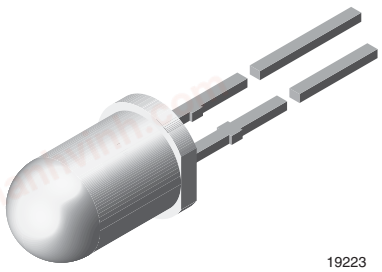
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High Intensity LED, Ø 5 mm Clear Package



19223

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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

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: ± 4°

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 (mcd)			at I_F (mA)	WAVELENGTH (nm)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLDR5800	Red	1000	2500	-	20	-	648	-	20	-	1.8	2.2	20	GaAlAs on GaAs
TLDR5800-AS12Z	Red	1000	2500	-	20	-	648	-	20	-	1.8	2.2	20	GaAlAs on GaAs

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
TLDR5800

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage [1]		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
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) Driving the LED in reverse direction is suitable for a short term application

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OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) TLDR5800, 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 V, f = 1 MHz	C_j	-	50	-	pF

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	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 ± 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)

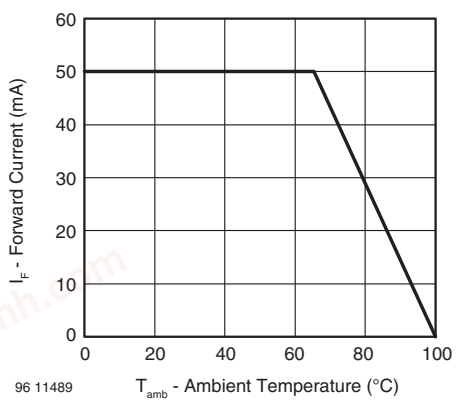


Fig. 1 - Forward Current vs. Ambient Temperature for AlInGaP

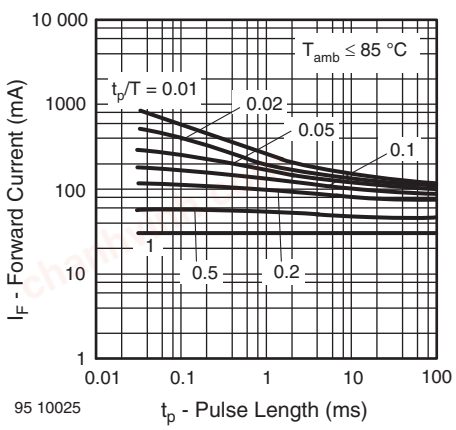


Fig. 2 - Forward Current vs. Pulse Length

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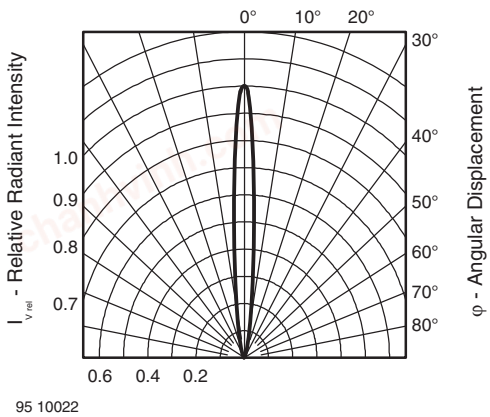


