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

# NTE3048
# Optoisolator
# TRIAC Driver Output

**Description:**

The NTE3048 consists of a gallium arsenide infrared emitting diode optically coupled to a silicon bilateral switch in an 6–Lead DIP type package. This device is designed for use in applications requiring isolated TRIAC triggering.

**Features:**

- Output Driver Designed for 240VAC Line
- $V_{ISO}$ Isolation Voltage of 7500V Peak
- Standard 6–Lead Plastic DIP Package

**Absolute Maximum Ratings:** ($T_A$ = +25°C unless otherwise specified)

**Infrared Emitting Diode**

Reverse Voltage, $V_R$ . . . . . 3V

Continuous Forward Current, $I_F$ . . . . . 60mA

Total Power Dissipation (Negligible Power in TRIAC Driver, $T_A$ = +25°C), $P_D$ . . . . . 100mW
Derate Above 25°C . . . . . 1.33mW/°C

**Output Driver**

Off–State Output Terminal Voltage, $V_{DRM}$ . . . . . 400V

Peak Repetitive Surge Current (PW = 1ms, 120pps), $I_{TSM}$ . . . . . 1.0A

Total Power Dissipation ($T_A$ = +25°C), $P_D$ . . . . . 300mW
Derate Above 25°C . . . . . 4.0mW/°C

**Total Device**

Isolation Surge Voltage (Peak AC Voltage, 60Hz, 5sec Duration, Note 1), $V_{ISO}$ . . . . . 7500V

Total Power Dissipation ($T_A$ = +25°C), $P_D$ . . . . . 330mW
Derate Above 25°C . . . . . 4.4mW/°C

Junction Temperature Range, $T_J$ . . . . . –40° to +100°C

Ambient Operating Temperature Range, $T_A$ . . . . . –40° to +85°C

Storage Temperature Range, $T_{stg}$ . . . . . –40° to +150°C

Lead Temperature (During Soldering, 1/16” from Case, 10sec), $T_L$ . . . . . +260°C

Note 1. Isolation surge voltage is an internal dielectric breakdown rating.

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Input LED** | | | | | | |
| Reverse Leakage Current | $I_R$ | $V_R$ = 3V | – | 0.05 | 100 | μA |
| Forward Voltage | $V_F$ | $I_F$ = 10mA | – | 1.15 | 1.5 | V |
| **Output Detector** ($I_F$ = 0 unless otherwise specified) | | | | | | |
| Peak Blocking Current | $I_{DRM}$ | Either Direction, $V_{DRM}$ = 400V, Note 2 | – | 10 | 100 | nA |
| Peak On–State Voltage | $V_{TM}$ | Either Direction, $I_{TM}$ = 100mA peak | – | 1.8 | 3.0 | V |
| Critical Rate of Rise of Off–State Voltage | dv/dt | Note 3 | – | 10 | – | V/μs |
| **Coupled** | | | | | | |
| LED Trigger Current (Current Required to Latch Output) | $I_{FT}$ | Main Terminal Voltage = 3V, Note 4 | – | 8 | 15 | mA |
| Holding Current | $I_H$ | Either Direction | – | 100 | – | μA |

Note 2. Test voltage must be applied within dv/dt rating.

Note 3. This is static dv/dt. Commutating dv/dt is a function of the load–driving thyristor(s) only.

Note 4. The NTE3048 is guaranteed to trigger at an $I_F$ value less than or equal to max $I_{FT}$. Therefore, recommended operating $I_F$ lies between max $I_{FT}$ (15mA) and absolute max $I_F$ (60mA).