

## 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:** ( $T_A = +25^\circ\text{C}$ 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, $T_A = +25^\circ\text{C}$ ), $P_D$ .....	100mW
Derate Above $25^\circ\text{C}$ .....	1.33mW/ $^\circ\text{C}$

#### **Output Driver**

Off-State Output Terminal Voltage, $V_{DRM}$ .....	400V
Peak Repetitive Surge Current ( $PW = 1\text{ms}$ , 120pps), $I_{TSM}$ .....	1.0A
Total Power Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_D$ .....	300mW
Derate Above $25^\circ\text{C}$ .....	4.0mW/ $^\circ\text{C}$

#### **Total Device**

Isolation Surge Voltage (Peak AC Voltage, 60Hz, 5sec Duration, Note 1), $V_{ISO}$ .....	7500V
Total Power Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_D$ .....	330mW
Derate Above $25^\circ\text{C}$ .....	4.4mW/ $^\circ\text{C}$
Junction Temperature Range, $T_J$ .....	$-40^\circ$ to $+100^\circ\text{C}$
Ambient Operating Temperature Range, $T_A$ .....	$-40^\circ$ to $+85^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-40^\circ$ to $+150^\circ\text{C}$
Lead Temperature (During Soldering, 1/16" from Case, 10sec), $T_L$ .....	$+260^\circ\text{C}$

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

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

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

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  $I_{\text{FT}}$ . Therefore, recommended operating  $I_F$  lies between max  $I_{\text{FT}}$  (15mA) and absolute max  $I_F$  (60mA).

