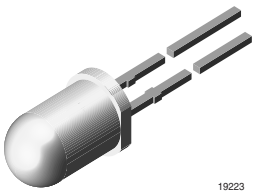
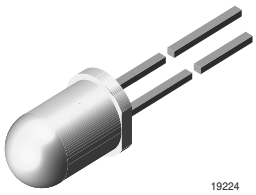
High Intensity LED, ∅ 5 mm Clear Package





FEATURES

- Exceptional brightness (I_{Vtyp} = 2500 mcd at I_F = 20 mA)
- Narrow viewing angle (φ = ± 4°)
- Low forward voltage
- 5 mm (T-1¾") clear package
- Very high intensity even at low drive currents
- Deep red color
- Categorized for luminous intensity
- Outstanding material efficiency
- Lead (Pb)-free device
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

DESCRIPTION

This LED contains the double heterojunction (DH) GaAlAs on GaAs technology.

This deep red LED can be utilized over a wide range of drive current. It can be DC or pulse driven to achieve desired light output.

A clear 5 mm package is used to provide an extremely high light intensity of more than 2000 mcd at a very narrow viewing angle.

APPLICATIONS

- Bright ambient lighting conditions
- Battery powered equipment
- Indoor and outdoor information displays
- Portable equipment
- Telecommunication indicators
- General use

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: standard
- Angle of half intensity: ± 4°

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLDR5800/6800	Red, $I_V \geq 1000$ mcd	GaAlAs on GaAs

ABSOLUTE MAXIMUM RATINGS[1] TLDR5800/6800

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage[2]		V_R	6	V
DC Forward current		I_F	50	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	1	A
Power dissipation		P_V	100	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C

ABSOLUTE MAXIMUM RATINGS[1] TLDR5800/6800				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
Storage temperature range		T_{stg}	- 55 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T_{sd}	260	°C
Thermal resistance junction/ ambient		R_{thJA}	350	K/W

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] Driving the LED in reverse direction is suitable for a short term application

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] TLDR5800/6800, RED						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN**	**TYP.**	**MAX**	**UNIT**
Luminous intensity	I_F = 20 mA	I_V	1000	2500		mcd
Dominant wavelength	I_F = 20 mA	λ_d		648		nm
Peak wavelength	I_F = 20 mA	λ_p		650		nm
Angle of half intensity	I_F = 20 mA	φ		± 4		deg
Forward voltage	I_F = 20 mA	V_F		1.8	2.2	V
Reverse current	V_R = 6 V	I_R			10	µA
Junction capacitance	V_R = 0, f = 1 MHz	C_j		50		pF

Note:
[1] T_{amb} = 25 °C, unless otherwise specified

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	**LUMINOUS INTENSITY (MCD)**	
STANDARD	**MIN**	**MAX**
EE	1000	2000
FF	1350	2700
GG	1800	3600
HH	2400	4800
II	3200	6400
KK	4300	8600
LL	5750	11500
MM	7500	15000
NN	10000	20000

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 bag (there will be no mixing of two groups in each bag).

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 on any one bag.

In order to ensure availability, single wavelength groups will not be orderable.

