

High Efficiency LED in \varnothing 5 mm Tinted Diffused Package

Color	Type	Technology	Angle of Half Intensity $\pm\varphi$
High efficiency red	TLHR54../TLHR64..	GaAsP on GaP	30°
Yellow	TLHY54../TLHY64..	GaAsP on GaP	
Green	TLHG54../TLHG64..	GaP on GaP	

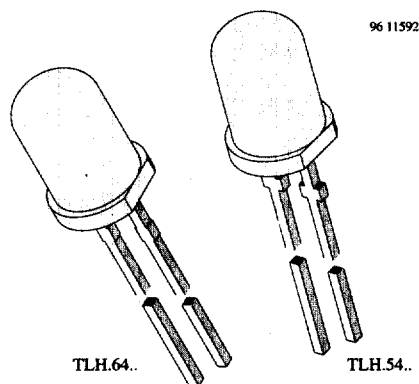
Description

The TLH.54.. and 64.. series was developed for standard applications like general indicating and lighting purposes.

It is housed in a 5 mm tinted diffused plastic package. The wide viewing angle of these devices provides a high on-off contrast.

Several selection types with different luminous intensities are offered. All LEDs are categorized in luminous intensity groups. The green and yellow LEDs are categorized additionally in wavelength groups.

That allows users to assemble LEDs with uniform appearance.



Features

- Choice of three bright colors
- Standard T-1 $\frac{3}{4}$ package
- Small mechanical tolerance
- Suitable for DC and high peak current
- Wide viewing angle
- Luminous intensity categorized
- Yellow and green color categorized
- TLH.54.. with stand-offs
- TLH.64.. without stand-offs

Applications

Status lights
 OFF / ON indicator
 Background illumination
 Readout lights
 Maintenance lights
 Legend light

Absolute Maximum Ratings

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

TLHR54../TLHR64.., TLHY54../TLHY64.., TLHG54../TLHG64..

Parameter	Test Conditions	Type	Symbol	Value	Unit
Reverse voltage			V_R	6	V
DC forward current	$T_{amb} \leq 65^{\circ}\text{C}$		I_F	30	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$		I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 65^{\circ}\text{C}$		P_V	100	mW
Junction temperature			T_j	100	$^{\circ}\text{C}$
Operating temperature range			T_{amb}	-20 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}	350	K/W

Optical and Electrical Characteristics

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

High efficiency red (TLHR54../TLHR64..)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	$I_F = 10 \text{ mA}$, $I_{Vmin}/I_{Vmax} \geq 0.5$	TLHR5400/6400	I_V	1.6	3.5		mcd
		TLHR5401/6401	I_V	4	7		mcd
		TLHR5405/6405	I_V	6.3	10		mcd
Dominant wavelength	$I_F = 10 \text{ mA}$		λ_d	612		625	nm
Peak wavelength	$I_F = 10 \text{ mA}$		λ_p		635		nm
Angle of half intensity	$I_F = 10 \text{ mA}$		ϕ		± 30		deg
Forward voltage	$I_F = 20 \text{ mA}$		V_F		2	3	V
Reverse voltage	$I_R = 10 \mu\text{A}$		V_R	6	15		V
Junction capacitance	$V_R = 0$, $f = 1 \text{ MHz}$		C_j		50		pF

Yellow (TLHY54../TLHY64..)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	$I_F = 10 \text{ mA}$, $I_{Vmin}/I_{Vmax} \geq 0.5$	TLHY5400/6400	I_V	1.6	3.5		mcd
		TLHY5401/6401	I_V	4	7		mcd
		TLHY5405/6405	I_V	6.3	10		mcd
Dominant wavelength	$I_F = 10 \text{ mA}$		λ_d	581		594	nm
Peak wavelength	$I_F = 10 \text{ mA}$		λ_p		585		nm
Angle of half intensity	$I_F = 10 \text{ mA}$		ϕ		± 30		deg
Forward voltage	$I_F = 20 \text{ mA}$		V_F		2.4	3	V
Reverse voltage	$I_R = 10 \mu\text{A}$		V_R	6	15		V
Junction capacitance	$V_R = 0$, $f = 1 \text{ MHz}$		C_j		50		pF

