ELECTRONICS, INC.
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NTE30153 thru NTE30156
Discrete RGB LED Indicators
5mm (T–1 3/4) 4–Pin Package Type

Description:

NTEs 5mm 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 5mm 4–Pin RGB Types are Available in Multiple Lens Types:

Polarity	Water Clear	White Diffused
Common Anode (+)	NTE30153	NTE30154
Common Cathode (–)	NTE30155	NTE30156

- 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
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 NTE30155	V_F	I_F = 20mA	2.0	–	2.2	V
All Others			1.8	2.0	2.2	V
Luminous Intensity NTE30153	I_V	I_F = 20mA	7000	–	9000	mcd
NTE30154			2500	3000	3500	mcd
NTE30155			5000	–	7000	mcd
NTE30156			2000	2500	3000	mcd
Peak Emission Wavelength	λ_P		620	625	630	nm
Half Intensity Angle NTE30153, NTE30155	$2\theta_{1/2}$		–	30	–	deg
NTE30154, NTE30156			–	60	–	deg

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

Rev. 5–20

RoHS

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

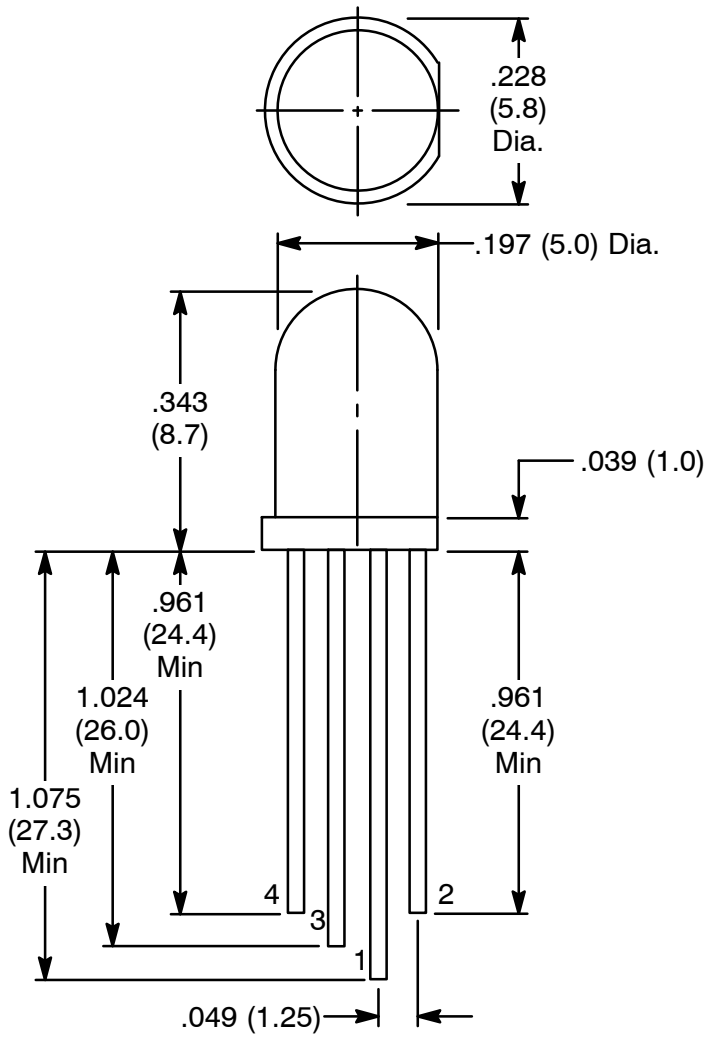
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Green Color						
Forward Voltage	V_F	I_F = 20mA	3.0	3.2	3.4	V
Luminous Intensity NTE30153, NTE30155	I_V	I_F = 20mA	10000	–	12000	mcd
NTE30154, NTE30156			4500	5000	5500	mcd
Peak Emission Wavelength	λ_P		520	525	530	nm
Half Intensity Angle NTE30153, NTE30155	$2\theta_{1/2}$		–	30	–	deg
NTE30154, NTE30156			–	60	–	deg
Blue Color						
Forward Voltage	V_F	I_F = 20mA	3.0	3.2	3.4	V
Luminous Intensity NTE30153, NTE30155	I_V	I_F = 20mA	5000	–	6000	mcd
NTE30154, NTE30156			1500	2000	2500	mcd
Peak Emission Wavelength	λ_P		460	465	470	nm
Half Intensity Angle NTE30153, NTE30155	$2\theta_{1/2}$		–	30	–	deg
NTE30154, NTE30156			–	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
NTE30153	Anode (+)	Red –	Green –	Blue –
NTE30154	Anode (+)	Red –	Green –	Blue –
NTE30155	Cathode (–)	Red +	Green +	Blue +
NTE30156	Cathode (–)	Red +	Green –	Blue +

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