



ABORN ELECTRONICS
AN OPTOELECTRONIC COMPANY

ACD 100,200,300,400,

General Description

ACD X00 series of photovoltaic optoisolators consist of gallium arsenide infrared light emitting diode optically coupled to a unique integrated photovoltaic detector. The photovoltaic contains 16 oxide isolated solar cells in series to generate a voltage or a current proportional to the LED input current.

Optical coupling provides a high degree of AC and DC isolation between input and output.

- ACD 100 - Single channel packaged in 6 pin Dual in line package. **A**
- ACD 200 - Dual channel packaged in 8 pin Dual in line package. **B**
- ACD 300 - Single input/dual output for higher V_{oc} applications. Packaged in 8 pin standard DIP. **C**
- ACD 400 - Dual channel - phototransistor in one channel and photovoltaic in the other. **D**

FEATURES

- * COMPLETELY ISOLATED VOLTAGE SOURCE
- * FAST RESPONSE TIME
- * EXCELLENT INPUT/OUTPUT LINEARITY
- * HIGH INPUT/OUTPUT ISOLATION VOLTAGE
- * LOW COUPLING CAPACITANCE

APPLICATIONS

- * AUTOMATIC TEST EQUIPMENT
- * SWITCHING POWER SUPPLIES AND RELAYS
- * GATE DRIVE FOR MOS/SCR
- * INTERFACE BETWEEN LOGIC AND LOAD
- * POWER CONTROL CKTS.

Absolute Maximum Ratings

Total Device Storage temperature	-55° to 150°C
Operating temperature	-40° to 100°C
Lead solder time (at 260° C)	10 sec.
Total power dissipation per channel	150 mW

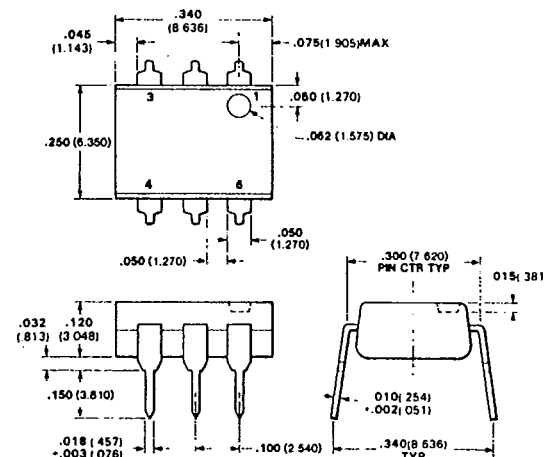
Input Diode

V_R Reverse voltage	5 v
I_F Forward dc voltage	60 mA

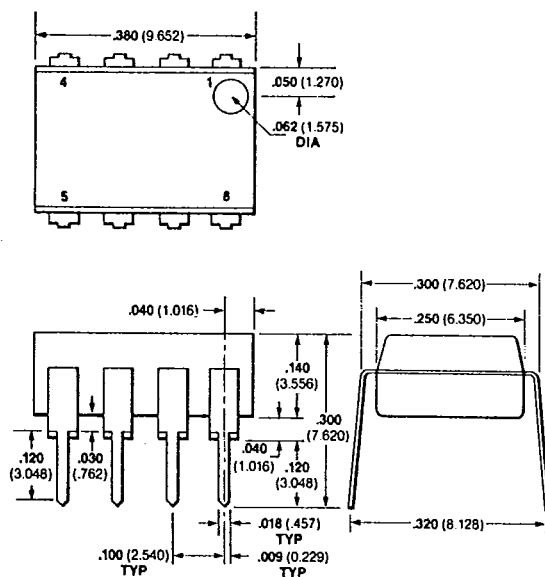
Output Photo Transistor (ACD 400 only)

