

HCPL-2730/0730/2731/0731

Dual-Channel Low Input Current, High-Gain Optocouplers

Overview

These dual-channel optocouplers contain a separated pair of GaAsP light-emitting diodes optically coupled to a pair of integrated high-gain photodetectors. They provide extremely high current transfer ratio and excellent input-output common mode transient immunity. A separate pin for the photodiodes and first gain stages (V_{CC}) permits lower output saturation voltage and higher speed operation than possible with conventional photo-darlington type optocouplers. In addition, V_{CC} may be as low as 1.6V without adversely affecting the parametric performance.

These dual-channel optocouplers are available in an 8-pin DIP and in an industry standard SO-8 package. The following is a cross reference table listing the 8-pin DIP part number and the electrically equivalent SOIC-8 part number.

| 8-Pin DIP | SO-8 |
|-----------|-----------|
| HCPL-2730 | HCPL-0730 |
| HCPL-2731 | HCPL-0731 |

The SO-8 does not require “through holes” in a PCB. This package occupies approximately one-third the footprint area of the standard dual-inline package. The lead profile is designed to be compatible with standard surface mount processes.

CAUTION! Take normal static precautions in handling and assembly of this component to prevent damage, degradation, or both that may be induced by ESD. The components featured in this data sheet are not to be used in military or aerospace applications or environments.

Features

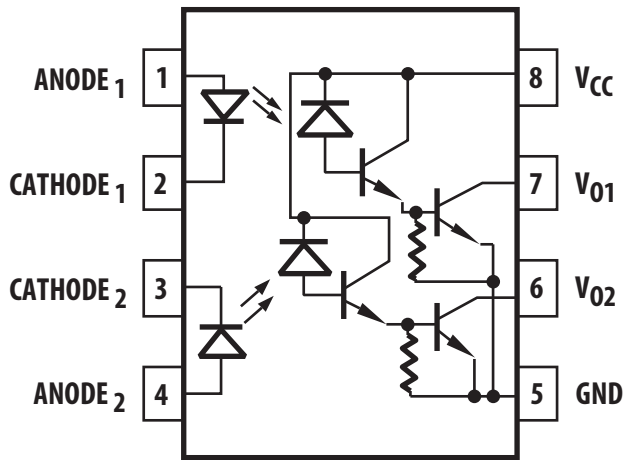
- High current transfer ratio – 1800% typical
- Low input current requirements – 0.5 mA
- Low output saturation voltage – 0.1V
- High density packaging
- Performance guaranteed over temperature 0°C to 70°C
- LSTTL compatible
- High output current – 60 mA
- Safety approval:
 - UL recognized – 3750 V rms for 1 minute and 5000 Vrms (see Note) for 1 minute
 - CSA approved
- Available in 8-pin DIP and SO-8 footprint
- MIL-PRF-38534 hermetic version available (HCPL-5730/5731)
- Surface mount gull wing option available for 8-pin DIP (Option 300)

NOTE: 5000 V rms/1 minute withstand voltage rating is for Option 020 (HCPL-2730, HCPL-2731) products only.

Applications

- Digital logic ground isolation
- Telephone ring detector
- Level shifting
- EIA RS-232C line receiver
- Polarity sensing
- Low input current line receiver – long line or party line
- Microprocessor bus isolation
- Current loop receiver
- Line voltage status indicator – low input power dissipation

Functional Diagram



TRUTH TABLE

| LED | V_O |
|-----|-------|
| ON | LOW |
| OFF | HIGH |

NOTE: A 0.1- μ F bypass capacitor connected between pins 5 and 8 is recommended.

Guaranteed operation at low input currents and the high current transfer ratio (CTR) reduce the magnitude and effects of CTR degradation.

The outstanding high temperature performance of this split Darlington-type output amplifier results from the inclusion of an integrated emitter-base bypass resistor that shunts photodiode and first stage leakage currents to ground.

The HCPL-2731/0731 have a 400% minimum CTR at an input current of only 0.5 mA making it ideal for use in low input current application, such as MOS, CMOS, and low-power logic interfacing or RS232C data transmission systems. In addition, the high CTR and high output current capability make this device extremely useful in applications where a high fanout is required. Compatibility with high-voltage CMOS logic systems is guaranteed by the 18V V_{CC} and V_O specifications and by testing output high leakage (I_{OH}) at 18V.

The HCPL-2730/0730 are specified at an input current of 1.6 mA and have a 7V V_{CC} and V_O rating. The 300% minimum CTR allows TTL to TTL interfacing at this input current.

Important specifications, such as CTR, leakage current, and output saturation voltage, are guaranteed over the 0°C to 70°C temperature range to allow trouble-free system operation. Selection for lower input currents down to 250 μ A is available upon request.

Selection Guide

| 8-Pin DIP (300 Mil) | | Small Outline SO-8 | | Wide Body Package (400 mil) | Minimum Input ON Current (I_F) | Minimum CTR | Absolute Maximum V_{CC} | Hermetic |
|------------------------|----------------------------|------------------------------|----------------------------|-----------------------------|------------------------------------|-------------|---------------------------|-----------------------------------------|
| Single Channel Package | Dual-Channel Package HCPL- | Single Channel Package HCPL- | Dual-Channel Package HCPL- | Single Channel Package | | | | Single- and Dual-Channel Packages HCPL- |
| 6N139 ^a | 2731 | 0701[1] | 0731 | HCNW139 ^a | 0.5 mA | 400% | 18V | |
| 6N138 ^a | 2730 | 0700[1] | 0730 | HCNW138 ^a | 1.6 mA | 300% | 7V | |
| HCPL-4701 ^a | 4731 ^a | 070A[1] | 073A ^a | | 40 μ A | 800% | 18V | |
| | | | | | 0.5 mA | 300% | 20V | 5701 ^a |
| | | | | | | | | 5700 ^a |
| | | | | | | | | 5731 ^a |
| | | | | | | | | 5730 ^a |

a. Technical data are in separate Broadcom publications.

