



**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)

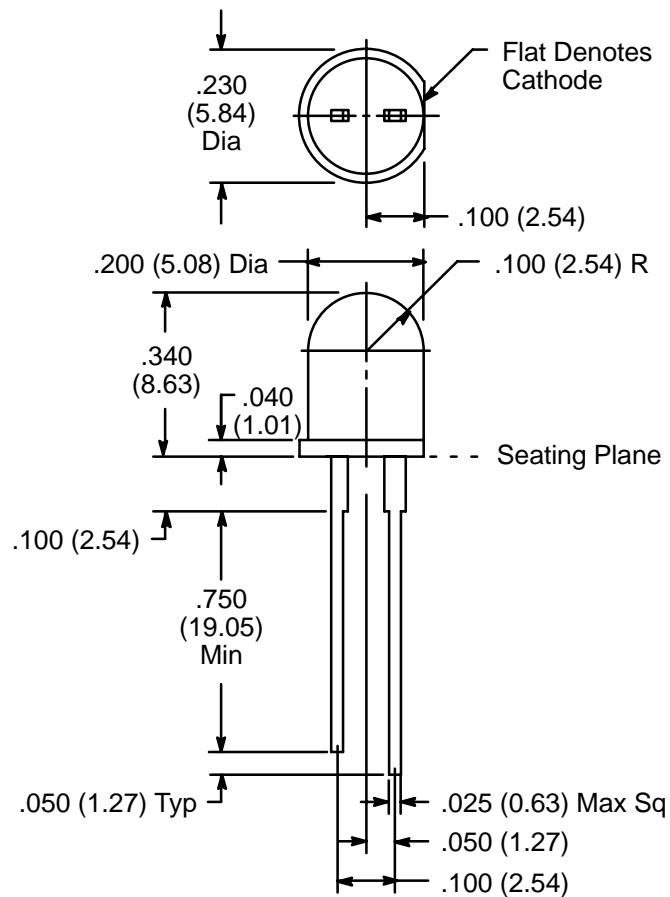
Reverse Voltage, $V_R$ .....	5V
Forward Current, $I_F$	
Continuous .....	150mA
Peak (Note 1) .....	300mA
Surge Forward Current (Note 2), $I_{FSM}$ .....	2.5A
Power Dissipation, $P_D$ .....	210mW
Junction Temperature, $T_J$ .....	+100°C
Operating Temperature Range, $T_{opr}$ .....	-55° to +100°C
Storage 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	$\mu\text{A}$
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	$\Phi$		-	$\pm 22$	-	deg
Radiant Power	$\Phi_e$	$I_F = 100\text{mA}$ , $t_p = 20\text{ms}$	-	14	-	mW
Temperature Coefficient of Radiant Intensity		$I_F = 20\text{mA}$	-	-0.8	-	%/ $^\circ\text{C}$
Peak Wavelength	$\lambda_p$	$I_F = 100\text{mA}$	-	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



Tolerance  $\pm 0.010$  (.254)