

Resistor LED for 5 V Supply Voltage

Color	Type	Technology	Angle of Half Intensity $\pm\phi$
High efficiency red	TLRH5450	GaAsP on GaP	30°
Yellow	TLRY5450	GaAsP on GaP	30°
Green	TLRG5450	GaP on GaP	30°

Description

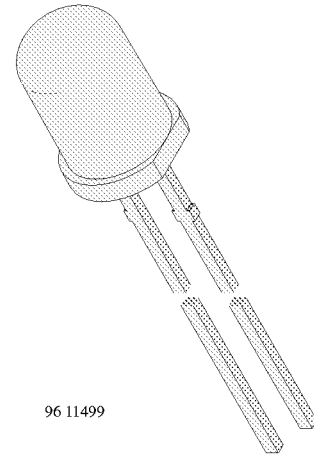
These devices are developed for applications with 5 V sources.

The TLR.545. series contains an integrated resistor for current limiting in series with the LED chip. This allows the lamp to be driven from a 5 V source without an external current limiter.

Available colors are red, high efficiency red, yellow and green. The luminous intensity of such an LED is measured at constant voltage of 5 V.

These tinted diffused lamps provide a wide off-axis viewing angle.

These LEDs are intended for space critical applications such as portable sets, switches and others which are driven from a 5 V source.



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Features

- With current limiting resistor for 5 V
- TTL compatible
- Cost effective: save space and resistor cost
- Standard \varnothing 5 mm (T-1 $\frac{3}{4}$) package
- Wide viewing angle
- Luminous intensity categorized
- Yellow and green color categorized
- Luminous intensity and color are measured at 5 V

Applications

Status lights in portable applications
 Status lights in space constrained applications
 Background illumination for switches with 5 V source
 Off / On indicator in switches with 5 V source

Absolute Maximum Ratings

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

, TLRH5450 , TLR5450 ,

Parameter	Test Conditions	Symbol	Value	Unit
Reverse voltage		V_R	6	V
Forward voltage	$T_{amb} \leq 65^{\circ}\text{C}$	V_F	7.5	V
Power dissipation	$T_{amb} \leq 65^{\circ}\text{C}$	P_V	240	mW
Junction temperature		T_j	100	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +100	$^{\circ}\text{C}$
Soldering temperature	$t \leq 5$ s, 2 mm from body	T_{sd}	260	$^{\circ}\text{C}$
Thermal resistance junction/ambient		R_{thJA}	150	K/W

Optical and Electrical Characteristics

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

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Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit

High efficiency red (TLRH5450)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	$V_F = 5$ V		I_V	1.6	4		mcd
Dominant wavelength	$V_F = 5$ V		λ_d	612		625	nm
Peak wavelength	$V_F = 5$ V		λ_p		635		nm
Angle of half intensity	$V_F = 5$ V		ϕ		± 30		deg
Forward current	$V_S = 5$ V		I_F		10	15	mA
Breakdown voltage	$I_R = 10$ μA		V_{BR}	6	20		V
Junction capacitance	$V_R = 0$, $f = 1$ MHz		C_j		50		pF

Yellow (TLRY5450)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	$V_F = 5$ V		I_V	1.6	4		mcd
Dominant wavelength	$V_F = 5$ V		λ_d	581		594	nm
Peak wavelength	$V_F = 5$ V		λ_p		585		nm
Angle of half intensity	$V_F = 5$ V		ϕ		± 30		deg
Forward current	$V_S = 5$ V		I_F		10	15	mA
Breakdown voltage	$I_R = 10$ μA		V_{BR}	6	20		V
Junction capacitance	$V_R = 0$, $f = 1$ MHz		C_j		50		pF



Typical Characteristics ($T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified)

