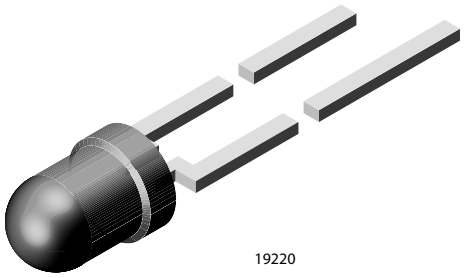
High Efficiency LED in Ø 3 mm Tinted Diffused Package



FEATURES

- Standard Ø 3 (T-1) package
- Small mechanical tolerances
- Suitable for DC and high peak current
- Wide viewing angle
- Luminous intensity categorized
- Color categorized
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

DESCRIPTION

The TLHG44K1M2 was developed for standard applications like general indicating and lighting purposes.

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

All LEDs are categorized in luminous intensity groups. The color is categorized additionally in wavelength groups.

That allows users to assemble LEDs with uniform appearance.

APPLICATIONS

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

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: ± 30°

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.		
TLHG44K1M2	Green	7.1	-	28	10	562	-	575	10	-	2.1	2.6	10	GaP on GaP

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
TLHG44K1M2

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
DC forward current		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 to ambient		R_{thJA}	400	K/W

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
TLHG44K1M2, GREEN

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity (1)	I_F = 10 mA	TLHG44K1M2	I_V	7.1	-	28	mcd
Dominant wavelength	I_F = 10 mA		λ_d	562	-	575	nm
Peak wavelength	I_F = 10 mA		λ_p	-	565	-	nm
Angle of half intensity	I_F = 10 mA		φ	-	± 30	-	°
Forward voltage	I_F = 10 mA		V_F	-	2.1	2.6	V
Reverse voltage	I_R = 10 µA		V_R	6	15	-	V
Junction capacitance	V_R = 0 V, f = 1 MHz		C_j	-	50	-	pF

Note

(1) in one packing unit $i_{vmin.}/i_{vmax.} \leq 1.6$

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LIGHT INTENSITY (mcd)		
STANDARD	OPTIONAL	MIN.	MAX.
K	1	7.1	9
	2	9	11.2
L	1	11.2	14.0
	2	14.0	18.0
M	1	18.0	22.4
	2	22.4	28.0

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 reel (there will be no mixing of two groups on each reel). 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 reel.
  In order to ensure availability, single wavelength groups will not be orderable

