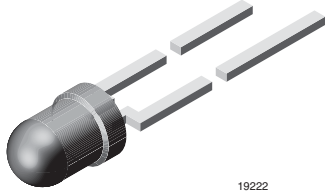


**High Intensity LED in Ø 3 mm Tinted Clear Package****DESCRIPTION**

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: $\pm 22^\circ$

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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT
GREEN
[5-2008]**

APPLICATIONS

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

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLHP4200	Pure green, $I_V > 2.5$ mcd	GaP on GaP
TLHP4200-AS12	Pure green, $I_V > 2.5$ mcd	GaP on GaP
TLHP4200-AS12Z	Pure green, $I_V > 2.5$ mcd	GaP on GaP
TLHP4200-MS12Z	Pure green, $I_V > 2.5$ mcd	GaP on GaP
TLHP4201	Pure green, $I_V = (6.3 \text{ to } 20)$ mcd	GaP on GaP
TLHP4201-AS12Z	Pure green, $I_V = (6.3 \text{ to } 20)$ mcd	GaP on GaP
TLHP4202	Pure green, $I_V = (4 \text{ to } 12.5)$ mcd	GaP on GaP

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified) **TLHP42..**

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
DC forward current	$T_{amb} \leq 60^\circ\text{C}$	I_F	30	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 60^\circ\text{C}$	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}	400	K/W

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

OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) TLHP42.., PURE GREEN

PARAMETER	TEST CONDITION	PARTS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity ¹⁾	$I_F = 10\text{ mA}$	TLHP4200	I_V	2.5	7		mcd
		TLHP4201	I_V	6.3		20	mcd
		TLHP4202	I_V	4		12.5	mcd
Dominant wavelength	$I_F = 10\text{ mA}$		λ_d	555		565	nm
Peak wavelength	$I_F = 10\text{ mA}$		λ_p		555		nm
Angle of half intensity	$I_F = 10\text{ mA}$		φ		± 22		deg
Forward voltage	$I_F = 20\text{ mA}$		V_F		2.4	3	V
Reverse current	$V_R = 6\text{ V}$		I_R			10	μA
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$		C_j		50		pF

Note:

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

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LIGHT INTENSITY (mcd)	
	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 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