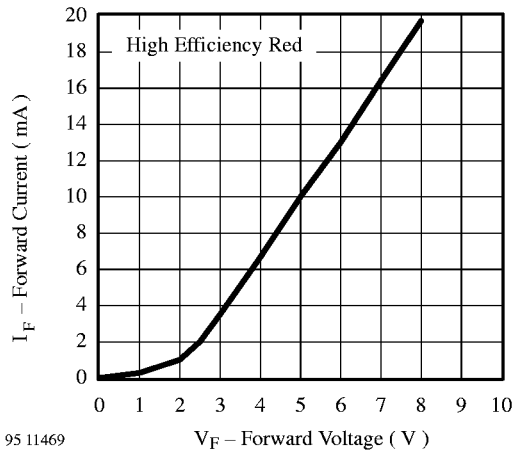


Figure 1 Forward Current vs. Forward Voltage

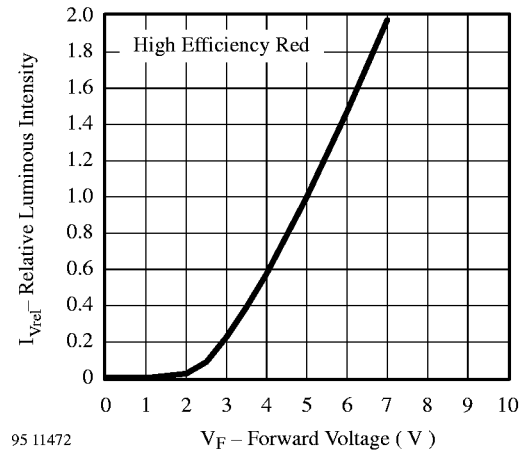


Figure 4 Relative Luminous Intensity vs. Forward Voltage

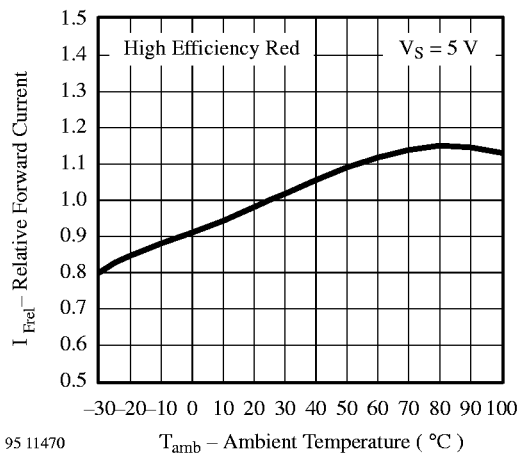


Figure 2 Relative Forward Current vs. Ambient Temperature

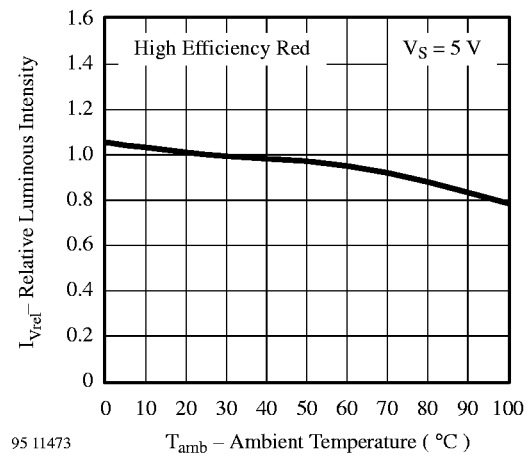


Figure 5 Rel. Luminous Intensity vs. Ambient Temperature

