

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°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°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°C	4.4mW/ $^\circ\text{C}$
Junction Temperature Range, T_J	-40° to $+100^\circ\text{C}$
Ambient Operating Temperature Range, T_A	-40° to $+85^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° 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
Input LED						
Reverse Leakage Current	I_R	$V_R = 3\text{V}$	–	0.05	100	μA
Forward Voltage	V_F	$I_F = 10\text{mA}$	–	1.15	1.5	V
Output Detector ($I_F = 0$ unless otherwise specified)						
Peak Blocking Current	I_{DRM}	Either Direction, $V_{\text{DRM}} = 400\text{V}$, Note 2	–	10	100	nA
Peak On-State Voltage	V_{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	–	$\text{V}/\mu\text{s}$
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).

