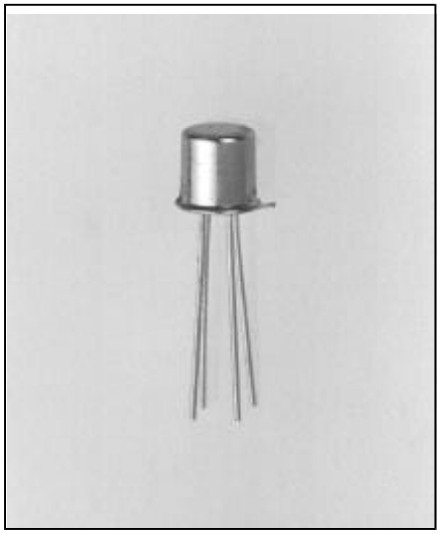
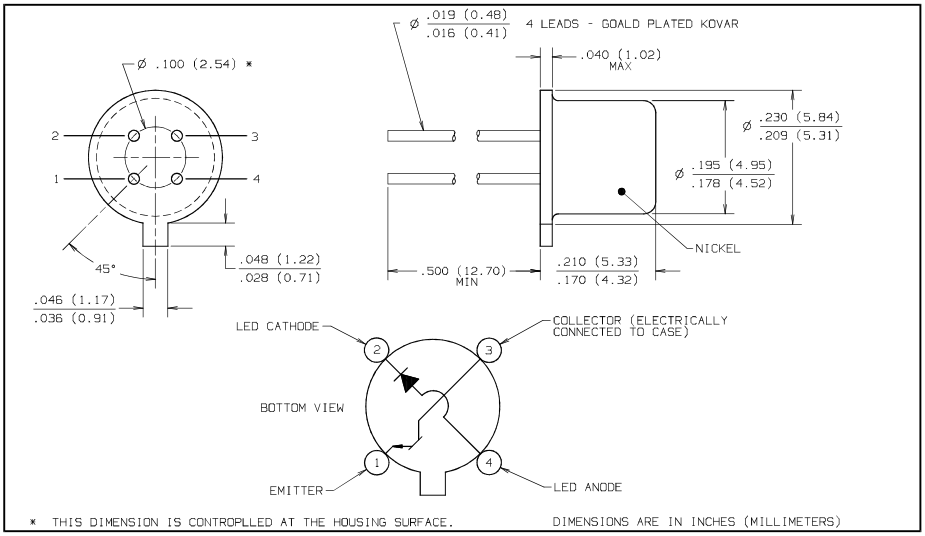
High Reliability Optically Coupled Isolators
Types 3N243, 3N244, 3N245, 3N243TX, 3N244TX, 3N245TX





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° 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/° C above 65° C.
(4) Derate linearly 2.0 mW/° C above 25° 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 ≅ 1%, pulse width ≅ 100 ms.

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

Electrical Characteristics (T_A = 25° 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) R_L = 100 Ω
t_f	Output Fall Time			10.0			10.0			10.0	µs	

HI-REL OPTO COMPONENTS