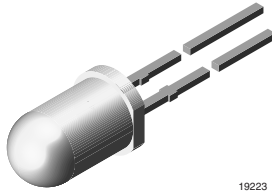


## High Intensity LED, Ø 5 mm Clear Package



### 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.

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: standard
- Angle of half intensity:  $\pm 4^\circ$

### FEATURES

- Exceptional brightness ( $I_{Vtyp} = 2500 \text{ mcd}$  at  $I_F = 20 \text{ mA}$ )
- Narrow viewing angle ( $\varphi = \pm 4^\circ$ )
- Low forward voltage
- 5 mm (T-1 $\frac{3}{4}$ " ) clear package
- Very high intensity even at low drive currents
- Deep red color
- Categorized for luminous intensity
- Outstanding material efficiency
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### APPLICATIONS

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

### PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLDR5800	Red, $I_V \geq 1000 \text{ mcd}$	GaAlAs on GaAs
TLDR5800-AS12Z	Red, $I_V \geq 1000 \text{ mcd}$	GaAlAs on GaAs

### ABSOLUTE MAXIMUM RATINGS <sup>1)</sup> TLDR5800

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage <sup>2)</sup>		$V_R$	6	V
DC Forward current		$I_F$	50	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	$I_{FSM}$	1	A
Power dissipation		$P_V$	100	mW
Junction temperature		$T_j$	100	$^\circ\text{C}$
Operating temperature range		$T_{amb}$	- 40 to + 100	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	- 55 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$ , 2 mm from body	$T_{sd}$	260	$^\circ\text{C}$
Thermal resistance junction/ambient		$R_{thJA}$	350	K/W

Note:

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

<sup>2)</sup> Driving the LED in reverse direction is suitable for a short term application

OPTICAL AND ELECTRICAL CHARACTERISTICS <sup>1)</sup> TLDR5800, RED						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	$I_F = 20 \text{ mA}$	$I_V$	1000	2500		mcd
Dominant wavelength	$I_F = 20 \text{ mA}$	$\lambda_d$		648		nm
Peak wavelength	$I_F = 20 \text{ mA}$	$\lambda_p$		650		nm
Angle of half intensity	$I_F = 20 \text{ mA}$	$\phi$		$\pm 4$		deg
Forward voltage	$I_F = 20 \text{ mA}$	$V_F$		1.8	2.2	V
Reverse current	$V_R = 6 \text{ V}$	$I_R$			10	$\mu\text{A}$
Junction capacitance	$V_R = 0, f = 1 \text{ MHz}$	$C_j$		50		pF

Note:

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

LUMINOUS INTENSITY CLASSIFICATION		
GROUP STANDARD	LUMINOUS INTENSITY (mcd)	
	MIN.	MAX.
EE	1000	2000
FF	1350	2700
GG	1800	3600
HH	2400	4800
II	3200	6400
KK	4300	8600
LL	5750	11 500
MM	7500	15 000
NN	10 000	20 000

Note:

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 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