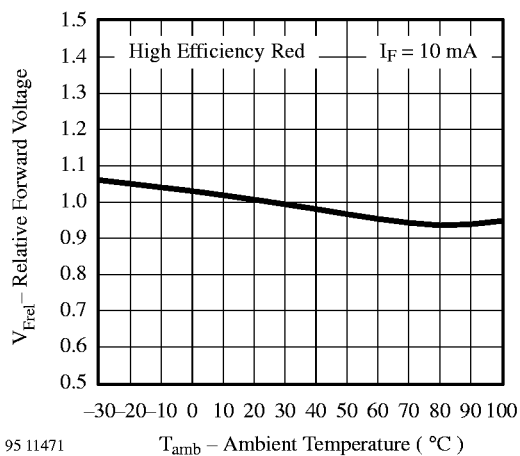


Figure 3 Relative Forward Voltage vs. Ambient Temperature

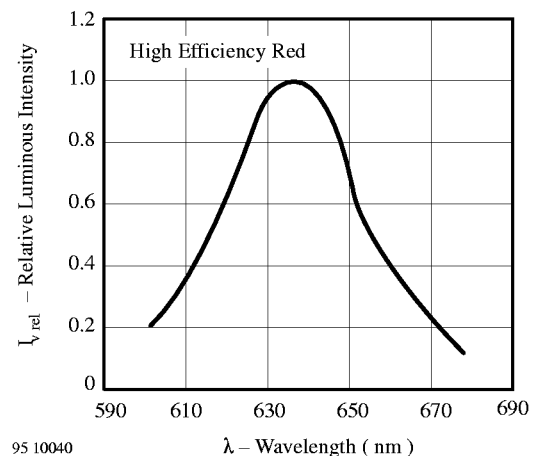


Figure 6 Relative Luminous Intensity vs. Wavelength

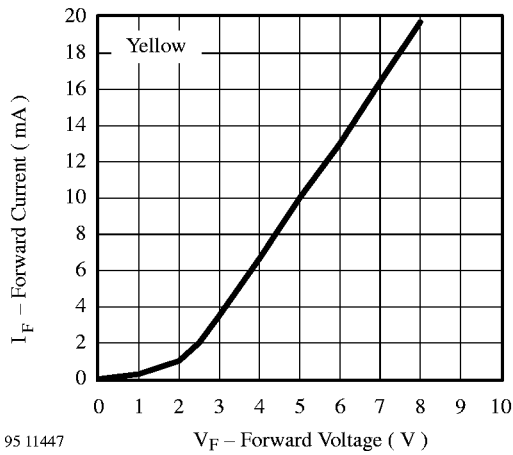


Figure 7 Forward Current vs. Forward Voltage

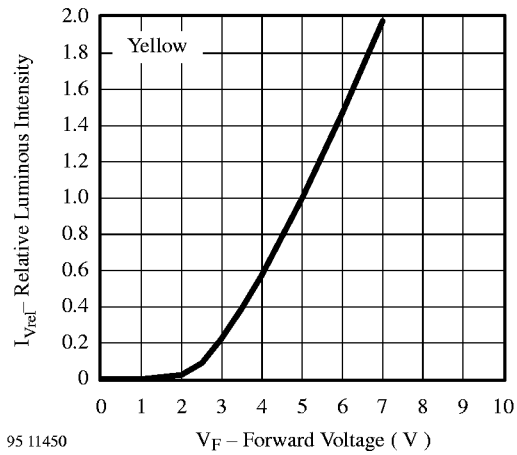


Figure 10 Relative Luminous Intensity vs. Forward Voltage

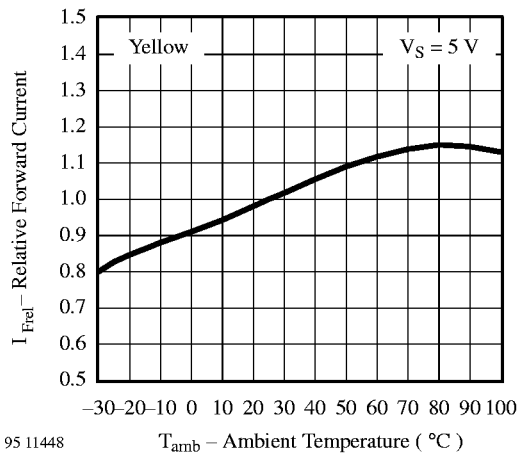


