Optoelectronics Division
TRW Electronic Components Group

Product Bulletin 5198
January 1985

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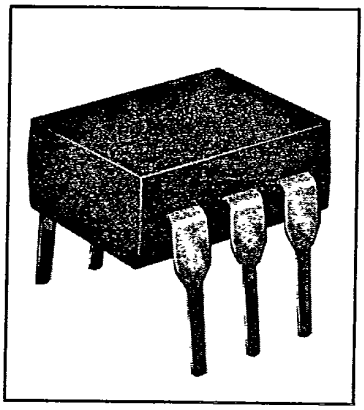
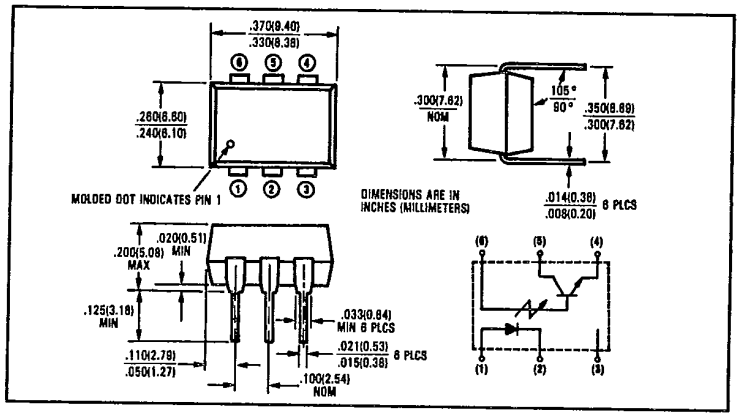
T-41-83

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_A=25°C unless otherwise noted)

Input-to-Output Isolation Voltage	±4000 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, 300 pps)	3.0 A
Reverse Voltage	6.0 V
Power Dissipation	100 mW[3]
Output Transistor	
Collector-Emitter Voltage	30 V
Collector-Base Voltage	30 V
Emitter-Collector Voltage	6.0 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.

Type OPI2100

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

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Input Diode						
V_F	Forward Voltage			1.40	V	I_F = 40 mA
I_R	Reverse Current			10.0	μA	V_R = 6.0 V
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	I_C = 1.00 mA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	6.0			V	I_C = 100 μA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	30			V	I_C = 10.0 μA
I_{CEO}	Collector-Emitter Dark Current			50	nA	V_{CE} = 5.0 V
h_{FE}	DC Current Gain		100			V_{CE} = 5.0 V, I_C = 10.0 mA
Coupled						
IC/IF	DC Current Transfer Ratio	150			%	V_{CE} = 5.0 V, I_F = 10.0 mA
IC/IF	DC Current Transfer Ratio	50			%	V_{CE} = .60 V, I_F = 3.2-32 mA
VCE(SAT)	Saturation Voltage			0.60	V	I_C = 16.0 mA, I_F = 32 mA

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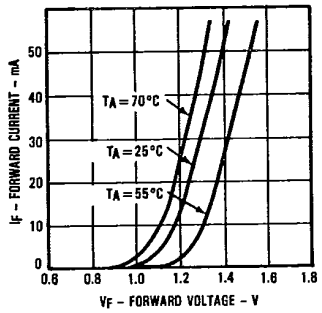
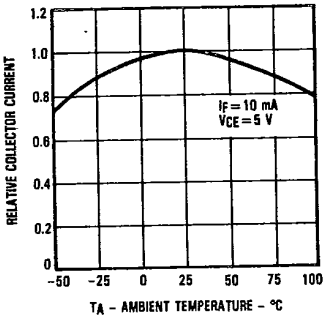
Typical Performance Curves

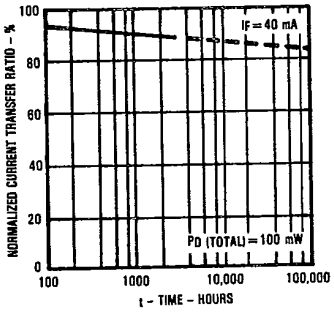
Diode Forward Current vs Diode Forward Voltage



Relative Collector Current vs Ambient Temperature



Normalized Current Transfer Ratio vs Time



Collector-Emitter Breakdown Voltage vs Base-Emitter Resistance