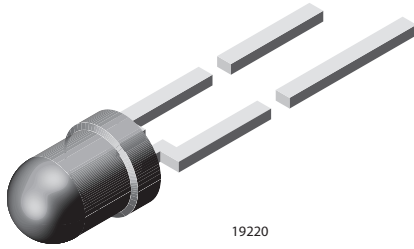




Low Current LED in Ø 3 mm Tinted Diffused Package



FEATURES

- Low power consumption
• High brightness
• CMOS/MOS compatible
• Specified at If = 2 mA
• Luminous intensity categorized
• Yellow and green color categorized
• Material categorization:
For definitions of compliance please see
www.vishay.com/doc?99912



PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
• Package: 3 mm
• Product series: low current
• Angle of half intensity: ± 25°

APPLICATIONS

- Low power DC circuits

Table with 14 columns: PART, COLOR, LUMINOUS INTENSITY (mcd) [MIN., TYP., MAX.], at If (mA), WAVELENGTH (nm) [MIN., TYP., MAX.], at If (mA), FORWARD VOLTAGE (V) [MIN., TYP., MAX.], at If (mA), TECHNOLOGY. Rows include TLLR4400, TLLY4400, and TLLG4400 series.

**ABSOLUTE MAXIMUM RATINGS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**TLLG440., TLLR440., TLLY440.**

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		$V_R$	6	V
DC forward current		$I_F$	7	mA
Surge forward current	$t_p \leq 10\text{ }\mu\text{s}$	$I_{FSM}$	0.15	A
Power dissipation	$T_{amb} \leq 84\text{ }^{\circ}\text{C}$	$P_V$	20	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		$R_{thJA}$	800	K/W

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**TLLR440., RED**

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 2\text{ mA}$	TLLR4400	$I_V$	0.63	1.2	-	mcd
		TLLR4401	$I_V$	1	2	-	mcd
Dominant wavelength	$I_F = 2\text{ mA}$		$\lambda_d$	612	-	625	nm
Peak wavelength	$I_F = 2\text{ mA}$		$\lambda_p$	-	635	-	nm
Angle of half intensity	$I_F = 2\text{ mA}$		$\phi$	-	$\pm 25$	-	deg
Forward voltage	$I_F = 2\text{ mA}$		$V_F$	-	1.9	2.4	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$		$V_R$	6	20	-	V
Junction capacitance	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$		$C_j$	-	50	-	pF

**Note**<sup>(1)</sup> In one packing unit  $I_{Vmin.}/I_{Vmax.} \leq 0.5$ **OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**TLLY440., YELLOW**

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 2\text{ mA}$	TLLY4400	$I_V$	0.63	1.2	-	mcd
		TLLY4401	$I_V$	1	2	-	mcd
Dominant wavelength	$I_F = 2\text{ mA}$		$\lambda_d$	581	-	594	nm
Peak wavelength	$I_F = 2\text{ mA}$		$\lambda_p$	-	585	-	nm
Angle of half intensity	$I_F = 2\text{ mA}$		$\phi$	-	$\pm 25$	-	deg
Forward voltage	$I_F = 2\text{ mA}$		$V_F$	-	2.4	2.9	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$		$V_R$	6	20	-	V
Junction capacitance	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$		$C_j$	-	50	-	pF

**Note**<sup>(1)</sup> In one packing unit  $I_{Vmin.}/I_{Vmax.} \leq 0.5$



<b>OPTICAL AND ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)							
<b>TLLG440., GREEN</b>							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 10\text{ mA}$	TLLG4400	$I_V$	0.63	1.2	-	mcd
		TLLG4401	$I_V$	1	2	-	mcd
Dominant wavelength	$I_F = 10\text{ mA}$		$\lambda_d$	562	-	575	nm
Peak wavelength	$I_F = 10\text{ mA}$		$\lambda_p$	-	565	-	nm
Angle of half intensity	$I_F = 10\text{ mA}$		$\phi$	-	$\pm 25$	-	deg
Forward voltage	$I_F = 20\text{ mA}$		$V_F$	-	1.9	2.4	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$		$V_R$	6	20	-	V
Junction capacitance	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$		$C_j$	-	50	-	pF

