



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089

NTE3027 Infrared Emitting Diode High Speed for Remote Control

Description:

The NTE3027 is an infrared emitting diode in standard GaAs on GaAs technology, molded in a clear, blue-grey tinted plastic package.

Features:

- Low Forward Voltage
- High Radiant Power and Radiant Intensity
- Suitable for DC and High Pulse Current Operation
- High Reliability
- Standard T-1 3/4 (5mm) Package

Applications:

Infrared remote control and free air transmission systems with low forward voltage and comfortable radiation and angle requirements in combination with PIN photodiodes or phototransistors.

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

Reverse Voltage, V_R	5V
Forward Current, I_F	
Continuous	150mA
Peak (Note 1)	300mA
Surge Forward Current (Note 2), I_{FSM}	2.5A
Power Dissipation, P_D	210mW
Junction Temperature, T_J	+100°C
Operating Temperature Range, T_{opr}	-55° to +100°C
Storage Temperature Range, T_{stg}	-55° to +100°C
Lead Soldering Temperature ($t \leq 5\text{sec}$, 2mm from case), T_L	+260°C
Thermal Resistance, Junction-to-Ambient, R_{thJA}	375K/W

Note 1. $t_p = 100\mu\text{s}$, $t_p/T = 0.5$

Note 2. $t_p = 100\mu\text{s}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F = 100\text{mA}$, $t_p = 20\text{ms}$	-	1.3	1.7	V
		$I_F = 1.5\text{A}$, $t_p = 100\mu\text{s}$	-	2.2	3.4	V
Temperature Coefficient of Forward Voltage		$I_F = 100\text{mA}$	-	-1.3	-	mV/ $^\circ\text{C}$
Reverse Current	I_R	$V_R = 5\text{V}$	-	-	100	μA
Junction Capacitance	C_j	$V_R = 0$, $f = 1\text{MHz}$, $E = 0$	-	30	-	pF
Radiant Intensity	I_e	$I_F = 100\text{mA}$, $t_p = 20\text{ms}$	10	17	-	mW/sr
		$I_F = 1.5\text{A}$, $t_p = 100\mu\text{s}$	85	160	-	mW/sr
Angle of Half Intensity	Φ		-	± 22	-	deg
Radiant Power	Φ_e	$I_F = 100\text{mA}$, $t_p = 20\text{ms}$	-	14	-	mW
Temperature Coefficient of Radiant Intensity		$I_F = 20\text{mA}$	-	-0.8	-	%/ $^\circ\text{C}$
Peak Wavelength	λ_p	$I_F = 100\text{mA}$	-	950	-	nm
Temperature Coefficient of Peak Wavelength		$I_F = 100\text{mA}$	-	0.2	-	nm/ $^\circ\text{C}$
Spectral Bandwidth	$\Delta\lambda$	$I_F = 100\text{mA}$	-	50	-	nm
Rise Time	t_r	$I_F = 100\text{mA}$	-	800	-	ns
		$I_F = 1.5\text{A}$	-	400	-	ns
Fall Time	t_f	$I_F = 100\text{mA}$	-	800	-	ns
		$I_F = 1.5\text{A}$	-	400	-	ns