Ordering Information

HCPL-2730, HCPL-2731, HCPL-0730 and HCPL-0731 are UL Recognized with 3750 Vrms for 1 minute per UL1577 and are approved under CSA Component Acceptance Notice #5, File CA 88324.

| Part Number | Option | | Package | Surface Mount | Gull Wing | Tape and Reel | UL 5000 Vrms/ 1 Minute Rating | IEC/EN/DIN EN 60747-5-5 | Quantity |
|-------------|----------------|--------------------|--------------|---------------|-----------|---------------|-------------------------------|-------------------------|---------------|
| | RoHS Compliant | Non-RoHS Compliant | | | | | | | |
| HCPL-2730 | -000E | No option | 300mil DIP-8 | | | | | | 50 per tube |
| HCPL-2731 | -300E | #300 | | X | X | | | | 50 per tube |
| | -500E | #500 | | X | X | X | | | 1000 per reel |
| | -020E | #020 | | | | | X | | 50 per tube |
| | -320E | #320 | | X | X | | X | | 50 per tube |
| | -520E | #520 | | X | X | X | X | | 1000 per reel |
| | -060E | #060 | | | | | | X | 50 per tube |
| | -360E | #360 | | X | X | | | X | 50 per tube |
| | -560E | #560 | | X | X | X | | X | 1000 per reel |
| HCPL-0730 | -000E | No option | SO-8 | | | | | | 100 per tube |
| HCPL-0731 | -500E | #500 | | X | X | X | | | 1500 per reel |
| | -060E | #060 | | | | | | X | 100 per tube |
| | -560E | #560 | | X | X | X | | X | 1500 per reel |

To order, choose a part number from the part number column and combine with the desired option from the option column to form an order entry.

Example 1:

HCPL-2730-520E to order product of 300-mil DIP Gull Wing Surface Mount package in Tape and Reel packaging with UL 5kVrms 1-minute rating in RoHS compliant.

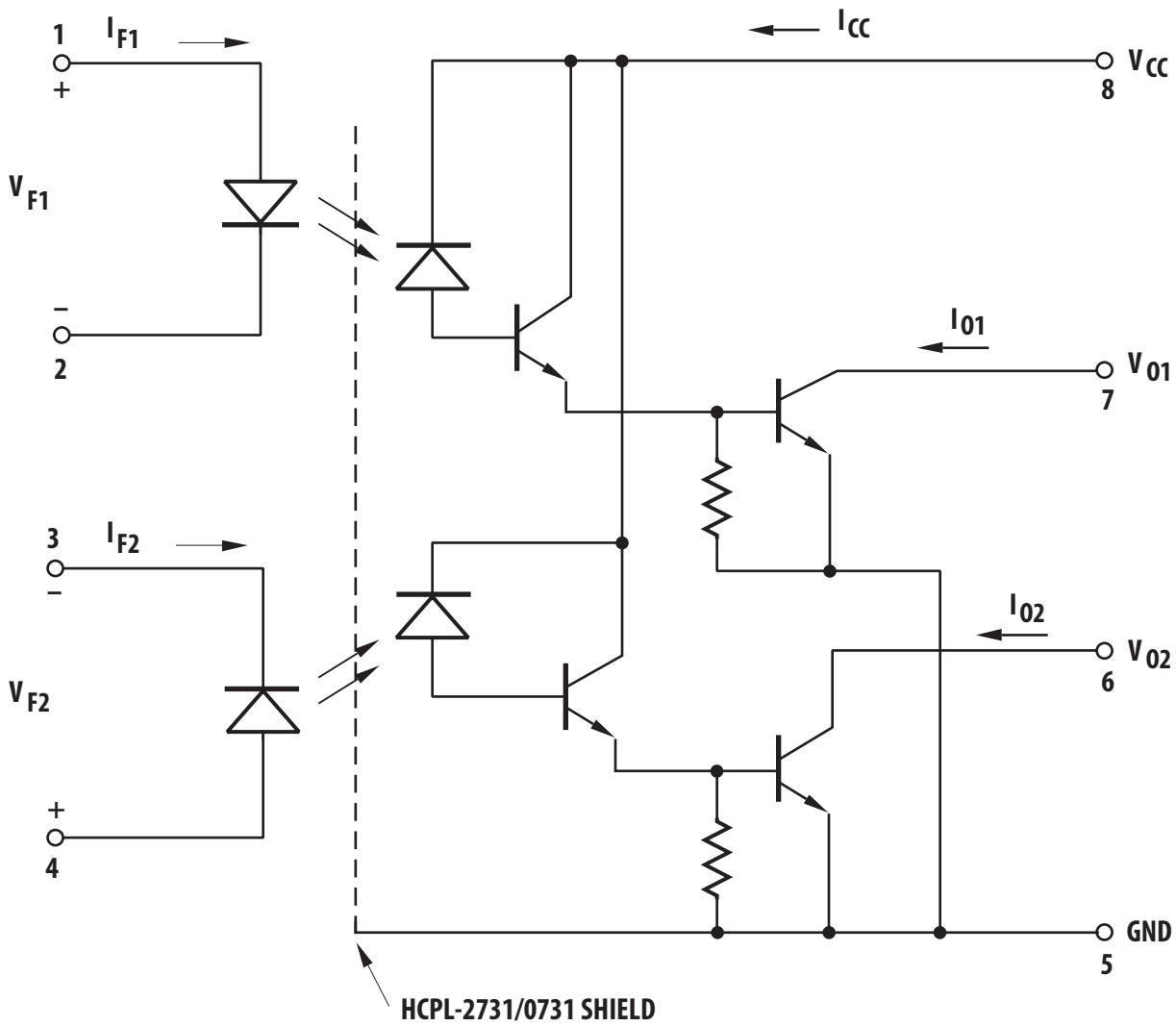
Example 2:

HCPL-2730 to order product of 300-mil DIP package in tube packaging and non-RoHS compliant.

Option data sheets are available. Contact your Broadcom sales representative or authorized distributor for information.

NOTE: The notation “#XXX” is used for existing products, while (new) products launched since July 15, 2001 and RoHS compliant option use “-XXXE”.

