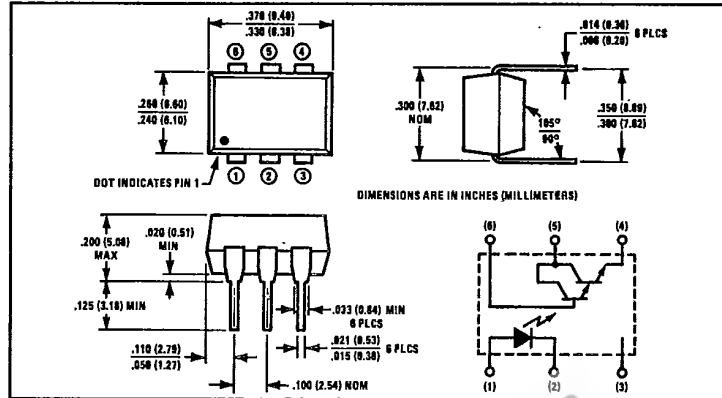
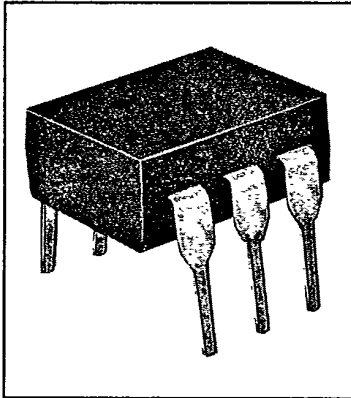


T-4185

## Optically Coupled Isolators Types OPI3151, OPI3251



### Features

- Photodarlington output
- High current transfer ratio
- 2500 or 1500 volt isolation ratings
- UL recognized File No. E58730

### Description

The OPI3151 and OPI3251 are optically coupled isolators each consisting of a gallium arsenide infrared emitting diode and an NPN silicon photodarlington mounted in a standard plastic six pin dual-in-line package. Except for isolation voltage, the OPI3151 and OPI3251 are identical.

### Absolute Maximum Ratings (T<sub>A</sub> = 25°C unless otherwise noted)

Input-to-Output Isolation Voltage — OPI3151	±1500 VDC <sup>(1)</sup>
OPI3251	±2500 VDC <sup>(1)</sup>
Storage Temperature Range	-55°C to +150°C
Operating Temperature Range	-55°C to +100°C
Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 sec. with soldering iron) <sup>(2)</sup>	260°C
<b>Input Diode</b>	
Forward DC Current	.60 mA
Peak Forward Current (1 μs pulse width, 330 pps)	3.0 A
Reverse DC Voltage	3.0 V
Power Dissipation	100 mW <sup>(3)</sup>
<b>Output Transistor</b>	
Collector-Emitter Voltage	30 V
Collector-Base Voltage	30 V
Emitter-Collector Voltage	5.0 V
Power Dissipation	150 mW <sup>(4)</sup>

### Notes:

- (1) Measured with input diode 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 1.33 mW/°C above 25°C.
- (4) Derate linearly 2.0 mW/°C above 25°C.

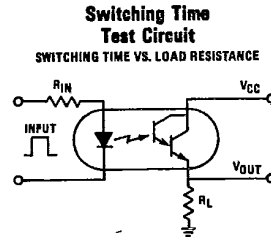
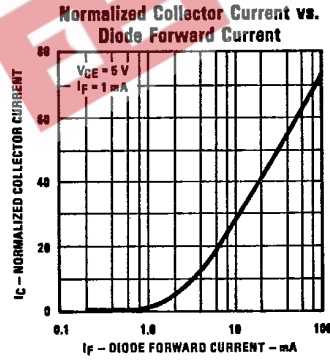
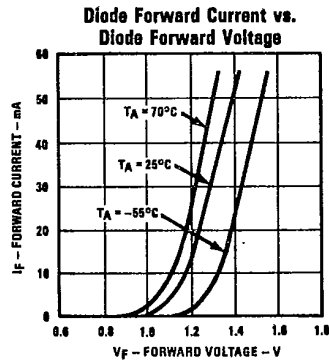
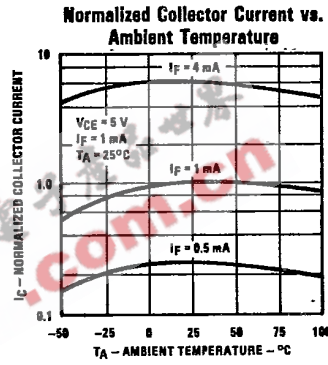
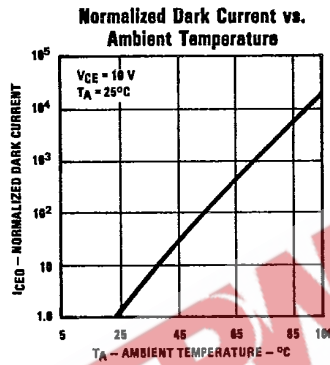
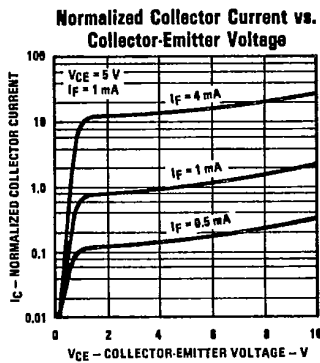
Types OPI3151, OPI3251

T-41-85

Electrical Characteristics (TA = 25°C unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
<b>Input Diode</b>						
V <sub>F</sub>	Forward Voltage			1.50	V	I <sub>F</sub> = 10.0 mA
I <sub>R</sub>	Reverse Current			100	μA	V <sub>R</sub> = 3.0 V
<b>Output Photodarlington</b>						
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	30			V	I <sub>C</sub> = 100 μA
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	30			V	I <sub>C</sub> = 100 μA
V <sub>(BR)ECO</sub>	Emitter-Collector Breakdown Voltage	6.0			V	I <sub>E</sub> = 100 μA
I <sub>CEO</sub>	Collector-Emitter Dark Current			100	nA	V <sub>CE</sub> = 10.0 V
<b>Coupled</b>						
I <sub>C</sub> /I <sub>F</sub>	DC Current Transfer Ratio	300			%	I <sub>F</sub> = 10.0 mA, V <sub>CE</sub> = 1.00 V
V <sub>CE(SAT)</sub>	Collector-Emitter Saturation Voltage			1.20	V	I <sub>F</sub> = 10.0 mA, I <sub>C</sub> = 30 mA, I <sub>B</sub> = 0
t <sub>r</sub>	Output Rise Time		3.0		μs	V <sub>CC</sub> = 10.0 V, I <sub>C</sub> = 10.0 mA, R <sub>L</sub> = 100Ω
t <sub>f</sub>	Output Fall Time		25		μs	See Test Circuit

Typical Performance Curves



**NOTE:** Rise Time (t<sub>r</sub>) is time required for collector current to increase from 10% to 90% of its final value. Fall Time (t<sub>f</sub>) is time required for the collector current to decrease from 90% to 10% of its initial value.