ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089
http://www.nteinc.com

NTE3086
Optoisolator
Dual NPN Transistor Output

Description:

The NTE3086 is a standard dual optocoupler consisting of a GaAs Infrared LED and a silicon phototransistor per channel. This device is constructed with a high voltage insulation, double molded packaging process which offers 7.5KV withstand test capability.

Features:

- Two isolated Channels per Package
- 7500V Withstand Test Voltage
- CTR Minimum: 20%

Absolute Maximum Ratings:

Gallium Arsenide LED (Each Channel)

Power Dissipation (T_A = +25°C), P_D 100mW
Derate Above 25°C . . . . . 1.3mW/°C

Forward Current, I_F
Continuous 60mA
Peak (Pulse Width 1 s, 300pps) 3A

Phototransistor (Each Channel)

Power Dissipation (T_A = +25°C), P_D 150mW
Derate Above 25°C . . . . . 2.0mW/°C

Collector–Emitter Breakdown Voltage, $V_{(BR)CEO}$ 30V

Collector–Base Breakdown Voltage, $V_{(BR)CBO}$ 80V

Emitter–Collector Breakdown Voltage, $V_{(BR)ECO}$ 6V

Total Device

Power Dissipation (T_A = +25°C), P_D 400mW
Derate Above 25°C . . . . . 5.33mW/°C

Operating Temperature Range, T_{opr} . . . . . –55° to +100°C

Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

Lead Temperature (During Soldering, 10sec Max), T_L . . . . . +250°C

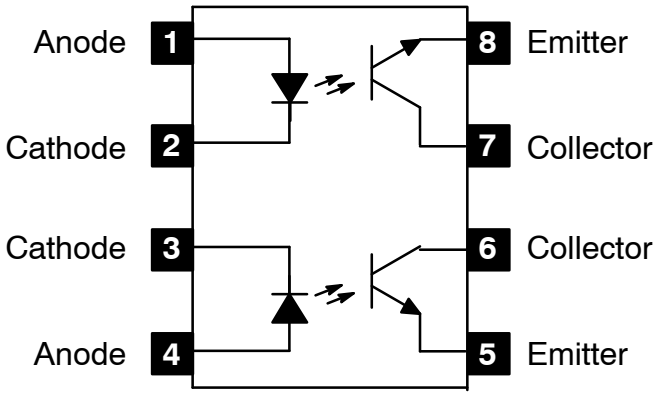
Electrical Characteristics: (T_A = +25°C unless otherwise specified)