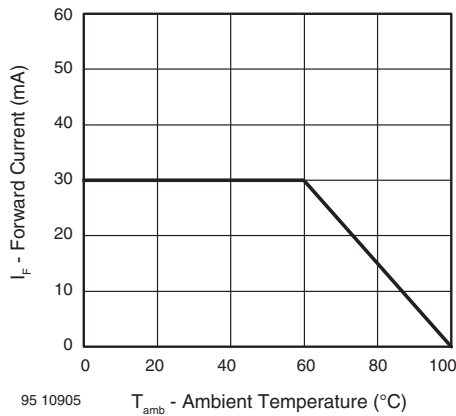


Figure 1. Forward Current vs. Ambient Temperature

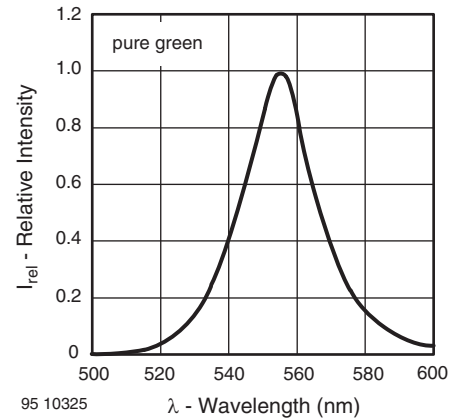


Figure 4. Relative Intensity vs. Wavelength

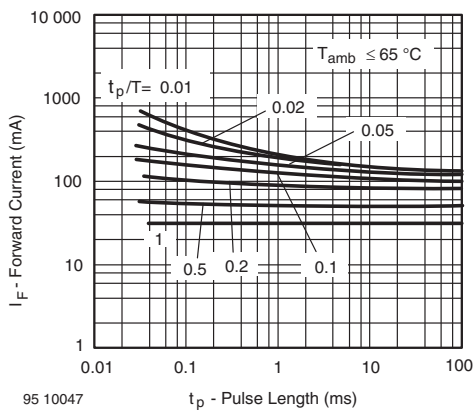


Figure 2. Forward Current vs. Pulse Length

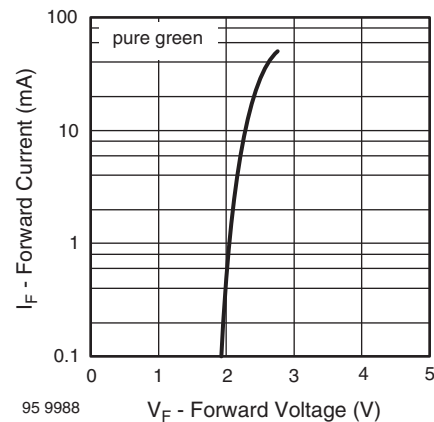


Figure 5. Forward Current vs. Forward Voltage

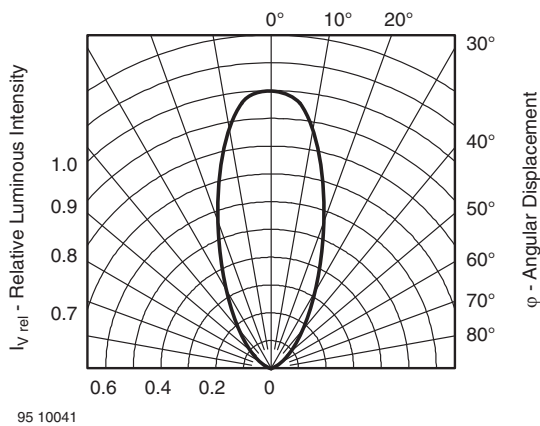


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

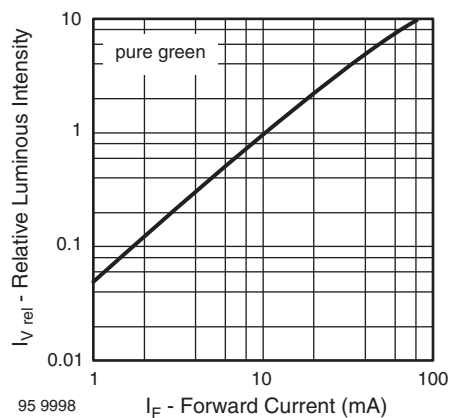


Figure 6. Relative Luminous Intensity vs. Forward Current

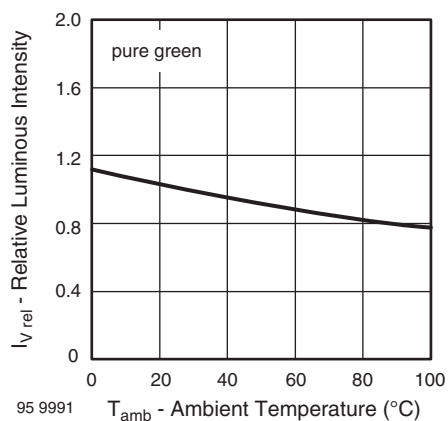


Figure 7. Rel. Luminous Intensity vs. Ambient Temperature

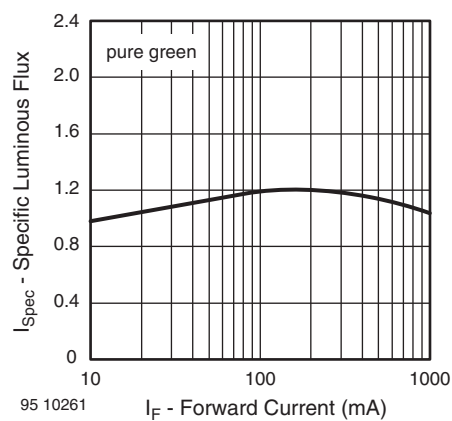
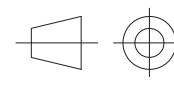
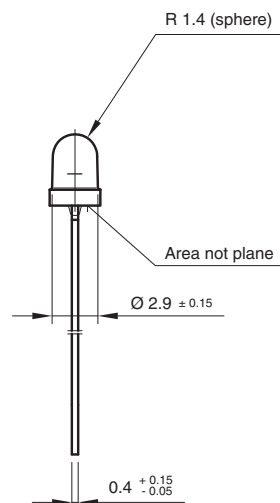
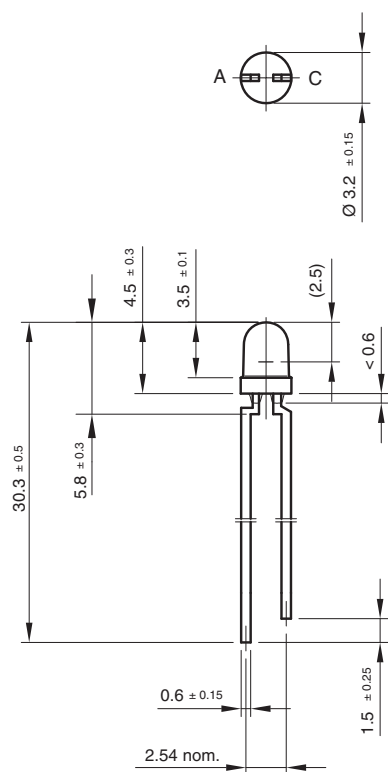