Green (TLHG54../TLHG64..)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	$I_F = 10 \text{ mA}$, $I_{V_{\min}}/I_{V_{\max}} \geq 0.5$	TLHG5400/6400	I_V	1.6	4		mcd
		TLHG5401/6401	I_V	4	7		mcd
		TLHG5405/6405	I_V	6.3	15		mcd
Dominant wavelength	$I_F = 10 \text{ mA}$		λ_d	562		575	nm
Peak wavelength	$I_F = 10 \text{ mA}$		λ_p		565		nm
Angle of half intensity	$I_F = 10 \text{ mA}$		ϕ		± 30		deg
Forward voltage	$I_F = 20 \text{ mA}$		V_F		2.4	3	V
Reverse voltage	$I_R = 10 \mu\text{A}$		V_R	6	15		V
Junction capacitance	$V_R = 0, f = 1 \text{ MHz}$		C_j		50		pF

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

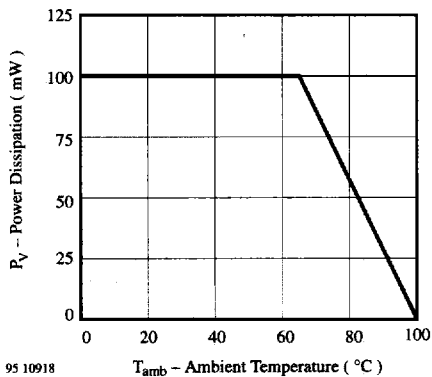


Figure 1. Power Dissipation vs. Ambient Temperature

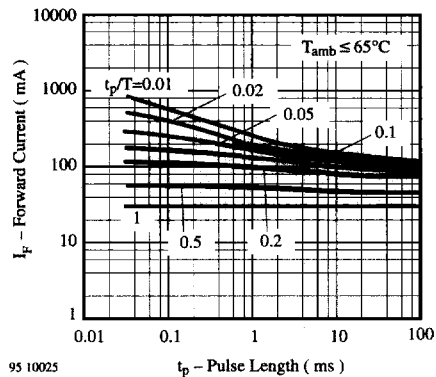


Figure 3. Forward Current vs. Pulse Length

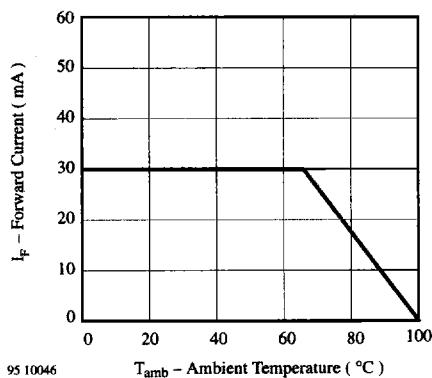


Figure 2. Forward Current vs. Ambient Temperature

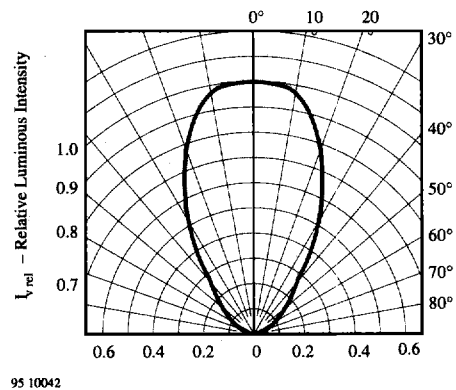
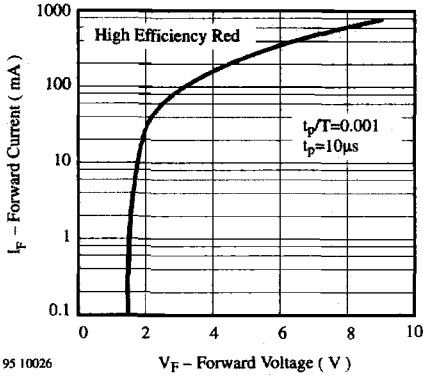
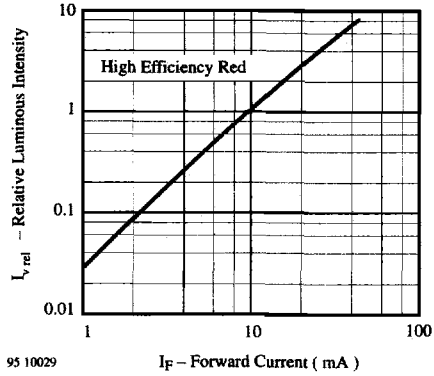


