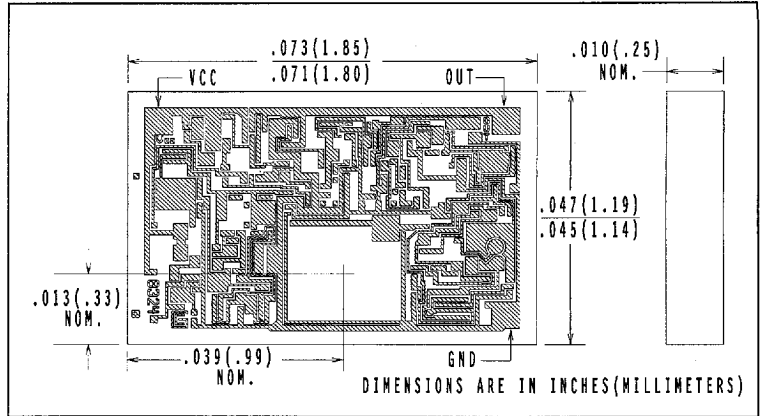
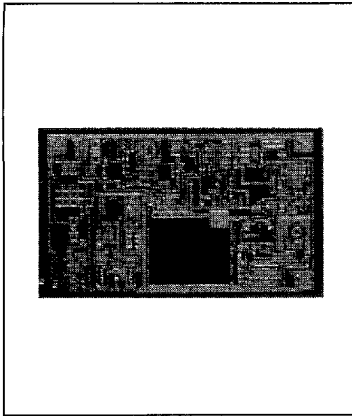


# Photologic® Chips

## Types OPC8324, OPC8325, OPC8326, OPC8327



### Features

- Internal voltage regulator for 4.5V to 18V operation
- Open collector or totem-pole output
- Drive up to 10 TTL loads
- Data rates to 250 kBaud
- High sensitivity

### Description

The OPC8324 family of photologic® chips are bipolar monolithic integrated circuits consisting of a photodiode, a voltage regulator, a linear amplifier, and a Schmitt trigger on a single silicon chip. Four output options are available, buffer-totem pole (OPC8324), buffer-open collector (OPC8325), inverter-open collector (OPC8326), and inverter-totem pole (OPC8327). The OPC8324 family features significantly lower thresholds than the companion OPC8320 family.

Optek chip warranty excludes any damage resulting from improper bonding or alloying techniques.

### Packaging Options for 8324 Series

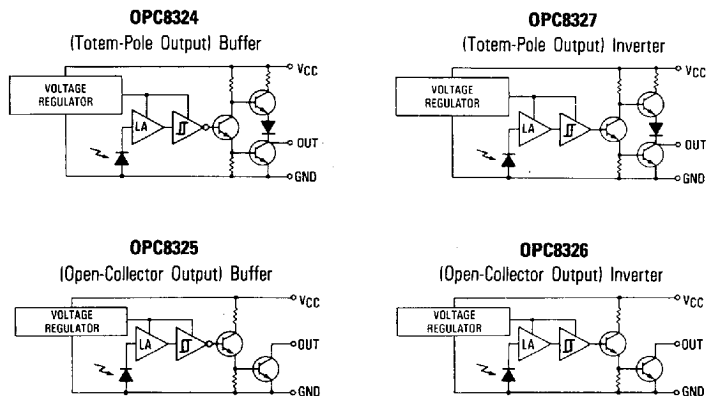
OPC8XXXTP Sawn on Tape  
OPC8XXXWP Waffle Pack  
OPC8XXXSP Unsawn Slice  
Special packaging and testing available upon request. Call Optek for availability of other logic chips.

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

|                          |                                             |
|--------------------------|---------------------------------------------|
| Operating Temperature    | $-40^\circ\text{C}$ to $+85^\circ\text{C}$  |
| Storage Temperature      | $-55^\circ\text{C}$ to $+125^\circ\text{C}$ |
| Supply Voltage, $V_{CC}$ | 18 V                                        |
| Junction Temperature     | $125^\circ\text{C}$                         |

**Notes:** (1) Light level sufficient to cause high level output (see  $\Phi_{T+}$ ). Light source is a GaAs LED,  $\lambda_P = 935\text{ nm}$ . (2) Light level sufficient to cause low level output (see  $\Phi_{T-}$ ). Light source is a GaAs LED,  $\lambda_P = 935\text{ nm}$ , typical.

