

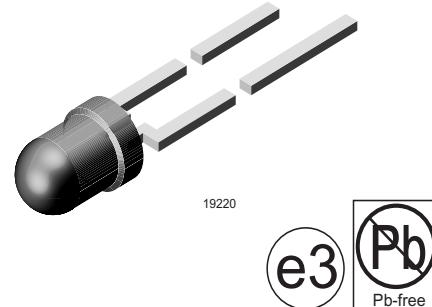
High Efficiency LED, \varnothing 3 mm Tinted Undiffused Package

Description

The TLH.42.. series was developed for standard applications like general indicating and lighting purposes.

It is housed in a 3 mm tinted clear 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 five bright colors
- Standard T-1 package
- Small mechanical tolerances
- Suitable for DC and high peak current
- Wide viewing angle
- Luminous intensity categorized
- Yellow and green color categorized
- Lead-free device

Applications

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

Parts Table

Part	Color, Luminous Intensity	Angle of Half Intensity ($\pm\phi$)	Technology
TLHR4200	Red, $I_V > 4$ mcd	22 °	GaAsP on GaP
TLHR4201	Red, $I_V > 6.3$ mcd	22 °	GaAsP on GaP
TLHR4205	Red, $I_V > 10$ mcd	22 °	GaAsP on GaP
TLHO4200	Soft orange, $I_V > 4$ mcd	22 °	GaAsP on GaP
TLHO4201	Soft orange, $I_V > 10$ mcd	22 °	GaAsP on GaP
TLHY4200	Yellow, $I_V > 4$ mcd	22 °	GaAsP on GaP
TLHY4201	Yellow, $I_V > 6.3$ mcd	22 °	GaAsP on GaP
TLHY4205	Yellow, $I_V > 10$ mcd	22 °	GaAsP on GaP
TLHG4200	Green, $I_V > 6.3$ mcd	22 °	GaP on GaP
TLHG4201	Green, $I_V > 10$ mcd	22 °	GaP on GaP
TLHG4205	Green, $I_V > 16$ mcd	22 °	GaP on GaP
TLHP4200	Pure green, $I_V > 2.5$ mcd	22 °	GaP on GaP
TLHP4201	Pure green, $I_V > 6.3$ mcd	22 °	GaP on GaP

Absolute Maximum Ratings

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

TLHR42.., TLHO42.., TLHY42.., TLHG42.., TLHP42..

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	6	V
DC Forward current		I_F	30	mA
Surge forward current	$t_p \leq 10\text{ }\mu\text{s}$	I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 60\text{ }^{\circ}\text{C}$	P_V	100	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}	400	K/W

Optical and Electrical Characteristics

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

Red

TLHR42..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 10\text{ mA}$	TLHR4200	I_V	4	8		mcd
		TLHR4201	I_V	6.3	10		mcd
		TLHR4205	I_V	10	15		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		± 22		deg
Forward voltage	$I_F = 20\text{ mA}$		V_F		2	3	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$		V_R	6	15		V
Junction capacitance	$V_R = 0$, $f = 1\text{ MHz}$		C_j		50		pF

¹⁾ in one Packing Unit $I_{Vmin}/I_{Vmax} \leq 0.5$

Soft Orange

TLHO42..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 10\text{ mA}$	TLHO4200	I_V	4	10		mcd
		TLHO4201	I_V	10	18		mcd
Dominant wavelength	$I_F = 10\text{ mA}$		λ_d	598		611	nm
Peak wavelength	$I_F = 10\text{ mA}$		λ_p		605		nm
Angle of half intensity	$I_F = 10\text{ mA}$		ϕ		± 22		deg
Forward voltage	$I_F = 20\text{ mA}$		V_F		2.4	3	V
Reverse current	$V_R = 6\text{ V}$		I_R			10	μA
Junction capacitance	$V_R = 0$, $f = 1\text{ MHz}$		C_j		50		pF

¹⁾ in one Packing Unit $I_{Vmin}/I_{Vmax} \leq 0.5$



Yellow

TLHY42..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 10 \text{ mA}$	TLHY4200	I_V	4	10		mcd
		TLHY4201	I_V	6.3	15		mcd
		TLHY4205	I_V	10	20		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		± 22		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

¹⁾ in one Packing Unit $I_{Vmin}/I_{Vmax} \leq 0.5$

Green

TLHG42..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 10 \text{ mA}$	TLHG4200	I_V	6.3	10		mcd
		TLHG4201	I_V	10	15		mcd
		TLHG4205	I_V	16	20		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		± 22		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

¹⁾ in one Packing Unit $I_{Vmin}/I_{Vmax} \leq 0.5$

Pure green

TLHP42..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 10 \text{ mA}$	TLHP4200	I_V	2.5	7		mcd
		TLHP4201	I_V	6.3		20	mcd
Dominant wavelength	$I_F = 10 \text{ mA}$		λ_d	555		565	nm
Peak wavelength	$I_F = 10 \text{ mA}$		λ_p		555		nm
Angle of half intensity	$I_F = 10 \text{ mA}$		φ		± 22		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

¹⁾ in one Packing Unit $I_{Vmin}/I_{Vmax} \leq 0.5$

Package Dimensions in mm