**Note**

<sup>(1)</sup> In one packing unit  $I_{Vmin}/I_{Vmax} \leq 0.5$

<b>LUMINOUS INTENSITY CLASSIFICATION</b>		
GROUP	LIGHT INTENSITY (mcd)	
STANDARD	MIN.	MAX.
K	0.63	1.25
L	1	2
M	1.6	3.2
N	2.5	5
P	4	8
Q	6.3	12.5
R	10	20
S	16	32
T	25	50
U	40	80

**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.

<b>COLOR CLASSIFICATION</b>				
GROUP	DOM. WAVELENGTH (nm)			
	YELLOW		GREEN	
	MIN.	MAX.	MIN.	MAX.
0	-	-	-	-
1	581	584	-	-
2	583	586	-	-
3	585	588	562	565
4	587	590	564	567
5	589	592	566	569
6	591	594	568	571
7	-	-	570	573
8	-	-	572	575

**Note**

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



TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

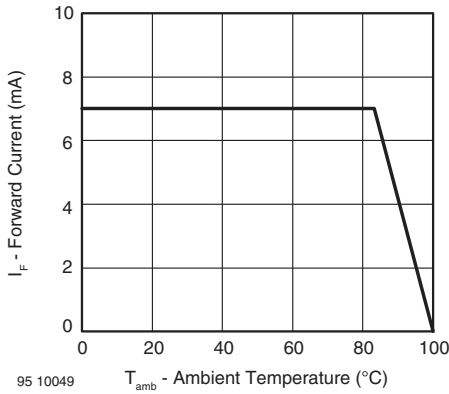


Fig. 1 - Forward Current vs. Ambient Temperature

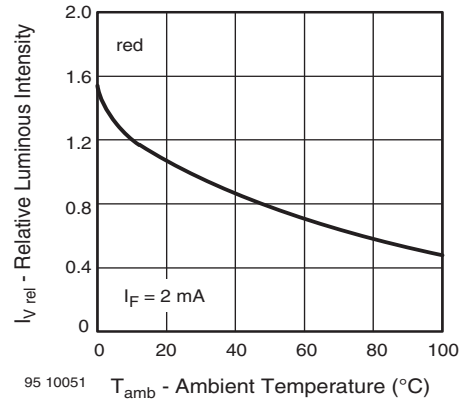


Fig. 4 - Relative Luminous Intensity vs. Ambient Temperature

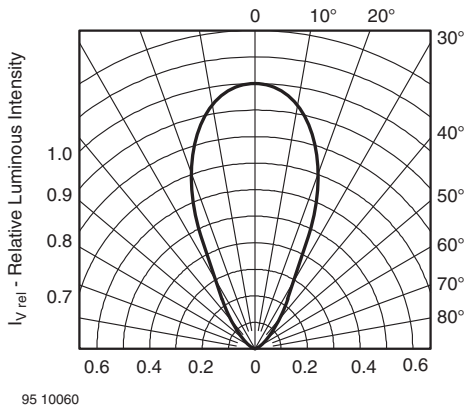


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

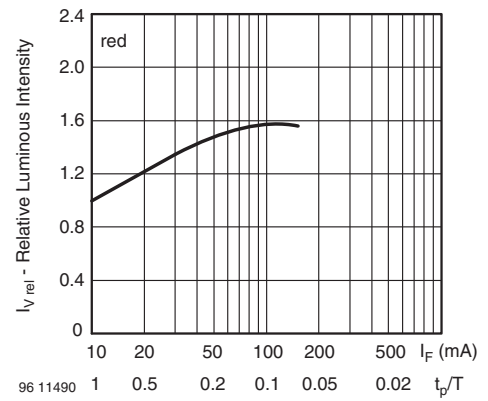


Fig. 5 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

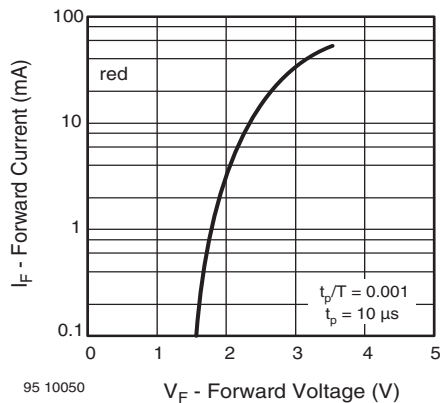


Fig. 3 - Forward Current vs. Forward Voltage