Figure 8 Relative Forward Current vs. Ambient Temperature

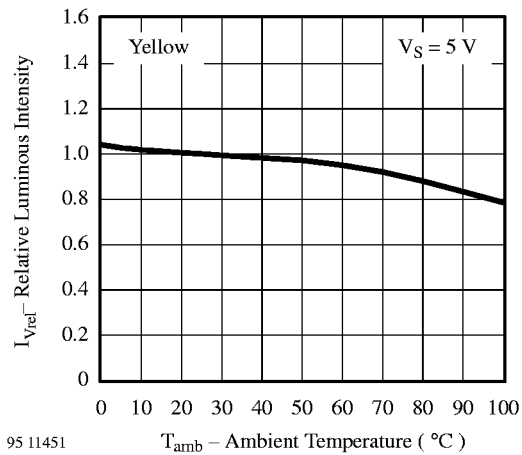


Figure 11 Rel. Luminous Intensity vs. Ambient Temperature

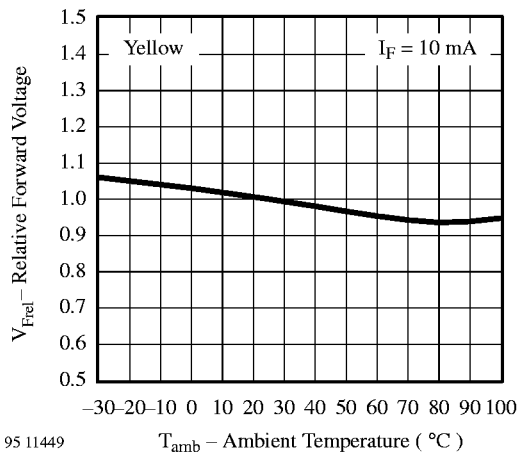


Figure 9 Relative Forward Voltage vs. Ambient Temperature

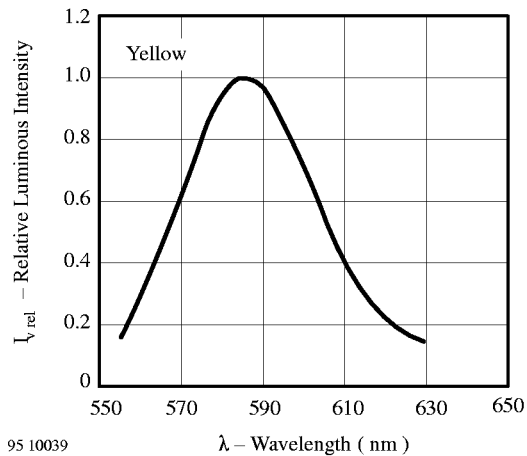
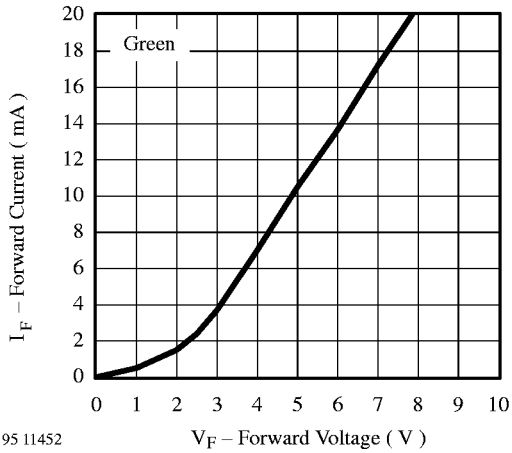
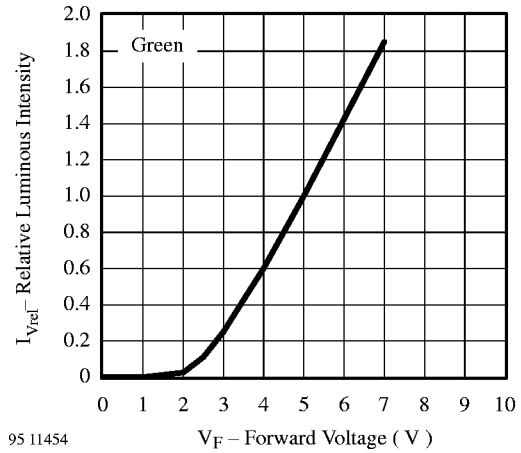