Figure 4. Rel. Luminous Intensity vs. Angular Displacement



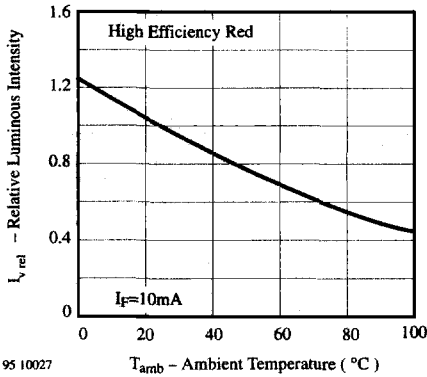
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Figure 5. Forward Current vs. Forward Voltage



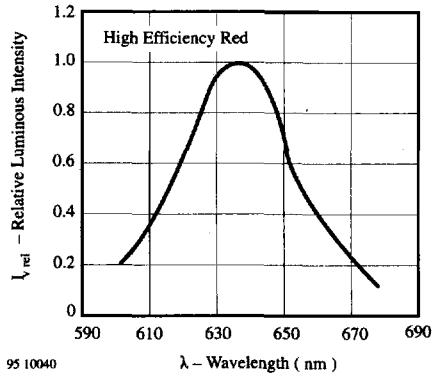
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Figure 8. Relative Luminous Intensity vs. Forward Current



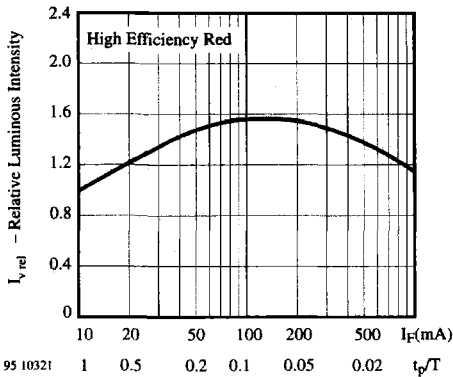
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Figure 6. Rel. Luminous Intensity vs. Ambient Temperature



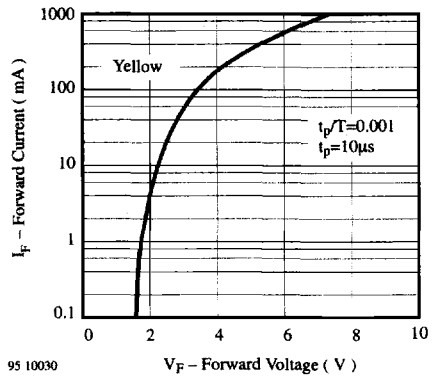
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Figure 9. Relative Luminous Intensity vs. Wavelength



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Figure 7. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle



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Figure 10. Forward Current vs. Forward Voltage