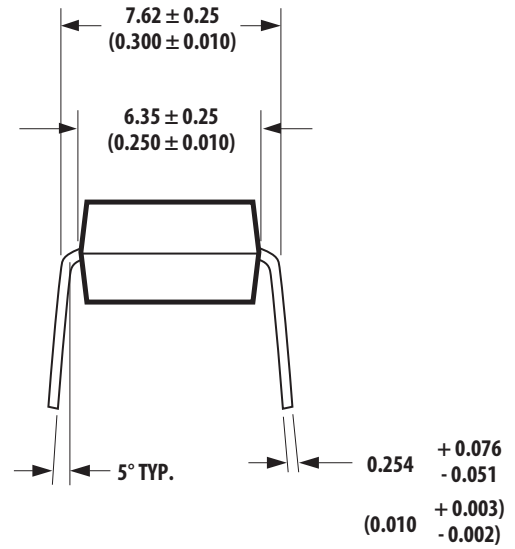
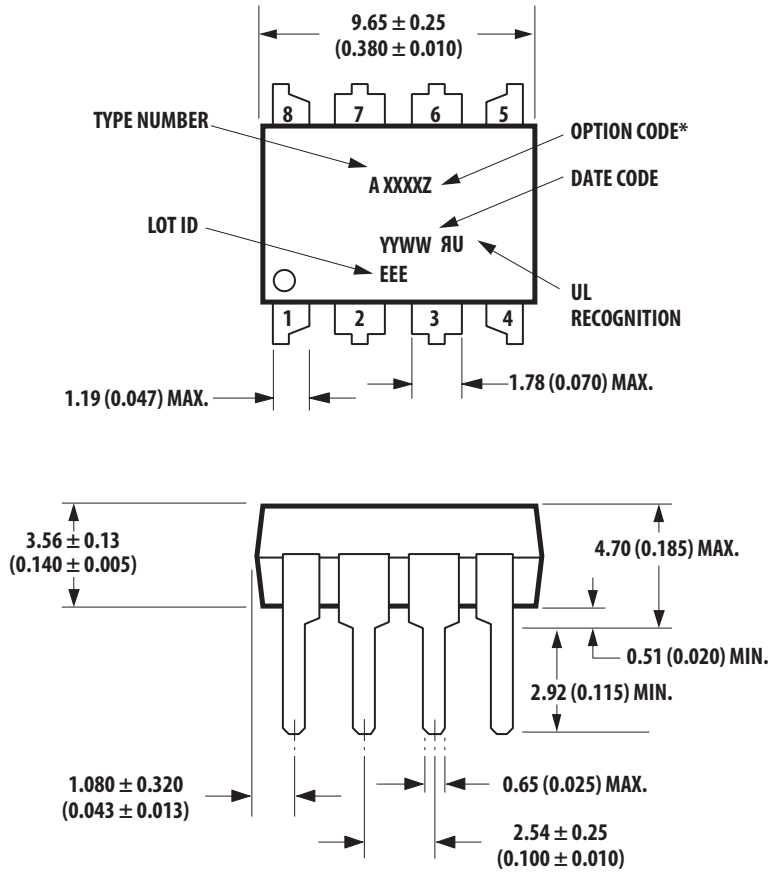
Schematic



USE OF A 0.1 μ F BYPASS CAPACITOR CONNECTED BETWEEN PINS 5 AND 8 IS RECOMMENDED (SEE NOTE 8)

Package Outline Drawings

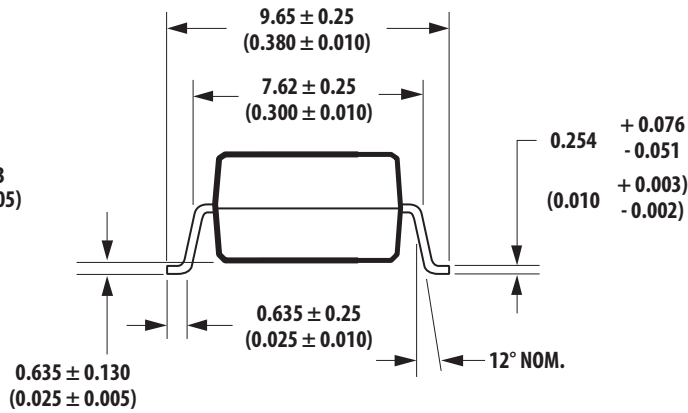
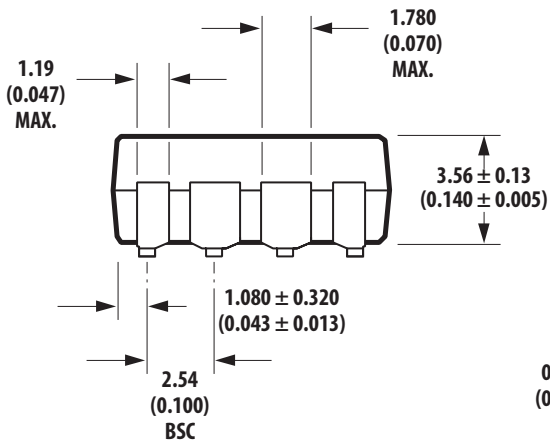
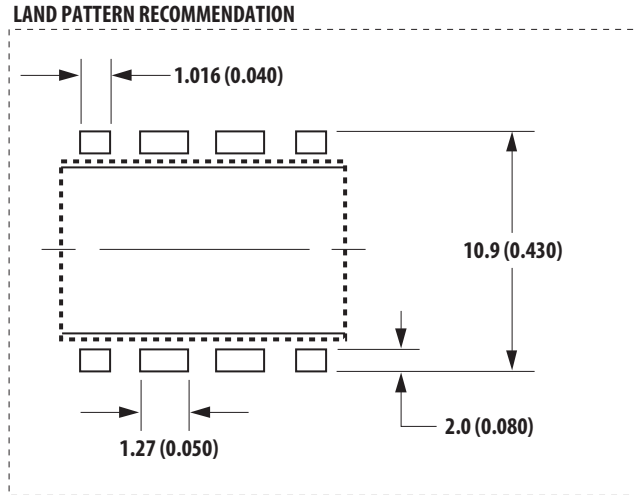
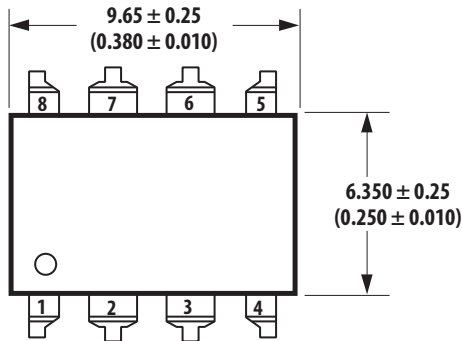
8-Pin DIP Package (HCPL-2731/HCPL-2730)



DIMENSIONS IN MILLIMETERS AND (INCHES).
 *MARKING CODE LETTER FOR OPTION NUMBERS
 "L" = OPTION 020
 OPTION NUMBERS 300 AND 500 NOT MARKED.

NOTE: FLOATING LEAD PROTRUSION IS 0.25 mm (10 mils) MAX.