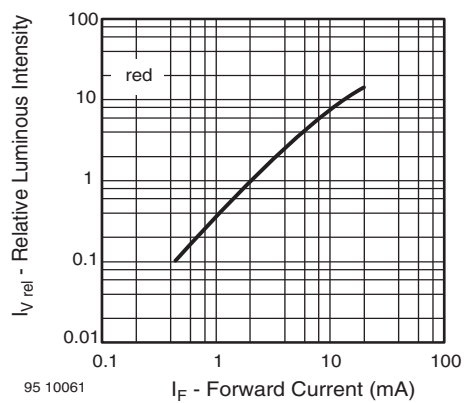


Fig. 6 - Relative Luminous Intensity vs. Forward Current

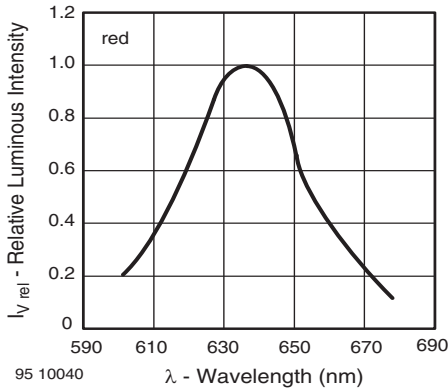


Fig. 7 - Relative Intensity vs. Wavelength

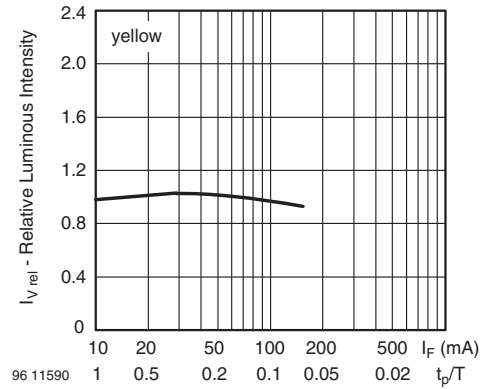


Fig. 10 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

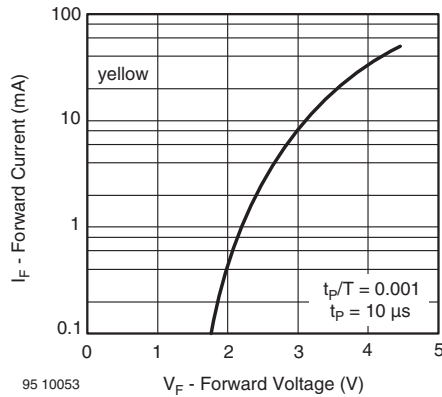


Fig. 8 - Forward Current vs. Forward Voltage

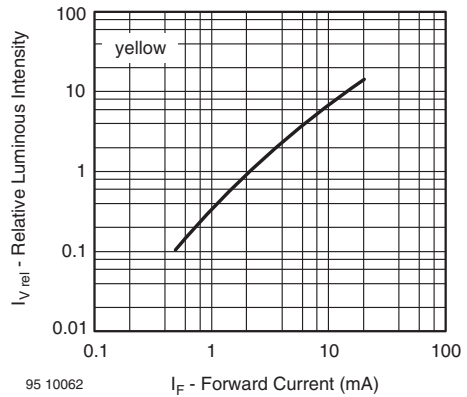


Fig. 11 - Relative Luminous Intensity vs. Forward Current

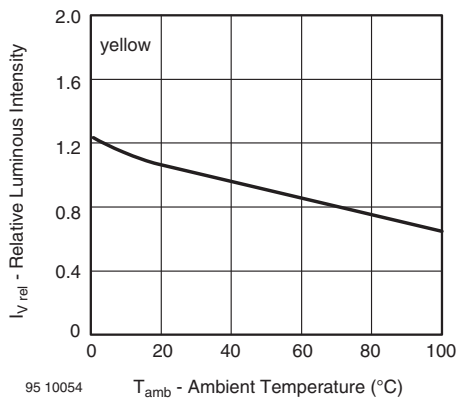


Fig. 9 - Relative Luminous Intensity vs. Ambient Temperature