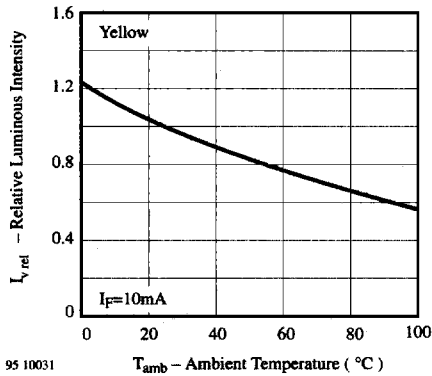


Figure 11. Rel. Luminous Intensity vs. Ambient Temperature

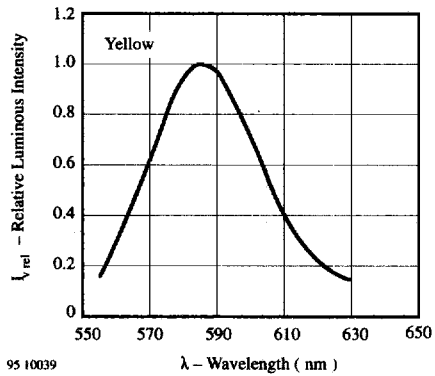


Figure 14. Relative Luminous Intensity vs. Wavelength

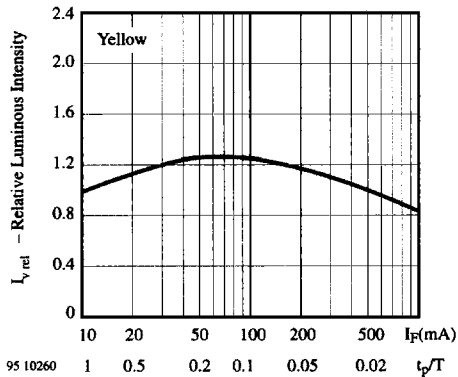


Figure 12. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

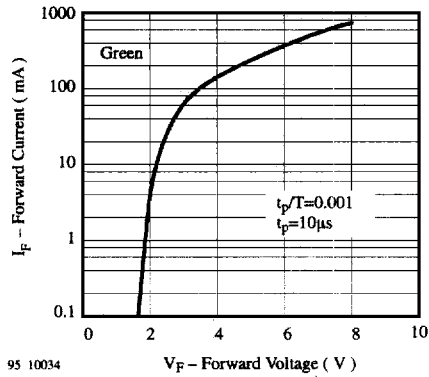


Figure 15. Forward Current vs. Forward Voltage

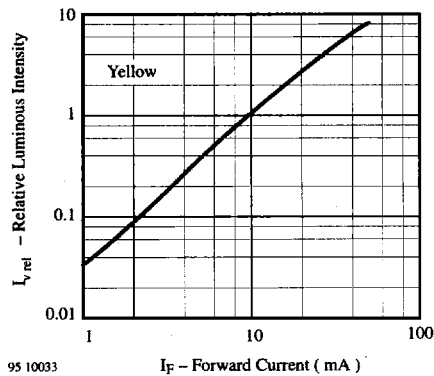


Figure 13. Relative Luminous Intensity vs. Forward Current

