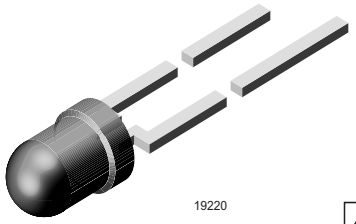
High Efficiency LED in ∅ 3 mm Tinted Diffused Package

Description

The TLH.44.. series was developed for standard applications like general indicating and lighting purposes.

It is housed in a 3 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.



e3 Pb Pb-free

That allows users to assemble LEDs with uniform appearance.

Features

- 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 (±φ)	Technology
TLHR4400	Red, I_V > 1.6 mcd	30 °	GaAsP on GaP
TLHR4401	Red, I_V > 2.5 mcd	30 °	GaAsP on GaP
TLHR4405	Red, I_V > 6.3 mcd	30 °	GaAsP on GaP
TLHO4400	Soft orange, I_V > 1.6 mcd	30 °	GaAsP on GaP
TLHY4400	Yellow, I_V > 1.6 mcd	30 °	GaAsP on GaP
TLHY4401	Yellow, I_V > 2.5 mcd	30 °	GaAsP on GaP
TLHY4405	Yellow, I_V > 6.3 mcd	30 °	GaAsP on GaP
TLHG4400	Green, I_V > 2.5 mcd	30 °	GaP on GaP
TLHG4401	Green, I_V > 4 mcd	30 °	GaP on GaP
TLHG4405	Green, I_V > 6.3 mcd	30 °	GaP on GaP
TLHP4400	Pure green, I_V > 0.63 mcd	30 °	GaP on GaP
TLHP4401	Pure green, I_V > 1 mcd	30 °	GaP on GaP
TLHP4405	Pure green, I_V > 1.6 mcd	30 °	GaP on GaP

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

TLHR44.. , TLHO44.. , TLHY44.. , TLHG44.. , TLHP44.. ,

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	6	V
DC Forward current		I_F	30	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 60$ °C	P_V	100	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 55 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T_{sd}	260	°C
Thermal resistance junction/ ambient		R_{thJA}	400	K/W

Optical and Electrical Characteristics

T_{amb} = 25 °C, unless otherwise specified

Red

TLHR44..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 10 mA	TLHR4400	I_V	1.6	3		mcd
		TLHR4401	I_V	2.5	5		mcd
		TLHR4405	I_V	6.3	10		mcd
Dominant wavelength	I_F = 10 mA		λ_d	612		625	nm
Peak wavelength	I_F = 10 mA		λ_p		635		nm
Angle of half intensity	I_F = 10 mA		φ		± 30		deg
Forward voltage	I_F = 20 mA		V_F		2	3	V
Reverse voltage	I_R = 10 µA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

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

Soft Orange

TLHO44..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 10 mA	TLHO4400	I_V	1.6	4		mcd
Dominant wavelength	I_F = 10 mA		λ_d	598		611	nm
Peak wavelength	I_F = 10 mA		λ_p		605		nm
Angle of half intensity	I_F = 10 mA		φ		± 30		deg
Forward voltage	I_F = 20 mA		V_F		2.4	3	V
Reverse voltage	I_R = 10 µA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		15		pF

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

Yellow

TLHY44..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 10 mA	TLHY4400	I_V	1.6	3		mcd
		TLHY4401	I_V	2.5	5		mcd
		TLHY4405	I_V	6.3	10		mcd
Dominant wavelength	I_F = 10 mA		λ_d	581		594	nm
Peak wavelength	I_F = 10 mA		λ_p		585		nm
Angle of half intensity	I_F = 10 mA		φ		± 30		deg
Forward voltage	I_F = 20 mA		V_F		2.4	3	V
Reverse voltage	I_R = 10 µA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

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

Green

TLHG44..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 10 mA	TLHG4400	I_V	2.5	4		mcd
		TLHG4401	I_V	4	6		mcd
		TLHG4405	I_V	6.3	12		mcd
Dominant wavelength	I_F = 10 mA		λ_d	562		575	nm
Peak wavelength	I_F = 10 mA		λ_p		565		nm
Angle of half intensity	I_F = 10 mA		φ		± 30		deg
Forward voltage	I_F = 20 mA		V_F		2.4	3	V
Reverse voltage	I_R = 10 µA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

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

Pure green

TLHP44..

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 10 mA	TLHP4400	I_V	0.63	2		mcd
		TLHP4401	I_V	1	3		mcd
		TLHP4405	I_V	1.6	3.5		mcd
Dominant wavelength	I_F = 10 mA		λ_d	555		565	nm
Peak wavelength	I_F = 10 mA		λ_p		555		nm
Angle of half intensity	I_F = 10 mA		φ		± 30		deg
Forward voltage	I_F = 20 mA		V_F		2.4	3	V
Reverse voltage	I_R = 10 µA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

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

Package Dimensions in mm