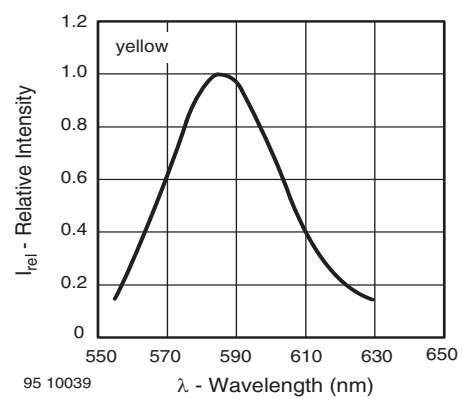


Fig. 12 - Relative Intensity vs. Wavelength

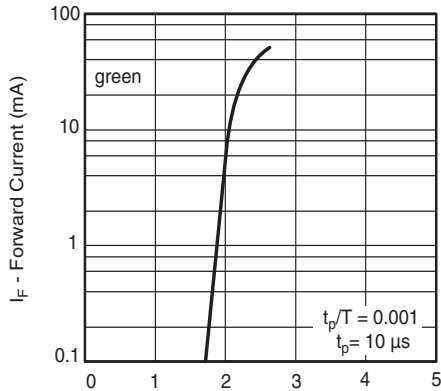


Fig. 13 - Forward Current vs. Forward Voltage

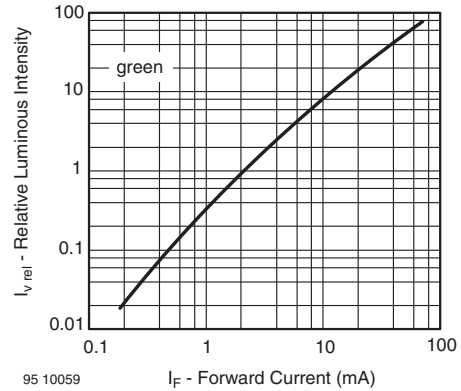


Fig. 16 - Relative Luminous Intensity vs. Forward Current

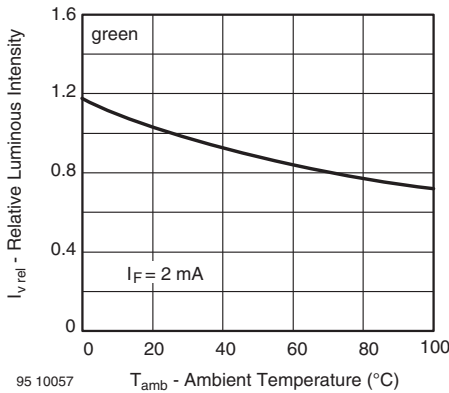


Fig. 14 - Relative Luminous Intensity vs. Ambient Temperature

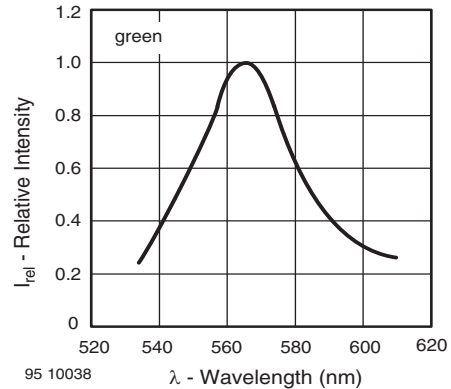


Fig. 17 - Relative Intensity vs. Wavelength

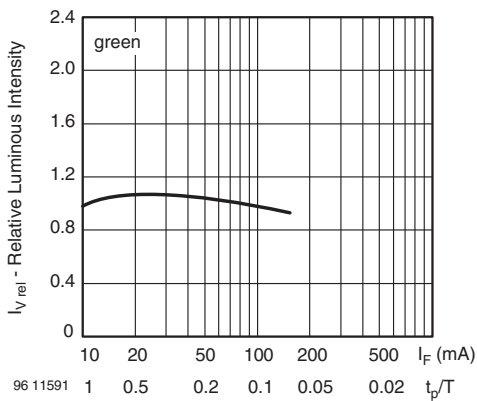
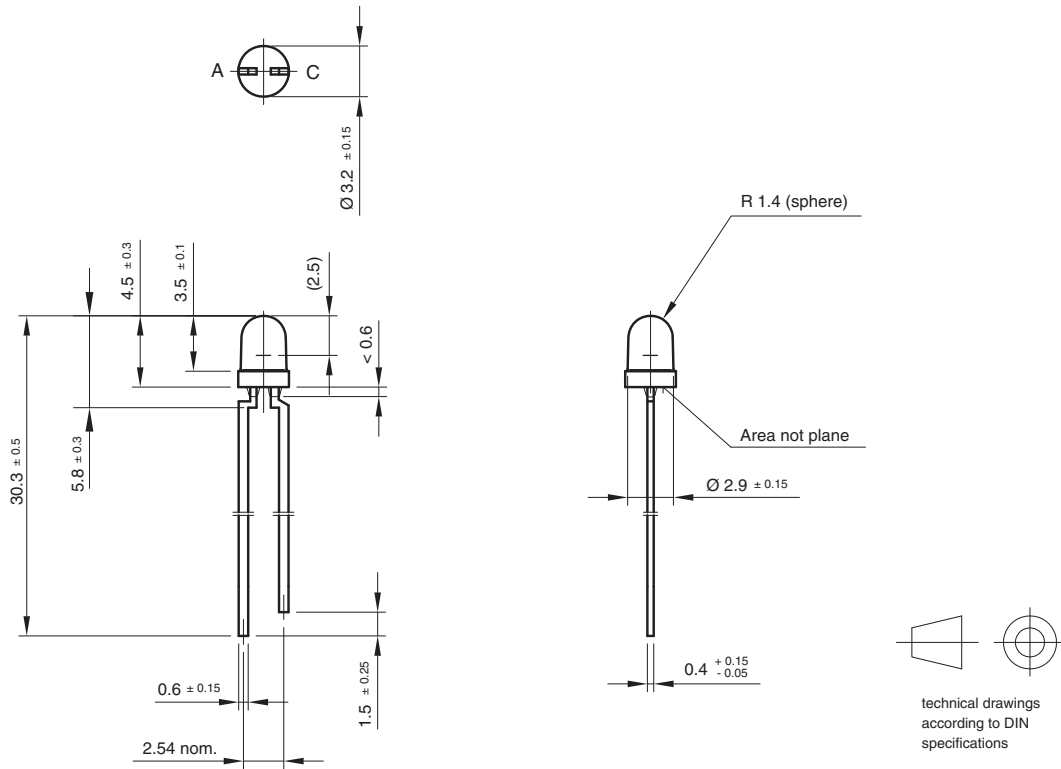