8-Pin DIP Package with Gull Wing Surface Mount Option 300 (HCPL-2731/HCPL-2730)

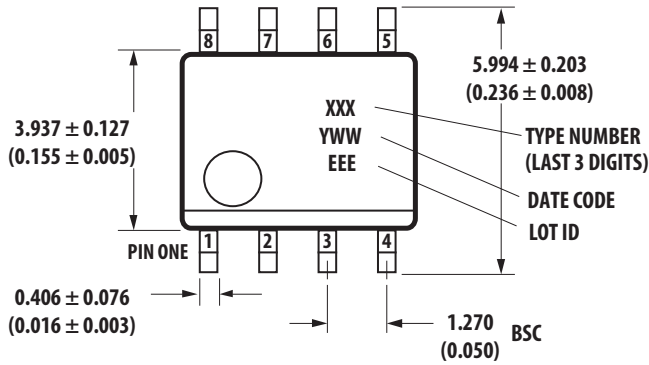


DIMENSIONS IN MILLIMETERS (INCHES).

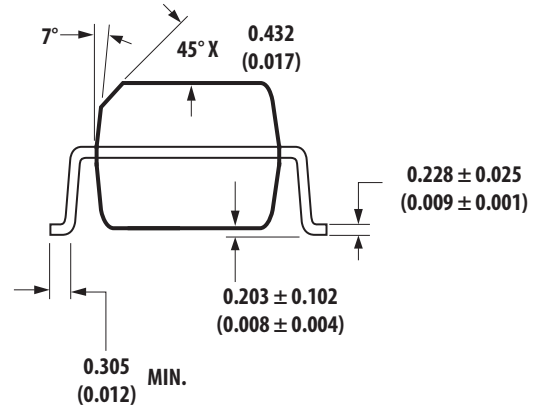
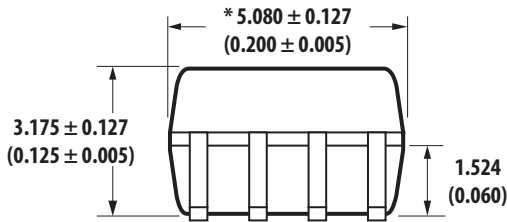
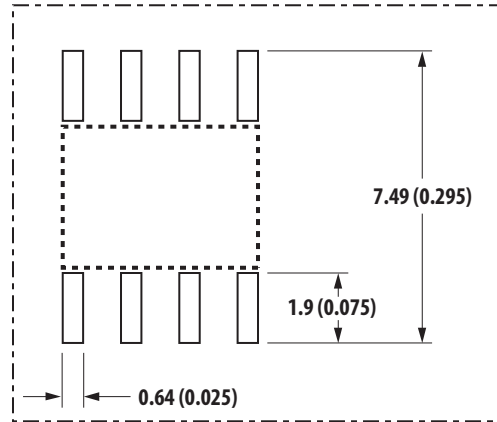
LEAD COPLANARITY = 0.10 mm (0.004 INCHES).

NOTE: FLOATING LEAD PROTRUSION IS 0.25 mm (10 mils) MAX.

Small Outline SO-8 Package (HCPL-0731/HCPL-0730)



LAND PATTERN RECOMMENDATION



* TOTAL PACKAGE LENGTH (INCLUSIVE OF MOLD FLASH)
 5.207 ± 0.254 (0.205 ± 0.010)

DIMENSIONS IN MILLIMETERS (INCHES).
 LEAD COPLANARITY = 0.10 mm (0.004 INCHES) MAX.

NOTE: FLOATING LEAD PROTRUSION IS 0.15 mm (6 mils) MAX.

Solder Reflow Thermal Profile

Solder Reflow Profile

Recommended reflow condition as per JEDEC Standard, J-STD-020 (latest revision). Non-halide flux should be used.

Regulatory Information

The HCPL-2731/2730 have been approved by the following organizations.

| | |
|-------------------------|-----------------------------------------------------------------------|
| UL | Recognized under UL 1577, Component Recognition Program, File E55361. |
| CSA | Approved under CSA Component Acceptance Notice #5, File CA 88324. |
| IEC/EN/DIN EN 60747-5-5 | Option 060 only |

Insulation-Related Specifications (HCPL-2731/2730/0731/0730)

| Parameter | Symbol | 8-Pin DIP (300 Mil) Value | SO-8 Value | Units | Conditions |
|------------------------------------------------------|--------|------------------------------|------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum External Air Gap (External Clearance) | L(101) | 7.1 | 4.9 | mm | Measured from input terminals to output terminals, shortest distance through air. |
| Minimum External Tracking (External Creepage) | L(102) | 7.4 | 4.8 | mm | Measured from input terminals to output terminals, shortest distance path along body. |
| Minimum Internal Plastic Gap (Internal Clearance) | | 0.08 | 0.08 | mm | Through insulation distance, conductor to conductor, usually the direct distance between the photoemitter and photodetector inside the optocoupler cavity. |
| Tracking Resistance (Comparative Tracking Index) | CTI | 200 | 200 | Volts | DIN IEC 112/ VDE 0303 Part 1 |
| Isolation Group | | IIIa | IIIa | | Material Group DIN VDE 0110 |

Option 300 – Surface mount classification is Class A in accordance with CECC 00802.

IEC/EN/DIN EN 60747-5-5 Insulation-Related Characteristics

| Description | Symbol | Characteristic | | Units |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------|-----------------------|-------------|
| | | 8-Pin DIP | SO-8 | |
| Installation Classification per DIN VDE 0110/1.89, Table 1 for rated mains voltage $\leq 150 V_{rms}$ for rated mains voltage $\leq 300 V_{rms}$ for rated mains voltage $\leq 600 V_{rms}$ | | I-IV I-IV 1-IV | I-IV I-IV I-III | |
| Climatic Classification | | 0/70/21 | 0/70/21 | |
| Pollution Degree (DIN VDE 0110/39) | | 2 | 2 | |
| Maximum Working Insulation Voltage | V_{IORM} | 630 | 567 | V_{peak} |
| Input to Output Test Voltage, Method b ^a $V_{IORM} = 1.875 \times V_{PR}$, 100% Production Test with $t_m = 1s$, Partial Discharge $< 5 pC$ | V_{PR} | 1181 | 1063 | V_{peak} |
| Input to Output Test Voltage, Method a ^a $V_{IORM} = 1.5 \times V_{PR}$, Type and Sample Test, $t_m = 10s$, Partial Discharge $< 5 pC$ | V_{PR} | 1008 | 907 | V_{peak} |
| Highest Allowable Overvoltage ^a (Transient Overvoltage, $t_{ini} = 60s$) | V_{IOTM} | 8000 | 6000 | V_{peak} |
| Safety-Limiting Values – Maximum values allowed in the event of a failure | | | | |
| Case Temperature | T_S | 175 | 175 | $^{\circ}C$ |
| Input Current | $I_{S,INPUT}$ | 230 | 230 | mA |
| Output Power | $P_{S,OUTPUT}$ | 600 | 600 | mW |
| Insulation Resistance at T_S , $V_{IO} = 500 V$ | R_S | $\geq 10^9$ | $\geq 10^9$ | Ω |

a. Refer to the front of the optocoupler section of the current catalog, under Product Safety Regulations section, IEC/EN/DIN EN 60747-5-5, for a detailed description.

