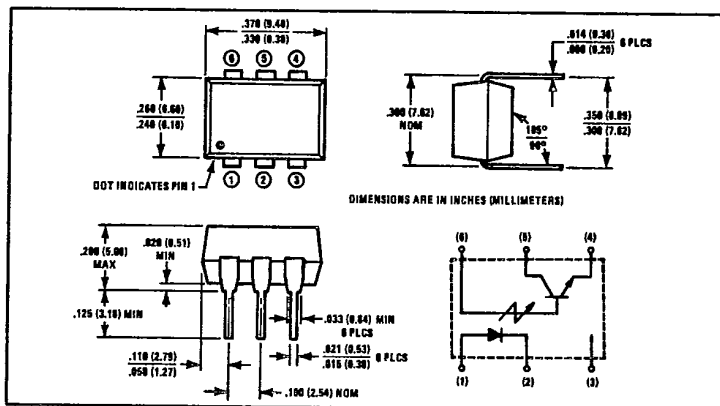
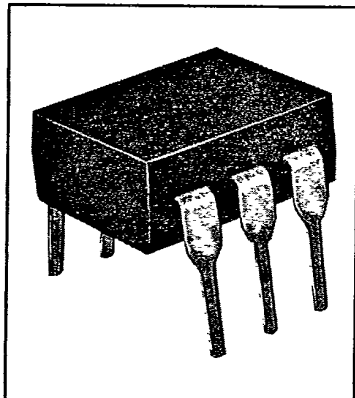


Optically Coupled Isolators, High $V_{(BR)CEO}$ Types OPI6000, OPI6100



Features

- 300 V collector-emitter breakdown voltage
- Low cost 6 pin dual-in-line package
- UL recognized File No. E58730

Description

The OPI6000 and OPI6100 are optically coupled isolators each consisting of a gallium arsenide infrared emitting diode and an NPN silicon phototransistor mounted in a standard plastic six pin dual-in-line package. This series is intended for applications where high collector-emitter breakdown voltages are required.

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Input-to-Output Isolation Voltage	$\pm 1500 \text{ VDC}^{(1)}$
Storage Temperature Range	-55°C to $+150^\circ\text{C}$
Operating Temperature Range	-55°C to $+100^\circ\text{C}$
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, 300 pps)	3.0 A
Reverse Voltage	3.0 V
Power Dissipation	100 mW ⁽³⁾

Output Phototransistor

$B_{(BR)CEO}$	OPI6000	300 V
	OPI6100	200 V
$V_{(BR)CBO}$	OPI6000	300 V
	OPI6100	200 V
$V_{(BR)ECO}$		7.0 V
Power Dissipation		300 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/ $^\circ\text{C}$ above 25°C .
- (4) Derate linearly 4.0 mW/ $^\circ\text{C}$ above 25°C .

Types OPI6000, OPI6100

T-41-83

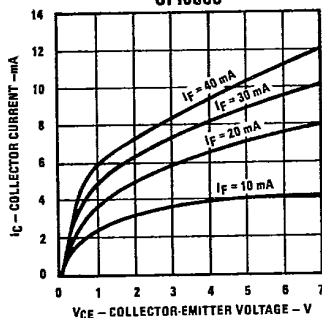
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Input Diode						
V_F	Forward Voltage			1.50	V	$I_F = 10.0\text{ mA}$
I_R	Reverse Current			10.0	μA	$V_R = 3.0\text{ V}$
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (See Note 1)	OPI6000 OPI6100	300 200		V	$I_C = 1.00\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage		7.0		V	$I_E = 100\text{ }\mu\text{A}$
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	OPI6000 OPI6100	300 200		V	$I_C = 100\text{ }\mu\text{A}$, $I_F = 0$
I_{CEO}	Collector Dark Current	OPI6000 OPI6100		100 100	nA	$V_{CE} = 200\text{ V}$, $R_{BE} = 1.00\text{ M}\Omega$ $V_{CE} = 100\text{ V}$, $R_{BE} = 1.00\text{ M}\Omega$
Coupled						
I_C/I_F	DC Current Transfer Ratio	OPI6000 OPI6100	20 10.0		%	$I_F = 10.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$ $I_F = 10.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$
$V_{CE(SAT)}$	Collector-to-Emitter Saturation Voltage			0.40	V	$I_F = 10.0\text{ mA}$, $I_C = 0.50\text{ mA}$
V_{ISO}	Isolation Voltage		1500		VDC	See Note 1
R_{IQ}	Input-to-Output Resistance		10^{11}		Ω	$V_{IQ} = 600\text{ V}$, See Note 1
C_{IO}	Input-to-Output Capacitance		2.0		pF	$f = 1.00\text{ MHz}$, See Note 1
t_{on}	Turn On Time		4.0		μs	$V_{CC} = 10.0\text{ V}$, $R_L = 100\text{ }\Omega$
t_{off}	Turn Off Time		2.5		μs	$I_F = 2.0\text{ mA}$, See Test Circuit

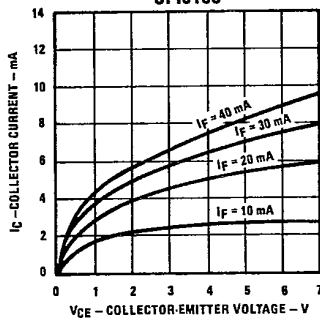
E

Typical Performance Curves

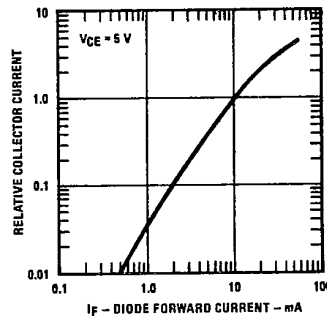
Collector Current vs
Collector-Emitter Voltage
OPI6000



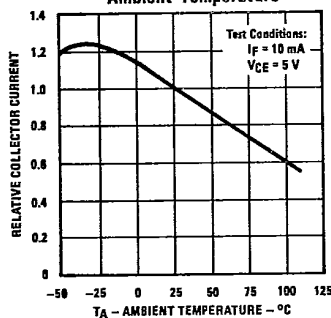
Collector Current vs
Collector-Emitter Voltage
OPI6100



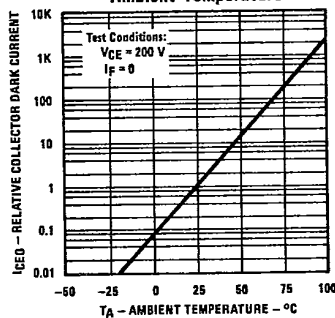
Relative Collector Current vs
Diode Forward Current



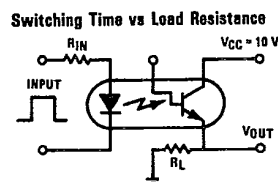
Relative Collector Current vs
Ambient Temperature



Relative Collector Dark Current vs
Ambient Temperature



Switching Time
Test Circuit



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.

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