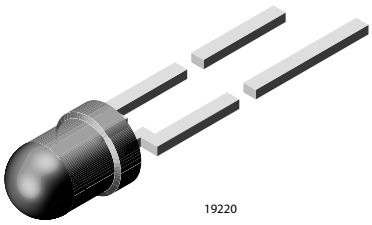
High Intensity LED, ∅ 3 mm Tinted Diffused



FEATURES

- Exceptional brightness
- Very high intensity even at low drive currents
- Wide viewing angle
- Low forward voltage
- 3 mm (T-1) tinted diffused package
- 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

Pb-free

e8

RoHS COMPLIANT

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.

The device is available in a 3 mm tinted diffused package.

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: 3 mm
- Product series: standard
- Angle of half intensity: ± 40°

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLDR4400	Red, I_V > 25 mcd	GaAlAs on GaAs
TLDR4400-ASZ	Red, I_V > 25 mcd	GaAlAs on GaAs
TLDR4401	Red, I_V = (25 to 50) mcd	GaAlAs on GaAs

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified) **TLDR440.**

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
DC Forward current	$T_{amb} \leq 60$ °C	I_F	50	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 60$ °C	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}	400	K/W

** Please see document “Vishay Material Category Policy”: www.vishay.com/doc?99902

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **TLDR440., RED**							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN**	**TYP.**	**MAX**	**UNIT**
Luminous intensity [1]	I_F = 20 mA	TLDR4400	I_V	25	45		mcd
		TLDR4401	I_V	25		50	mcd
Luminous intensity	I_F = 1 mA		I_V		2		mcd
Dominant wavelength	I_F = 20 mA		λ_d		648		nm
Peak wavelength	I_F = 20 mA		λ_p		650		nm
Spectral line half width	I_F = 20 mA		$\Delta\lambda$		20		nm
Angle of half intensity	I_F = 20 mA		φ		± 40		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		30		pF

Note:

[1] In one packing unit $I_{Vmin.}/I_{Vmax.} \leq 0.5$

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	**LIGHT INTENSITY (mcd)**	
STANDARD	**MIN**	**MAX**
T	25	50
U	40	80
V	63	125
W	100	200
X	130	260
Y	180	360
Z	240	480

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 on 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)