NOTE: Isolation characteristics are guaranteed only within the safety maximum ratings which must be ensured by protective circuits in application

Absolute Maximum Ratings

No derating required up to 85°C.

| Parameter | Symbol | Min. | Max. | Units |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------|------|-------|
| Storage Temperature | T_S | -55 | 125 | °C |
| Operating Temperature | T_A | -40 | 85 | °C |
| Average Forward Input Current | $I_{F(AVG)}$ | — | 20 | mA |
| Peak Forward Input Current (50% Duty Cycle, 1-ms Pulse Width) | I_{FPK} | — | 40 | mA |
| Reverse Input Voltage (Each Channel) | V_R | — | 5 | V |
| Input Power Dissipation (Each Channel) | P_I | — | 35 | mW |
| Output Current (Each Channel) | I_O | — | 60 | mA |
| Supply Voltage and Output Voltage (HCPL-2731, HCPL-0731) (V_{CC} – Pin 8-5, V_O – Pin 7,6-5) ^a | V_{CC} | -0.5 | 18 | V |
| Supply Voltage and Output Voltage (HCPL-2730, HCPL-0730) (V_{CC} – Pin 8-5, V_O – Pin 7,6-5) ^a | V_{CC} | -0.5 | 7 | V |
| Output Power Dissipation (Each Channel) ^b | P_O | — | 100 | mW |
| Total Power Dissipation (Each Channel) | P_T | — | 135 | mW |
| Lead Solder Temperature (for Through-Hole Devices) | 260°C for 10s., 1.6 mm below seating plane | | | |
| Reflow Temperature Profile (for SOIC-8 and Option #300) | See Package Outline Drawings section | | | |

a. Pin 5 should be the most negative voltage at the detector side.

b. Derate linearly above 65°C free-air temperature at a rate of 2.3 mW/°C for the SO-8 package.

Recommended Operating Conditions

| Parameter | Symbol | Min. | Max. | Units |
|--------------------------------------------|--------------|------|------|-------|
| Power Supply Voltage (HCPL-2731/HCPL-0731) | V_{CC} | 4.5 | 18 | V |
| Power Supply Voltage (HCPL-2730/HCPL-0730) | V_{CC} | 4.5 | 7 | V |
| Forward Input Current (ON) | $I_{F(ON)}$ | 0.5 | 12 | mA |
| Forward Input Voltage (OFF) | $V_{F(OFF)}$ | 0 | 0.8 | V |
| Operating Temperature | T_A | 0 | 70 | °C |

Electrical Specifications

0°C ≤ T_A ≤ 70°C, 4.5V ≤ V_{CC} ≤ 18V, 0.5 mA ≤ I_{F(ON)} ≤ 12 mA, 0V ≤ V_{F(OFF)} ≤ 0.8 V, unless otherwise specified. All Typicals at T_A = 25°C. (See note.)

| Parameter | Symbol | Device HCPL- | Min. | Typ. ^a | Max. | Units | Test Conditions | Figure | Note | |
|--------------------------------------------|----------------------------------|--------------|------|-------------------|------|-----------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------------------------|------|---|
| Current Transfer Ratio | CTR | 2731 | 400 | 1800 | 5000 | % | I _F = 0.5 mA | V _{CC} = 4.5 V _O = 0.4 | 2, 3 | b |
| | | 0731 | 500 | 1600 | 2600 | | I _F = 1.6 mA | | | |
| | | 2730/0730 | 300 | 1600 | 2600 | | I _F = 1.6 mA | | | |
| Logic Low Output Voltage | V _{OL} | 2731 0731 | — | 0.1 | 0.4 | V | I _F = 1.6 mA, I _O = 8 mA | V _{CC} = 4.5 V | 1 | |
| | | | — | 0.1 | 0.4 | | I _F = 5.0 mA, I _O = 15 mA | | | |
| | | | — | 0.2 | 0.4 | | I _F = 12 mA, I _O = 24 mA | | | |
| | | 2730/0730 | — | 0.1 | 0.4 | I _F = 1.6 mA, I _O = 4.8 mA | | | | |
| Logic High Output Current | I _{OH} | 2731/0731 | — | 0.05 | 100 | μA | V _O = V _{CC} = 18 V | I _F = 0 mA | | b |
| | | 2730/0731 | — | 0.1 | 250 | | V _O = V _{CC} = 7 V | | | |
| Logic Low Supply Current | I _{CCL} | 2731/0731 | — | 1.2 | 3 | mA | V _{CC} = 18V | I _{F1} = I _{F2} = 1.6 mA V _{O1} = V _{O2} = Open | 5 | |
| | | 2730/0730 | — | 0.9 | | | V _{CC} = 7V | | | |
| Logic High Supply Current | I _{CCH} | 2731/0731 | — | 0.005 | 20 | μA | V _{CC} = 18V | I _{F1} = I _{F2} = 0 mA, V _{O1} = V _{O2} = Open | 5 | |
| | | 2730/0730 | — | 0.004 | | | V _{CC} = 7 V | | | |
| Input Forward Voltage | V _F | | — | 1.4 | 1.7 | V | T _A = 25°C | I _F = 1.6 mA | 4 | |
| | | | | | 1.75 | | | | | |
| Input Reverse Breakdown Voltage | BV _R | | 5.0 | — | — | V | I _R = 10 μA, T _A = 25°C | | | b |
| Temperature Coefficient of Forward Voltage | ΔV _F /ΔT _A | | — | -1.8 | — | mV/°C | I _F = 1.6 mA | | | |
| Input Capacitance | C _{IN} | | — | 60 | — | pF | f = 1 MHz, V _F = 0 | | | b |

a. All typical values at T_A = 25°C and V_{CC} = 5V, unless otherwise noted.

b. Each channel.

