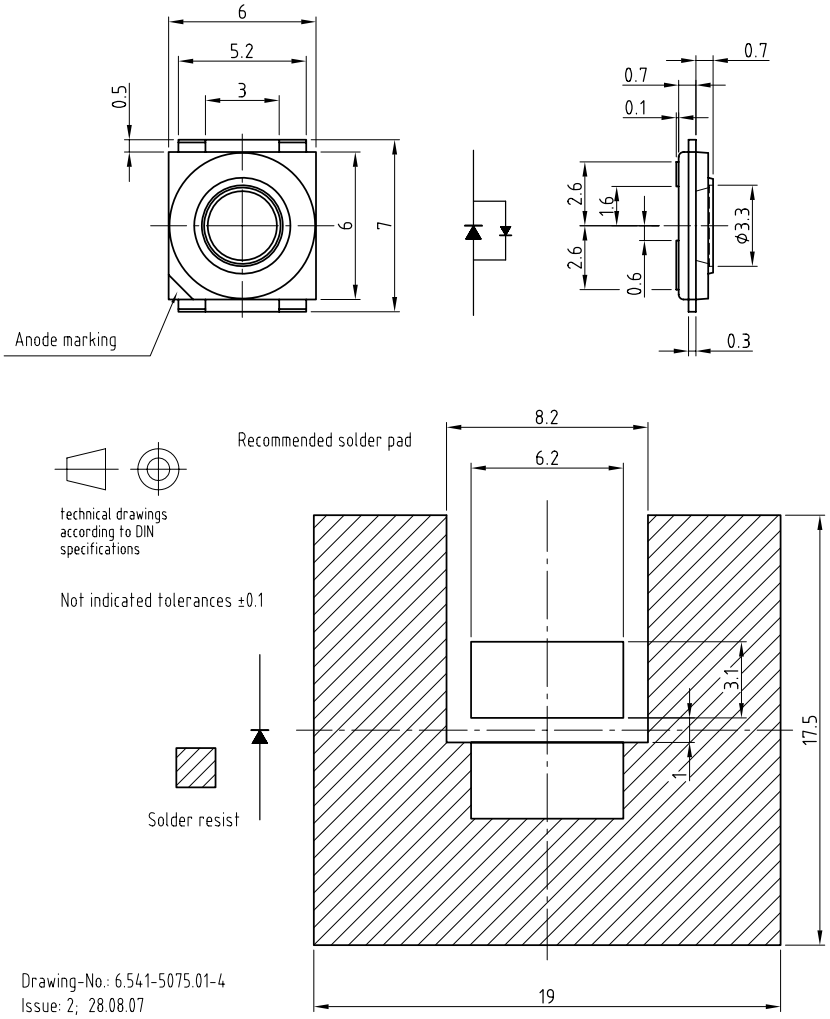


Figure 7. Relative Luminous Intensity vs. Angular Displacement

TAPING DIMENSIONS in millimeters



PACKAGE DIMENSIONS/SOLDERING PADS DIMENSIONS in millimeters



SOLDERING PROFILE

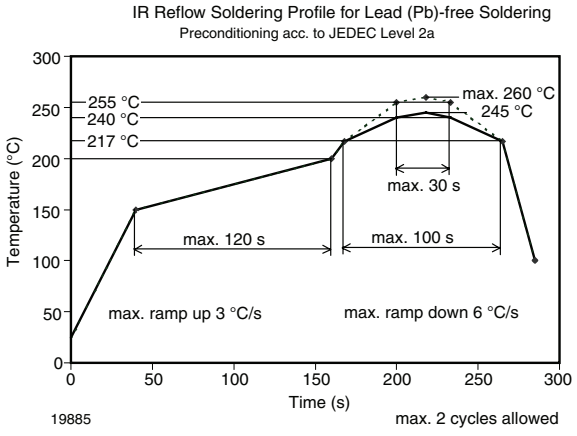
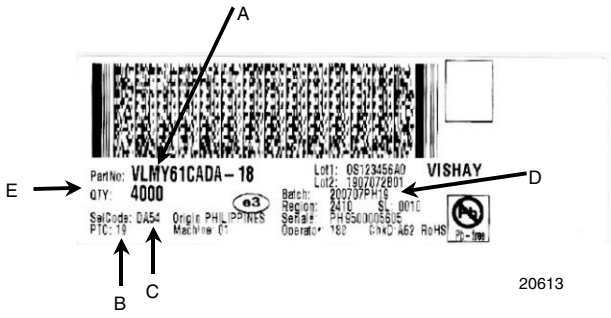


Figure 8. Vishay Lead (Pb)-free Reflow Soldering Profile
(acc. to J-STD-020C)

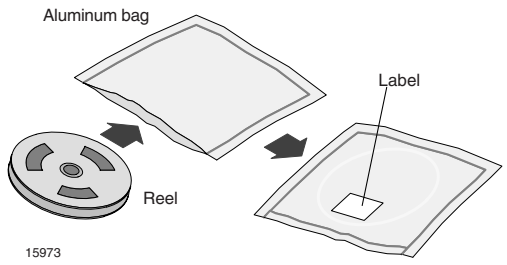
BAR CODE PRODUCT LABEL EXAMPLE:



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.

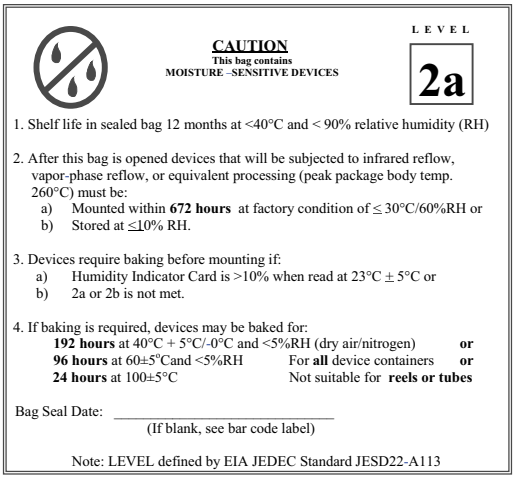
In case of moisture absorption, the devices will recover to the former condition by drying under the following condition:

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.

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