TYPICAL CHARACTERISTICS

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

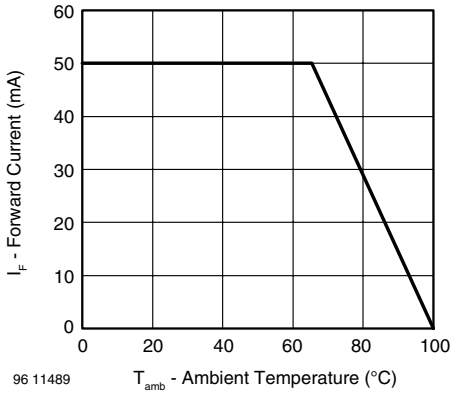


Figure 1. Forward Current vs. Ambient Temperature for AlInGaP

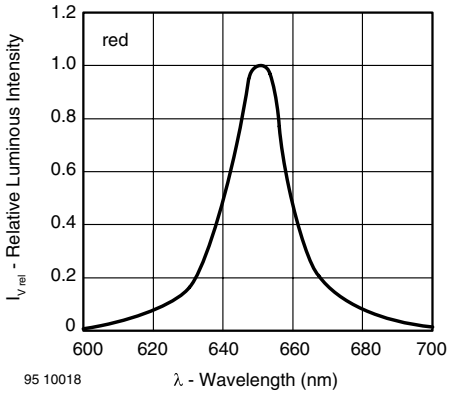


Figure 4. Relative Intensity vs. Wavelength

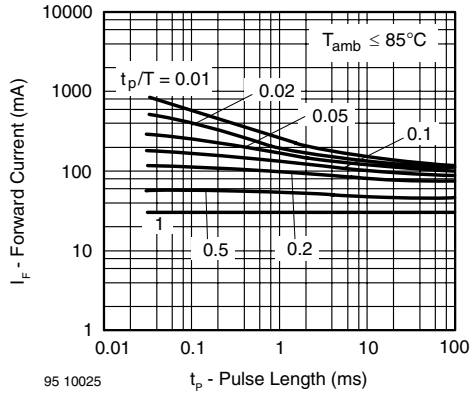


Figure 2. Forward Current vs. Pulse Length

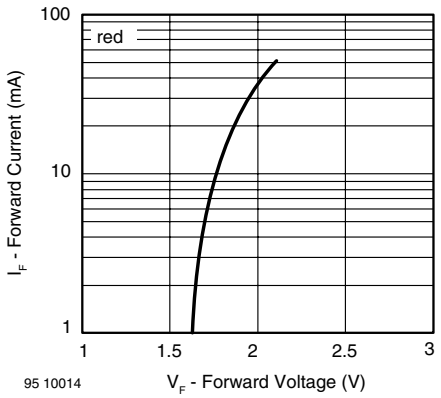


Figure 5. Forward Current vs. Forward Voltage

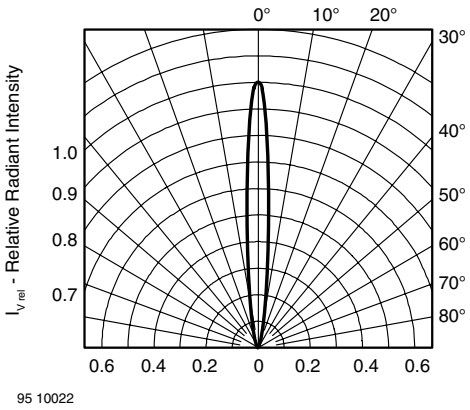


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

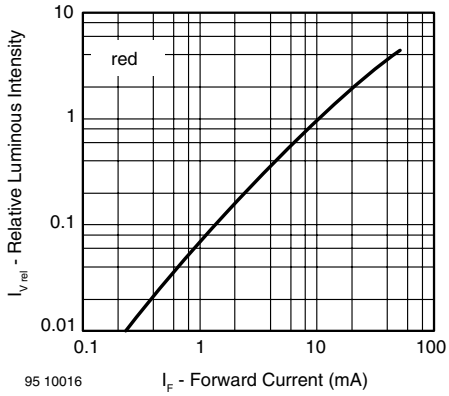


Figure 6. Relative Luminous Intensity vs. Forward Current

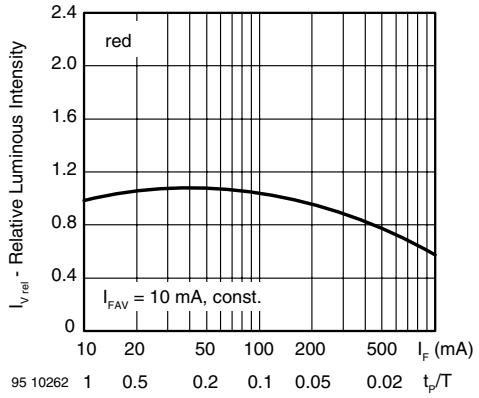


