



ELECTRONICS, INC.
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NTE3105

Opto Interrupter Module

Photo Reflector, NPN Transistor Output

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

Emitter

Continuous Reverse Voltage, V_R	3V
Continuous Forward Current, I_F	50mA
Power Dissipation, P_D	75mW
Derate Above 25°C	1mW/ $^\circ\text{C}$

Detector

Collector–Emitter Voltage, V_{CEO}	30V
Emitter–Collector Voltage, V_{ECO}	5V
Collector Current, I_C	20mA
Collector Power Dissipation, P_C	50mW
Derate Above 25°C	0.67mW/ $^\circ\text{C}$

Coupled

Operating Temperature Range, T_{opr}	-20° to $+85^\circ\text{C}$
Storage Temperature Range, T_{stg}	-30° to $+100^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Emitter						
Forward Voltage	V_F	$I_F = 50\text{mA}$	–	1.3	1.5	V
Reverse Current	I_R	$V_R = 3\text{V}$	–	0.01	10	μA
Capacitance	C_t	$V_R = 0, f = 1\text{MHz}$	–	30	–	pF
Detector						
Dark Current	I_{CEO}	$V_{CE} = 10\text{V}$	–	–	200	nA
Coupled						
Output Current	I_O	$I_F = 10\text{mA}, V_{CC} = 5\text{V}, R_L = 100\Omega, d = 1\text{mm}$	90	–	880	μA
Collector Dark Current	I_D	$I_F = 10\text{mA}, V_{CC} = 5\text{V}, R_L = 100\Omega$	–	–	200	nA
Rise Time	t_r	$V_{CC} = 5\text{V}, I_C = 0.1\text{mA}, R_L = 100\Omega$	–	20	–	μs
Fall Time	t_f		–	20	–	μs
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 0.1\text{mA}$	–	–	0.4	V

