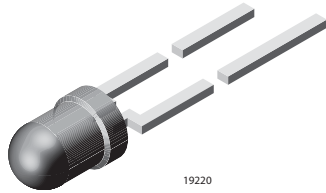


Universal LED in Ø 3 mm Tinted Diffused Package



PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity: $\pm 30^\circ$

FEATURES

- For DC and pulse operation
- Luminous intensity categorized
- Standard Ø 3 mm (T-1) package
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B



APPLICATIONS

- General indicating and lighting purposes

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLUR4400	Red, $I_V > 4$ mcd	GaAsP on GaAs
TLUR4400-AS12	Red, $I_V > 4$ mcd	GaAsP on GaAs
TLUR4400-AS21	Red, $I_V > 4$ mcd	GaAsP on GaAs
TLUR4400-BT12	Red, $I_V > 4$ mcd	GaAsP on GaAs
TLUR4400-BT12Z	Red, $I_V > 4$ mcd	GaAsP on GaAs
TLUR4400-KS12	Red, $I_V > 4$ mcd	GaAsP on GaAs
TLUR4400-KS12Z	Red, $I_V > 4$ mcd	GaAsP on GaAs
TLUR4401	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs
TLUR4401-AS12	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs
TLUR4401-AS12Z	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs
TLUR4401-AS21	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs
TLUR4401-BT12	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs
TLUR4401-KS12Z	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs
TLUR4401-LS12	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs
TLUR4401-MS12	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs
TLUR4401-MS21	Red, $I_V = (4 \text{ to } 32)$ mcd	GaAsP on GaAs

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified) TLUR44..

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage ¹⁾		V_R	6	V
DC forward current		I_F	20	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	I_{FSM}	0.5	A
Power dissipation		P_V	60	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}	500	K/W

Note:

¹⁾ Driving the LED in reverse direction is suitable for a short term application

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

OPTICAL AND ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) TLUR44.., RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	I _F = 10 mA	TLUR4400	I _V	4	15		mcd
		TLUR4401	I _V	4		32	mcd
Dominant wavelength	I _F = 10 mA		λ _d		630		nm
Peak wavelength	I _F = 10 mA		λ _p		640		nm
Angle of half intensity	I _F = 10 mA		φ		± 30		deg
Forward voltage	I _F = 20 mA		V _F		2	3	V
Reverse voltage	I _R = 10 μA		V _R	6	15		V
Junction capacitance	V _R = 0, f = 1 MHz		C _j		50		pF

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	LIGHT INTENSITY (mcd)	
	STANDARD	MIN.
P	4	8
Q	6.3	12.5
R	10	20
S	16	32
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)

