



## NTE3020 thru NTE3023 Light Emitting Diode (LED)

**Description:**

The NTE3020 through NTE3023 LEDs offer a variety of lens effects and color availability. The Red (NTE3020) source color device is made with Gallium Arsenide Phosphide on Gallium Arsenide Red Light Emitting Diode. The High Efficiency Red (NTE3022) and Orange (NTE3023) source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode. The Yellow (NTE3021) source color device is made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

**Features:**

- Low Power Consumption
- High Efficiency
- IC Compatible/Low Current Requirements
- Versatile mounting on P.C. board or panel
- Reliable and Rugged

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Power Dissipation, $P_D$	
NTE3020	80mW
NTE3021	60mW
NTE3022	100mW
NTE3023	100mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width), $I_{F(\text{Peak})}$	
NTE3020	200mA
NTE3021	80mA
NTE3022	120mA
NTE3023	120mA
Continuos Forward Current, $I_F$	
NTE3020	40mA
Derate Linearly Above $25^\circ\text{C}$	0.5mA/ $^\circ\text{C}$
NTE3021	20mA
Derate Linearly Above $25^\circ\text{C}$	0.25mA/ $^\circ\text{C}$
NTE3022	30mA
Derate Linearly Above $25^\circ\text{C}$	0.4mA/ $^\circ\text{C}$
NTE3023	30mA
Derate Linearly Above $25^\circ\text{C}$	0.4mA/ $^\circ\text{C}$
Reverse Voltage, $V_R$	5V
Operating Temperature Range, $T_A$	$-55^\circ$ to $+100^\circ\text{C}$
Storage Temperature Range, $T_{\text{stg}}$	$-55^\circ$ to $+100^\circ\text{C}$
Lead Temperature (During Soldering, .063 in. (1.6mm) from Body for 5sec), $T_L$	$+260^\circ\text{C}$

**Electrical/Optical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Luminous Intensity NTE3020 All Other Devices	$I_V$	$I_F = 10\text{mA}$ , Note 1	0.3 2.5	0.8 8.7	- -	mcd
Viewing Angle	$2\theta^{1/2}$	Note 2	-	36	-	deg.
Peak Emission Wavelength NTE3020 NTE3021 NTE3022, NTE3023	$\lambda_P$		- - -	655 585 635	- - -	nm
Spectral Line Half Width NTE3020 NTE3021 NTE3022, NTE3023	$\Delta\lambda$		- - -	24 35 40	- - -	nm
Forward Voltage NTE3020 NTE3021 NTE3022 NTE3023	$V_F$	$I_F = 20\text{mA}$	- - - -	1.7 2.1 2.0 2.0	- 2.8 - 2.8	V
Reverse Current	$I_R$	$V_R = 5\text{V}$	-	-	100	$\mu\text{A}$
Capacitance NTE3020 NTE3021 NTE3022, NTE3023	C	$V_F = 0, f = 1\text{MHz}$	- - -	30 15 20	- - -	pF

Note 1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Internationale De L'Eclairage) eye-response curve.

Note 2.  $\theta^{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

