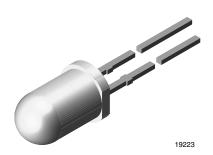


Vishay Semiconductors

High Intensity LED, Ø 5 mm Untinted Non-Diffused Package



DESCRIPTION

This device has been designed to meet the increasing demand for extremely bright red LEDs.

It is housed in a 5 mm untinted non-diffused plastic package. The very small viewing angle of this device provides a very high luminous intensity.

PRODUCT GROUP AND PACKAGE DATA

Product group: LEDPackage: 5 mm

Product series: standard
Angle of half intensity: ± 4°

FEATURES

- AllnGaP technology
- Standard T-1¾ package
- Small mechanical tolerances
- · Suitable for DC and high peak current
- · Very small viewing angle
- · Very high intensity
- · Luminous intensity categorized
- ESD-withstand voltage up to 2 kV according to JESD22-A114-B

 Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>





RoHS

HALOGEN FREE

GREEN (5-2008)

APPLICATIONS

- · Status lights
- · Off/on indicators
- Lightpipes
- Outdoor displays
- Medical instruments
- Maintenance lights
- · Legend lights

PARTS TABLE LUMINOUS INTENSITY WAVELENGTH FORWARD VOLTAGE at le at I at I⊧ **PART COLOR** (mcd) (nm) (V) **TECHNOLOGY** (mA) (mA) (mA) MIN. TYP. MAX. MIN. TYP. MAX. MIN. TYP. MAX. **TLHK5800** Red 1000 5500 20 630 10 AllnGaP on GaAs

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) TLHK5800						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Reverse voltage		V _R	5	V		
DC forward current	T _{amb} ≤ 65 °C	I _F	30	mA		
Surge forward current	t _p ≤ 10 μs	I _{FSM}	0.1	Α		
Power dissipation	T _{amb} ≤ 65 °C	P _V	80	mW		
Junction temperature		Tj	100	°C		
Operating temperature range		T _{amb}	- 40 to + 100	°C		
Storage temperature range		T _{stg}	- 55 to + 100	°C		
Soldering temperature	$t \le 5$ s, 2 mm from body	T _{sd}	260	°C		
Thermal resistance junction/ambient		R _{thJA}	350	K/W		



Vishay Semiconductors

OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_{amb} = 25 ^{\circ}C$, unless otherwise specified) TLHK5800, RED							
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Luminous intensity (1)	I _F = 20 mA	I _V	1000	5500	-	mcd	
Dominant wavelength	I _F = 10 mA	λ_{d}	-	630	-	nm	
Peak wavelength	I _F = 10 mA	λρ	-	643	-	nm	
Angle of half intensity	I _F = 10 mA	φ	-	± 4	-	deg	
Forward voltage	I _F = 20 mA	V _F	-	1.9	2.6	V	
Reverse voltage	I _R = 10 μA	V _R	5	-	-	V	
Junction capacitance	V _R = 0 V, f = 1 MHz	Cj	-	15	-	pF	

Note

 $^{^{(1)}~}$ In one packing unit $I_{Vmin.}/I_{Vmax.} \leq 0.5$

LUMINOUS INTENSITY CLASSIFICATION					
GROUP	LUMINOUS INTENSITY (mcd)				
STANDARD	MIN.	MAX.			
BB	430	860			
CC	575	1150			
DD	750	1500			
EE	1000	2000			
FF	1350	2700			
GG	1800	3600			
НН	2400	4800			
II	3200	6400			
KK	4300	8600			
LL	5750	11 500			
MM	7500	15 000			
NN	10 000	20 000			
PP	13 500	27 000			
QQ	18 000	36 000			
RR	24 000	48 000			
SS	32 000	64 000			
ТТ	43 000	86 000			
UU	57 500	115 000			

Note

In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped in any one bag. In order to ensure availability, single wavelength groups will not be orderable.

[•] Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of \pm 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 on each bag).

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



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

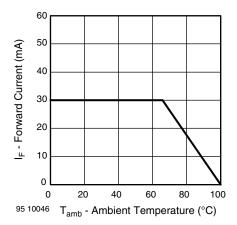


Fig. 1 - Forward Current vs. Ambient Temperature

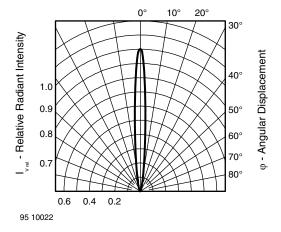


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

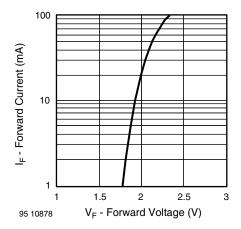


Fig. 3 - Forward Current vs. Forward Voltage

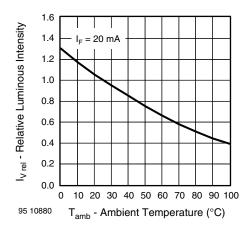


Fig. 4 - Relative Luminous Intensity vs. Ambient Temperature

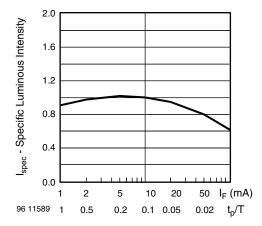


Fig. 5 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

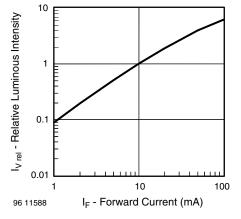


Fig. 6 - Relative Luminous Intensity vs. Forward Current



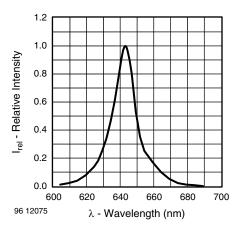
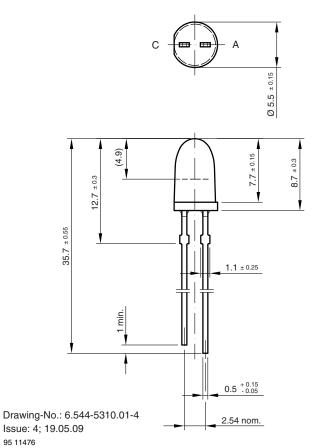
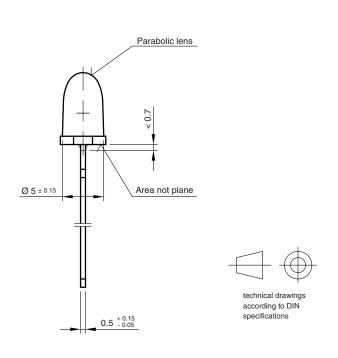


Fig. 7 - Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters

95 11476







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