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

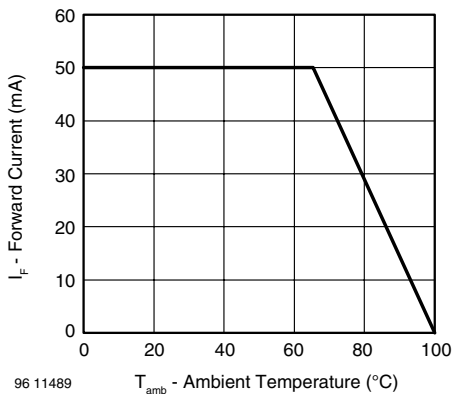


Figure 1. Forward Current vs. Ambient Temperature for AlInGaP

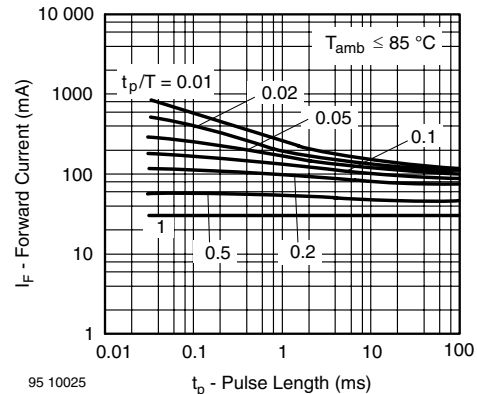


Figure 2. Forward Current vs. Pulse Length

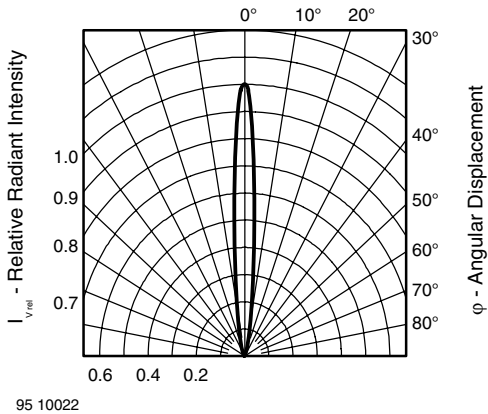


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

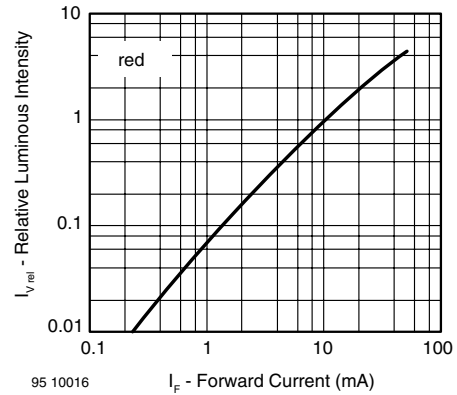


Figure 6. Relative Luminous Intensity vs. Forward Current

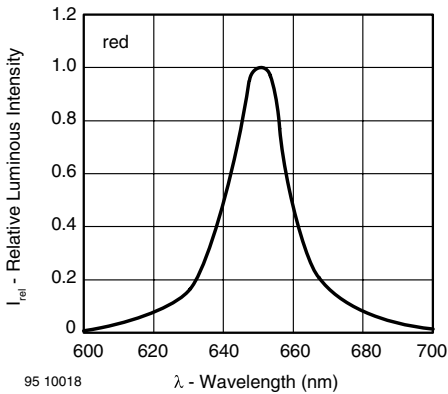


Figure 4. Relative Intensity vs. Wavelength

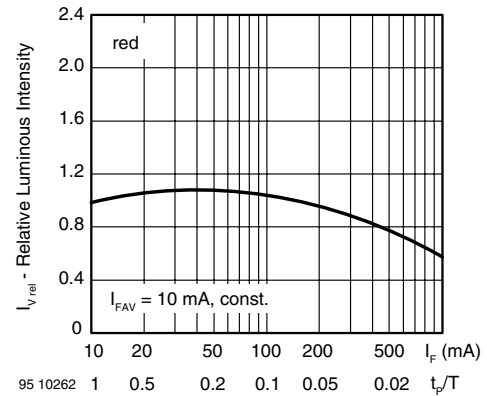


Figure 7. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

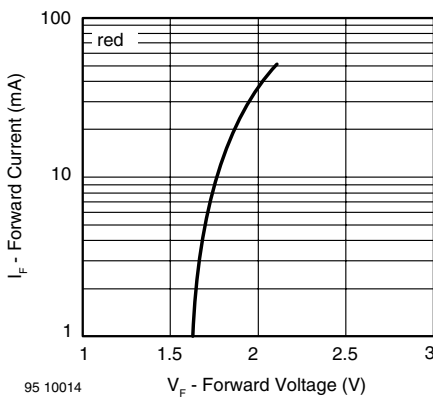


Figure 5. Forward Current vs. Forward Voltage

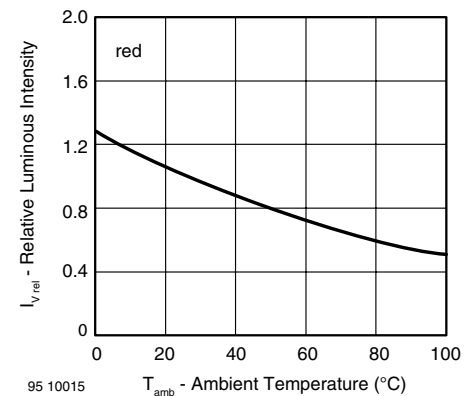
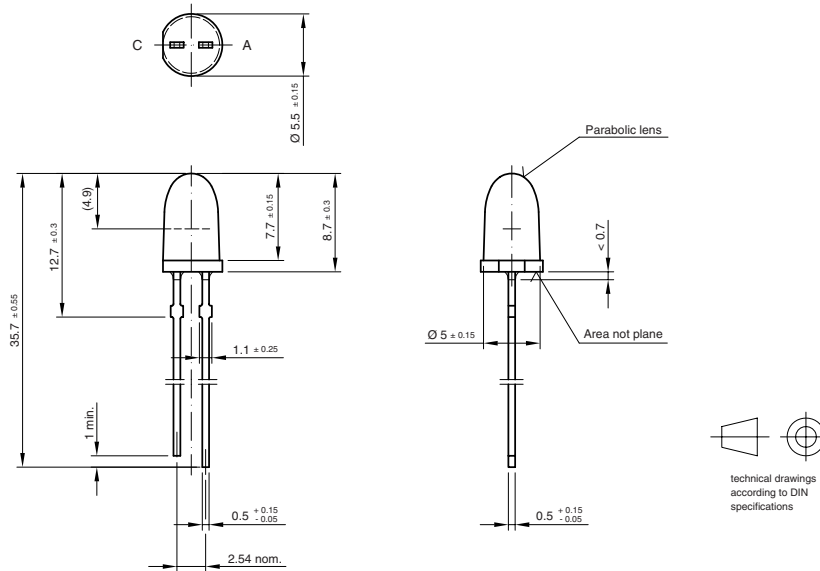


