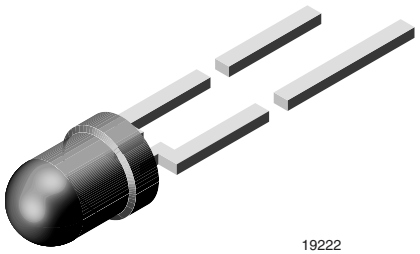
High Intensity LED in Ø 3 mm Tinted Clear Package



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FEATURES

- Standard Ø 3 mm (T-1) package
- Small mechanical tolerances
- Suitable for DC and high peak current
- Wide viewing angle
- Very high intensity
- Luminous intensity and color categorized
- ESD-withstand voltage: Up to 2 kV HBM according to JESD22-A114-B
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e8

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

DESCRIPTION

This series is housed in a 3 mm tinted, clear plastic package. The wide viewing angle of these devices provides a high brightness across a large field of view.

All packing units are categorized in luminous intensity and color groups. That allows users to assemble LEDs with uniform appearance.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: ± 22°

APPLICATIONS

- Status lights
- Off/on indicator
- Background illumination
- Readout lights
- Maintenance lights
- Legend light

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.		
TLHP4200	Pure green	2.5	7	-	10	555	-	565	10	-	2.4	3	20	GaP on GaP
TLHP4200-MS12Z	Pure green	2.5	7	-	10	555	-	565	10	-	2.4	3	20	GaP on GaP
TLHP4201	Pure green	6.3	-	20	10	555	-	565	10	-	2.4	3	20	GaP on GaP
TLHP4201-AS12Z	Pure green	6.3	-	20	10	555	-	565	10	-	2.4	3	20	GaP on GaP

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

TLHP42..

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
DC forward current	$T_{amb} \leq 60$ °C	I_F	30	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

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
TLHP42.., PURE GREEN

PARAMETER	TEST CONDITION	PARTS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity (1)	I_F = 10 mA	TLHP4200	I_V	2.5	7	-	mcd
		TLHP4201	I_V	6.3	-	20	mcd
Dominant wavelength	I_F = 10 mA		λ_d	555	-	565	nm
Peak wavelength	I_F = 10 mA		λ_p	-	555	-	nm
Angle of half intensity	I_F = 10 mA		φ	-	± 22	-	deg
Forward voltage	I_F = 20 mA		V_F	-	2.4	3	V
Reverse current	V_R = 6 V		I_R	-	-	10	µA
Junction capacitance	V_R = 0 V, f = 1 MHz		C_j	-	50	-	pF

Note

(1) In one packing unit $I_{Vmax.}/I_{Vmin.} \leq 1.6$.

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LIGHT INTENSITY (mcd)	
STANDARD	MIN.	MAX.
NA	2.5	4
NB	3.2	5
PA	4	6.3
PB	5	8
QA	6.3	10
QB	8	12.5
RA	10	16
RB	12.5	20

Note

- Luminous intensity is tested at a current pulse duration of 25 ms. 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.

COLOR CLASSIFICATION

GROUP	PURE GREEN	
	DOM. WAVELENGTH (nm)	
	MIN.	MAX.
0	555	559
1	558	561
2	560	563
3	562	565

Note

- Wavelengths are tested at a current pulse duration of 25 ms.