V_{CE} Collector-to-emitter voltage	30 v
I_C Collector current	20 mA

Package Outline A



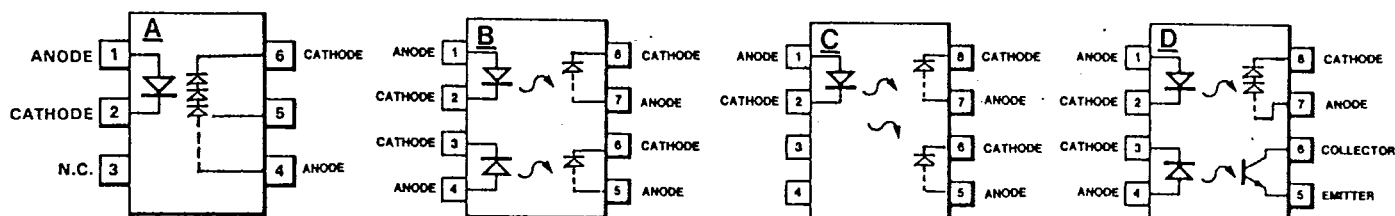
Package Outline B C D



Notes

All dimensions in inches bold and millimeters (parentheses)
Tolerance unless specified = ± 0.015 (± 0.381)
Package weight is 0.4 gram

Connection Diagram DIP (Top View)





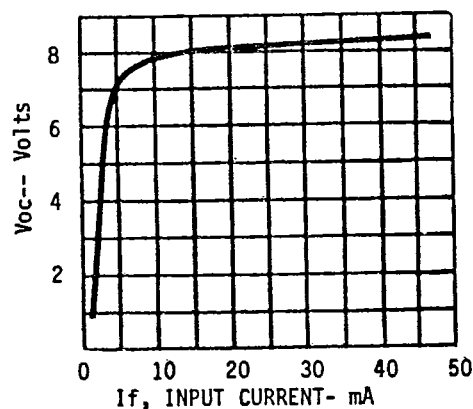
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Electrical Characteristics - Input Diode $T_A = 25^\circ\text{C}$

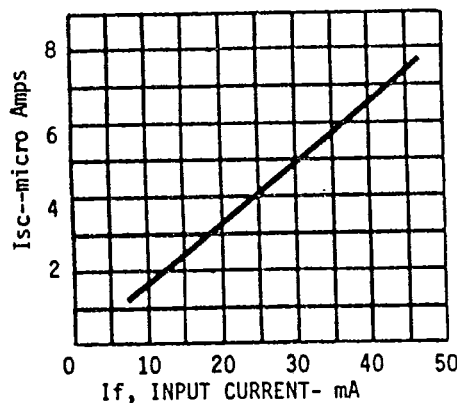
Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
V_F	Forward Voltage		1.45	1.7	V	$I_F = 30 \text{ mA}$
BVR	Reverse Breakdown	3.0	6		V	$I_R = 10 \mu\text{A}$
Photovoltaic Output						
V_F	Forward Voltage per channel			20	V	$I_F = 10 \mu\text{A}$
V_R	Reverse Voltage	20			V	$I_R = 100 \mu\text{A}$
C_J	Capacitance		10		pF	$V_F = 0 \text{ V}$
Transistor Output						
B_{VCEO}	C-E Breakdown Voltage	30	60		V	$I_C = 1.0 \text{ mA}$
I_{CEO}	C-E Leakage Current		10	100	nA	$I_F = 0$

Electrical Characteristics - Coupled Per Channel $T_A = 25^\circ\text{C}$

V_{OC}	Open Circuit Voltage	7.0	9.0		V	$I_F = 30 \text{ mA}$
		5.0	8.0		V	$I_F = 10 \text{ mA}$
I_{SC}	Short Circuit Current	2.0	5.0		μA	$I_F = 30 \text{ mA}$
		1.0	1.5		μA	$I_F = 10 \text{ mA}$
T_{ON}	Turn On Time		10		μS	$I_F = 50 \text{ mA}$
T_{OFF}	Turn Off Time		150		μS	$R_{SHUNT} = 10 \text{ meg}$ $I_F = 50 \text{ mA}$
CTR	Current Transfer Ratio	10	20		%	$R_{SHUNT} = 10 \text{ meg}$ $I_F = 10 \text{ mA}$
	ACD 400, XTR Channel					$V_{CE} = 5 \text{ V}$
V_{I0}	Input/Output Voltage	1500	2500		V	



OPEN CIRCUIT VOLTAGE, V_{OC}
vs INPUT CURRENT, I_F



SHORT CIRCUIT CURRENT, I_{SC}
vs INPUT CURRENT