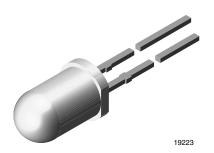


# Low Current LED in Ø 5 mm Tinted Diffused Package



### PRODUCT GROUP AND PACKAGE DATA

Product group: LEDPackage: 5 mm

Product series: low current
Angle of half intensity: ± 25°

### **FEATURES**

- Low power consumption
- High brightness
- CMOS/MOS compatible
- Specified at I<sub>F</sub> = 2 mA
- Luminous intensity categorized
- Yellow and green color categorized
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>





RoHS COMPLIANT HALOGEN

FREE GREEN (5-2008)

### **APPLICATIONS**

• Low power DC circuits

PARTS TABLE														
PART	COLOR	LUMINOUS INTENSITY (mcd)		at I <sub>F</sub>		WAVELENGTH (nm)		at I <sub>F</sub>	FORWARD VOLTAGE (V)		at I <sub>F</sub>	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 (1)	Yellow	0.63	1.2	-	2	581	-	594	2	-	2.4	2.9	2	GaAsP on GaP
TLLY5401 (1)	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
TLLG5401	Green	1	2	-	2	562	-	575	2	-	1.9	2.4	2	GaP on GaP

### Note

(1) Not for new designs

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified) TLLR540., TLLY540., TLLG540.							
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT			
Reverse voltage		V <sub>R</sub>	6	V			
DC forward current	T <sub>amb</sub> ≤ 90 °C	I <sub>F</sub>	7	mA			
Surge forward current	t <sub>p</sub> ≤ 10 μs	I <sub>FSM</sub>	0.15	Α			
Power dissipation	T <sub>amb</sub> ≤ 90 °C	P <sub>V</sub>	20	mW			
Junction temperature		Tj	100	°C			
Operating temperature range		T <sub>amb</sub>	-40 to +100	°C			
Storage temperature range		T <sub>stg</sub>	-55 to +100	°C			
Soldering temperature	t ≤ 5 s, 2 mm from body	T <sub>sd</sub>	260	°C			
Thermal resistance junction to ambient		R <sub>thJA</sub>	500	K/W			



www.vishay.com

# Vishay Semiconductors

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25  ^{\circ}\text{C}$ , unless otherwise specified) <b>TLLR540., RED</b>							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity (1)	J 0 A	TLLR5400	I <sub>V</sub>	0.63	1.2	-	mcd
	$I_F = 2 \text{ mA}$	TLLR5401	I <sub>V</sub>	1	2	-	mcd
Dominant wavelength	I <sub>F</sub> = 2 mA		$\lambda_{d}$	612	-	625	nm
Peak wavelength	I <sub>F</sub> = 2 mA		$\lambda_{p}$	-	635	-	nm
Angle of half intensity	I <sub>F</sub> = 2 mA		φ	-	± 25	-	٥
Forward voltage	I <sub>F</sub> = 2 mA		$V_{F}$	-	1.9	2.4	V
Reverse voltage	I <sub>R</sub> = 10 μA		$V_R$	6	20	-	V
Junction capacitance	V <sub>R</sub> = 0 V, f = 1 MHz		Cj	-	50	-	pF

### Note

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

OPTICAL AND ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25$ °C, unless otherwise specified) TLLY540., YELLOW, NOT FOR NEW DESIGNS							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity (1)	I <sub>E</sub> = 2 mA	TLLY5400	Ι <sub>V</sub>	0.63	1.2	-	mcd
Luminous intensity (**)	IF = 2 IIIA	TLLY5401	Ι <sub>V</sub>	1	2	-	mcd
Dominant wavelength	I <sub>F</sub> = 2 mA		$\lambda_{d}$	581	-	594	nm
Peak wavelength	I <sub>F</sub> = 2 mA		$\lambda_{p}$	-	585	-	nm
Angle of half intensity	I <sub>F</sub> = 2 mA		φ	-	± 25	-	0
Forward voltage	I <sub>F</sub> = 2 mA		$V_{F}$	-	2.4	2.9	V
Reverse voltage	I <sub>R</sub> = 10 μA		$V_R$	6	20	-	V
Junction capacitance	V <sub>R</sub> = 0 V, f = 1 MHz		Cj	-	50	-	pF

### Note

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

OPTICAL AND ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25  ^{\circ}C$ , unless otherwise specified) TLLG540., GREEN							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity (1)	I <sub>F</sub> = 2 mA	TLLG5400	I <sub>V</sub>	0.63	1.2	-	mcd
Luminous intensity (*)	I <sub>F</sub> = 2 MA	TLLG5401	Ι <sub>V</sub>	1	2	-	mcd
Dominant wavelength	I <sub>F</sub> = 2 mA		$\lambda_{d}$	562	-	575	nm
Peak wavelength	I <sub>F</sub> = 2 mA		$\lambda_{p}$	-	565	-	nm
Angle of half intensity	$I_F = 2 \text{ mA}$		φ	-	± 25	-	۰
Forward voltage	$I_F = 2 \text{ mA}$		$V_{F}$	-	1.9	2.4	V
Reverse voltage	I <sub>R</sub> = 10 μA		$V_R$	6	20	-	V
Junction capacitance	V <sub>R</sub> = 0 V, f = 1 MHz		Cj	-	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)