Figure 12 Relative Luminous Intensity vs. Wavelength



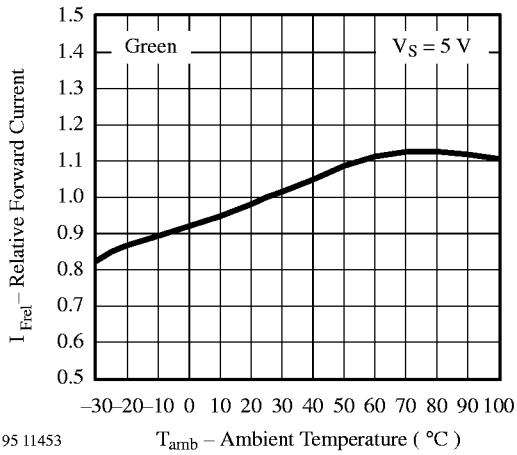
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Figure 13 Forward Current vs. Forward Voltage



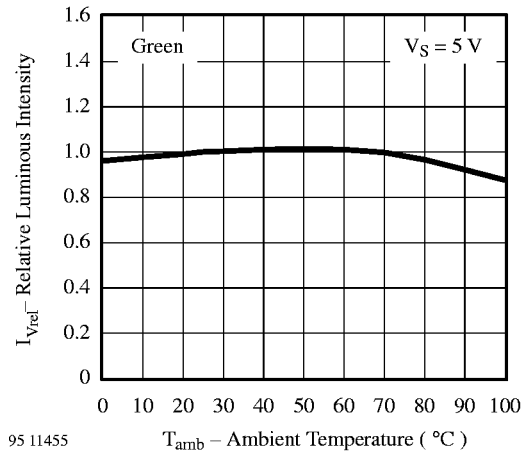
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Figure 16 Relative Luminous Intensity vs. Forward Voltage



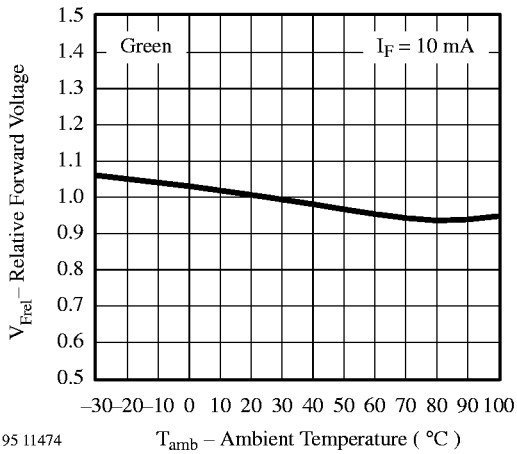
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Figure 14 Relative Forward Current vs. Ambient Temperature



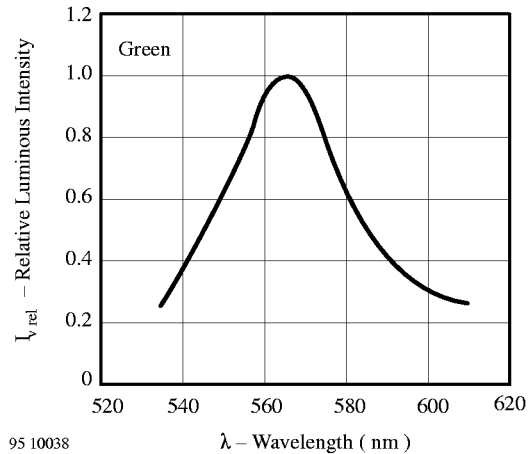
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Figure 17 Rel. Luminous Intensity vs. Ambient Temperature



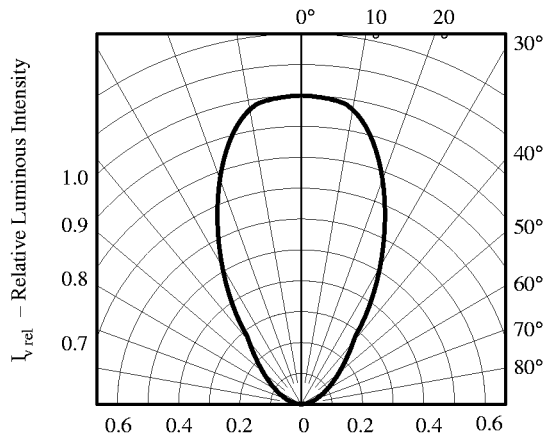
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Figure 15 Relative Luminous Intensity vs. Forward Voltage