Fig. 15 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

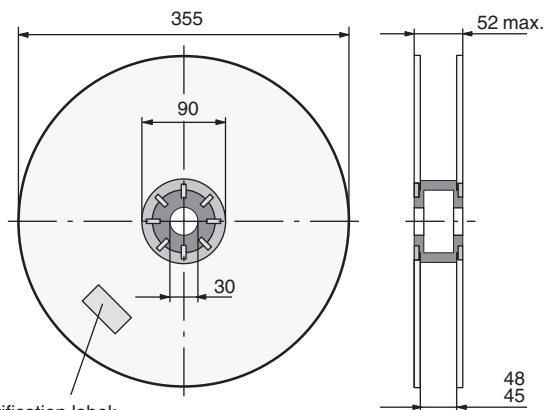


PACKAGE DIMENSIONS in millimeters



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

REEL DIMENSIONS in millimeters



Identification label:  
Vishay/type/group/tape code/production code/quantity

948641

Fig. 18 - Reel

AS12 = cathode leaves tape first

AS21 = anode leaves tape first

TAPE

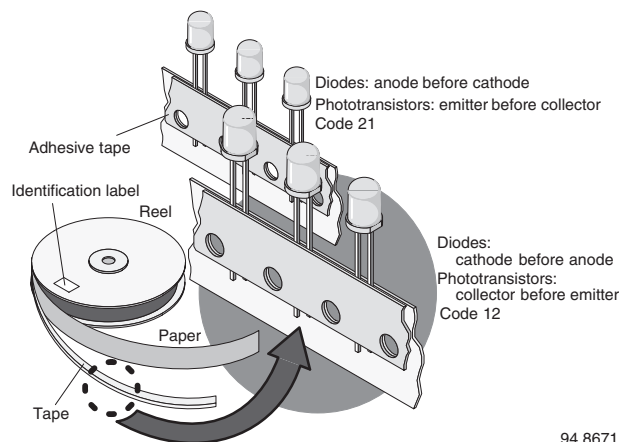


Fig. 19 - LED in Tape

94 8671

**AMMOPACK**

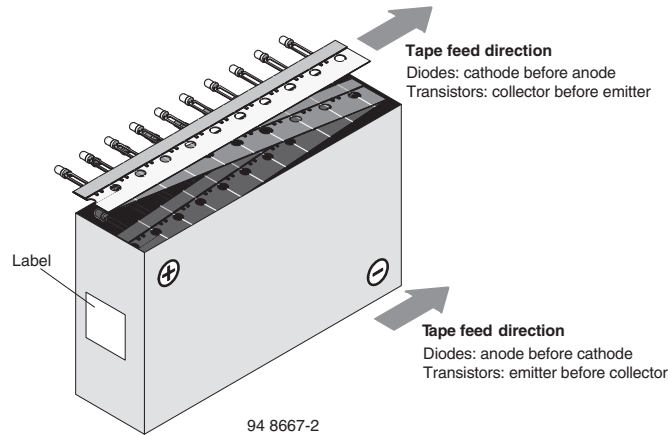
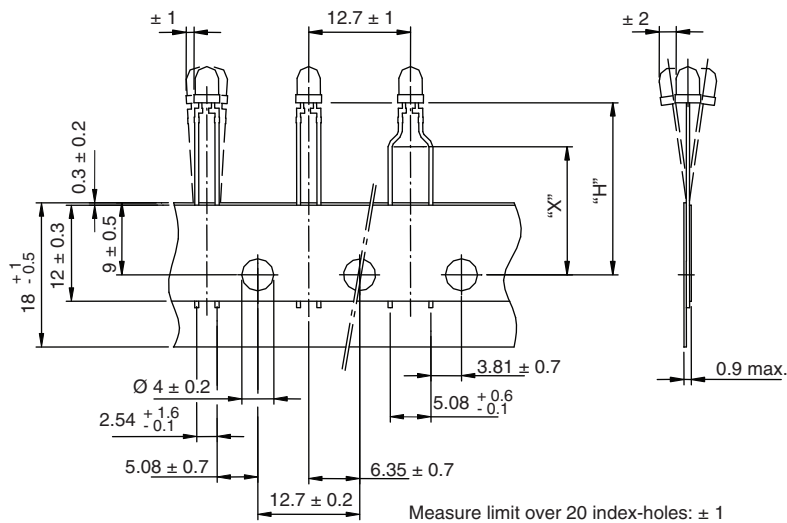


Fig. 20 - Tape Direction

**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	DIMENSION "H" ± 0.5 mm	DIMENSION "X" ± 0.5 mm
AS	17.3	-
MS	25.5	-
BT	20.0	16.0





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**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

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С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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