



## Low Current LED in Ø 5 mm Tinted Diffused Package



19223

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: low current
- Angle of half intensity:  $\pm 25^\circ$

### FEATURES

- Low power consumption
- High brightness
- CMOS/MOS compatible
- Specified at  $I_F = 2 \text{ mA}$
- Luminous intensity categorized
- Yellow and green color categorized
- Material categorization:  
for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### APPLICATIONS

- Low power DC circuits

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.		
TLLR5400	Red	0.63	1.2	-	2	612	-	625	2	-	1.9	2.4	2	GaAsP on GaP
TLLR5401	Red	1	2	-	2	612	-	625	2	-	1.9	2.4	2	GaAsP on GaP
TLLY5400	Yellow	0.63	1.2	-	2	581	-	594	2	-	2.4	2.9	2	GaAsP on GaP
TLLY5401	Yellow	1	2	-	2	581	-	594	2	-	2.4	2.9	2	GaAsP on GaP
TLLG5400	Green	0.63	1.2	-	2	562	-	575	2	-	1.9	2.4	2	GaP on GaP
TLLG5400-AS12	Green	0.63	1.2	-	2	562	-	575	2	-	1.9	2.4	2	GaP on GaP
TLLG5401	Green	1	2	-	2	562	-	575	2	-	1.9	2.4	2	GaP on GaP

ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^\circ\text{C}$ , unless otherwise specified)				
TLLR540., TLLY540., TLLG540.				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		$V_R$	6	V
DC forward current	$T_{amb} \leq 90^\circ\text{C}$	$I_F$	7	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	$I_{FSM}$	0.15	A
Power dissipation	$T_{amb} \leq 90^\circ\text{C}$	$P_V$	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		$R_{thJA}$	500	K/W



<b>OPTICAL AND ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)							
<b>TLLR540., RED</b>							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 2\text{ mA}$	TLLR5400	$I_V$	0.63	1.2	-	mcd
		TLLR5401	$I_V$	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  $I_{Vmin}/I_{Vmax} \leq 0.5$ 

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)							
<b>TLLY540., YELLOW</b>							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 2\text{ mA}$	TLLY5400	$I_V$	0.63	1.2	-	mcd
		TLLY5401	$I_V$	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>TLLG540., GREEN</b>							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 2\text{ mA}$	TLLG5400	$I_V$	0.63	1.2	-	mcd
		TLLG5401	$I_V$	1	2	-	mcd
Dominant wavelength	$I_F = 2\text{ mA}$		$\lambda_d$	562	-	575	nm
Peak wavelength	$I_F = 2\text{ mA}$		$\lambda_p$	-	565	-	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  $I_{Vmin}/I_{Vmax} \leq 0.5$