Figure 8. Specific Luminous Flux vs. Forward Current

PACKAGE DIMENSIONS in millimeters



technical drawings
according to DIN
specifications

Drawing-No.: 6.544-5255.01-4
Issue: 7; 25.09.08
95 10913

AMMOPACK

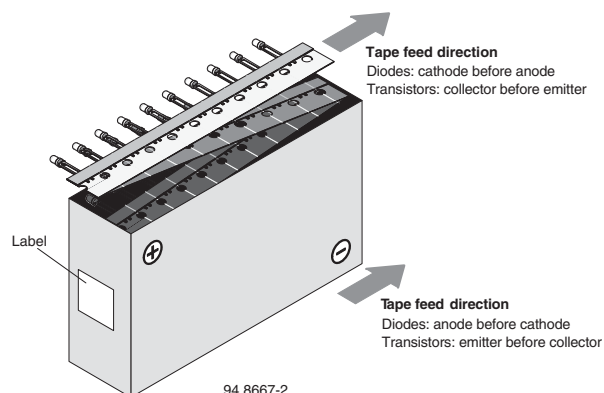


Figure 9. Tape Direction

TAPE

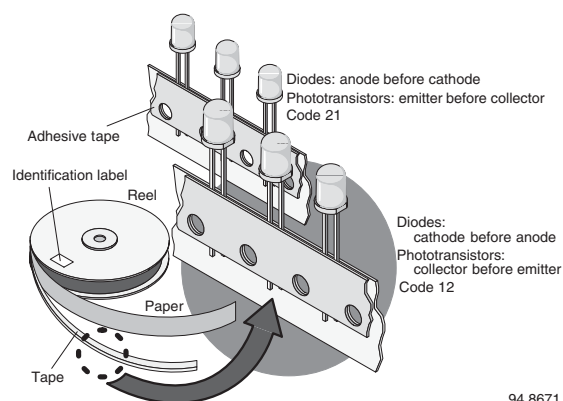
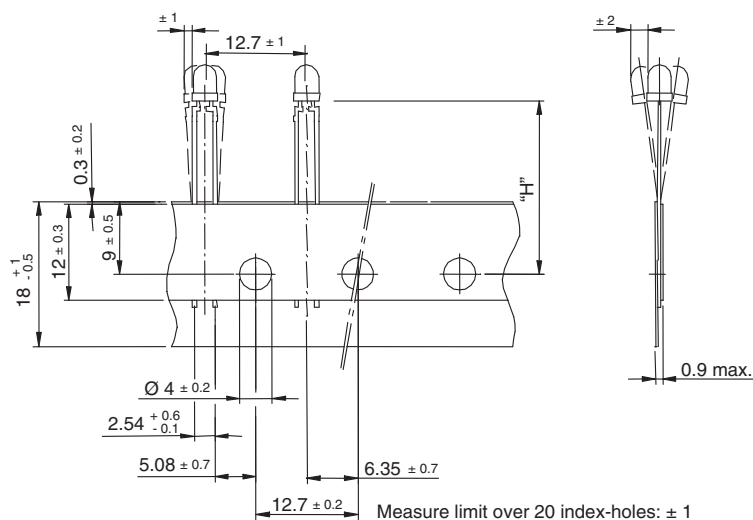


Figure 10. LED in Tape

Note:

The new nomenclature for ammpack 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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