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

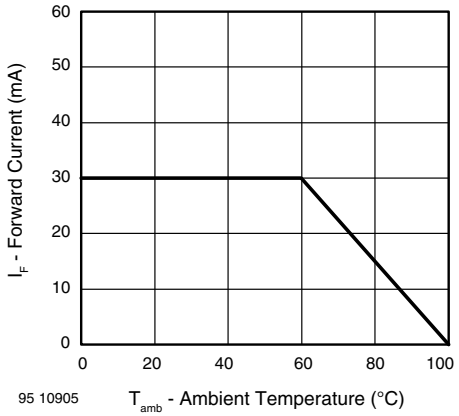


Fig. 1 - Forward Current vs. Ambient Temperature

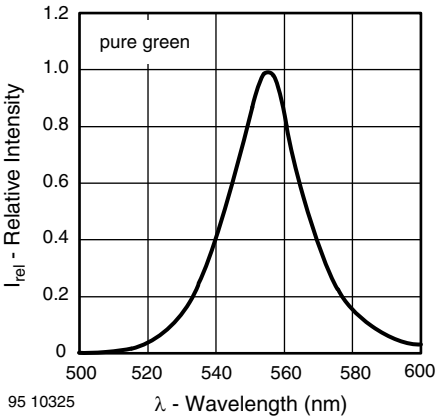


Fig. 4 - Relative Intensity vs. Wavelength

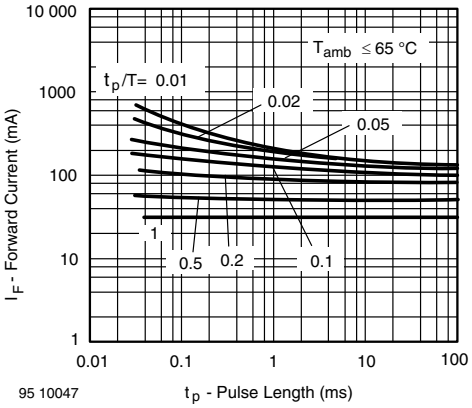


Fig. 2 - Forward Current vs. Pulse Length

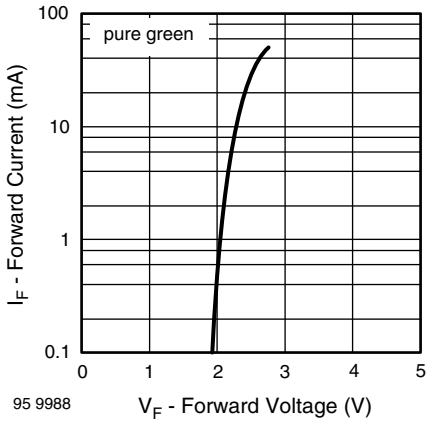


Fig. 5 - Forward Current vs. Forward Voltage

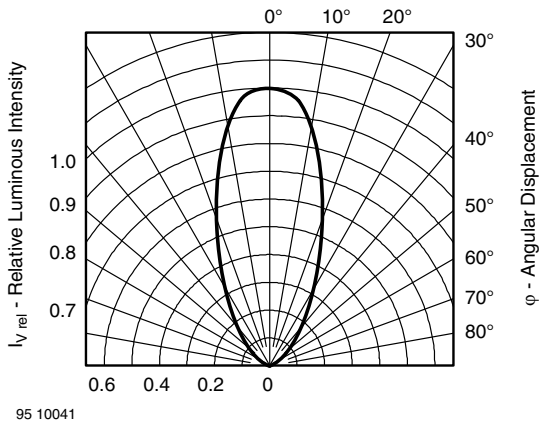


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

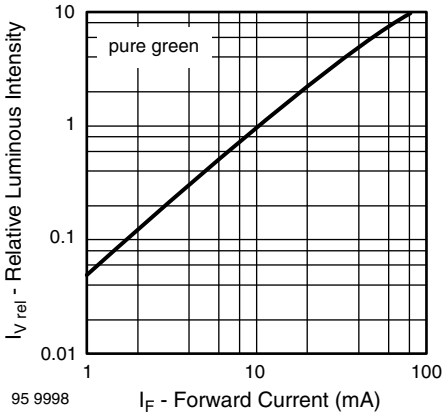


Fig. 6 - Relative Luminous Intensity vs. Forward Current