NOTE: Use of a 0.1-μF bypass capacitor connected between pins 5 and 8 adjacent to the device is recommended.

Switching Specifications (AC)

Over recommended operating conditions ($T_A = 0^\circ\text{C}$ to 70°C), $V_{CC} = 5\text{V}$, unless otherwise specified. (See note.)

| Parameter | Symbol | Device HCPL- | Min. | Typ. ^a | Max. | Units | Test Conditions | Figure | Note | |
|------------------------------------------------|-----------|--------------|------|-------------------|------|------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------|---|
| Propagation Delay Time to Logic Low at Output | t_{PHL} | 2731 0731 | — | 25 | 100 | μs | $T_A = 25^\circ\text{C}$ | $I_F = 0.5\text{ mA}$, $R_I = 4.7\text{ k}\Omega$ | 6, 7, 8, 9 | b |
| | | | | | 120 | | | | | |
| | | 2730 2731 | — | 5 | 20 | μs | $T_A = 25^\circ\text{C}$ | $I_F = 1.6\text{ mA}$, $R_I = 2.2\text{ k}\Omega$ | | |
| | | | | | 25 | | | | | |
| | | 0730 0731 | — | 0.5 | 2 | μs | $T_A = 25^\circ\text{C}$ | $I_F = 12\text{ mA}$, $R_I = 270\Omega$ | | |
| | | | | | 3 | | | | | |
| Propagation Delay Time to Logic High at Output | t_{PLH} | 2731 0731 | — | 10 | 60 | μs | $T_A = 25^\circ\text{C}$ | $I_F = 0.5\text{ mA}$, $R_I = 4.7\text{ k}\Omega$ | 7, 8, 9 | b |
| | | | | | 90 | | | | | |
| | | 2730 2731 | — | 10 | 35 | μs | $T_A = 25^\circ\text{C}$ | $I_F = 1.6\text{ mA}$, $R_I = 2.2\text{ k}\Omega$ | | |
| | | | | | 50 | | | | | |
| | | 0730 0731 | — | 1 | 10 | μs | $T_A = 25^\circ\text{C}$ | $I_F = 12\text{ mA}$, $R_I = 270\Omega$ | | |
| | | | | | 15 | | | | | |
| Common Mode at Logic High Output | $ CM_H $ | | 1000 | 10000 | — | $\text{V}/\mu\text{s}$ | $I_F = 0\text{ mA}$, $T_A = 25^\circ\text{C}$, $R_I = 2.2\text{ k}\Omega$, $ V_{CM} = 10\text{ V}_{p-p}$ | 10 | b, c, d | |
| Common Mode at Logic Low Level Output | $ CM_L $ | | 1000 | 10000 | — | $\text{V}/\mu\text{s}$ | $I_F = 1.6\text{ mA}$, $T_A = 25^\circ\text{C}$, $R_I = 2.2\text{ k}\Omega$, $ V_{CM} = 10\text{ V}_{p-p}$ | | | |

- a. All typical values at $T_A = 25^\circ\text{C}$ and $V_{CC} = 5\text{V}$, unless otherwise noted.
- b. Each channel.
- c. Common mode transient immunity in a Logic High level is the maximum tolerable (positive) dV_{CM}/dt of the common mode pulse, V_{CM} , to assure that the output will remain in a Logic High state (that is, $V_O > 2.0\text{V}$). Common mode transient immunity in a Logic Low level is the maximum tolerable (negative) dV_{CM}/dt of the common mode pulse, V_{CM} , to assure that the output will remain in a Logic Low state (that is, $V_O < 0.8\text{V}$).
- d. In applications where dV/dt may exceed $50,000\text{ V}/\mu\text{s}$ (such as static discharge) a series resistor, R_{CC} , should be included to protect the detector IC from destructively high surge currents. The recommended value is $R_{CC} = 110\Omega$.

NOTE: Use of a $0.1\text{-}\mu\text{F}$ bypass capacitor connected between pins 5 and 8 adjacent to the device is recommended.

Package Characteristics

| Description | Symbol | Device HCPL- | Min. | Typ. ^a | Max. | Units | Test Conditions | Figure | Note |
|-------------------------------------------------------|------------------|--------------|-------|-------------------|------|-------|---------------------------------------------|--------|------|
| Input-Output Momentary Withstand Voltage ^b | V _{ISO} | | 3750 | — | — | Vrms | RH 50%, t = 1 minute, T _A = 25°C | | c, d |
| | Option 020 | 2730 2731 | 5000 | | | | | | |
| Resistance (Input-Output) | R _{I-O} | | — | 10 ¹² | — | Ω | VI-O = 500 VDC, RH ≤ 45% | | c |
| Capacitance (Input-Output) | C _{I-O} | | — | 0.6 | — | pF | f = 1 MHz | | f |
| Input-Input Insulation Leakage Current | I _{I-I} | | 0.005 | — | — | μA | RH 45%, V _{I-I} = 500 VDC | | g |
| Input-Input Insulation Leakage Current | R _{I-I} | | — | 10 ¹¹ | — | Ω | | | g |
| Capacitance (Input-Input) | C _{I-I} | 2730 2731 | — | 0.03 | — | pF | | | g |
| | | 0730 0731 | | 0.25 | | | | | |

- a. All Typical values at T_A = 25°C unless otherwise noted.
- b. The Input-Output Momentary Withstand Voltage is a dielectric voltage rating that should not be interpreted as an input-output continuous voltage rating. For the continuous voltage rating refer to the IEC/EN/DIN EN 60747-5-5 Insulation Characteristics Table (if applicable), your equipment level safety specification or Broadcom Application Note 1074, "Optocoupler Input-Output Endurance Voltage."
- c. Device considered a two-terminal device: pins 1, 2, 3, and 4 shorted together, and pins 5, 6, 7, and 8 shorted together.
- d. In accordance with UL 1577, each optocoupler is proof tested by applying an insulation test voltage > 4500 Vrms for 1 second (leakage detection current limit, I_{I-O} < 5 μA)
- e. In accordance with UL 1577, each optocoupler is proof tested by applying an insulation test voltage > 6000 Vrms for 1 second (leakage detection current limit, I_{I-O} < 5 μA).
- f. Measured between the LED anode and cathode shorted together and pins 5 through 8 shorted together.
- g. Measured between pins 1 and 2 shorted together, and pins 3 and 4 shorted together.

