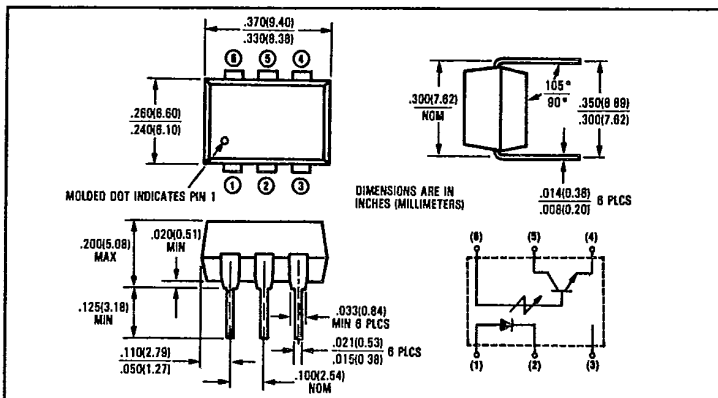
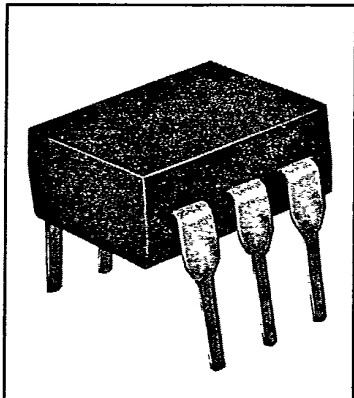


Product Bulletin 5201
January 1985

T-41-83 -

Optically Coupled Isolators

Types OPI2150, OPI2250



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 OPI2150 and OPI2250 each consist of a gallium arsenide infrared emitting diode coupled to an NPN silicon phototransistor mounted in a six pin dual-in-line package. The OPI2150 and OPI2250 are identical except for input-to-output isolation voltage.

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Input-to-Output Isolation Voltage	OPI2150.....	±1500 VDC ⁽¹⁾
	OPI2250.....	±2500 VDC ⁽¹⁾

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) ⁽²⁾	260°C

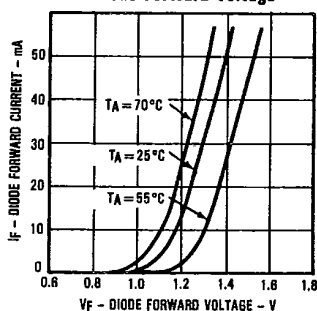
Forward DC Current	60 mA
Peak Forward Current (1 μ s pulse, 300 pps)	3.0 A
Reverse Voltage	3.0 V
Power Dissipation (25°C)	100 mW ⁽³⁾

Output Transistor	
Power Dissipation	150 mW ⁽⁴⁾
$V_{IBRICEO}$	20 V
$V_{ICRICEO}$	30 V
$V_{IERICEO}$	5.0 V

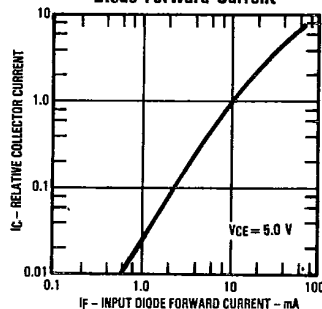
Notes: (1) Measured with input diode leads shorted together and output leads shorted together. (2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. (3) Derate linearly 1.33 mW/°C above 25°C. (4) Derate linearly 2.0 mW/°C above 25°C.

