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NTE30157 thru NTE30160
Discrete RGB LED Indicators
10mm (T–3 1/4) 4–Pin Package Type

Description:

NTEs 10mm RGB LED indicators combine 3 LEDs (1 Red, 1 Green, & 1 Blue) in one convenient, 4–lead package. Available in either common anode or common cathode polarity and clear or diffused lens types, this one LED can be used for three status indicators or pulse width modulate all three and get mixed colors!

Features:

- All 10mm 4–Pin RGB Types are Available in Multiple Lens Types:

Polarity	Water Clear	White Diffused
Common Anode (+)	NTE30157	NTE30158
Common Cathode (–)	NTE30159	NTE30160

- Super High Brightness
- Round Head with Flange

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Reverse Voltage, V_R 5V
Reverse Current, I_R 100μA
Peak Current (Duty = 0.1, 1kHz), I_{FM} 100mA
Derating Linear from +25°C . . . . . 0.4mA/°C
Derating Linear from +30°C (NTE30160 **Only**) . . . . . 0.8mA/°C
Power Dissipation, P_D 200mW
Operating Temperature Range, T_{opr} . . . . . –30° to +85°C
Storage Temperature Range, T_{stg} . . . . . –30° to +85°C
Lead Temperature (During Soldering, 5sec Max), T_L . . . . . +260°C

Electrical Optical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Red Color						
Forward Voltage NTE30157, NTE30158	V_F	I_F = 20mA	1.8	2.0	2.2	V
NTE30159, NTE30160			2.0	–	2.2	V
Luminous Intensity NTE30157, NTE30159	I_V	I_F = 20mA	8000	9000	10000	mcd
NTE30158			3500	4000	4500	mcd
NTE30160			2000	2500	3000	mcd
Peak Emission Wavelength	λ_P		620	625	630	nm
Half Intensity Angle NTE30157, NTE30159	$2\theta_{1/2}$		–	30	–	deg
NTE30158, NTE30160			–	60	–	deg

Note 1. I_{FP} Conditions — Pulse Width ≤ 100μs, Duty Cycle ≤ 1%.

Rev 08–23

RoHS

Electrical Optical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

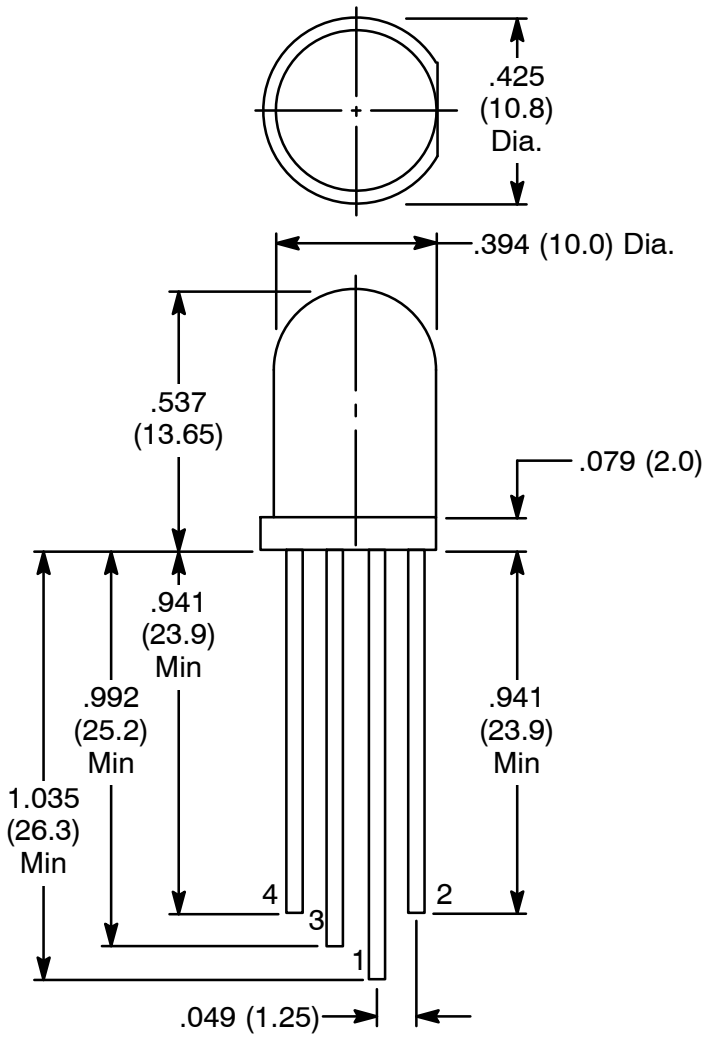
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Green Color						
Forward Voltage NTE30157, NTE30158	V_F	I_F = 20mA	2.8	3.2	3.4	V
NTE30159			2.8	3.0	3.4	V
NTE30160			3.0	–	3.2	V
Luminous Intensity NTE30157, NTE30159	I_V	I_F = 20mA	18000	19000	20000	mcd
NTE30158			6000	7000	8000	mcd
NTE30160			4000	4500	5000	mcd
Peak Emission Wavelength All Others	λ_P		515	520	525	nm
NTE30160 **Only**			520	525	530	nm
Half Intensity Angle NTE30157, NTE30159	$2\theta_{1/2}$		–	30	–	deg
NTE30158, NTE30160			–	60	–	deg
Blue Color						
Forward Voltage NTE30157, NTE30158	V_F	I_F = 20mA	2.8	3.2	3.4	V
NTE30159			2.8	3.0	3.4	V
NTE30160			3.0	–	3.2	V
Luminous Intensity NTE30157	I_V	I_F = 20mA	8000	9000	10000	mcd
NTE30158, NTE30160			2000	2500	3000	mcd
NTE30159			6000	6500	7000	mcd
Peak Emission Wavelength	λ_P		460	465	470	nm
Half Intensity Angle NTE30157, NTE30159	$2\theta_{1/2}$		–	30	–	deg
NTE30158, NTE30160			–	60	–	deg

Note 1. I_{FP} Conditions — Pulse Width ≤ 100μs, Duty Cycle ≤ 1%.

Creating Different Colors:

With an RGB LED, in addition to being able to produce red, green, and blue light, by configuring the intensity of each LED, you can produce other colors as well. To achieve a purely blue light, the blue LED would be set to the highest intensity, while the intensity of both the green and red LEDs would be set to the lowest. For a white light, all three LEDs would be set to their highest intensity.

In order to produce other colors, you would need to combine all three colors (RGB) using different intensities. This can be done by using a Pulse Width Modulator (PWM) to adjust the intensity of each LED. Because the LEDs are set very close together within a single package, our eyes see the result of the combination of colors, rather than the three colors individually.



	1	2	3	4
NTE30157	Anode (+)	Red –	Green –	Blue –
NTE30158	Anode (+)	Red –	Green –	Blue –
NTE30159	Cathode (–)	Red +	Green +	Blue +
NTE30160	Cathode (–)	Red +	Green –	Blue +