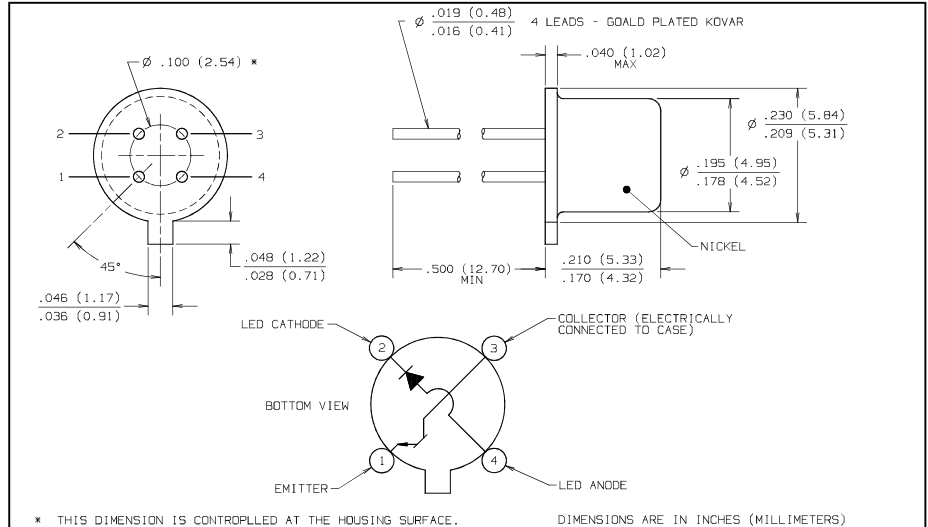
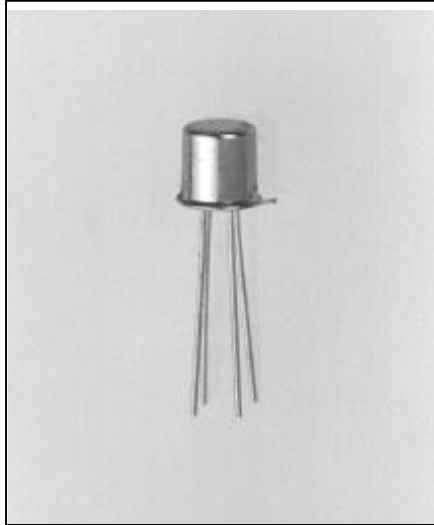


High Reliability Optically Coupled Isolators

Types 3N243, 3N244, 3N245,
3N243TX, 3N244TX, 3N245TX



Features

- TX versions processed to Optek's military screening program patterned after MIL-PRF-19500
- TO-72 hermetically sealed package
- 1 kVDC electrical isolation

Description

Each device in the series is a high reliability design optically coupled isolator consisting of an infrared emitting diode and an NPN silicon phototransistor mounted in a hermetically sealed TO-72 package.

Typical screening and lot acceptance tests are provided on page13-4.

Replaces

3N243R, 3N244R, 3N245R

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

Input-to-Output Isolation Voltage	± 1.00 kVDC ⁽¹⁾
Storage Temperature Range	-65° C to +150° C
Operating Temperature Range	-55° C to +125° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	240° C ⁽²⁾

Input Diode

Forward DC Current	40 mA
Reverse Voltage	2.0 V
Power Dissipation	60 mW ⁽³⁾

Output Phototransistor

Continuous Collector Current	30 mA
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5.0 V
Power Dissipation	200 mW ⁽⁴⁾

Notes:

- (1) Measured with input leads shorted together and output leads shorted together.
- (2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (3) Derate linearly 0.60 mW/ $^{\circ}$ C above 65 $^{\circ}$ C.
- (4) Derate linearly 2.0 mW/ $^{\circ}$ C above 25 $^{\circ}$ C.
- (5) The input waveform is supplied by a generator with the following characteristics:
Z_{OUT} = 50 Ω , t_r $\leq$ 15 ns, duty cycle $\cong$ 1%, pulse width $\cong$ 100 ms.

Types 3N243, 3N244, 3N245

3N243TX, 3N244TX, 3N245TX

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

Symbol	Parameter	3N243TX			3N244TX			3N245TX			Units	Test Conditions
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
Input Diode												
V _F	Forward Voltage	0.80		1.30	0.80		1.30	0.80		1.30	V	I _F = 10.0 mA
		1.00		1.50	1.00		1.50	1.00		1.50	V	I _F = 10.0 mA, T _A = -55° C
		0.70		1.20	0.70		1.20	0.70		1.20	V	I _F = 10.0 mA, T _A = 100° C
I _R	Reverse Current			100			100			100	μA	V _R = 2.0 V
Output Phototransistor												
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	30			30			30			V	I _C = 1.00 mA
V _{(BR)ECO}	Emitter-Collector Breakdown Voltage	5.0			5.0			5.0			V	I _E = 100 μA
I _{CEO}	Collector Dark Current			100 100			100 100			100 100	nA μA	V _{CE} = 10.0 V V _{CE} = 10.0 V, T _A = 100° C
Coupled												
I _{C(on)}	On-State Collector Current	1.50			3.00			6.00			mA	I _F = 10.0 mA, V _{CE} = 10.0 V
		0.30			0.80			1.50			mA	I _F = 3.0 mA, V _{CE} = 10.0 V
		0.50			1.00			1.50			mA	I _F = 10.0 mA, V _{CE} = 10.0 V, T _A = -55° C
		0.50			1.00			1.50			mA	I _F = 10.0 mA, V _{CE} = 10.0 V, T _A = 100° C
V _{CE(SAT)}	Collector-Emitter Saturation Voltage			0.30							V	I _F = 20 mA, I _C = 1.50 mA
							0.30				V	I _F = 20 mA, I _C = 3.0 mA
									0.30	V	I _F = 20 mA, I _C = 6.0 mA	
I _{IO}	Leakage Input-to-Output			100			100			100	nA	V _{IO} = ± 1.00 kVDC ⁽¹⁾
C _{IO}	Capacitance Input-to-Output			5.0			5.0			5.0	pF	V _{IO} = 0 V, f = 1.00 MHz ⁽¹⁾
t _r	Output Rise Time			10.0			10.0			10.0	μs	V _{CC} = 10.0 V, I _F = 10.0 mA, ⁽⁵⁾
t _f	Output Fall Time			10.0			10.0			10.0	μs	R _L = 100 Ω

HI-RELOPTO
COMPONENTS

Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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