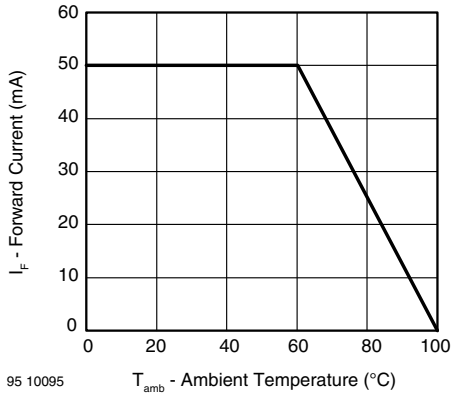


Figure 1. Forward Current vs. Ambient Temperature for InGaN

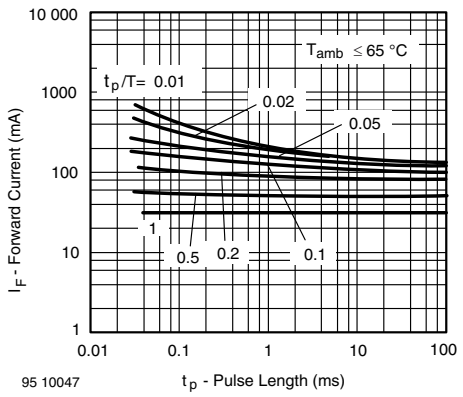


Figure 2. Forward Current vs. Pulse Length

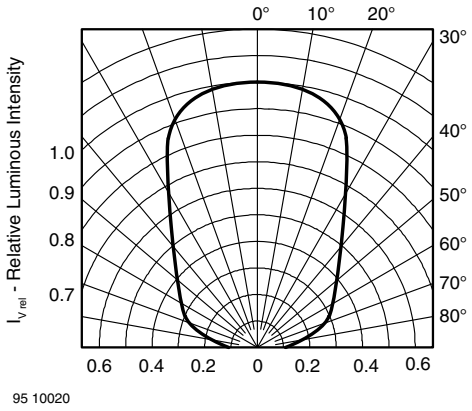


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

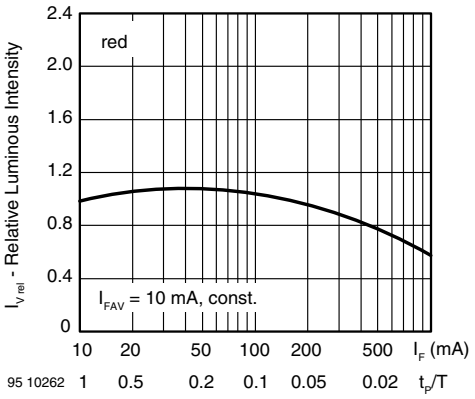


Figure 6. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

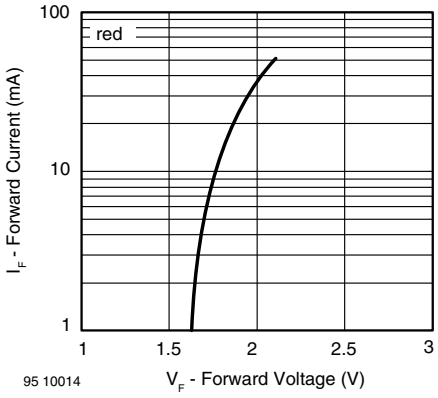


Figure 4.