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

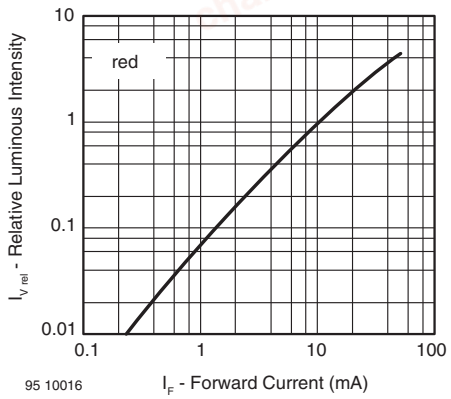


Fig. 6 - Relative Luminous Intensity vs. Forward Current

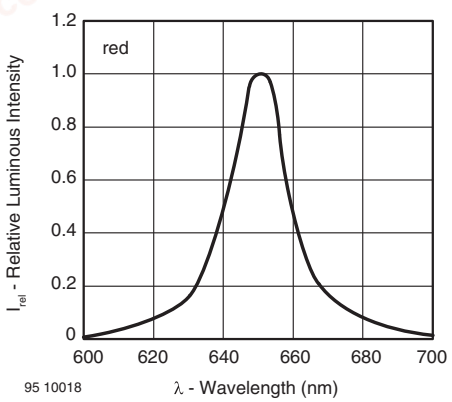


Fig. 4 - Relative Intensity vs. Wavelength

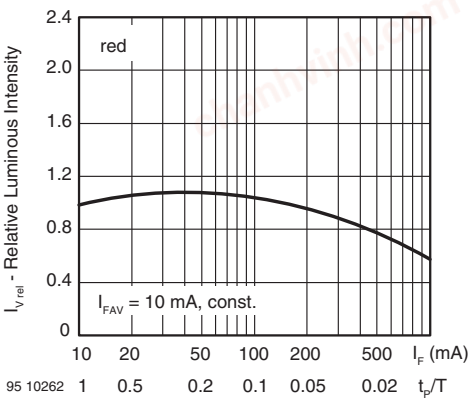


Fig. 7 - Relative Luminous. Intensity vs. Forward Current/Duty Cycle

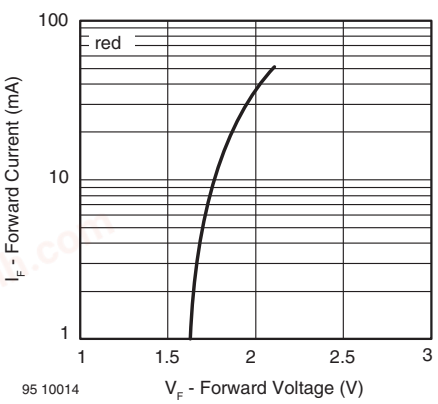


Fig. 5 - Forward Current vs. Forward Voltage

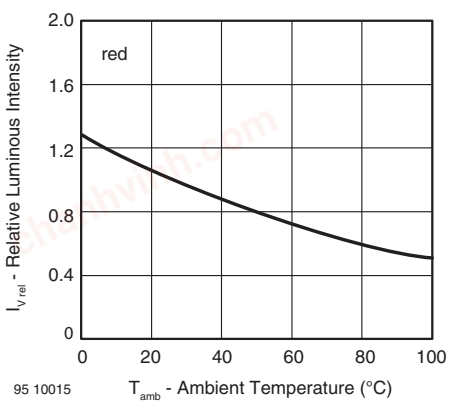
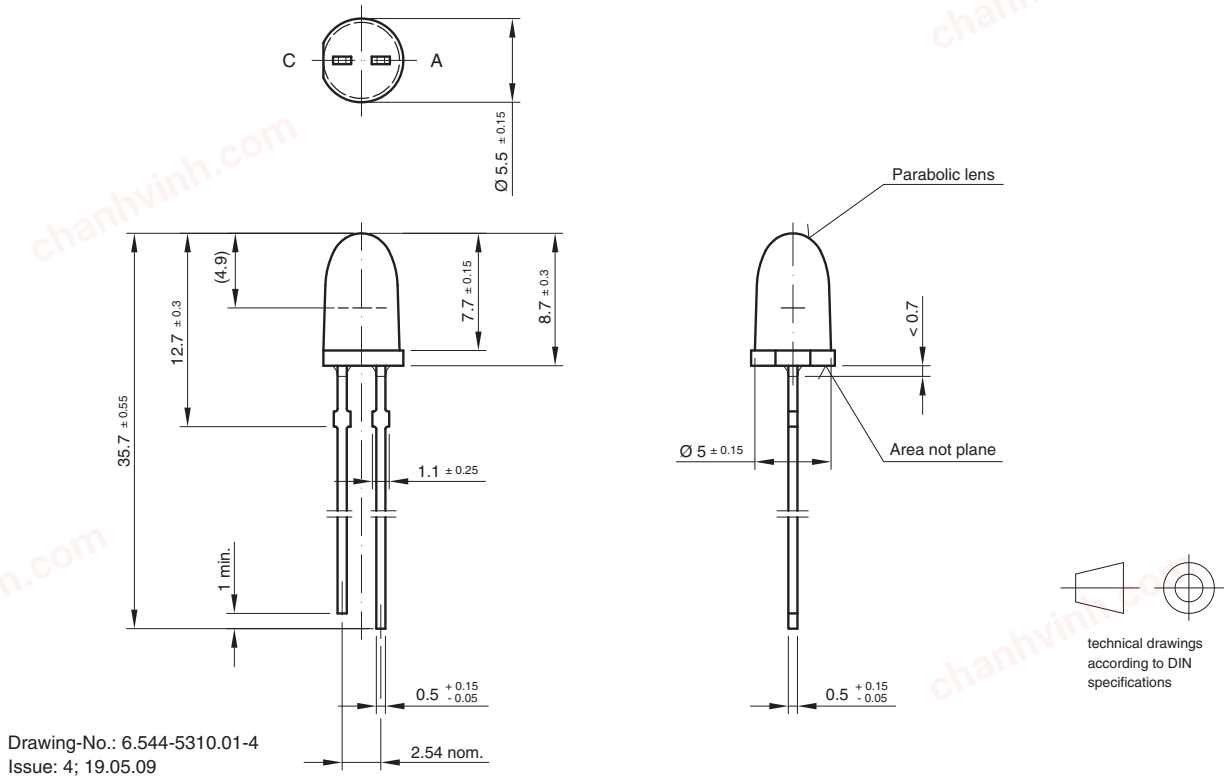


