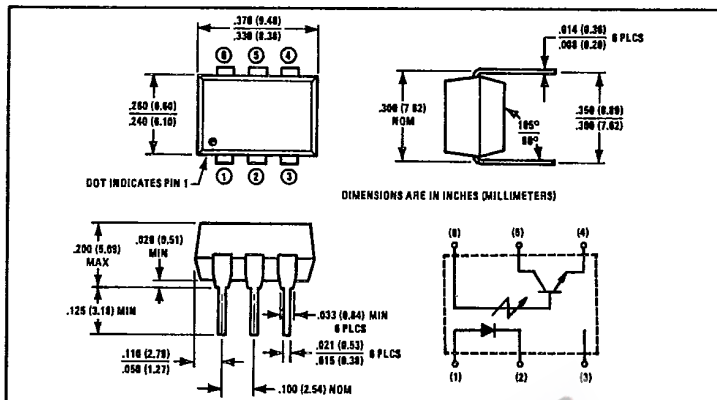
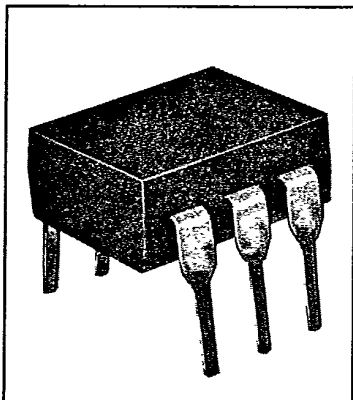


## Optically Coupled Isolators Types OPI2151, OPI2251



### Features

- 1500 or 2500 volt isolation
- High current transfer ratio
- Low cost 6 pin dual-in-line package
- UL recognized File No. E58730

### Description

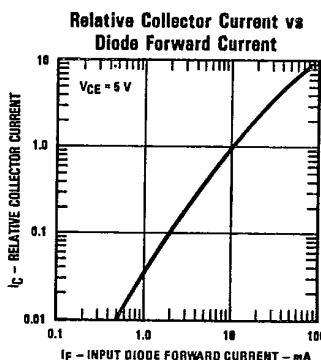
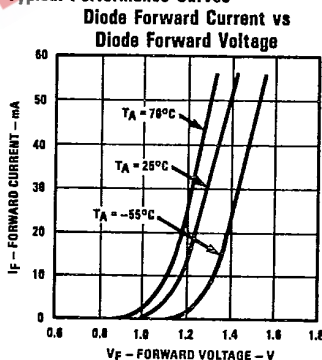
The OPI2151 and OPI2251 each consist of a gallium arsenide infrared light emitting diode coupled to an NPN silicon phototransistor mounted in a six pin dual-in-line package. The OPI2151 and OPI2251 are identical except for input-to-output isolation voltage.

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

Input-to-Output Isolation Voltage OPI2151	± 1500 VDC <sup>(1)</sup>
OPI2251	± 2500 VDC <sup>(1)</sup>
Storage Temperature Range	-55°C to +150°C
Operating Temperature Range	-55°C to +150°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, 300 pps)	3.0 A
Reverse Voltage	3.0 V
Power Dissipation (25°C)	100 mW <sup>(3)</sup>
<b>Output Transistor</b>	
Power Dissipation	150 mW <sup>(4)</sup>
BIBRICEO	30 V
VIBRICEO	30 V
VIBRICEO	30 V
VIBRICEO	5.0 V

Notes: (1) Measured with input diode leads shorted together and output leads shorted together. (2) RMA rosin flux is recommended. Duration can be extended to 10 sec. max. when flow soldering or using a solder pot. (3) Derate linearly 1.33 mW/°C above 25°C. (4) Derate linearly 2.0 mW/°C above 25°C.