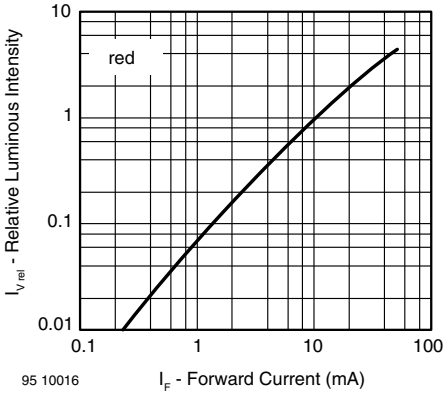


Figure 7. Relative Luminous Intensity vs. Forward Current

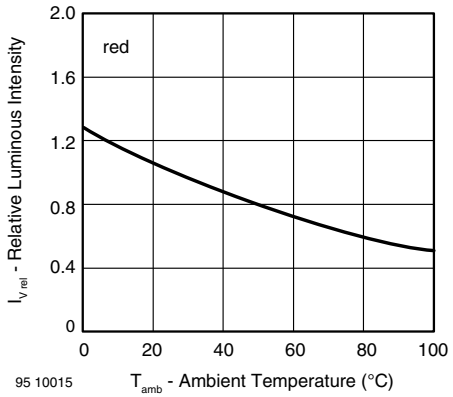


Figure 5. Rel. Luminous Intensity vs. Ambient Temperature

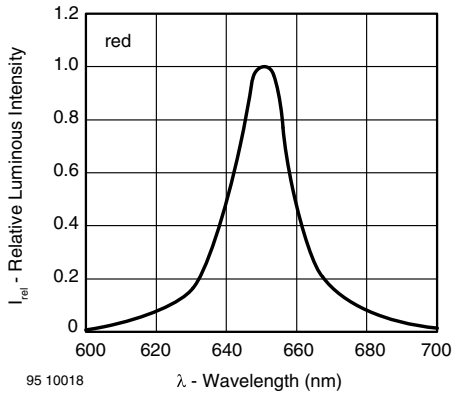


Figure 8. Relative Intensity vs. Wavelength

AMMOPACK

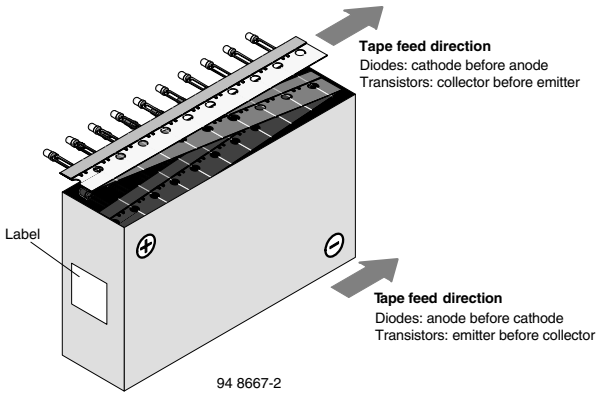
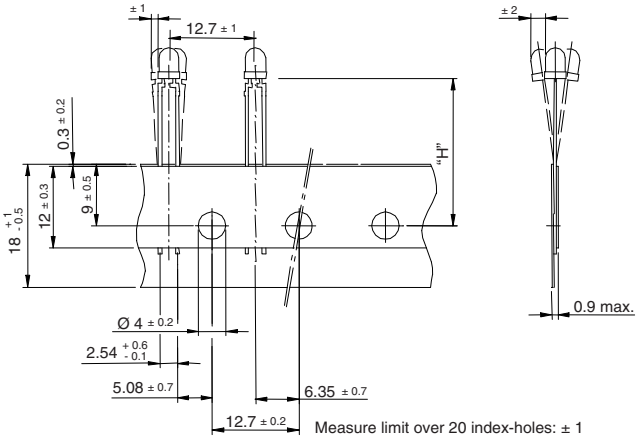


Figure 9. Tape Direction

Note:
The new nomenclature for ammopack is 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.

TAPE DIMENSIONS in millimeters

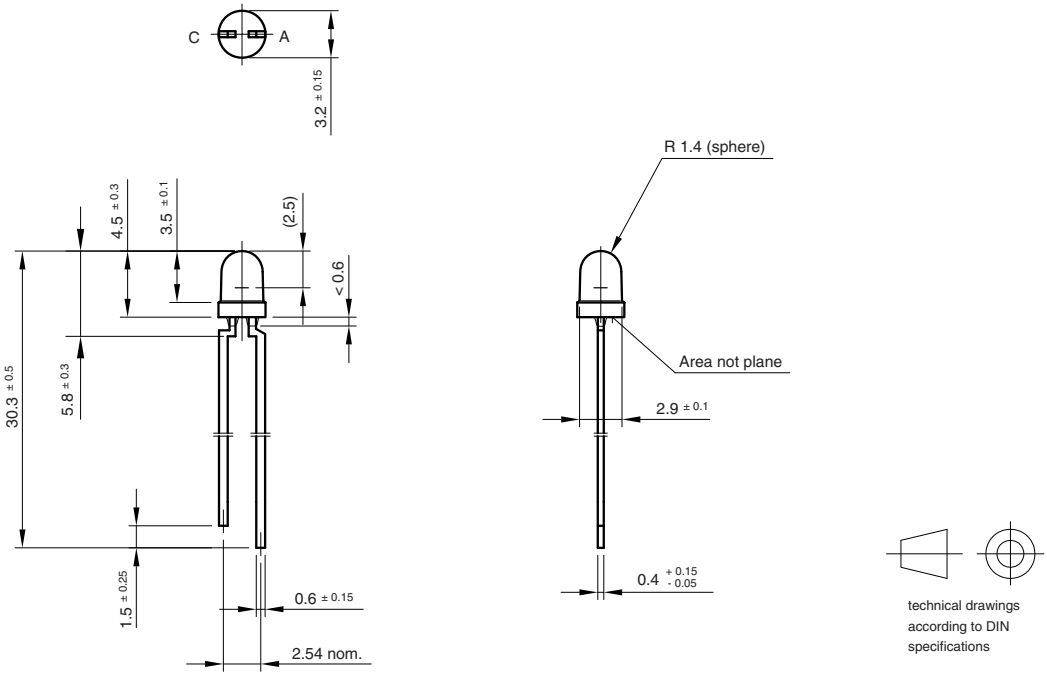


Quantity per:	Reel (Mat. - No. 1764)
	2000

94 8171

Option	Dim. “H” ± 0.5 mm
AS	17.3

PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5264.01-4
Issue: 2; 23.04.98
95 10951

For technical support, please contact: LED@vishay.com

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