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

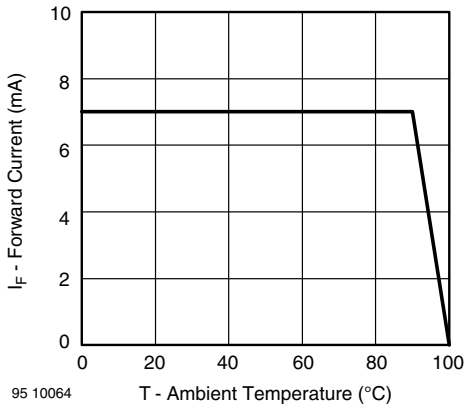


Fig. 1 - Forward Current vs. Ambient Temperature



Fig. 4 - Relative Luminous Intensity vs. Ambient Temperature

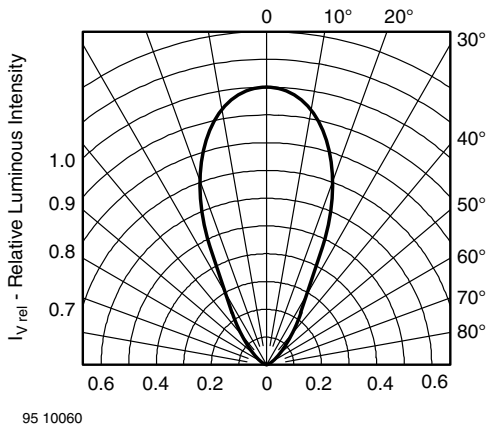


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement



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

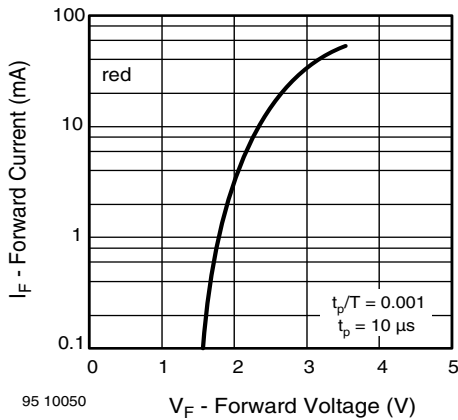


Fig. 3 - Forward Current vs. Forward Voltage



Fig. 6 - Relative Luminous Intensity vs. Forward Current



Fig. 7 - Relative Intensity vs. Wavelength



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

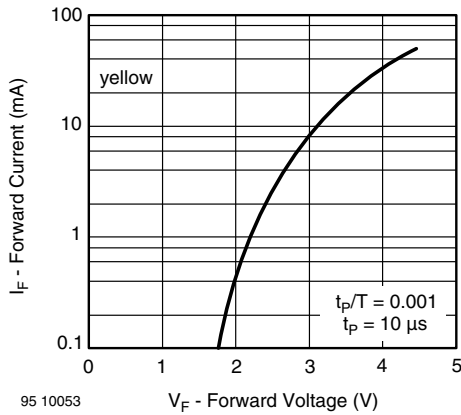


Fig. 8 - Forward Current vs. Forward Voltage



Fig. 11 - Relative Luminous Intensity vs. Forward Current

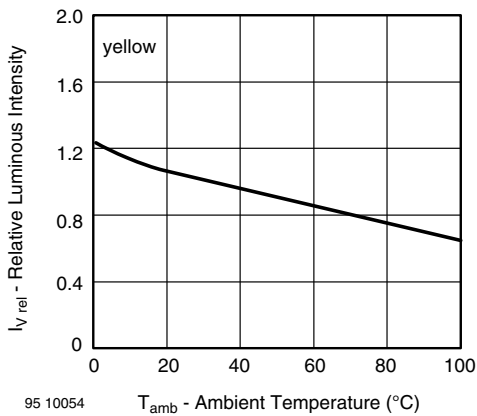


Fig. 9 - Relative Luminous Intensity vs. Ambient Temperature

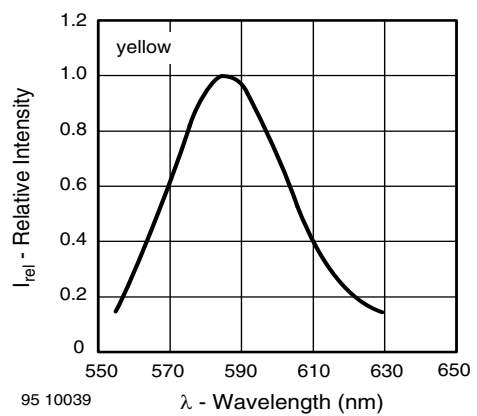


Fig. 12 - Relative Intensity vs. Wavelength



Fig. 13 - Forward Current vs. Forward Voltage