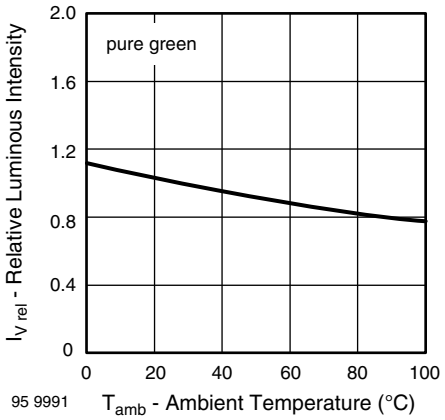


Fig. 7 - Relative Luminous Intensity vs. Ambient Temperature

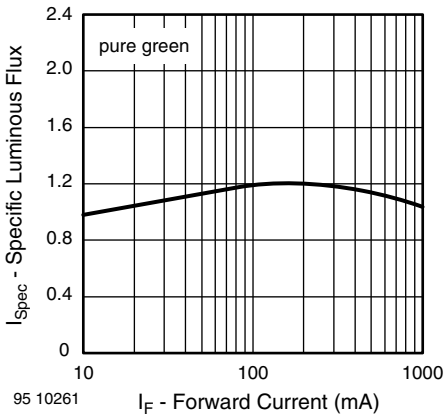
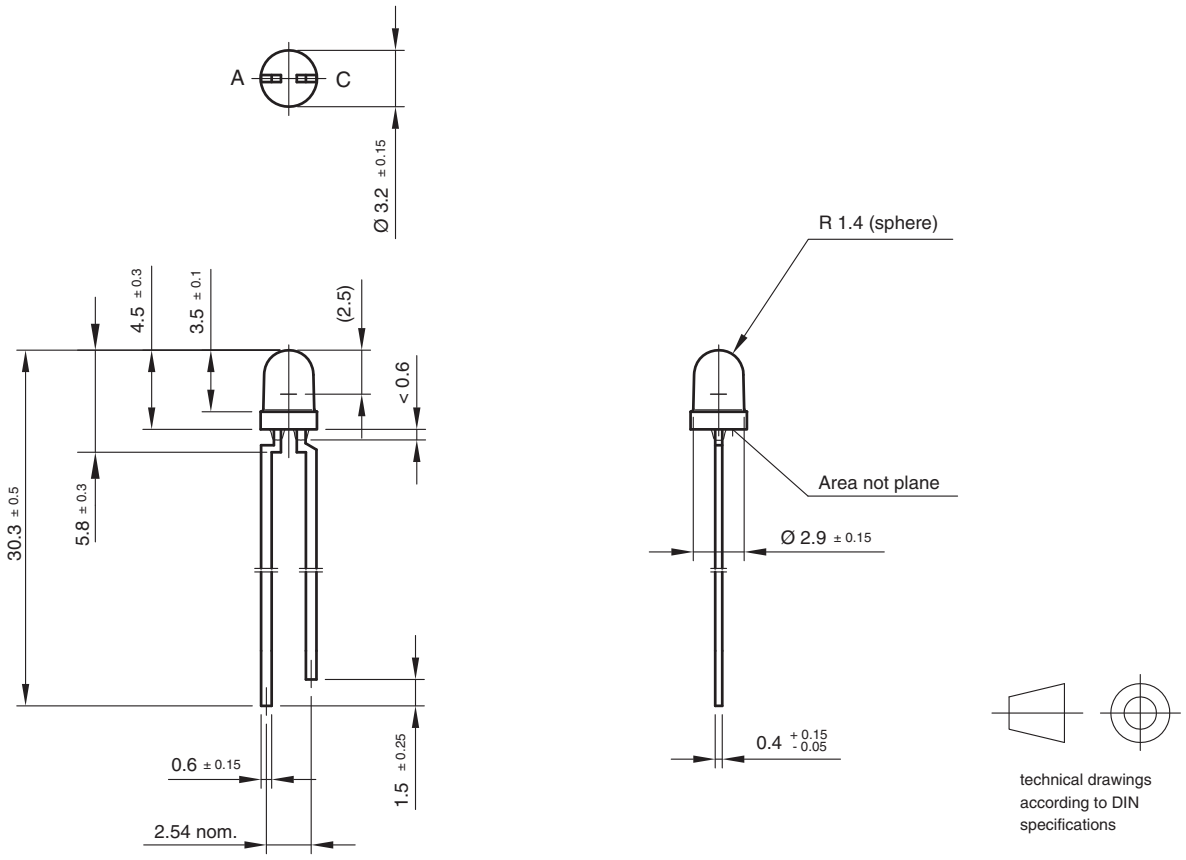


Fig. 8 - Specific Luminous Flux vs. Forward Current

PACKAGE DIMENSIONS in millimeters



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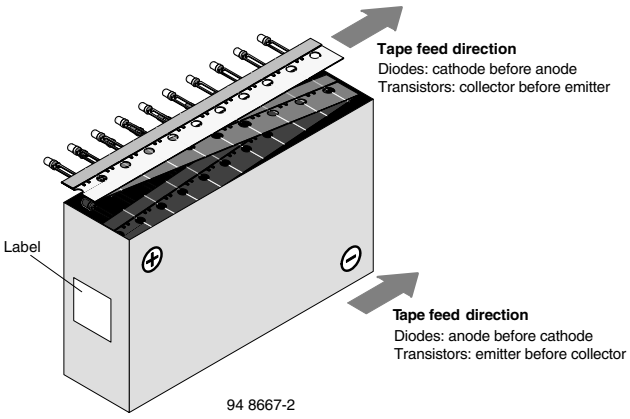
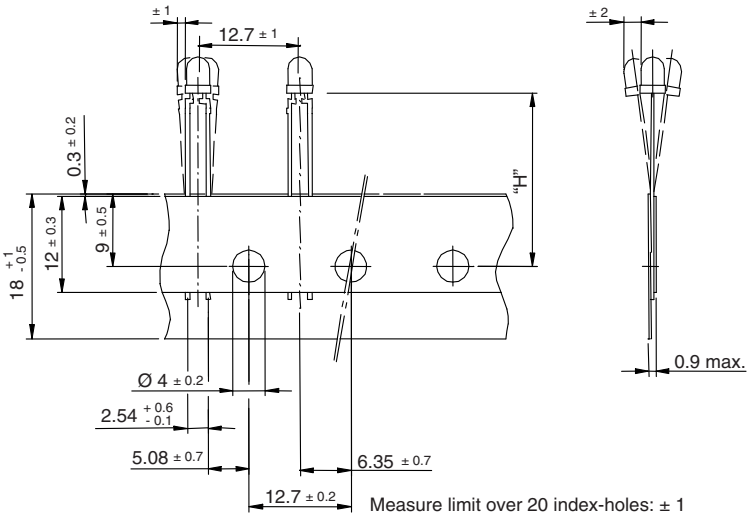


Fig. 9 - Tape Direction

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
MS	25.5

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