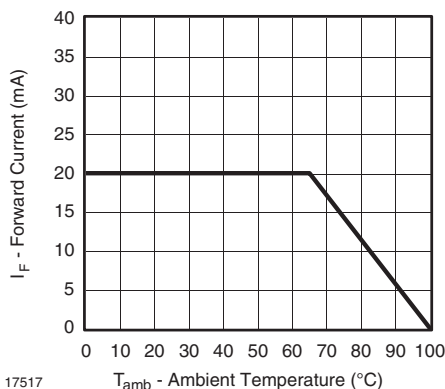


Figure 1. Forward Current vs. Ambient Temperature

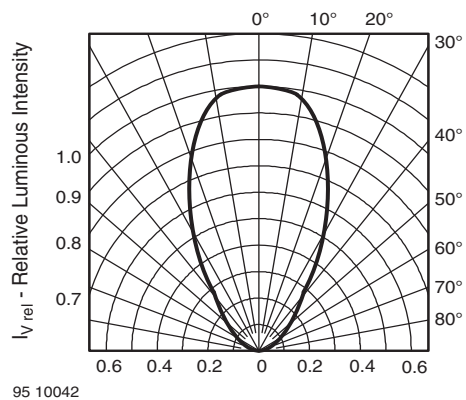


Figure 2. Rel. Luminous Intensity vs. Angular Displacement

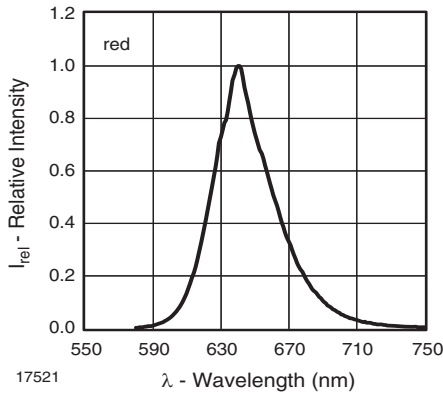


Figure 3. Relative Intensity vs. Wavelength

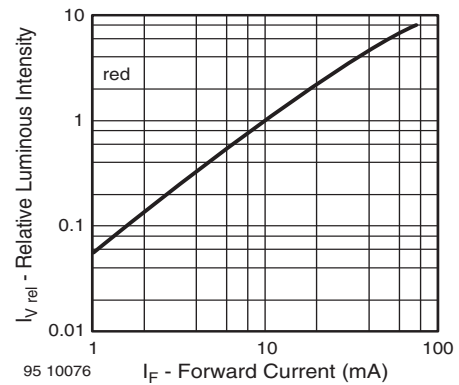


Figure 5. Relative Luminous Intensity vs. Forward Current

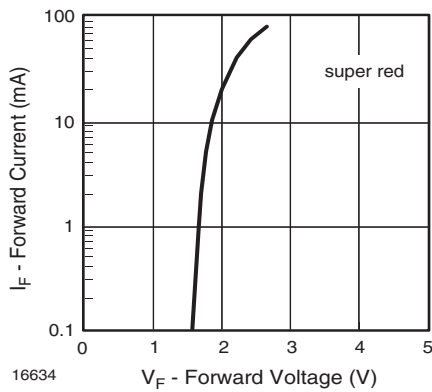


Figure 4. Forward Current vs. Forward Voltage

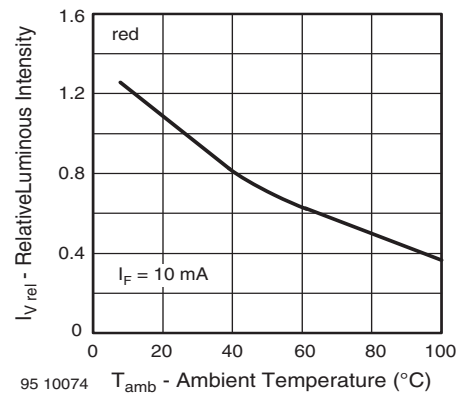
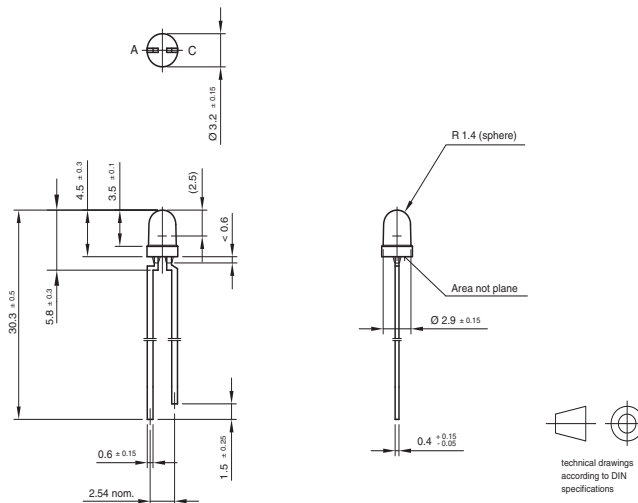


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

PACKAGE DIMENSIONS in millimeters



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REEL DIMENSIONS in millimeters

