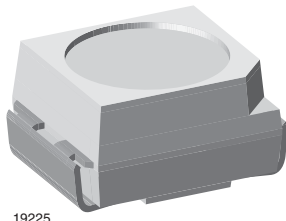


Low Current SMD LED PLCC-2



19225

DESCRIPTION

These new devices have been designed to meet the increasing demand for AlInGaP based low current SMD LEDs.

The package of the TLM.300. is the PLCC-2 package. It consists of a lead frame which is embedded in a white thermoplast. The reflector inside this package is filled up with clear epoxy.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD PLCC-2
- Product series: low current
- Angle of half intensity: $\pm 60^\circ$

FEATURES

- SMD LED with exceptional brightness
- Compatible with automatic placement equipment
- EIA and ICE standard package
- Compatible with infrared, vapor phase and wave solder processes according to CECC
- Available in 8 mm tape
- Low profile package
- Non-diffused lens: excellent for coupling to light pipes and backlighting
- Very low power consumption
- Luminous intensity ratio in one packaging unit $I_{Vmax}/I_{Vmin} \leq 2.0$
- ESD withstand voltage up to 1 KV
- Lead (Pb)-free device



APPLICATIONS

- Automotive: backlighting in dashboards and switches
- Telecommunication: indicator and backlighting in telephone and fax
- Indicator and backlight for audio and video equipment
- Indicator and backlight for battery driven equipment
- Indicator and backlight in office equipment
- Flat backlight for LCDs, switches and symbols
- General use

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLMS3000-GS08	Red, $I_V = 2.8$ mcd (typ.)	AllnGaP
TLMS3000-GS18	Red, $I_V = 2.8$ mcd (typ.)	AllnGaP
TLMS3001-GS08	Red, $I_V = 4.5$ mcd (typ.)	AllnGaP
TLMS3001-GS18	Red, $I_V = 4.5$ mcd (typ.)	AllnGaP
TLMO3000-GS08	Orange, $I_V = 5.6$ mcd (typ.)	AllnGaP
TLMO3000-GS18	Orange, $I_V = 5.6$ mcd (typ.)	AllnGaP
TLMO3001-GS08	Orange, $I_V = 9.0$ mcd (typ.)	AllnGaP
TLMO3001-GS18	Orange, $I_V = 9.0$ mcd (typ.)	AllnGaP
TLMY3000-GS08	Yellow, $I_V = 4.5$ mcd (typ.)	AllnGaP
TLMY3000-GS18	Yellow, $I_V = 4.5$ mcd (typ.)	AllnGaP
TLMY3001-GS08	Yellow, $I_V = 7.1$ mcd (typ.)	AllnGaP
TLMY3001-GS18	Yellow, $I_V = 7.1$ mcd (typ.)	AllnGaP



ABSOLUTE MAXIMUM RATINGS ¹⁾ TLM.300.				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
DC Forward current		I_F	15	mA
Surge forward current	$t_p \leq 10 \mu s$	I_{FSM}	0.1	A
Power dissipation	$T_{amb} \leq 100 \text{ }^\circ\text{C}$	P_V	40	mW
Junction temperature		T_j	125	$^\circ\text{C}$
Operating temperature range		T_{amb}	- 40 to + 100	$^\circ\text{C}$
Storage temperature range		T_{stg}	- 40 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction/ambient	mounted on PC board (pad size > 16 mm ²)	R_{thJA}	400	K/W

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ TLMS300., RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity ²⁾	$I_F = 2 \text{ mA}$	TLMS3000	I_V	2.5			mcd
	$I_F = 10 \text{ mA}$	TLMS3000	I_V		20		mcd
	$I_F = 2 \text{ mA}$	TLMS3001	I_V	4.0		12.5	mcd
Dominant wavelength	$I_F = 2 \text{ mA}$		λ_d	624		636	nm
Peak wavelength	$I_F = 2 \text{ mA}$		λ_p		635		nm
Angle of half intensity	$I_F = 2 \text{ mA}$		ϕ		± 60		deg
Forward voltage	$I_F = 2 \text{ mA}$		V_F		1.8	2.2	V
Reverse voltage	$I_R = 10 \mu\text{A}$		V_R	6	15		V

