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NTE3222 Optoisolator NPN Transistor Output

Description:

The NTE3222 is an optically coupled isolator in a 4-Lead DIP type package containing a GaAs light emitting diode and an NPN silicon phototransistor.

Features:

- High Isolation Voltage
- High Collector–Emitter Voltage
- High Speed Switching

Applications:

- Power Supplies
- Telephone/FAX
- FA/FO Equipment
- Programmable Logic Controller

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Diode

Reverse Voltage, V_R	6V
DC Forward Current, I_F	80mA
Power Dissipation (Per Channel) P_D	150mW
Derate Above 25°C	1.5mW/ $^\circ\text{C}$
Peak Forward Current (Note 1), I_{FP}	1A

Transistor

Collector–Emitter Voltage, V_{CEO}	80V
Emitter–Collector Voltage, V_{ECO}	7V
Collector Current (Per Channel), I_C	50mA
Power Dissipation (Per Channel) P_C	150mW
Derate Above 25°C	1.5mW/ $^\circ\text{C}$

Total Device

Isolation Voltage (Note 2), BV	5000V _{rms}
Operating Ambient Temperature Range, T_A	-55° to $+100^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$

Note 1. Pulse width = 100 μs , duty cycle = 1%.

Note 2. AC voltage for 1 minute at $T_A = +25^\circ\text{C}$, RH = 60% between input and output.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Diode						
Forward Voltage	V_F	$I_F = 10\text{mA}$	–	1.17	1.40	V
Reverse Current	I_R	$V_R = 5\text{V}$	–	–	5	μA
Terminal capacitance	C_t	$V = 0\text{V}, f = 1\text{MHz}$	–	50	–	pF
Transistor						
Collector–Emitter Dark Current	I_{CEO}	$V_{CE} = 80\text{V}, I_F = 0\text{mA}$	–	–	100	nA
Coupled						
Current Transfer Ratio (I_C/I_F)	CTR	$I_F = 5\text{mA}, V_{CE} = 5\text{V}$	80	300	600	%
Collector Saturation Voltage	$V_{CE(sat)}$	$I_F = 10\text{mA}, I_C = 2\text{mA}$	–	–	0.3	V
Isolation Resistance	R_{I-O}	$V_{I-O} = 1\text{kV}_{DC}$	10^{11}	–	–	Ω
Isolation Capacitance	C_{I-O}	$V = 0\text{V}, f = 1\text{MHz}$	–	0.5	–	pF
Rise Time	t_r	$V_{CC} = 10\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$	–	3	–	μs
Fall Time	t_f		–	5	–	μs

Pin Connection Diagram