### Typical Performance Curves



Types OPI2151, OPI2251

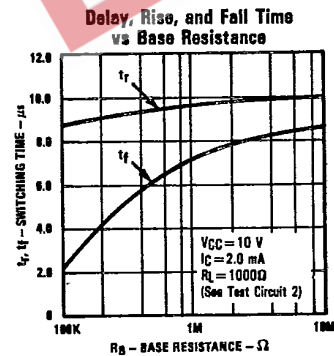
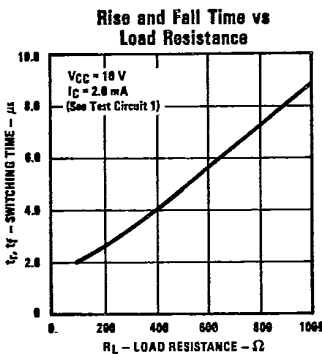
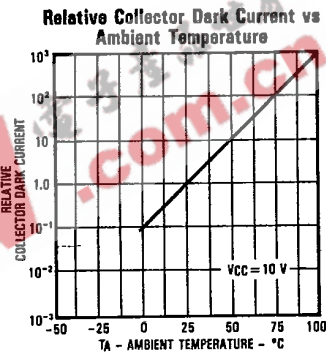
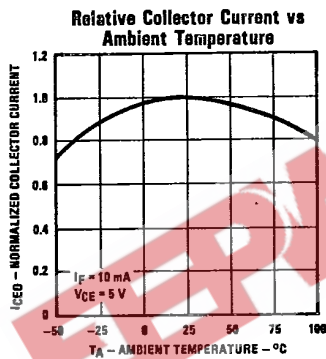
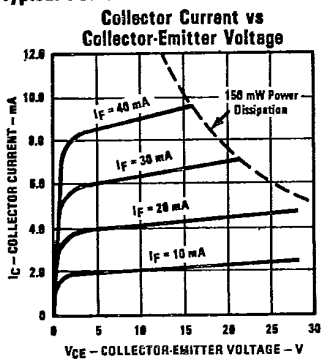
T-41-83

Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

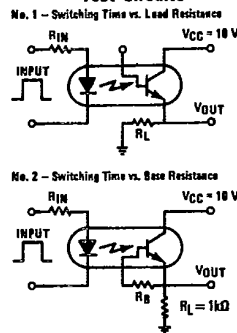
Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
<b>Input Diode</b>						
V <sub>F</sub>	Forward Voltage			1.50	V	I <sub>F</sub> = 10.0 mA
V <sub>BR(R)</sub>	Reverse Breakdown Voltage	3.0 V			V	I <sub>R</sub> = 10.0 μA
I <sub>R</sub>	Reverse Current			10.0	μA	V <sub>R</sub> = 3.0 V
<b>Output Phototransistor</b>						
V <sub>BR(CEO)</sub>	Collector-to-Emitter Breakdown Voltage	30			V	I <sub>C</sub> = 1.0 mA
V <sub>BR(CEO)</sub>	Emitter-to-Collector Breakdown Voltage	5.0			V	I <sub>E</sub> = 100 μA
V <sub>BR(CBO)</sub>	Collector-Base Breakdown Voltage	30			V	I <sub>C</sub> = 100 μA
I <sub>CEO</sub>	Collector-Emitter Dark Current		5.0	100	nA	V <sub>CE</sub> = 10.0 V
I <sub>CBO</sub>	Collector-Base Dark Current			20	nA	V <sub>CB</sub> = 10.0 V
C <sub>CE</sub>	Capacitance Collector-to-Emitter		8.0		pF	V <sub>CE</sub> = 0
h <sub>FE</sub>	DC Current Gain		150			V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 100 μA
<b>Coupled</b>						
I <sub>CAT</sub>	DC Current Transfer Ratio	10.0	20		%	I <sub>F</sub> = 10.0 mA, V <sub>CE</sub> = 5.0 V, I <sub>B</sub> = 0
V <sub>CE(SAT)</sub>	Collector-to-Emitter Saturation Voltage			0.40	V	I <sub>F</sub> = 10.0 mA, I <sub>C</sub> = 250 μA, I <sub>B</sub> = 0
V <sub>ISO</sub>	Isolation Voltage OPI2151 OPI2251	1500 2500			VDC VDC	See Note 1
R <sub>IO</sub>	Input-to-Output Resistance				Ω	V <sub>IO</sub> = 500 V, See Note 1
C <sub>IO</sub>	Input-to-Output Capacitance		2.0		pF	f = 1.00 MHz, See Note 1
t <sub>r</sub>	Output Rise Time		2.0		μs	V <sub>CC</sub> = 10.0 V, I <sub>C</sub> = 2.0 mA
t <sub>f</sub>	Output Fall Time		2.0		μs	R <sub>L</sub> = 100Ω, See Test Circuit



Typical Performance Curves



Switching Time Test Circuits



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