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# NTE3029A
# Infrared–Emitting Diode



**Description:**

The NTE3029A 940nm LED is a multi–purpose device designed for use in numerous applications. This Gallium Arsenide device is manufactured to tight tolerances for maximum performance and long lifetime.

**Features:**

- Low Cost
- Low Degradation
- New Mold Technology Improves Performance under Variable Environmental Conditions
- New Lens Design offers Improved Optical Performance

**Applications:**

- Low Bit Rate Communication Systems
- Keyboards
- Coin Handlers
- Paper Handlers
- Touch Screens
- Shaft Encoders
- General Purpose Interruptive and Reflective Event Sensors

**Absolute Maximum Ratings:**

Reverse Breakdown Voltage, $V_R$ . . . . . 6V
Forward Current, $I_F$
  Continuous . . . . . 100mA
  Peak Pulse . . . . . 1A
Device Power Dissipation ($T_A$ = +25°C, Note 2), $P_D$ . . . . . 100mW
  Derate Above 55°C . . . . . 2mW/°C
Ambient Operating Temperature Range, $T_{opr}$ . . . . . –40° to +100°C
Storage Temperature Range, $T_{stg}$ . . . . . –40° to +100°C
Lead Temperature (During Soldering, Note 3), $T_L$ . . . . . +260°C

Note 1. The **NTE3029A** is a **discontinued** device and has been replaced by **NTE3029B**.

Note 2 Measured with device soldered into a typical printed circuit board.

Note 3 Maximum exposure time: 5sec. Minimum of 1/16 inch from the case. A heat sink should be applied in order to prevent the case temperature from exceeding +100°C.

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse Leakage Current | $I_R$ | $V_R$ = 6V | – | 0.05 | 100 | µA |
| Forward Voltage | $V_F$ | $I_F$ = 50mA | – | 1.3 | 1.5 | V |
| Temperature Coefficient of Forward Voltage | $\Delta V_F$ | | – | –1.6 | – | mV/°C |
| Capacitance | C | V = 0V, f = 1MHz | – | 24 | 50 | pF |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Peak Emission Wavelength | $\lambda_P$ | $I_F$ = 50mA | 930 | 940 | 950 | nm |
| Spectral Half Power Wavelength | | | – | 48 | – | nm |
| Spectral Output Temperature Shift | | | – | 0.3 | – | nm/°C |
| Axial Power Output Intensity | $P_O$ | $I_F$ = 20mA, Note 4 | 50 | 150 | – | µW/ sq cm |
| Intensity Per Unit Solid Angle | $E_e$ | $I_F$ = 20mA, Note 4 | 0.2 | 0.65 | – | mW/Sr |
| Power Half–Angle | Ω | | – | ±20 | – | ° |
| Rise Time and Fall Time | $t_r$, $t_f$ | | – | 1.0 | – | µs |

Note 4 Measured using a 11.28 mm diameter detector placed 21 mm away from the device under test.