# L I p C H g
# Ga Sp , Da , g
# Op p , s

**S g , C a , : HCPL0700, HCPL0701,**
**D a , C a , : HCPL0731**

# HCPL0700, HCPL0701, HCPL0731

## Description

–

XXX = Specific Device Code
XXX = 700, 701, 731
V = VDE Mark (only appears on parts ordered with VDE option)
X = Year Code
YY = Work Week
S = Assembly Package Code5C
CASE

–

## Features

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## Applications

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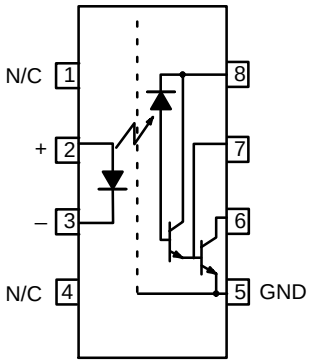
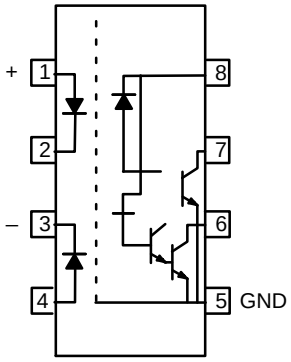
## SCHEMATICS



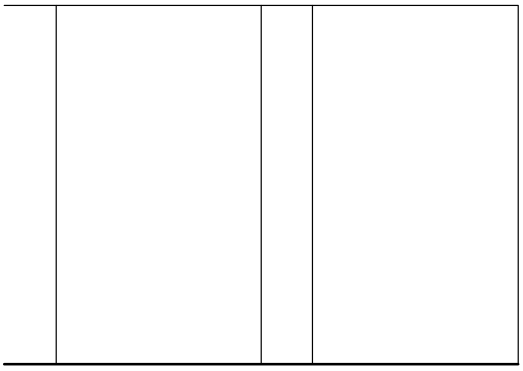
**ELECTRICAL CHARACTERISTICS** ($T_A$ = 0 to 70°C unless otherwise noted)

| Symbol | Parameter | Test Condition | | Device | Min | Typ* | Max | Unit |
|---|---|---|---|---|---|---|---|---|
| **INDIVIDUAL COMPONENT CHARACTERISTICS** | | | | | | | | |
| **EMITTER** | | | | | | | | |
| $V_F$ | Input Forward Voltage | $I_F$ = 1.6 mA | $T_A$ = 25°C | HCPL0700/01 | 1.0 | 1.25 | 1.7 | V |
| | | | | HCPL0731 | | 1.35 | | |
| | | | | All | – | – | 1.75 | |
| $BV_R$ | Input Reverse breakdown Voltage | $T_A$ = 25°C, $I_R$ = 10 μA | | All | 5.0 | – | – | V |
| **DETECTOR** | | | | | | | | |
| $I_{OH}$ | Logic High Output Current | $I_F$ = 0 mA, $V_O$ = $V_{CC}$ = 18 V | | HCPL0701/31 | – | 0.01 | 100 | μA |
| | | $I_F$ = 0 mA, $V_O$ = $V_{CC}$ = 7 V | | HCPL0700 | – | 0.01 | 250 | |
| $I_{CCL}$ | Logic Low Supply Current | $I_F$ = 1.6 mA, $V_O$ = Open, $V_{CC}$ = 18 V | | HCPL0700/01 | – | 0.4 | 1.5 | mA |
| | | $V_{O1}$ = $V_{O2}$ = Open, $V_{CC}$ = 18 V | | HCPL0731 | – | 1 | – | |
| $I_{CCH}$ | Logic High Supply Current | $I_F$ = 0 mA, $V_O$ = Open, $V_{CC}$ = 18 V | | HCPL0700/01 | – | – | 10 | μA |
| | | $V_{O1}$ = $V_{O2}$ = Open, $V_{CC}$ = 18 V | | HCPL0731 | – | 0.01 | – | |
| **TRANSFER CHARACTERISTICS** | | | | | | | | |
| CTR | COUPLED | $I_F$ = 0.5 mA, $V_O$ = 0.4 V, $V_{CC}$ = 4.5 V | | HCPL0700/31 | 400 | – | 5000 | % |
| | Current Transfer Ratio (Notes 1, 2) | $I_F$ = 1.6 mA, $V_O$ = 0.4 V, $V_{CC}$ = 4.5 V | | HCPL0700 | 300 | – | 2600 | |
| | | | | HCPL0701 | 500 | – | 2600 | |
| | | | | HCPL0731 | 500 | – | 5000 | |
| $V_{OL}$ | Logic Low Output Voltage | $I_F$ = 0.5 mA, $I_O$ = 2 mA, $V_{CC}$ = 4.5 V | | HCPL0701 HCPL0731 | – | – | 0.4 | V |
| | | $I_F$ = 1.6 mA, $I_O$ = 8 mA, $V_{CC}$ = 4.5 V | | | – | – | 0.4 | |
| | | $I_F$ = 5 mA, $I_O$ = 15 mA, $V_{CC}$ = 4.5 V | | | – | – | 0.4 | |
| | | $I_F$ = 12 mA, $I_O$ = 24 mA, $V_{CC}$ = 4.5 V | | | – | – | 0.4 | |
| | | $I_F$ = 1.6 mA, $I_O$ = 4.8 mA, $V_{CC}$ = 4.5 V | | HCPL0700 | – | – | 0.4 | |
| **ISOLATION CHARACTERISTICS** | | | | | | | | |
| $I_{I-O}$ | Input−Output Insulation Leakage Current | Relative humidity = 45%, $T_A$ = 25°C, t = 5 s, $V_{I-O}$ = 3000 VDC (Note 4) | | | – | – | 1.0 | μA |
| $V_{ISO}$ | Withstand Insulation Test Voltage | $R_H \le 50\%$, $T_A$ = 25°C, $I_{I-O} \le 2$ μA, t = 1 min. (Notes 4, 5) | | | 2500 | – | – | $V_{RMS}$ |
| $R_{I-O}$ | Resistance (Input to Output) | $V_{I-O}$ = 500 VDC (Note 4) | | | – | $10^{12}$ | – | Ω |

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 0 to 70°C unless otherwise noted) (continued)

| Symbol | Min | Typ* | Max | Unit |
|---|---|---|---|---|

**TYPICAL PERFORMANCE CURVES** (continued)



## TEST CIRCUIT

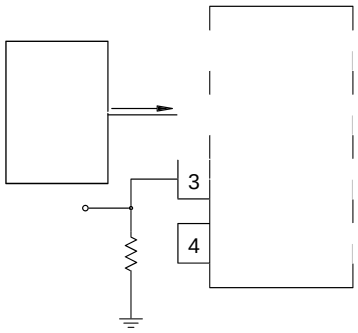



**Figure 14. Switching Time Test Circuit**