Fig. 8 - Relative Luminous Intensity vs. Ambient Temperature

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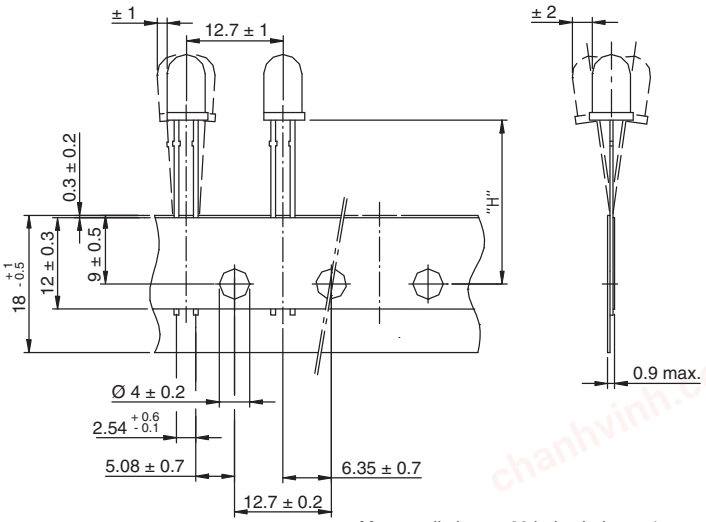
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PACKAGE DIMENSIONS in millimeters



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

TAPE DIMENSIONS in millimeters



Measure limit over 20 index-holes: ± 1

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

94 8172

Option	Dim. “H” ± 0.5 mm
AS	17.3

Explanation
12 - cathode leaves first
21 - anode leaves first

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AMMOPACK

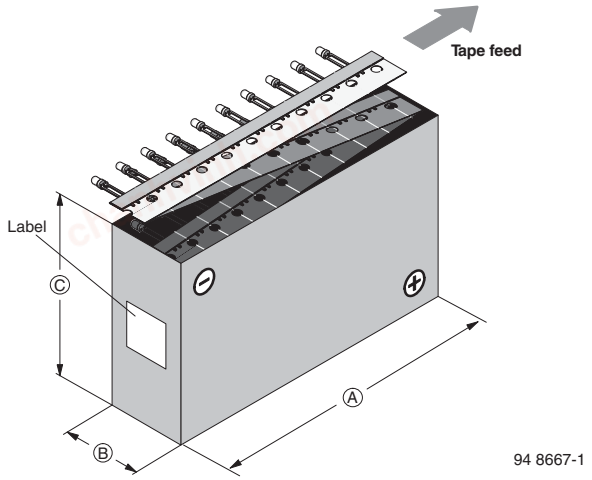


Fig. 9 - Tape Direction

TAPE

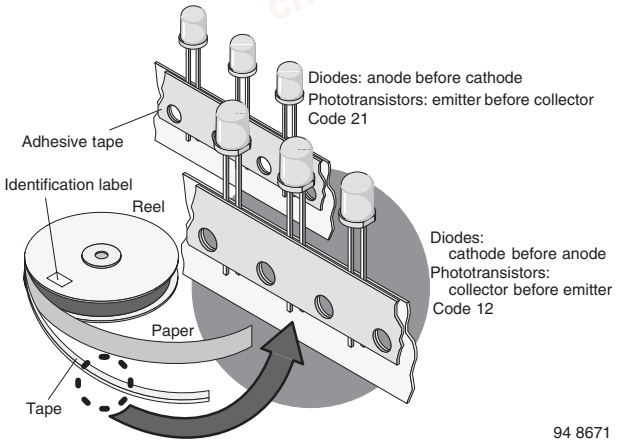


Fig. 10 - LED in Tape

Note

- The new nomenclature for ammopack is e.g. ASZ only, without suffix for the LED orientation. The carton box has to be turned to the desired position: “+” for anode first, or “-” for cathode first. AS12Z and AS21Z are still valid for already existing types, BUT NOT FOR NEW DESIGN.

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