Figure 1: DC Transfer Characteristics

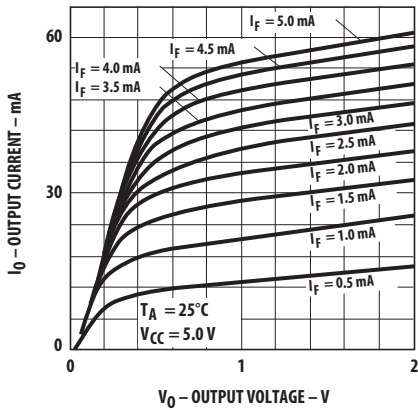


Figure 2: Current Transfer Ratio vs. Forward Current

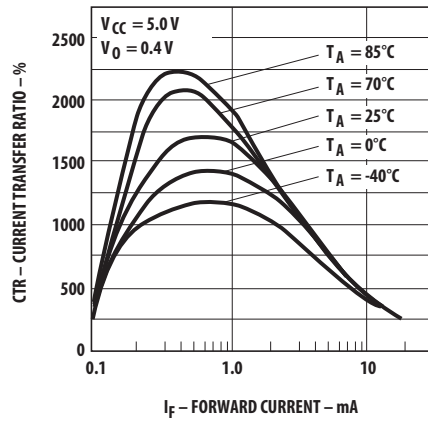


Figure 3: Output Current vs. Input Diode Forward Current

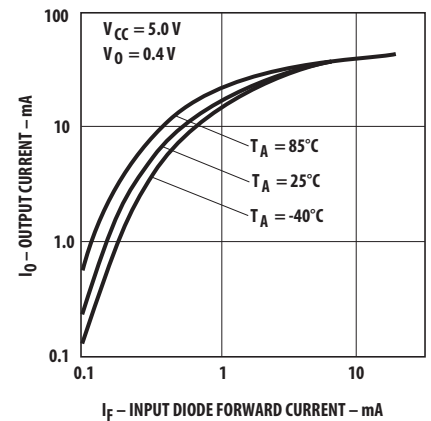


Figure 4: Input Diode Forward Current vs. Forward Voltage

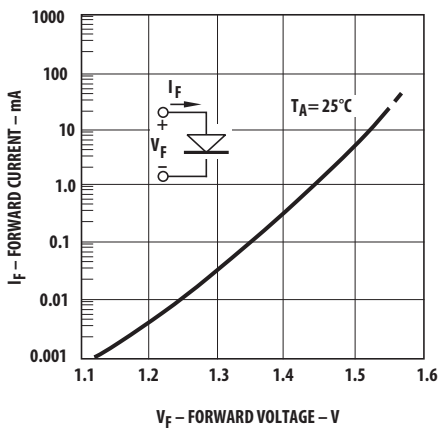


Figure 5: Supply Current per Channel vs. Input Diode Current

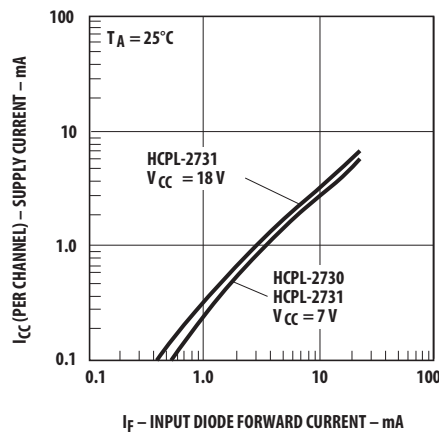


Figure 6: Propagation Delay to Logic Low vs. Pulse Period

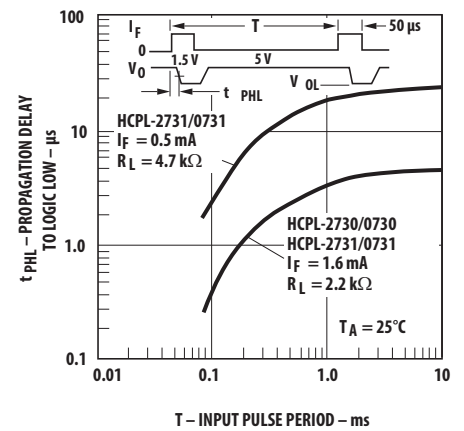


Figure 7: Propagation Delay vs. Temperature

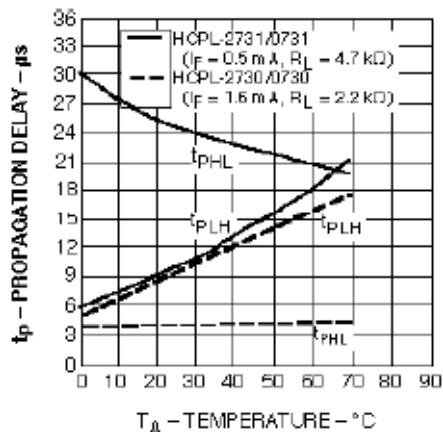


Figure 8: Propagation Delay vs. Input Diode Forward Current

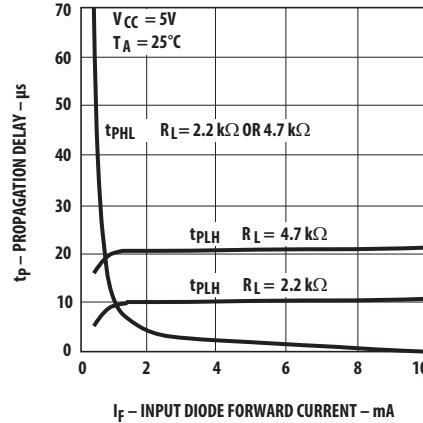


Figure 9: Switching Test Circuit

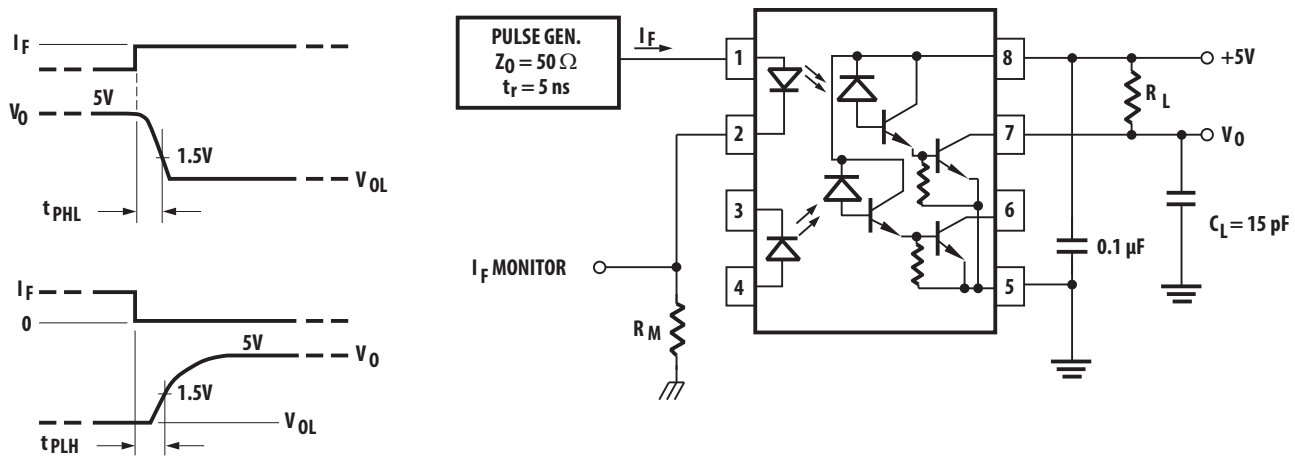
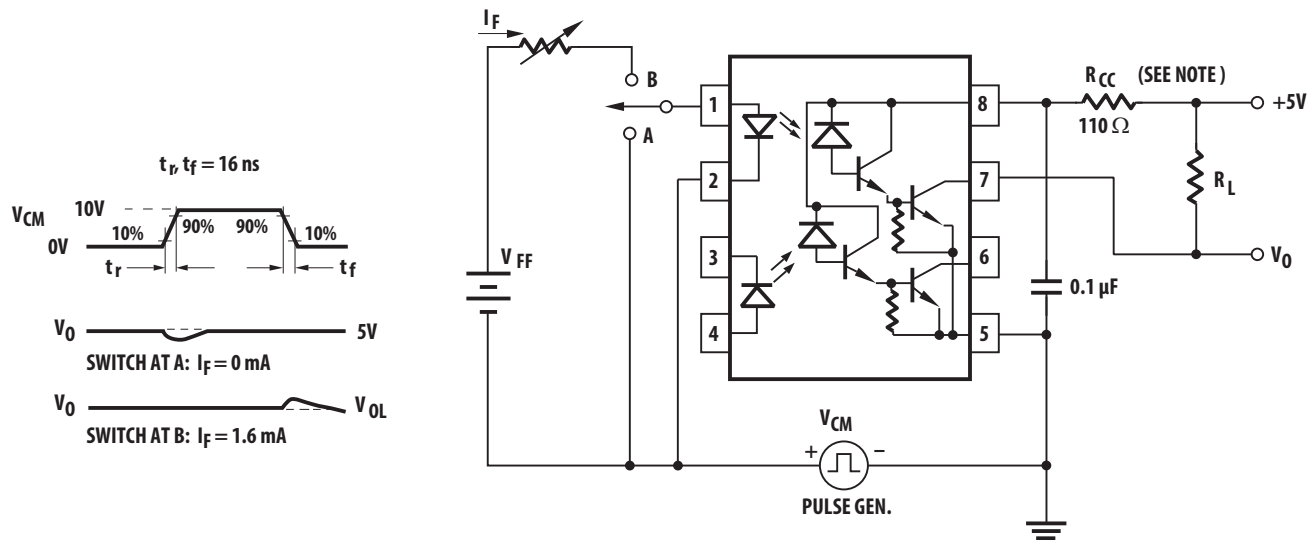


Figure 10: Test Circuit for Transient Immunity and Typical Waveforms



NOTE: In applications where dV/dt may exceed $50,000 \text{ V}/\mu\text{s}$ (such as static discharge) a series resistor, R_{CC} , should be included to protect the detector IC from destructively high surge currents. The recommended value is $R_{CC} = 110\Omega$.

Broadcom, the pulse logo, Connecting everything, Avago Technologies, Avago, and the A logo are among the trademarks of Broadcom and/or its affiliates in the United States, certain other countries and/or the EU.

Copyright © 2007–2019 by Broadcom. All Rights Reserved.