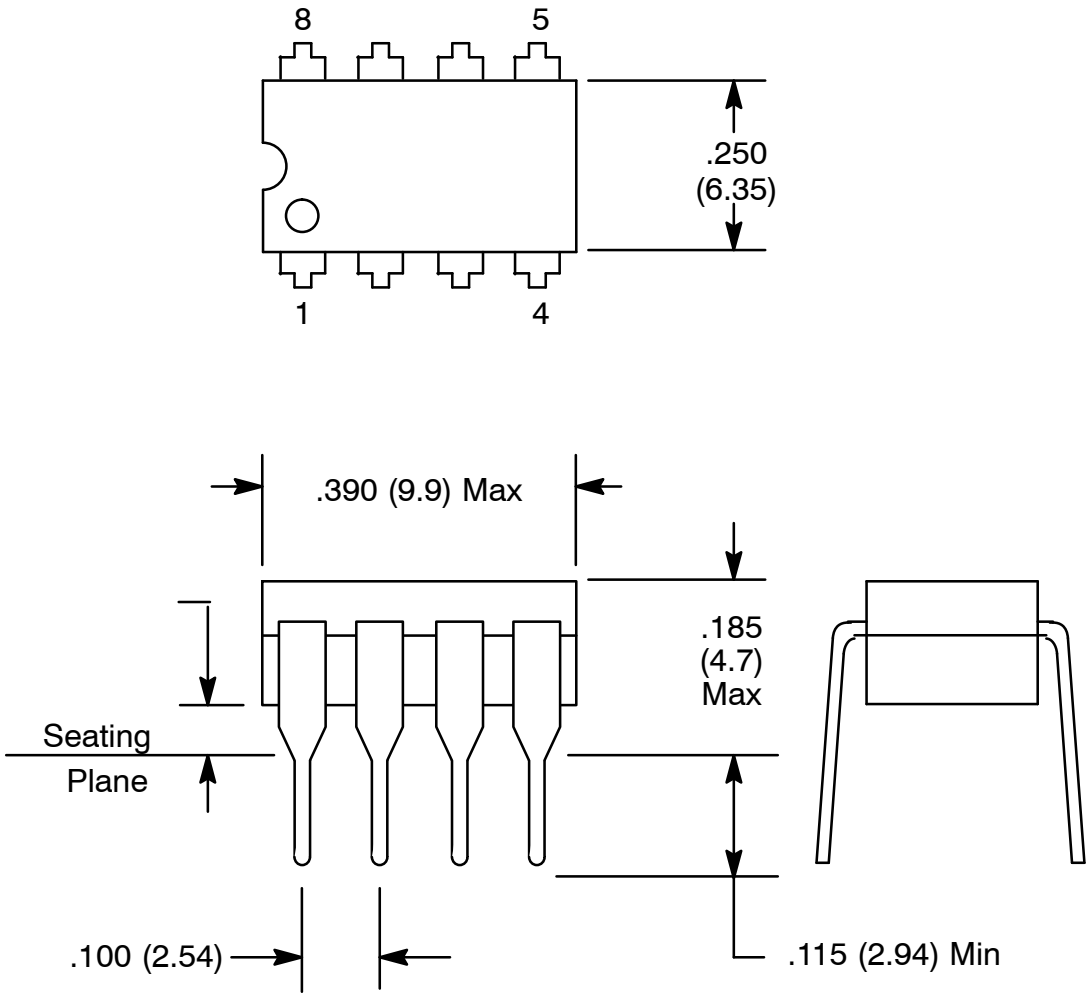
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gallium Arsenide LED						
Forward Voltage	V_F	I_F = 20mA	–	1.1	1.5	V
Reverse Voltage	V_R	I_R = 10 A	3	25	–	V
Reverse Current	I_R	V_R = 3V	–	–	10	A
Junction Capacitance		V = 0, f = 1MHz	–	80	–	pF

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Phototransistor Detector						
Collector−Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 100 A, I_F = 0	30	85	–	V
Emitter−Collector Breakdown Voltage	$V_{(BR)ECO}$	I_E = 100 A, I_F = 0	6	13	–	V
Collector−Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10 A, I_F = 0	80	–	–	V
Collector−Emitter Leakage Current	I_{CEO}	V_{CE} = 10V, I_F = 0	–	5	100	nA
Collector−Emitter Capacitance	C_{CE}	V_{CE} = 0, I_F = 0	–	8	–	pF
Coupled Electrical Characteristics						
Collector−Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 2mA, I_F = 16mA	–	0.2	0.4	V
DC Current Transfer Ratio	CTR	V_{CE} = 10V, I_F = 10mA	20	50	–	%
Isolation Voltage	$V_{(BR)(I-O)}$	t = 1sec	1500	2500	–	V
Isolation Resistance	$R_{(I-O)}$	V_{I-O} = 500V	10^{11}	10^{12}	–	°
Input to Output Capacitance		f = 1MHz	–	0.4	–	pF
Bandwidth	BW	I_C = 2mA, V_{CC} = 10V, R_L = 100°	–	150	–	kHz
Switching Times						
Non−Saturated Rise Time, Fall Time	t_r, t_f	V_{CC} = 10V, I_C = 2mA, R_L = 100° , Note 1	–	2.4	–	s
Non−Saturated Rise Time, Fall Time	t_r, t_f	V_{CC} = 10V, I_C = 2mA, R_L = 1k° , Note 1	–	15	–	s
Saturated Turn−On Time (From 5V to 0.8V)	$t_{on(sat)}$	R_L = 2k° , I_F = 40mA	–	5	–	s
Saturated Turn−Off Time (From Saturation to 2V)	$t_{off(sat)}$	R_L = 2k° , I_F = 40mA	–	25	–	s

Note 1. The frequency at which I_C is 3dB down from the 1kHz value.





NOTE: Pin1 locator dot is for reference ONLY.
For additional Pin1 location options, click here.