

Optoelectronics Division
TRW Electronic Components Group

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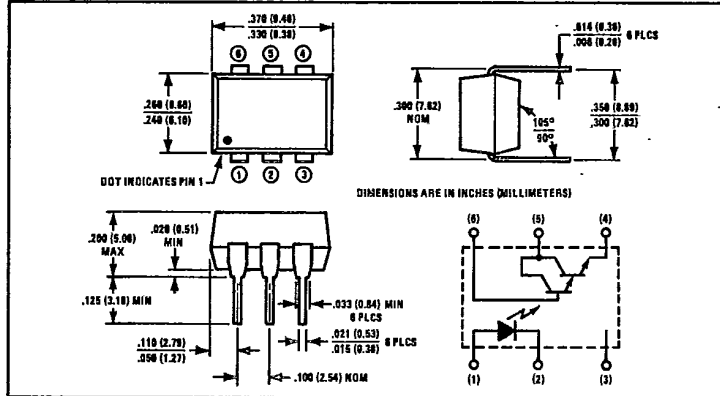
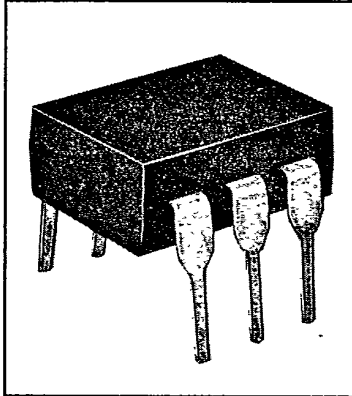


Product Bulletin 5224
January 1985

T-41-85

Optically Coupled Isolators

Types OPI3152, OPI3252



Features

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

Description

The OPI3152 and OPI3252 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 OPI3152 and OPI3252 are identical.

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

Input-to-Output Isolation Voltage — OPI3152 ±1500 VDC⁽¹⁾
OPI3252 ±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

Input Diode

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⁽³⁾

Output Transistor

Collector-Emitter Voltage 55 V
Collector-Base Voltage 55 V
Emitter-Collector Voltage 5.0 V
Power Dissipation 150 mW⁽⁴⁾

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.

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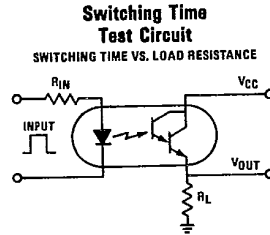
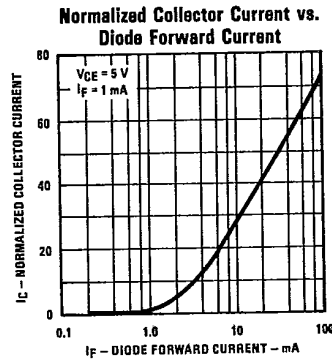
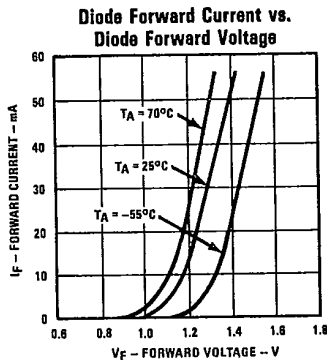
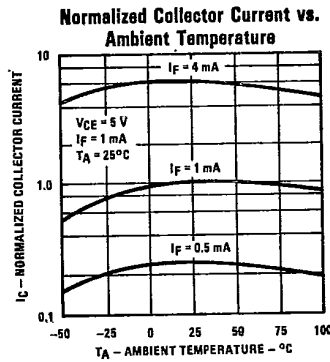
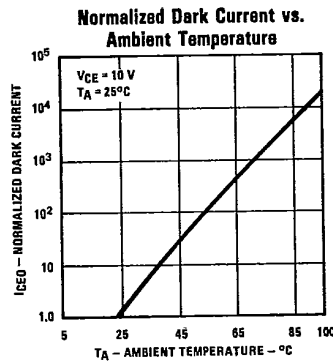
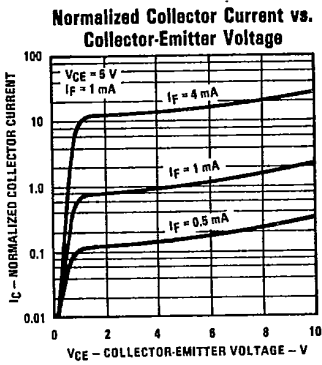
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Electrical Characteristics (TA = 25°C unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Input Diode						
V _F	Forward Voltage			1.50	V	I _F = 10.0 mA
I _R	Reverse Current			100	μA	V _R = 3.0 V
Output Photodarlington						
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	55			V	I _C = 100 μA, I _B = 0
V _{(BR)CBO}	Collector-Base Breakdown Voltage	55			V	I _C = 100 μA, I _E = 0
V _{(BR)ECO}	Emitter-Collector Breakdown Voltage	5.0			V	I _E = 100 μA, I _B = 0
I _{CEO}	Collector-Emitter Dark Current			100	nA	V _{CE} = 10.0 V, I _B = 0
Coupled						
I _C /I _F	DC Current Transfer Ratio	300			%	I _F = 10.0 mA, V _{CE} = 5.0 V
V _{CE(SAT)}	Collector-Emitter Saturation Voltage			1.20	V	I _F = 50 mA, I _C = 50 mA, I _B = 0
t _r	Output Rise Time		3.0		μs	V _{CC} = 10.0 V, I _C = 10.0 mA, R _L = 100Ω
t _f	Output Fall Time		25		μs	See Test Circuit



Typical Performance Curves



NOTE: Rise Time (t_r) is time required for collector current to increase from 10% to 90% of its final value. Fall Time (t_f) is time required for the collector current to decrease from 90% to 10% of its initial value.

TRW reserves the right to make changes at any time in order to improve design and to supply the best product possible. Plastic color may vary.
 Optoelectronics Division, TRW Electronic Components Group, 1215 W. Crosby Rd., Carrollton, TX 75006 (214) 323-2200, TLX 6716032 or 215649
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