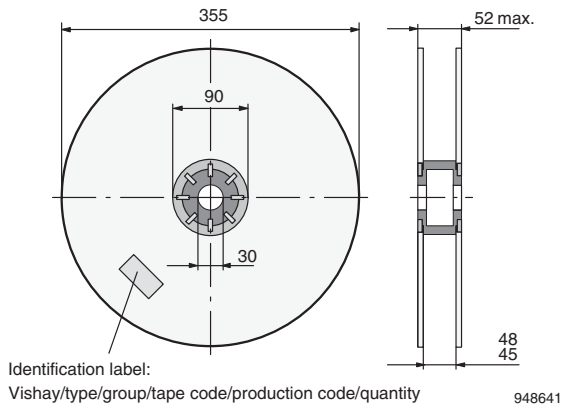


Figure 7. Reel Dimensions

AS12 = cathode leaves tape first

AS21 = anode leaves tape first

TAPE

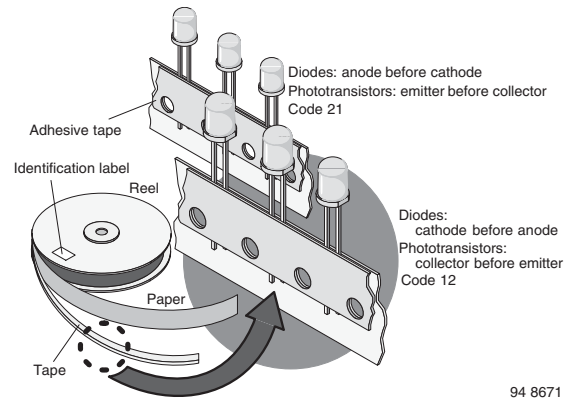


Figure 8. LED in Tape

AMMOPACK

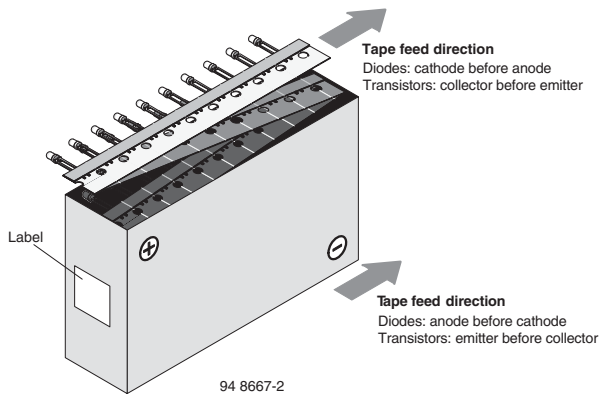
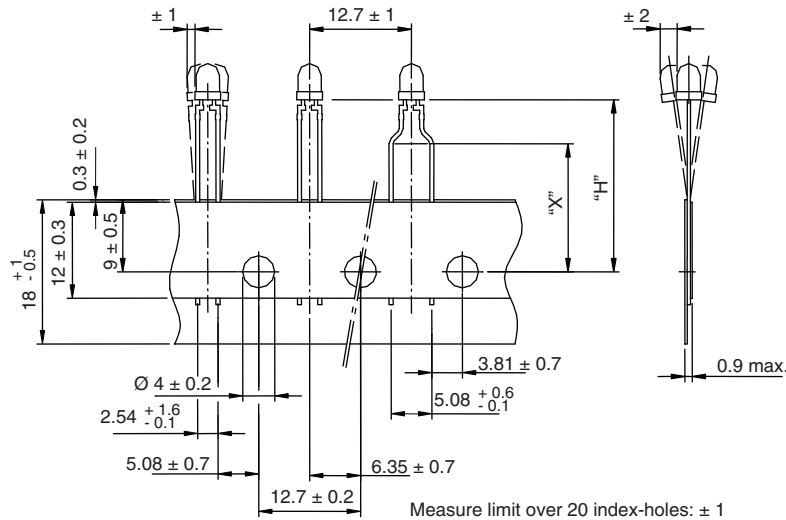


Figure 9. Tape Direction

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

21885

Option	Dim. "H" ± 0.5 mm	Dim. "X" ± 0.5 mm
AS	17.3	-
KS	19.3	-
LS	21	-
MS	25.5	-
BT	20	16



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