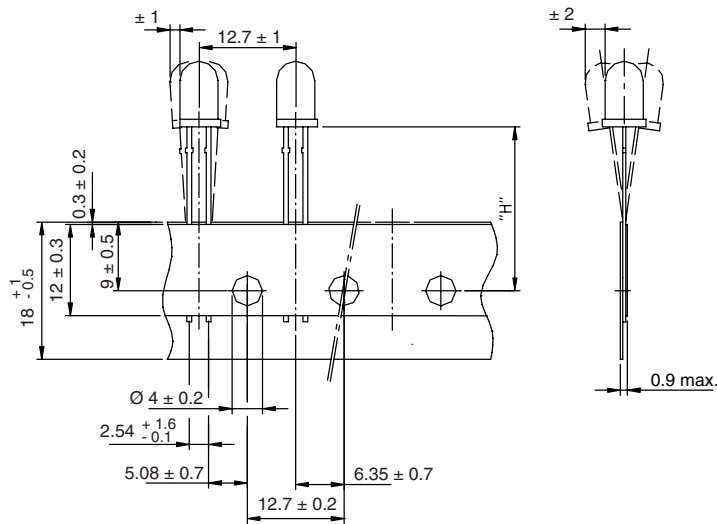
Figure 8. Rel. Luminous Intensity vs. Ambient Temperature

## PACKAGE DIMENSIONS



Drawing-No.: 6.544-5310.01-4  
 Issue: 4; 19.05.09  
 95 11476

## TAPE DIMENSIONS



Measure limit over 20 index-holes:  $\pm 1$

Quantity per:	Reel (Mat.-no. 1764)
	1000

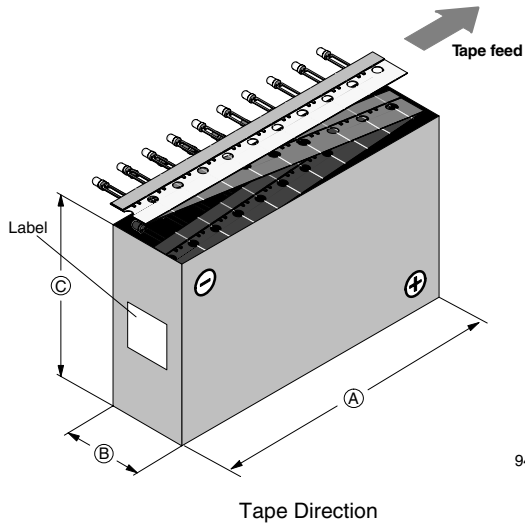
94 8172

Option	Dim. "H" $\pm 0.5 \text{ mm}$
AS	17.3

### Explanation

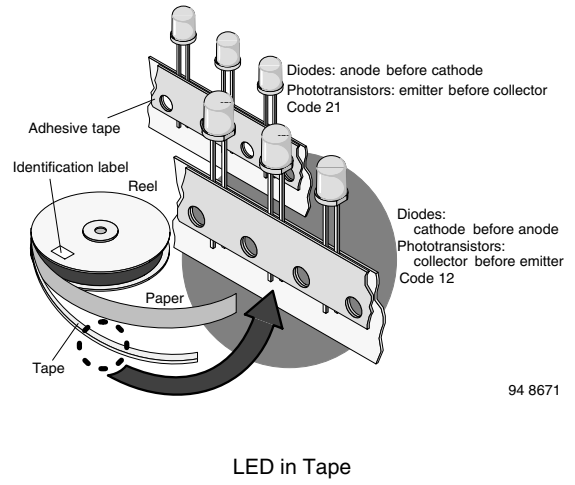
12 - cathode leaves first  
 21 - anode leaves first

**AMMOPACK**



94 8667-1

**TAPE**



94 8671



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