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Figure 18 Relative Luminous Intensity vs. Wavelength

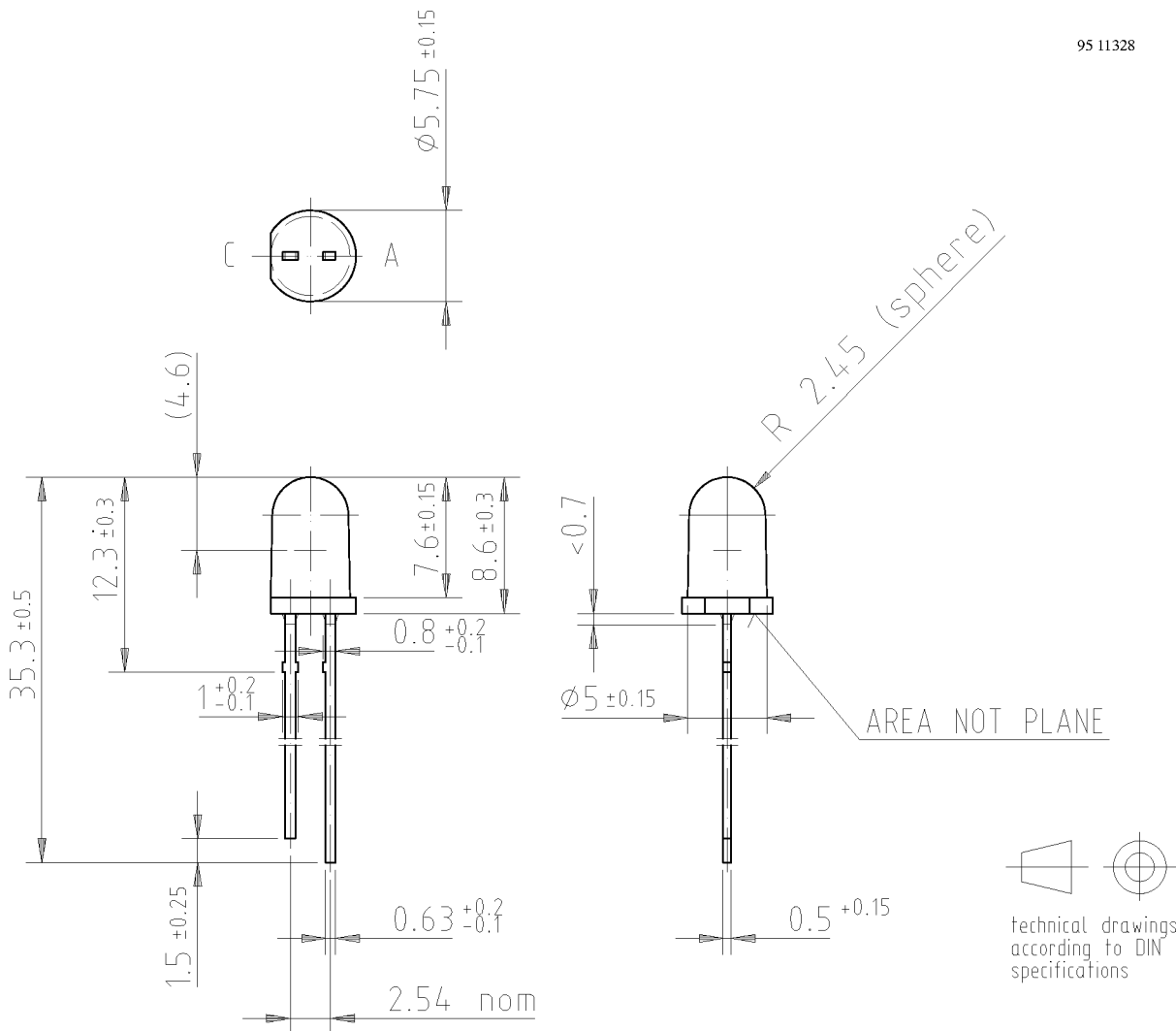


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Figure 19 Rel. Luminous Intensity vs. Angular Displacement

Dimensions in mm

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technical drawings according to DIN specifications