### Schematics



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# Types OPC8324, OPC8325, OPC8326, OPC8327

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

| SYMBOL                                   | PARAMETER                                       | MIN  | TYP  | MAX | UNITS         | TEST CONDITIONS                                                                    |
|------------------------------------------|-------------------------------------------------|------|------|-----|---------------|------------------------------------------------------------------------------------|
| <b>OPC8324</b> (Buffer Totem-Pole)       |                                                 |      |      |     |               |                                                                                    |
| $I_{CCH}$                                | High Level Supply Current                       |      | 8.0  | 10  | mA            | $V_{CC} = 18\text{ V}$ , $\Phi = 8\text{ }\mu\text{W}$                             |
| $V_{OH}$                                 | High Level Output Voltage                       | 15.5 | 16.5 |     | V             | $V_{CC} = 18\text{ V}$ , $I_{OH} = -1.0\text{ mA}$ , $\Phi = 8\text{ }\mu\text{W}$ |
| $V_{OL}$                                 | Low Level Output Voltage                        |      | 280  | 400 | mV            | $V_{CC} = 4.5\text{ V}$ , $I_{OL} = 16\text{ mA}$ , $\Phi = 0\text{ }\mu\text{W}$  |
| $\Phi_{T+}$                              | Incident Radiant Power Threshold <sup>(1)</sup> | 0.1  | 0.7  | 1.5 | $\mu\text{W}$ | $V_{CC} = 5.0\text{ V}$                                                            |
| $\Phi_{T+}/\Phi_{T-}$                    | Hysteresis                                      | 1.1  | 1.5  | 2   |               | $V_{CC} = 5.0\text{ V}$                                                            |
| <b>OPC8325</b> (Buffer Open-Collector)   |                                                 |      |      |     |               |                                                                                    |
| $I_{CCH}$                                | High Level Supply Current                       |      | 8.0  | 10  | mA            | $V_{CC} = 18\text{ V}$ , $\Phi = 8\text{ }\mu\text{W}$                             |
| $I_{OH}$                                 | High Level Output Current                       |      | <1   | 100 | $\mu\text{A}$ | $V_{CC} = 18\text{ V}$ , $V_{OH} = 32\text{ V}$ , $\Phi = 8\text{ }\mu\text{W}$    |
| $V_{OL}$                                 | Low Level Output Voltage                        |      | 280  | 400 | mV            | $V_{CC} = 4.5\text{ V}$ , $I_{OL} = 16\text{ mA}$ , $\Phi = 0\text{ }\mu\text{W}$  |
| $\Phi_{T+}$                              | Incident Radiant Power Threshold <sup>(1)</sup> | 0.1  | 0.7  | 1.5 | $\mu\text{W}$ | $V_{CC} = 5.0\text{ V}$                                                            |
| $\Phi_{T+}/\Phi_{T-}$                    | Hysteresis                                      | 1.1  | 1.5  | 2   |               | $V_{CC} = 5.0\text{ V}$                                                            |
| <b>OPC8326</b> (Inverter Open-Collector) |                                                 |      |      |     |               |                                                                                    |
| $I_{CCL}$                                | Low Level Supply Current                        |      | 8.0  | 10  | mA            | $V_{CC} = 18\text{ V}$ , $\Phi = 0\text{ }\mu\text{W}$                             |
| $I_{OH}$                                 | High Level Output Current                       |      | <1   | 15  | $\mu\text{A}$ | $V_{CC} = 18\text{ V}$ , $V_{OH} = 32\text{ V}$ , $\Phi = 0\text{ }\mu\text{W}$    |
| $V_{OL}$                                 | Low Level Output Voltage                        |      | 280  | 400 | mV            | $V_{CC} = 4.5\text{ V}$ , $I_{OL} = 16\text{ mA}$ , $\Phi = 8\text{ }\mu\text{W}$  |
| $\Phi_{T-}$                              | Incident Radiant Power Threshold <sup>(2)</sup> | 0.1  | 0.7  | 1.5 | $\mu\text{W}$ | $V_{CC} = 5.0\text{ V}$                                                            |
| $\Phi_{T-}/\Phi_{T+}$                    | Hysteresis                                      | 1.1  | 1.5  | 2   |               | $V_{CC} = 5.0\text{ V}$                                                            |
| <b>OPC8327</b> (Inverter Totem-Pole)     |                                                 |      |      |     |               |                                                                                    |
| $I_{CCH}$                                | High Level Supply Current                       |      | 8.0  | 10  | mA            | $V_{CC} = 18\text{ V}$ , $\Phi = 0\text{ }\mu\text{W}$                             |
| $V_{OH}$                                 | High Level Output Voltage                       | 15.5 | 16.5 |     | V             | $V_{CC} = 18\text{ V}$ , $I_{OH} = -1.0\text{ mA}$ , $\Phi = 0\text{ }\mu\text{W}$ |
| $V_{OL}$                                 | Low Level Output Voltage                        |      | 280  | 400 | mV            | $V_{CC} = 4.5\text{ V}$ , $I_{OH} = 16\text{ mA}$ , $\Phi = 8\text{ }\mu\text{W}$  |
| $\Phi_{T-}$                              | Incident Radiant Power Threshold <sup>(2)</sup> | 0.1  | 0.7  | 1.5 | $\mu\text{W}$ | $V_{CC} = 5.0\text{ V}$                                                            |
| $\Phi_{T-}/\Phi_{T+}$                    | Hysteresis                                      | 1.1  | 1.5  | 2   |               | $V_{CC} = 5.0\text{ V}$                                                            |

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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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