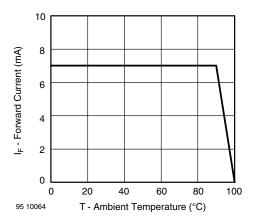


Fig. 1 - Forward Current vs. Ambient Temperature

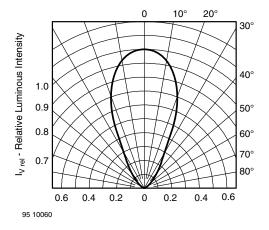


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

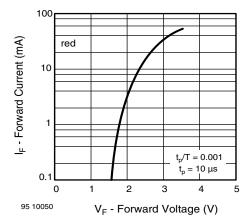


Fig. 3 - Forward Current vs. Forward Voltage

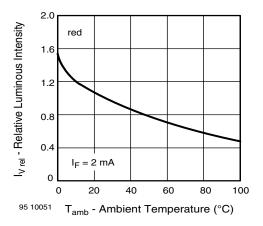


Fig. 4 - Relative Luminous Intensity vs. Ambient Temperature

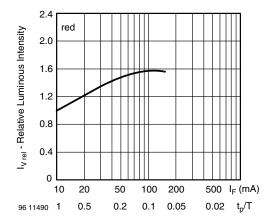


Fig. 5 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

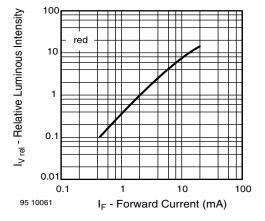


Fig. 6 - Relative Luminous Intensity vs. Forward Current

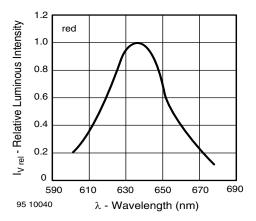


Fig. 7 - Relative Intensity vs. Wavelength

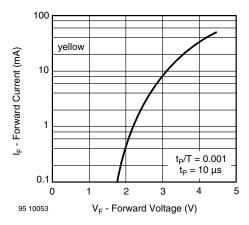


Fig. 8 - Forward Current vs. Forward Voltage

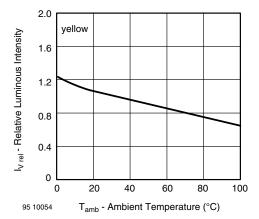


Fig. 9 - Relative Luminous Intensity vs. Ambient Temperature

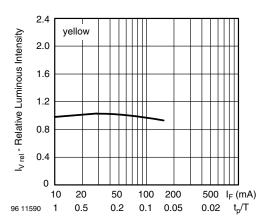


Fig. 10 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

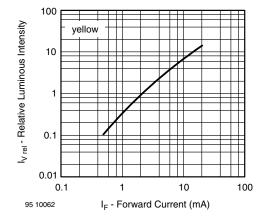


Fig. 11 - Relative Luminous Intensity vs. Forward Current

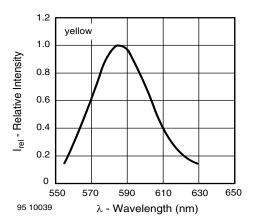


Fig. 12 - Relative Intensity vs. Wavelength

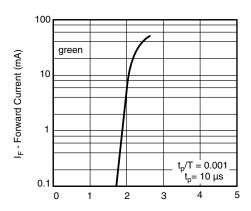


Fig. 13 - Forward Current vs. Forward Voltage

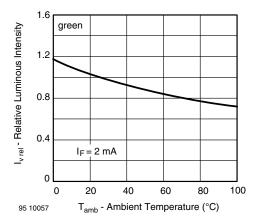


Fig. 14 - Relative Luminous Intensity vs. Ambient Temperature

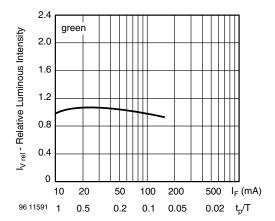


Fig. 15 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

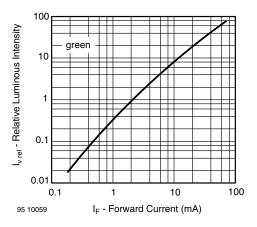


Fig. 16 - Relative Luminous Intensity vs. Forward Current

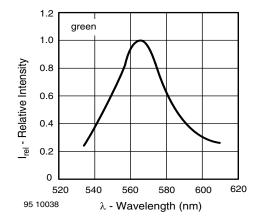
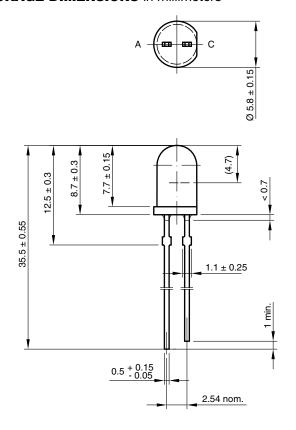
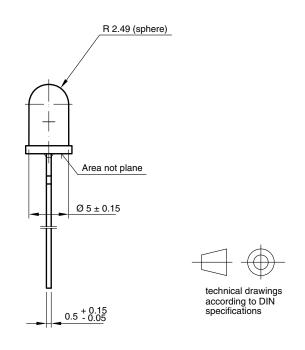


Fig. 17 - Relative Intensity vs. Wavelength

### **PACKAGE DIMENSIONS** in millimeters





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

### **TAPE DIMENSIONS**

Packing	Quantity
Bulk	1 x 4000

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