

Optoelectronics Division  
TRW Electronic Components Group

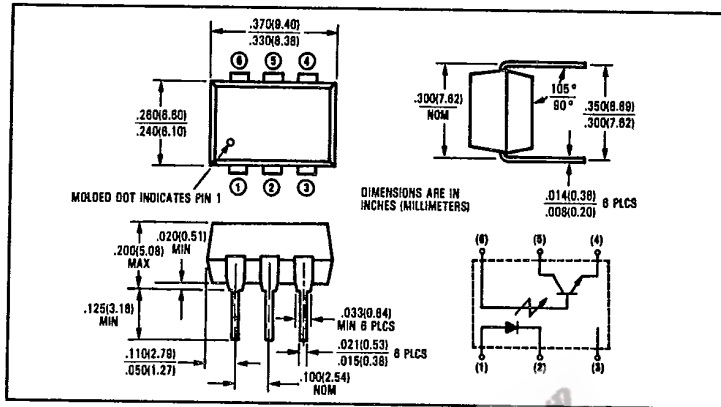
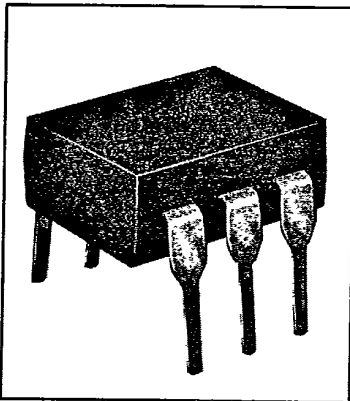
Product Bulletin 5198  
January 1985

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**TRW**

T-41-83

## Optically Coupled Isolators Type OPI2100



### Features

- 4 kV isolation
- High current transfer ratio
- Direct interface with up to 10 TTL loads
- UL recognized File No. E58730

### Description

The OPI2100 consists of a gallium arsenide infrared emitting diode and an NPN silicon phototransistor mounted in a standard plastic six pin dual-in-line package. This device is designed to directly drive from 1 to 10 TTL loads and has very good output sinking characteristics at low sink current.

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

|   |                          |
|---|--------------------------|
| Input-to-Output Isolation Voltage   | ±4000 VDC <sup>(1)</sup> |
| Storage Temperature Range   | -65°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, 300 pps)  | 3.0 A                    |
| Reverse Voltage   | 6.0 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   | 6.0 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.

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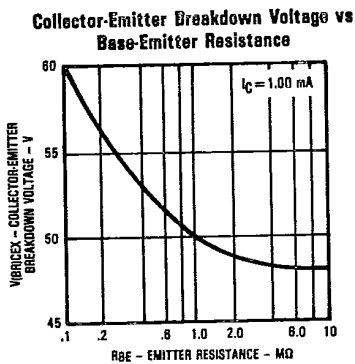
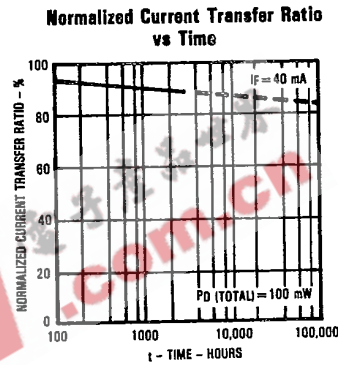
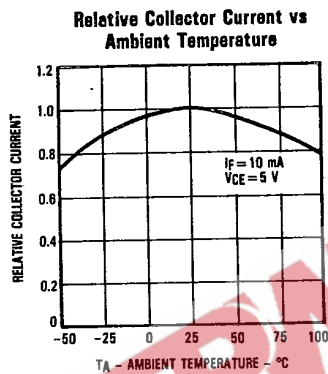
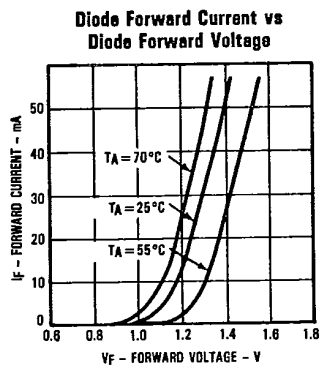
**Type OPI2100**

**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                     |      |      | 1.40 | V     | I <sub>F</sub> = 40 mA                              |
| I <sub>R</sub>                 | Reverse Current                     |      |      | 10.0 | μA    | V <sub>R</sub> = 6.0 V                              |
| <b>Output Phototransistor</b>  |                                     |      |      |      |       |   |
| V <sub>(BR)CEO</sub>           | Collector-Emitter Breakdown Voltage | 30   |      |      | V     | I <sub>C</sub> = 1.00 mA                            |
| V <sub>(BR)ECO</sub>           | Emitter-Collector Breakdown Voltage | 6.0  |      |      | V     | I <sub>C</sub> = 100 μA                             |
| V <sub>(BR)CBO</sub>           | Collector-Base Breakdown Voltage    | 30   |      |      | V     | I <sub>C</sub> = 10.0 μA                            |
| I <sub>CEO</sub>               | Collector-Emitter Dark Current      |      |      | 50   | nA    | V <sub>CE</sub> = 5.0 V                             |
| h <sub>FE</sub>                | DC Current Gain                     |      | 100  |      |       | V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 10.0 mA   |
| <b>Coupled</b>                 |                                     |      |      |      |       |   |
| I <sub>C</sub> /I <sub>F</sub> | DC Current Transfer Ratio           | 150  |      |      | %     | V <sub>CE</sub> = 5.0 V, I <sub>F</sub> = 10.0 mA   |
| I <sub>C</sub> /I <sub>F</sub> | DC Current Transfer Ratio           | 50   |      |      | %     | V <sub>CE</sub> = .60 V, I <sub>F</sub> = 3.2-32 mA |
| V <sub>CE(SAT)</sub>           | Saturation Voltage                  |      |      | 0.60 | V     | I <sub>C</sub> = 16.0 mA, I <sub>F</sub> = 32 mA    |



**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. Plastic color may vary.  
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