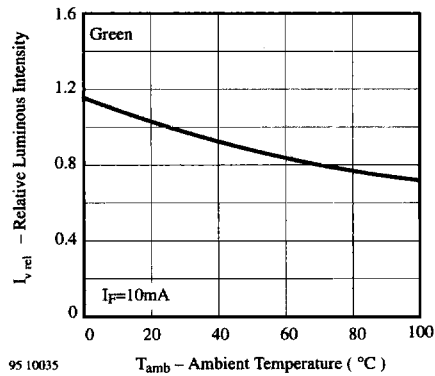


Figure 16. Rel. Luminous Intensity vs. Ambient Temperature

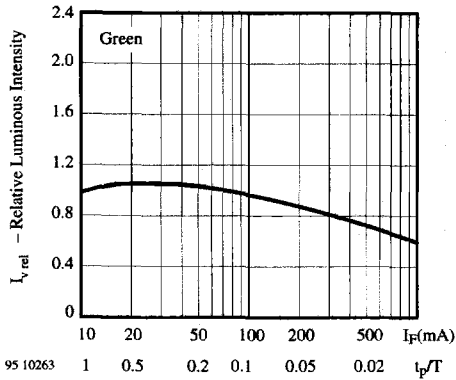


Figure 17. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

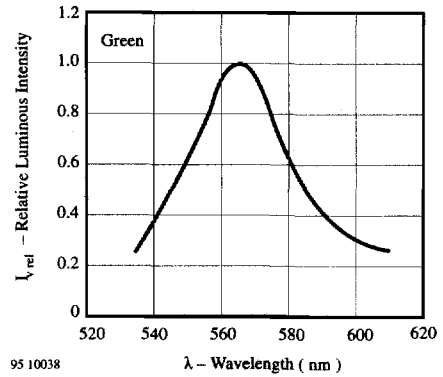


Figure 19. Relative Luminous Intensity vs. Wavelength

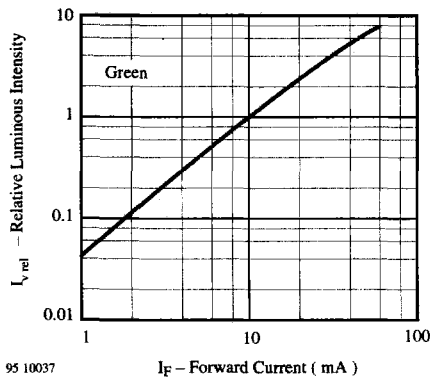
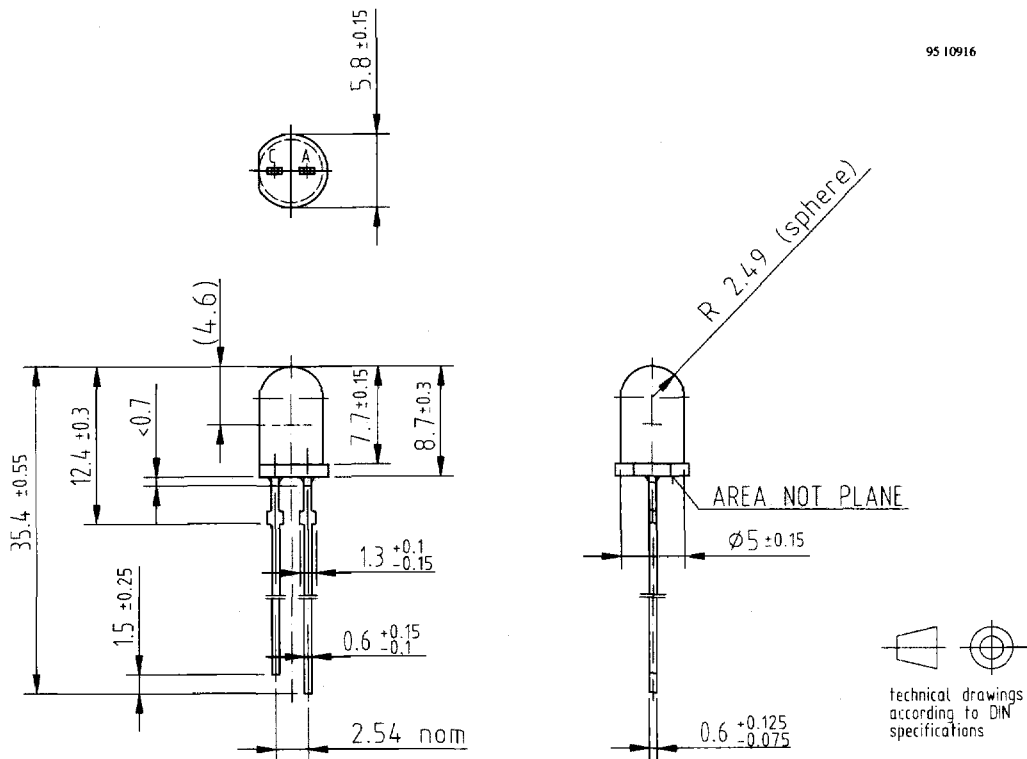


Figure 18. Relative Luminous Intensity vs. Forward Current

Dimensions in mm

Package TLH.54..

95 10916



Package TLH.64..

95 10917