Typical Performance Curves

Diode Forward Current vs Diode Forward Voltage



Relative Collector Current vs Diode Forward Current



Types OPI2150, OPI2250

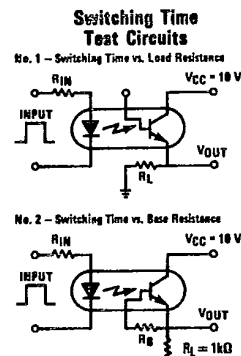
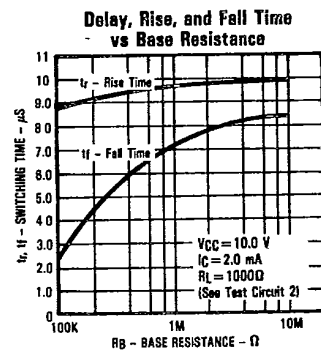
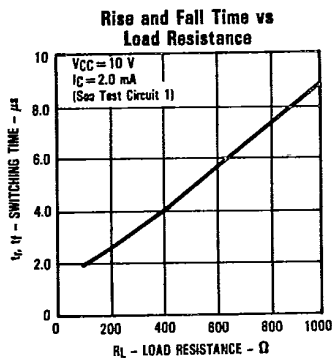
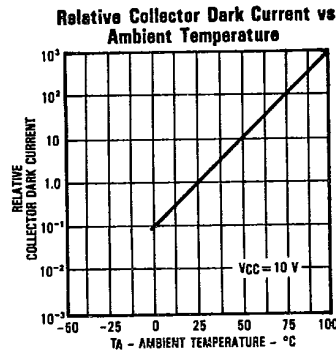
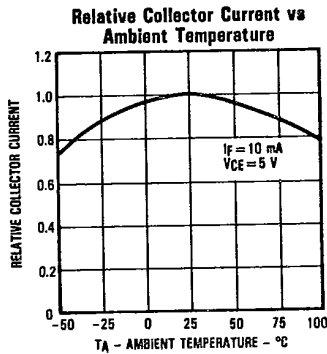
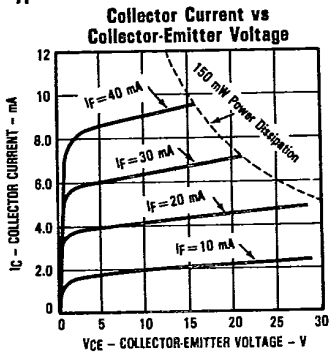
T-41-83

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

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Input Diode						
V _F	Forward Voltage			1.50	V	I _F = 10.0 mA
V _{BR}	Reverse Breakdown Voltage	2.0			V	I _R = 100 μA
I _R	Reverse Current			100	μA	V _R = 2.0 V
Output Phototransistor						
V _{BR} (C-E)	Collector-to-Emitter Breakdown Voltage	20			V	I _C = 1.00 mA
V _{BR} (E-C)	Emitter-to-Collector Breakdown Voltage	5.0			V	I _E = 10.0 μA
V _{BR} (C-B)	Collector-Base Breakdown Voltage	30			V	I _C = 10.0 μA
I _{CE}	Collector-Emitter Dark Current		10.0	100	nA	V _{CE} = 10.0 V
I _{CB}	Collector-Base Dark Current			50	nA	V _{CB} = 10.0 V
C _{CE}	Capacitance Collector-to-Emitter		8.0		pF	V _{CE} = 0
h _{FE}	DC Current Gain		150			V _{CE} = 5.0 V, I _C = 100 μA
Coupled						
I _C /I _F	DC Current Transfer Ratio	2.0	5.0		%	I _F = 10.0 mA, V _{CE} = 5.0 V
V _{CE} (SAT)	Collector-to-Emitter Saturation Voltage			0.40	V	I _F = 50 mA, I _C = 1.00 mA
V _{ISO}	Isolation Voltage OPI2150	1500			VDC	See Note 1
	OPI2250	2500			VDC	
R _{IQ}	Input-to-Output Resistance	10 ¹¹			Ω	V _{IQ} = 500 V, See Note 1
C _{IO}	Input-to-Output Capacitance		2.0		pF	f = 1.00 MHz, See Note 1
t _r	Output Rise Time		2.0		μs	V _{CC} = 10.0 V I _C = 2.0 mA
t _f	Output Fall Time		2.0		μs	R _L = 100Ω, See Test Circuits

E

Typical Performance Curves



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

Optoelectronics Division, TRW Electronic Components Group, 1215 W. Crosby Rd., Carrollton, TX 75006 (214) 323-2200, TLX 6716032 or 215849

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