

# VDE 0884 $V_{IORM} = 630\text{ V peak}$ Option for Plastic Optocouplers

## Technical Data

### Description

Optocouplers are frequently used to provide high voltage insulation. Because optocouplers perform this safety function, they are regulated by many country safety agencies, both at the component level and the equipment level. With Option 060, the products are tested according to VDE 0884 (June 1992 Revision) at  $V_{IORM} = 630\text{ V peak}$ . HP also offers other various VDE 0884 approved products at different levels of  $V_{IORM}$  such as  $V_{IORM} = 1414\text{ kV peak}$  (HCNWXXXX series) and  $V_{IORM} = 891\text{ V peak}$  (HCPL-JXXX series).

Refer to the front of the optocoupler section of the current catalog, under Product Safety Regulations section, for a detailed description of VDE 0884 and the partial discharge tests for production and type testing.

Option 060 is available on the following products.

|                  |                  |
|------------------|------------------|
| <b>HCPL-2211</b> | <b>HCPL-2212</b> |
| <b>HCPL-2219</b> | <b>HCPL-2300</b> |
| <b>HCPL-2400</b> | <b>HCPL-261A</b> |
| <b>HCPL-261N</b> | <b>HCPL-2611</b> |
| <b>HCPL-3120</b> | <b>HCPL-3150</b> |
| <b>HCPL-4503</b> | <b>HCPL-4504</b> |
| <b>HCPL-4506</b> | <b>HCPL-4701</b> |

Contact your local HP Sales Representative concerning

### Option 060

availability of this option for optocouplers not listed.

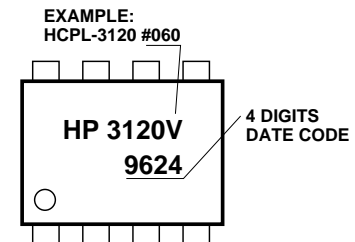
### Ordering Information

Specify Part Number followed by Option Number.

Example

HCPL-3120#060

### Marketing Information



### Insulation Related Specifications

| Parameter   | Symbol | Value | Units | Conditions   |
|---|--------|-------|-------|--|
| Minimum External Air Gap (External Clearance)     | L(101) | 7.1   | mm    | Measured from input terminals to output terminals, shortest distance through air.  |
| Minimum External Tracking (External Creepage)     | L(102) | 7.4   | mm    | Measured from input terminals to output terminals, shortest distance path along body.  |
| Minimum Internal Plastic Gap (Internal Clearance) |        | 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   | V     | DIN IEC 112/VDE 0303 Part 1  |
| Isolation Group                                   |        | IIIa  |       | Material Group (DIN VDE 0110, 1/89, Table 1)   |

## VDE 0884 Insulation Related Characteristics (Option 060)

\*85°C

HCPL-2211, HCPL-2212, HCPL-2219, HCPL-2300, HCPL-2400, HCPL-2611, HCPL-261A, HCPL-261N, HCPL-4701.

\*\*100°C

HCPL-3120, HCPL-3150, HCPL-4503 HCPL-4504, HCPL-4506.

| Description  | Symbol         | Characteristic           | Units             |
|--|----------------|--------------------------|-------------------|
| Installation classification per DIN VDE 0110/1.89, Table 1<br>for rated mains voltage ≤ 300 V rms<br>for rated mains voltage ≤ 450 V rms   |                | I-IV                     |                   |
|  |                | I-III                    |                   |
| Climatic Classification  |                | 55/85/21*<br>55/100/21** |                   |
| Pollution Degree (DIN VDE 0110/1.89)   |                | 2                        |                   |
| Maximum Working Insulation Voltage   | $V_{IORM}$     | 630                      | V <sub>peak</sub> |
| Input to Output Test Voltage, Method b†<br>$V_{IORM} \times 1.875 = V_{PR}$ , 100% Production Test with $t_m = 1$ sec,<br>Partial Discharge < 5 pC                               | $V_{PR}$       | 1181                     | V <sub>peak</sub> |
| Input to Output Test Voltage, Method a†<br>$V_{IORM} \times 1.5 = V_{PR}$ , Type and Sample Test,<br>$t_m = 60$ sec, Partial Discharge < 5 pC                                    | $V_{PR}$       | 945                      | V <sub>peak</sub> |
| Highest Allowable Overvoltage†<br>(Transient Overvoltage, $t_{ini} = 10$ sec)  | $V_{IOTM}$     | 6000                     | V <sub>peak</sub> |
| Safety Limiting Values<br>(Maximum values allowed in the event of a failure,<br>also see Thermal Derating curve, Figure 1.)<br>Case Temperature<br>Input Current<br>Output Power | $T_S$          | 175                      | °C                |
|  | $I_{S,INPUT}$  | 230                      | mA                |
|  | $P_{S,OUTPUT}$ | 600                      | mW                |
| Insulation Resistance at $T_S$ , $V_{IO} = 500$ V  | $R_S$          | ≥ 10 <sup>9</sup>        | Ω                 |

†Refer to the front of the optocoupler section of the current catalog, under Product Safety Regulations section (VDE 0884), for a detailed description.

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

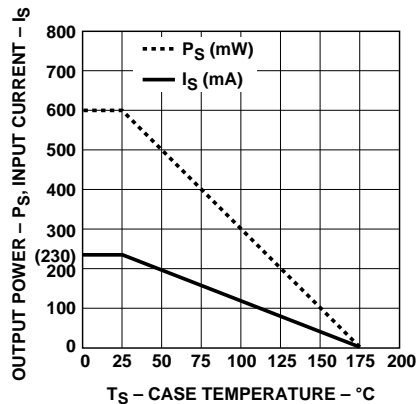


Figure 1. Thermal Derating Curve, Dependence of Safety Limiting Value with Case Temperature per VDE 0884.