The term “Broadcom” refers to Broadcom Limited and/or its subsidiaries. For more information, please visit www.broadcom.com.

Broadcom reserves the right to make changes without further notice to any products or data herein to improve reliability, function, or design. Information furnished by Broadcom is believed to be accurate and reliable. However, Broadcom does not assume any liability arising out of the application or use of this information, nor the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others.



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Broadcom](#) manufacturer:

Other Similar products are found below :

[MGA-634P8-TR1G](#) [PEX9749-AARDK](#) [BCM54618SEA2IFBG](#) [ASMT-JR10-ARS01](#) [BCM5720A0KFBG](#) [ACPL-K75T-000E](#) [ACPL-247-560E](#) [HCPL-6750](#) [HFBR-2406Z](#) [HCMS-3903](#) [HCPL-5430](#) [HCPL-0720](#) [BCM5389IFBG](#) [PEX8750-AB RDK](#) [BCM53405A0KFSBG](#) [05-50062-00](#) [LP16-LW-OPT-2](#) [ACPL-054L-500E](#) [AFBR-S20W2UV](#) [AFBR-S20W2VI](#) [AFBR-S20W2NI](#) [HCPL-7800A-300E](#) [HDSP-2113](#) [BCM54285C1KFBG](#) [HDSP-815E](#) [HSMS-8209-BLKG](#) [5962-8876903FC](#) [HCNW4506-000E](#) [HEDS-8949](#) [AFBR-S4N44P163](#) [ASSR-601JV-500E](#) [AFBR-S20M2UV](#) [AFBR-S20M2NI](#) [AFBR-HUS500Z](#) [L5-00219-00](#) [HCPL-6231](#) [QCPL-7847-500E](#) [ACHS-7122-500E](#) [PEX-CABLEAD-KIT-8732](#) [HDSP-0762](#) [BCM5482SHA2IFBG](#) [AFBR-5905Z](#) [HCPL-3760-000E](#) [HCPL-7723-300](#) [HLMP-1700-B0002](#) [HDSP-A101](#) [BCM56450B1IFSBG](#) [BCM56960B1KFSBG](#) [BCM56842A1KFTBG](#) [AFBR-S20M2VN](#)