COLOR CLASSIFICATION

GROUP	GREEN	
	DOM. WAVELENGTH (nm)	
	MIN.	MAX.
3	562	565
4	564	567
5	566	569
6	568	571
7	570	573
8	572	575

Note

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

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

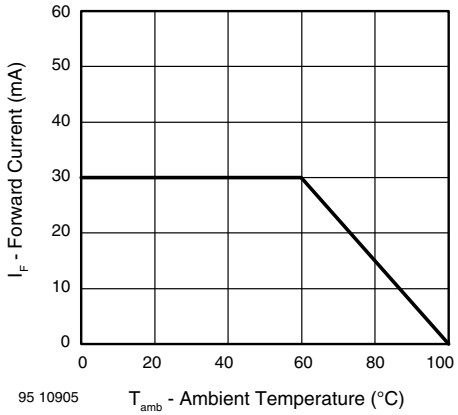


Fig. 1 - Forward Current vs. Ambient Temperature for InGaN

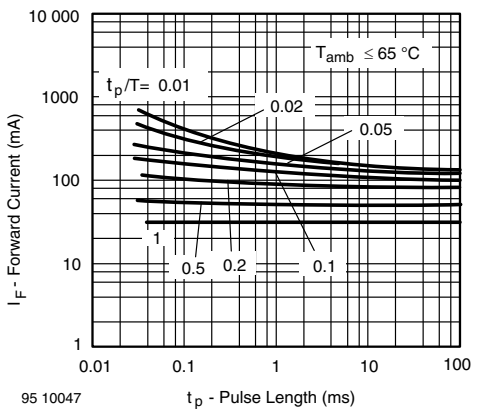


Fig. 2 - Forward Current vs. Pulse Length

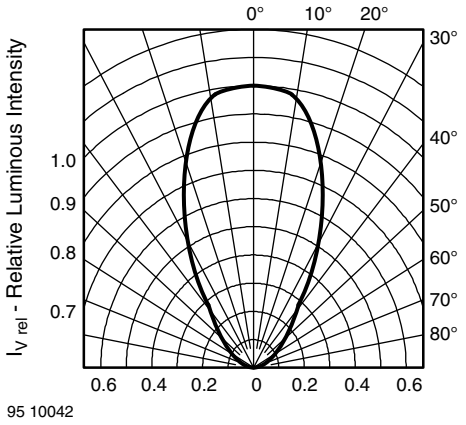


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

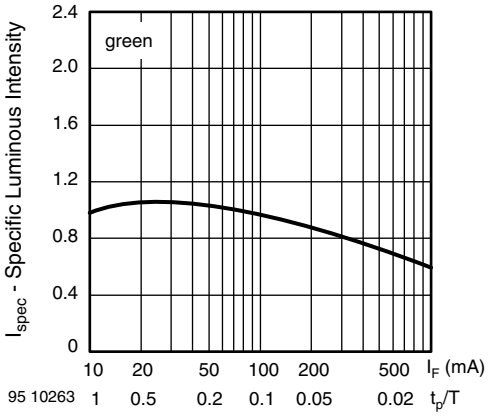


Fig. 6 - Specific Luminous Intensity vs. Forward Current

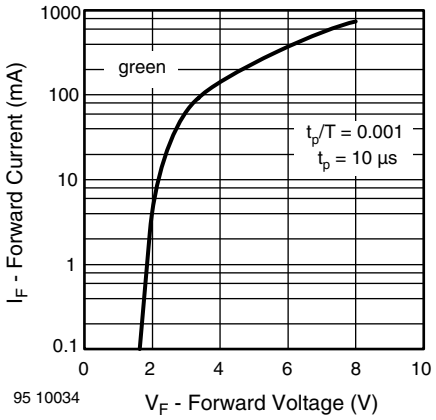


Fig. 4 - Forward Current vs. Forward Voltage

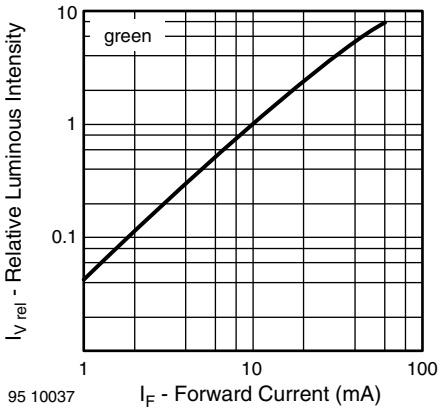


Fig. 7 - Relative Luminous Intensity vs. Forward Current

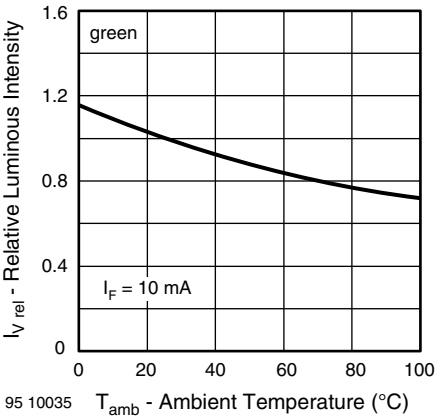


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature

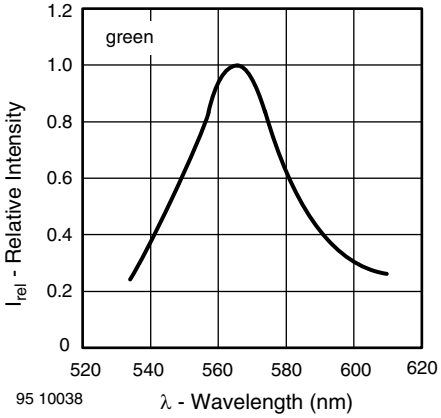
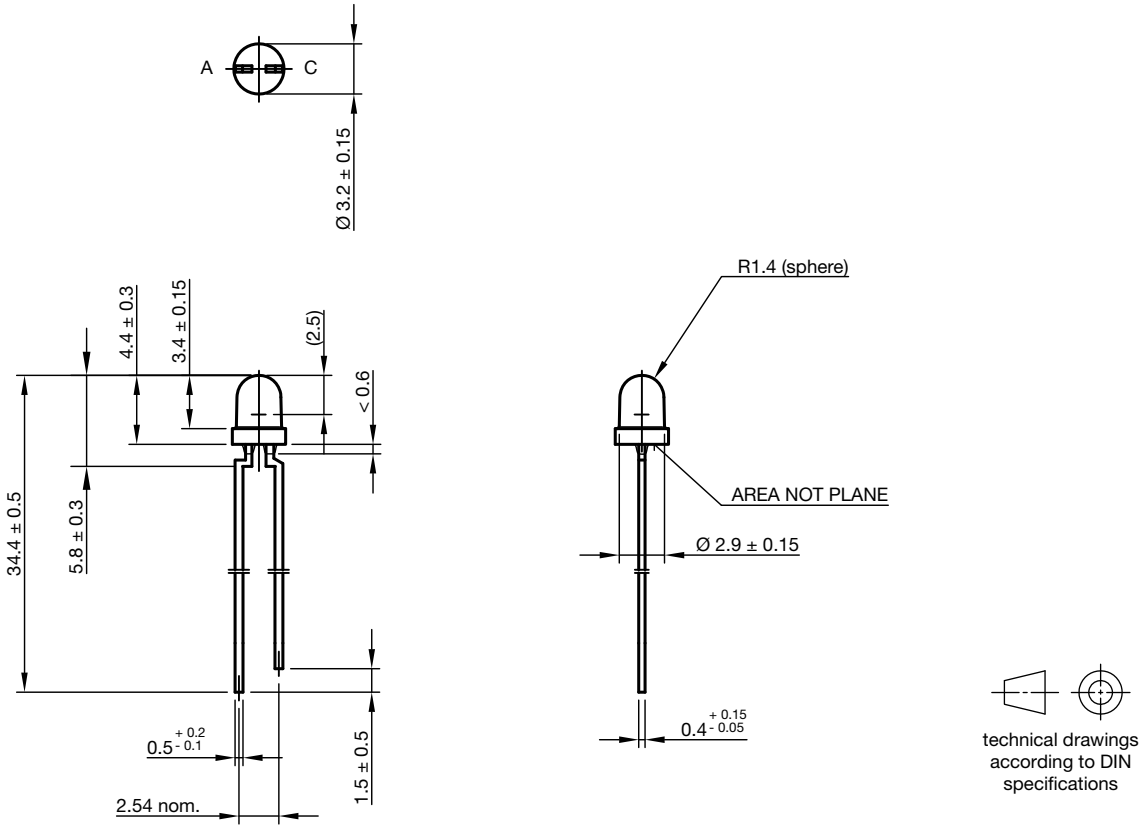


Fig. 8 - Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5255.01-4
Issue: 9; 28.07.14

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