Figure 7. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

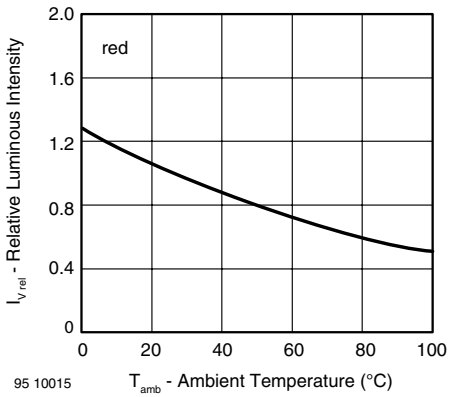
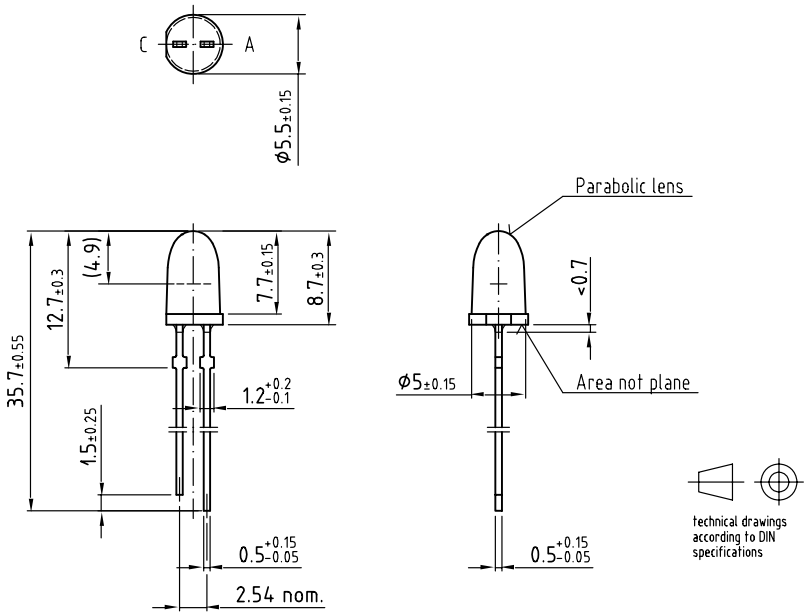


Figure 8. Rel. Luminous Intensity vs. Ambient Temperature

PACKAGE DIMENSIONS: TLDR5800



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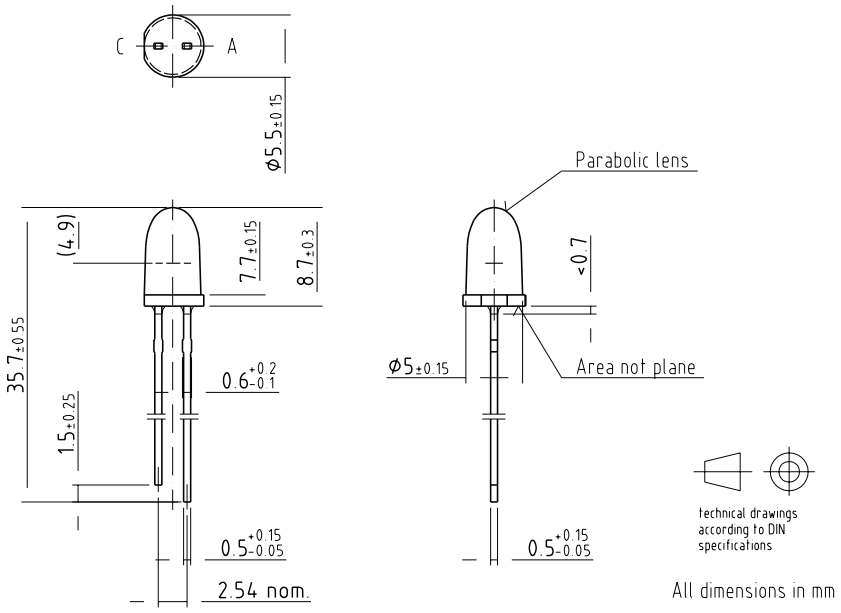
PACKAGE DIMENSIONS: TLDR6800



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Issue: 2; 04.07.03

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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.

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

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