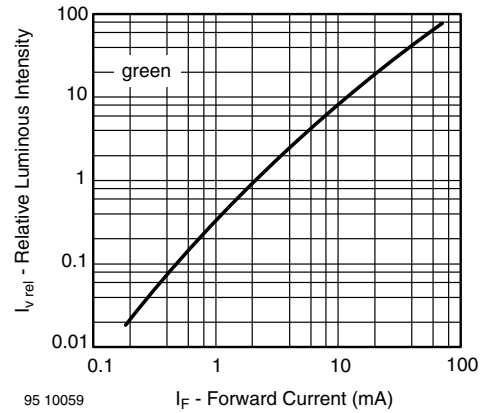


Fig. 16 - Relative Luminous Intensity vs. Forward Current



Fig. 14 - Relative Luminous Intensity vs. Ambient Temperature

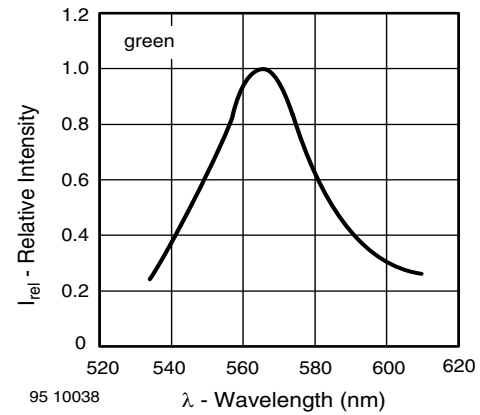


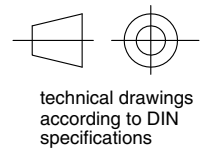
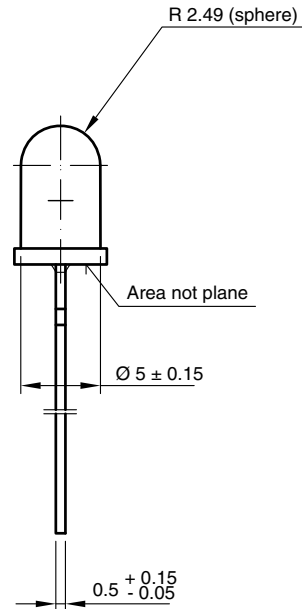
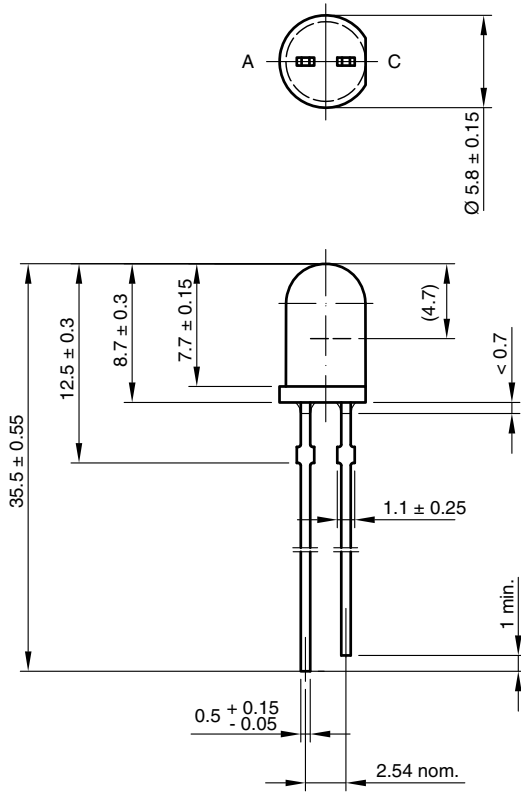
Fig. 17 - Relative Intensity vs. Wavelength



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

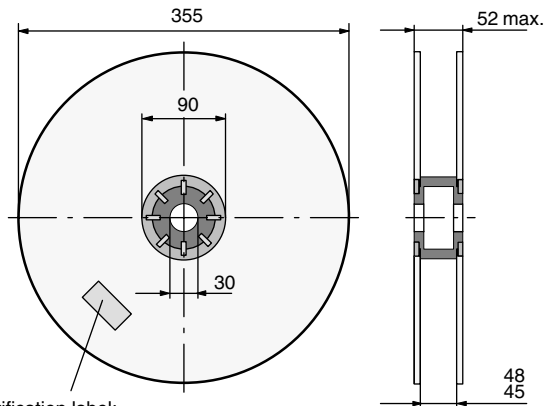


**PACKAGE DIMENSIONS** in millimeters



6.544-5258.02-4  
Issue: 7; 23.07.10  
95 10916

**REEL**

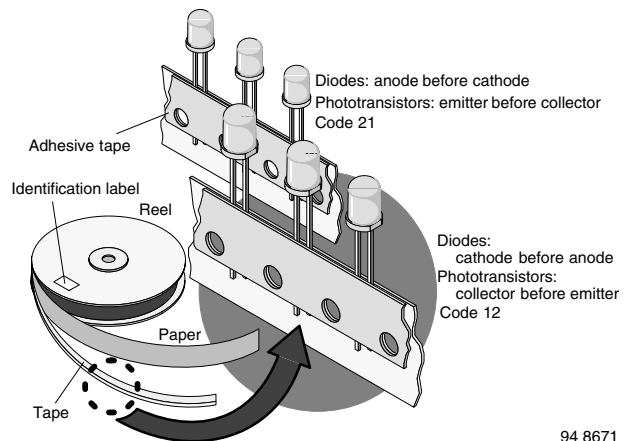


Identification label:  
Vishay/type/group/tape code/production code/quantity

948641

Fig. 18 - Reel Dimensions

**TAPE**



94 8671

Fig. 19 - LED in Tape

AS12 = cathode leaves tape first



TAPE DIMENSIONS in millimeters



Measure limit over 20 index-holes: ± 1

Quantity per:	Reel (Mat.-no. 1764)
	1000

94 8172

Option	Dim. "H" ± 0.5 mm
AS	17.3



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