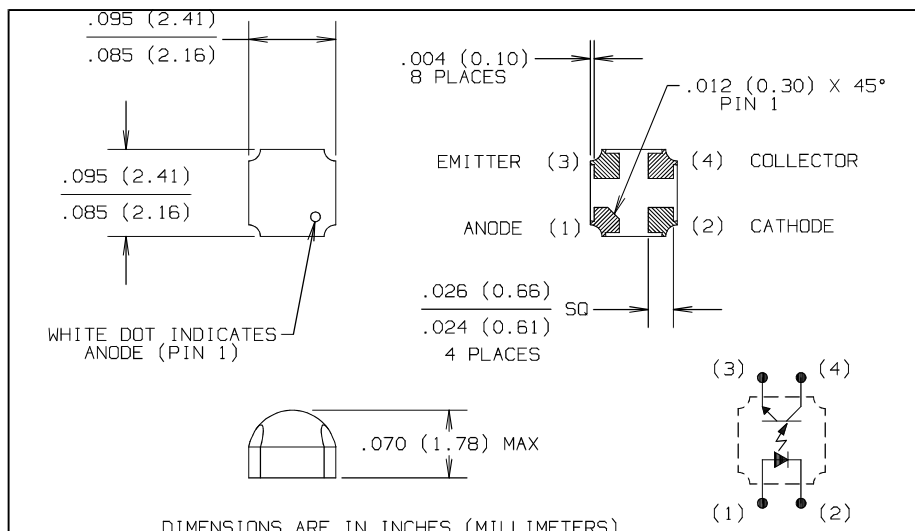


Surface Mount Optically Coupled Isolators

Types OPI210, OPI211



Features

- Micro-miniature package ideal for hybrid applications
- TTL, DTL compatible
- High DC current transfer ratio
- Four bonding pads for attaching to hybrid substrates
- 1kV electrical isolation
- High efficiency gallium aluminum arsenide emitter

Description

The OPI210 and OPI211 are optically coupled isolators each consisting of a gallium aluminum arsenide LED and a silicon phototransistor mounted and coupled on a thick film ceramic substrate. These solid-state optocouplers are ideal for hybrid applications. Four thick film bonding pads make electrical connections easy.

The OPI210 and OPI211 are identical except for the DC current transfer ratio. Both were designed with high reliability in mind and are ideally suited for use in MIL-STD-883 hybrid applications.

Device mounting may be achieved using silver or gold filled epoxies. The OPI210 and OPI211 are sensitive to some hybrid cleaning processes. Consult factory for details.

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

Input-to-Output Isolation Voltage	±1000 VDC ⁽¹⁾
Storage Temperature Range	-65° C to +150° C
Operating Temperature Range	-55° C to +125° C

Input Diode

Continuous Forward DC Current	50 mA
Peak Forward Current (1 μs pulse width, 300 pps)	1.00 A
Reverse Voltage	3.0 V
Power Dissipation	60 mW ⁽²⁾

Output Sensor

Continuous Collector Current	50 mA
Collector-Emitter Voltage	35 V
Emitter-Collector Voltage	7.0 V
Power Dissipation	100 mW ⁽³⁾

Notes:

- (1) Measured with input diode bond pads shorted together and output bond pads shorted together.
- (2) Derate linearly above 65° C free air temperature at the rate of 1.0 mW/° C.
- (3) Derate linearly above 25° C free air temperature at the rate of 1.0 mW/° C.

Types OPI210, OPI211

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		1.15	1.50	V	$I_F = 10.0\text{ mA}$	
I_R	Reverse Current		0.1	100	μA	$V_R = 2.0\text{ V}$	
Output Sensor							
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	35	80		V	$I_C = 100\ \mu\text{A}$, $I_F = 0$	
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	7.0	10.0		V	$I_E = 100\ \mu\text{A}$, $I_F = 0$	
I_{CEO}	Collector-Emitter Dark Current		20	100	nA	$V_{CE} = 20\text{ V}$, $I_F = 0$	
Coupled							
I_C/I_F	DC Current Transfer Ratio	OPI210	50	200		%	$V_{CE} = 5.0\text{ V}$, $I_F = 10.0\text{ mA}$
		OPI211	200	350		%	$V_{CE} = 5.0\text{ V}$, $I_F = 10.0\text{ mA}$
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage		0.2	0.30	V	$I_C = 2.0\text{ mA}$, $I_F = 20\text{ mA}$	
t_r , t_f	Output Rise Time		3.0	10.0	μs	$V_{CC} = 10.0\text{ V}$, $R_L = 100\ \Omega$ Pulse width = 100 ms, duty cycle = 1%	
	Output Fall Time		3.0	10.0	μs		

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

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