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

²⁾ In one packing unit $I_{Vmax}/I_{Vmin} \leq 2.0$

OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ TLMO300., ORANGE							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity ²⁾	$I_F = 2 \text{ mA}$	TLMO3000	I_V	5.0			mcd
	$I_F = 10 \text{ mA}$	TLMO3000	I_V		50		mcd
	$I_F = 2 \text{ mA}$	TLMO3001	I_V	6.3		20	mcd
Dominant wavelength	$I_F = 2 \text{ mA}$		λ_d	600		609	nm
Peak wavelength	$I_F = 2 \text{ mA}$		λ_p		610		nm
Angle of half intensity	$I_F = 2 \text{ mA}$		ϕ		± 60		deg
Forward voltage	$I_F = 2 \text{ mA}$		V_F		1.8	2.2	V
Reverse voltage	$I_R = 10 \mu\text{A}$		V_R	6	15		V

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

²⁾ In one packing unit $I_{Vmax}/I_{Vmin} \leq 2.0$

OPTICAL AND ELECTRICAL CHARACTERISTICS¹⁾ TLMY300., YELLOW							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity ²⁾	$I_F = 2 \text{ mA}$	TLMY3000	I_V	4.0			mcd
	$I_F = 10 \text{ mA}$	TLMY3000	I_V		50		mcd
	$I_F = 2 \text{ mA}$	TLMY3001	I_V	6.3		20	mcd
Dominant wavelength	$I_F = 2 \text{ mA}$		λ_d	581		594	nm
Peak wavelength	$I_F = 2 \text{ mA}$		λ_p		585		nm
Angle of half intensity	$I_F = 2 \text{ mA}$		ϕ		± 60		deg
Forward voltage	$I_F = 2 \text{ mA}$		V_F		1.8	2.2	V
Reverse voltage	$I_R = 10 \mu\text{A}$		V_R	6	15		V

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

²⁾ In one packing unit $I_{Vmax}/I_{Vmin} \leq 2.0$

TYPICAL CHARACTERISTICS

$T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

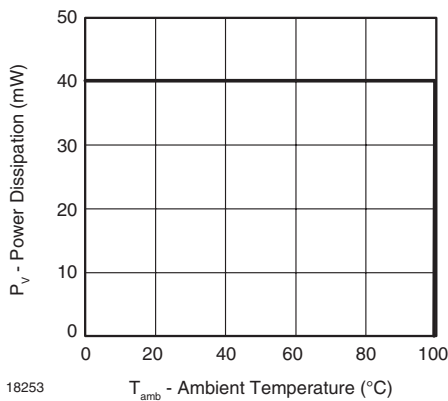


Figure 1. Power Dissipation vs. Ambient Temperature

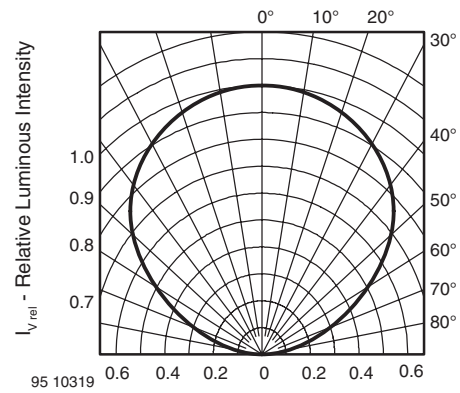


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

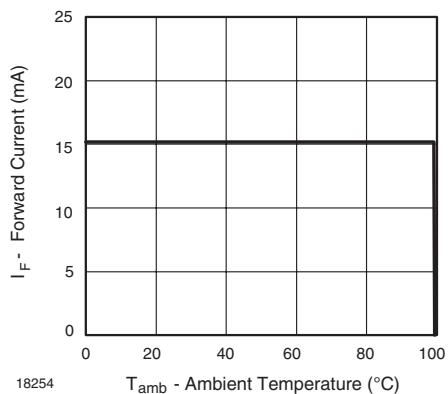


Figure 2. Forward Current vs. Ambient Temperature

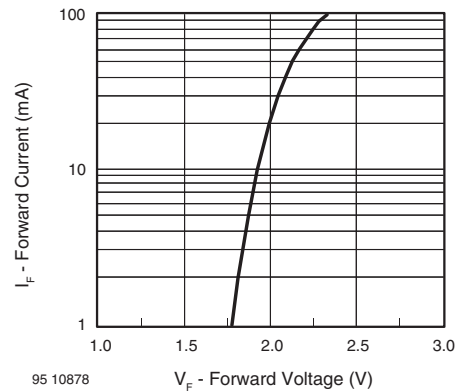


Figure 4. Forward Current vs. Forward Voltage

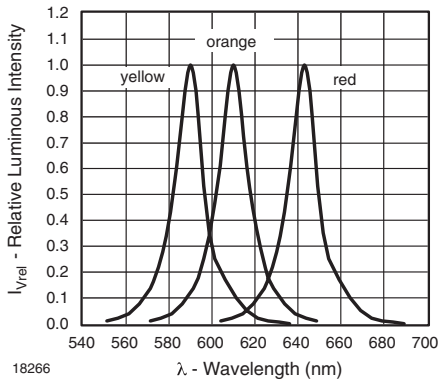


Figure 5. Relative Intensity vs. Wavelength

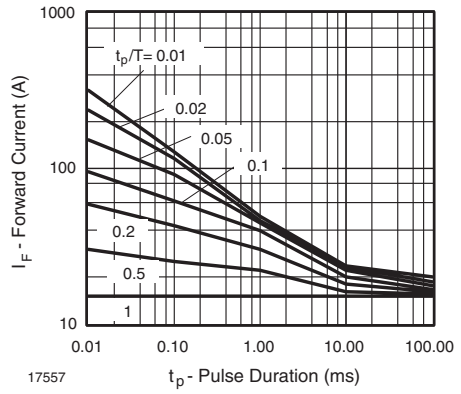


Figure 8. Forward Current vs. Pulse Length

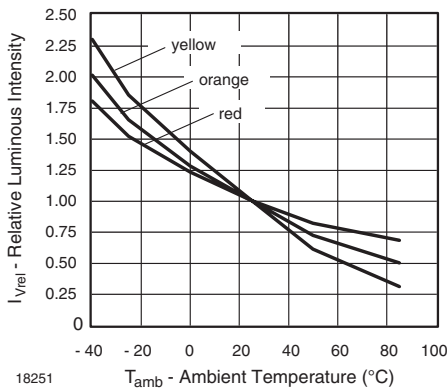


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

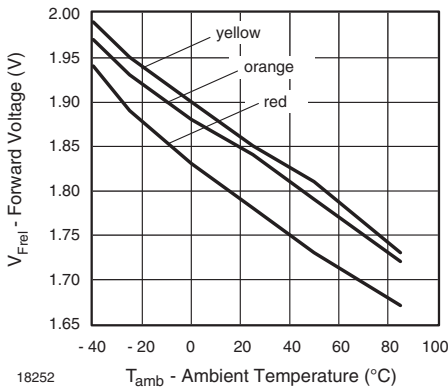
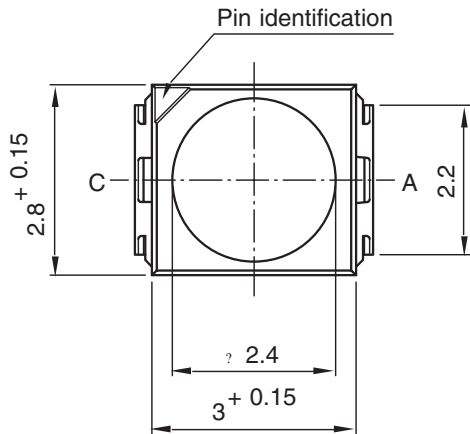
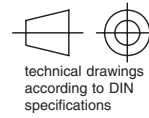
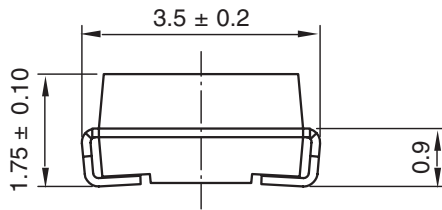
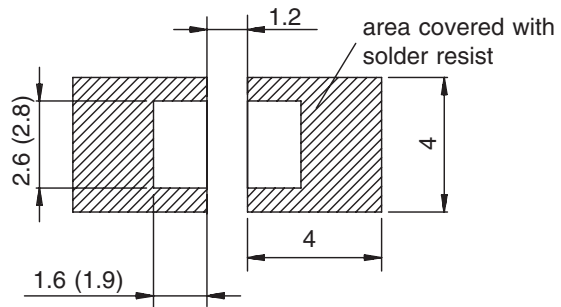


Figure 7. Forward Voltage vs. Ambient Temperature

PACKAGE DIMENSIONS in millimeters



Mounting Pad Layout



Drawing-No.: 6.541-5025.01-4
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Vishay Semiconductors**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.

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.

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